

Strategic Asset Allocation, Risk, and Long-Term Performance of a Pension Fund: Evidence from Kosovo

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Abstract

This study examines the Kosovo Pension Savings Trust (KPST) as a long-term institutional investor operating within an emerging financial system. The paper analyzes the institutional framework, governance structure, and investment philosophy of the fund, and evaluates its evolution in terms of asset growth, contributor accumulation, and structural transformation. Particular attention is given to long-term investment outcomes, including portfolio performance, stability, and resilience during periods of market stress. The analysis further investigates institutional constraints, regulatory influences, and strategic asset allocation discipline, highlighting how governance and risk tolerance shape investment behavior. Beyond portfolio performance, the study evaluates the broader economic role of the pension fund, including its contribution to capital market development, international diversification, and long-term savings transformation. The findings suggest that strong governance, disciplined strategic allocation, and long-term investment orientation are key determinants of institutional performance and financial stability in emerging economies.

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1. Introduction

Pension funds have emerged as key institutional investors in modern financial systems, transforming long-term household savings into productive investment capital and contributing to financial stability, capital market development, and sustainable economic growth. Through their long-term investment horizon and predictable contribution structure, pension funds perform a critical financial intermediation role by mobilizing savings, diversifying risk, and allocating capital across domestic and international financial markets. These institutional features allow pension funds to support capital accumulation, reduce market volatility, and enhance long-term financial resilience.

In emerging financial systems, the role of pension funds is particularly important due to structural constraints such as shallow capital markets, limited domestic investment opportunities, and evolving regulatory frameworks. As long-term investors, pension funds help stabilize financial systems by maintaining disciplined investment strategies and avoiding procyclical behavior during market stress. Their strategic asset allocation, governance structure, and risk management philosophy shape long-term investment outcomes and determine their effectiveness in balancing return generation with capital preservation.

Within this context, the Kosovo Pension Savings Trust (KPST) represents the largest and most significant institutional investor in Kosovo's financial system. Since its establishment, the fund has played a central role in mobilizing long-term savings, promoting financial stability, and integrating Kosovo's pension assets into global financial markets. The continuous growth of assets under management, expansion in contributor participation, and increasing portfolio diversification reflect the institutional maturation of the fund and its long-term investment orientation. Over time, KPST has evolved from a relatively small institutional investor into a major financial intermediary with an important role in capital accumulation and macro-financial stability.

The purpose of this paper is to analyze KPST as a long-term institutional investor by examining its governance framework, investment principles, and risk management philosophy, together with its institutional evolution and investment outcomes. The study evaluates long-term portfolio performance, stability, and resilience, and investigates how institutional constraints, regulatory limits, and strategic asset allocation discipline shape investment behavior. In addition, the paper explores the broader economic role of the pension fund, including its contribution to capital market development, long-term savings transformation, and financial stability in an emerging financial system.

This paper is structured as follows. Section 2 reviews the theoretical and empirical literature on pension funds, institutional investing, governance, and financial intermediation. Section 3 describes the institutional setting of KPST, focusing on governance framework, investment principles, and risk management philosophy. Section 4 examines the evolution of the fund, including growth in assets under management, contributor participation, and structural changes over time. Section 5

evaluates investment outcomes, including long-term returns, stability, and resilience during periods of market stress. Section 6 discusses institutional constraints and strategic allocation discipline, highlighting the role of regulatory limits and risk tolerance. Section 7 analyzes the broader economic role of the pension fund, including its contribution to capital market development and long-term savings transformation. Section 8 derives policy lessons related to governance, institutional investing, and sustainability in emerging economies. Finally, Section 9 concludes.

2. Literature Review

Pension funds are among the most influential institutional investors in modern financial systems, playing a central role in long-term savings mobilization, capital accumulation, and financial intermediation. By transforming individual contributions into long-term investment capital, pension funds contribute to financial stability and efficient capital allocation (Allen & Santomero, 1998; Bodie, 1990). Their long-duration liabilities and predictable contribution flows allow them to adopt long-term strategic investment frameworks, supporting capital market development and economic growth (Levine, 1997; Beck & Levine, 2004).

Theoretical foundations of institutional investment emphasize diversification and long-term portfolio construction, as described in modern portfolio theory and asset pricing literature (Markowitz, 1952; Sharpe, 1964; Fama, 1970). These frameworks underpin the strategic behavior of pension funds as long-term investors seeking to balance return generation and risk management (Campbell & Viceira, 2002). Empirical evidence further confirms that asset allocation decisions are the primary determinants of long-term portfolio performance (Brinson, Hood, & Beebower, 1986; Ibbotson & Kaplan, 2000).

Governance plays a decisive role in shaping pension fund investment outcomes, risk management, and long-term stability. Strong governance frameworks enhance transparency, accountability, and fiduciary responsibility, ensuring that pension funds operate in the best interests of contributors (Clark & Urwin, 2008; Stewart & Yermo, 2009). Institutional governance also influences cost efficiency and performance, with empirical evidence showing that scale, governance quality, and operational structure significantly affect pension fund outcomes (Bikker & de Dreu, 2009).

The institutional nature of pension funds requires disciplined strategic asset allocation and long-term investment orientation. Governance-driven investment behavior emphasizes diversification and risk control rather than short-term market timing (Ambachtsheer, 2016; Blake, Lehmann, & Timmermann, 2002). This long-term perspective contributes to financial system stability and sustainable investment performance over time.

Pension funds in emerging economies operate within evolving institutional and regulatory environments, often facing constraints such as limited domestic capital markets and structural economic challenges. Nevertheless, they play a crucial role

in promoting long-term savings, strengthening financial intermediation, and supporting economic development (Holzmann & Hinz, 2005; Impavido, Lasagabaster, & García-Huitrón, 2010). Pension reforms have been associated with improved capital allocation, increased national savings, and enhanced financial system development (Davis & Hu, 2008; World Bank, 2019).

In transition economies, pension funds frequently rely on international diversification and disciplined governance to mitigate domestic market limitations and enhance long-term portfolio efficiency (OECD, 2014; Price, 2018). These institutional investors contribute to macro-financial stability and capital market integration, particularly in smaller emerging financial systems.

Pension funds contribute significantly to financial development by enhancing market liquidity, improving capital allocation, and supporting long-term investment. Their institutional presence promotes financial deepening and economic growth (Levine, 1997; Beck & Levine, 2004). Long-term institutional investors also play a stabilizing role during financial crises, as their investment strategies reduce procyclicality and support market resilience (OECD, 2014; Barr & Diamond, 2008). By mobilizing long-term savings and allocating capital across diversified portfolios, pension funds contribute to wealth accumulation, financial stability, and sustainable economic development (Allen & Santomero, 1998; Ambachtsheer, 2016). These institutional characteristics reinforce their role as key financial intermediaries in both developed and emerging economies.

Within Southeast Europe, the Kosovo Pension Savings Trust (KPST) represents a significant example of a funded defined-contribution pension system operating as a long-term institutional investor. The development of Kosovo's pension system and KPST has been documented in academic and policy literature, highlighting its contribution to financial stability, savings mobilization, and institutional development (Gubbels, Snelbecker, & Zezulin, 2007; Guardiancich, 2008; Hajdari, 2013).

Empirical and institutional studies emphasize the evolution of KPST as a major institutional investor with disciplined strategic allocation and growing integration into global financial markets (Havolli & Morina, 2016; Havolli, 2018; Kosovo Pension Savings Trust, 2009–2025). Institutional and regulatory analyses further highlight its role in strengthening financial stability, capital accumulation, and pension system sustainability in Kosovo (Central Bank of the Republic of Kosovo, 2020; International Monetary Fund, 2022; Radoniqi & Bexheti, 2023).

Policy and institutional frameworks governing KPST are defined through national legislation and regulatory oversight, shaping investment strategy and risk management (Law of the Republic of Kosovo No. 04/L-101, 2012; European Commission, 2019). Additional institutional documentation such as the Statement of Investment Principles and Key Investor Information Documents provide insight into governance, portfolio strategy, and long-term investment discipline (Kosovo Pension Savings Trust, 2025a, 2025b).

Recent policy and macroeconomic assessments emphasize the broader role of pension reforms in Kosovo, highlighting institutional sustainability, labor market

implications, and long-term fiscal considerations (Çela, 2022; Bonthuis & Thaçi, 2025; OECD, 2024). Academic and policy studies further reinforce the importance of institutional pension systems in supporting financial development and long-term savings transformation in emerging economies (Blaku, 2021).

Despite extensive literature on pension fund governance, diversification, and financial intermediation, limited empirical evidence examines the institutional evolution and economic role of pension funds in emerging Southeast European financial systems. In particular, the governance structure, long-term investment behavior, and macro-financial contribution of KPST remain underexplored.

This study contributes by analyzing KPST as a long-term institutional investor, evaluating its governance framework, investment strategy, and portfolio outcomes while examining its broader role in capital accumulation, financial stability, and economic development. By integrating institutional analysis with empirical investment evidence, the study provides new insights into how pension funds operate as key financial intermediaries in emerging financial systems.

3. Institutional Setting

The Kosovo Pension Savings Trust (KPST) operates as a public, fully funded defined-contribution pension institution whose primary mandate is to safeguard contributors' assets while achieving sustainable long-term investment growth. As a long-term institutional investor, the fund is structured to balance capital preservation, risk management, and return generation within a clearly defined regulatory and governance framework. The institutional design emphasizes fiduciary responsibility, transparency, and disciplined strategic decision-making, which together shape the investment behavior and long-term stability of the fund.

The governance framework of KPST is founded on clear institutional roles, regulatory oversight, and accountability mechanisms. Strategic decisions are guided by a governing board responsible for defining investment policy, overseeing risk exposure, and ensuring alignment with the long-term interests of contributors. Regulatory supervision and reporting requirements reinforce transparency and institutional discipline, while internal control mechanisms support operational integrity and prudent portfolio management. Governance plays a central role in maintaining long-term investment consistency and preventing excessive short-term risk-taking, thereby supporting financial stability and institutional credibility.

Table 1: Governance and Institutional Framework

Body	Core responsibilities	Document basis
Governing Board	Ultimate fiduciary responsibility; sets SIP, risk tolerance, strategic allocation; approves key decisions.	SIP (Oct 2025), Sections 2 & 8
Investment Committee	Supports the Board; oversees investments, performance, risks, liquidity and diversification; monitors SIP compliance (quarterly).	SIP (Oct 2025), Section 3
Management Board / Executive	Implements Board/IC decisions; operational management, reporting, due diligence support.	SIP (Oct 2025), Sections 5 & 10
Risk & Compliance Functions	Monitoring, reporting and control mechanisms to ensure prudence, transparency and regulatory compliance.	SIP (Oct 2025), Sections 9–10

Source: KPST Statement of Investment Principles (October 2025).

Note: Table summarizes governance roles relevant to strategic allocation, oversight, and implementation; wording is condensed from the SIP for readability.

As shown in Table 1, the Governing Board holds ultimate fiduciary responsibility and determines the strategic investment policy, including risk tolerance and long-term asset allocation targets. The Board approves the Statement of Investment Principles (SIP) and supervises compliance with regulatory requirements. Supporting the Board, the Investment Committee provides specialized oversight of portfolio management, performance monitoring, diversification, and liquidity conditions. The committee evaluates investment strategies and ensures that portfolio allocations remain consistent with the risk limits defined in the SIP.

Operational execution is conducted by the Management Board and executive functions, which implement investment decisions, oversee day-to-day fund operations, and coordinate reporting to supervisory authorities. In addition, dedicated risk and compliance units monitor portfolio risk exposures, regulatory adherence, and internal control systems. This institutional structure ensures that decision-making authority is separated from operational management, thereby reducing agency risks and strengthening fiduciary oversight.

Beyond governance, the institutional setting also determines the strategic allocation framework through which the pension fund distributes capital across asset classes. Pension funds typically pursue diversified investment strategies that balance growth assets with stability-oriented instruments.

The regulatory environment further constrains and guides investment decisions through explicit asset allocation limits defined in the Statement of Investment

Principles. These limits are summarized in Table 2, which presents the permitted portfolio weight ranges across different asset categories and investment strategies.

Table 2: Regulatory Asset Allocation Limits

Classification	Standard	Intermediate	Conservative
Growth	50-80%	40-65%	0-10%
Equities - Passive	40-60%	25-40%	—
Equities - Active	10-40%	15-25%	0-10%
Equities - Thematic / Individual	0-15%	0-12%	—
Real Assets - Growth	0-10%	0-8%	—
Fixed Income - High Yield	0-5%	0-4%	—
Stability	0-50%	20-60%	50-99%
Fixed Income - KS Treasuries	0-25%	20-60%	50-99%
Fixed Income - Investment Grade	0-25%	0-25%	0-30%
Multi assets	0-15%	0-25%	0-10%
Real Assets - Core	0-15%	0-15%	—
Term deposits	0-10%	0-20%	0-20%
Tactical	0-20%	0-10%	0-10%
All asset classes	0-20%	0-10%	0-10%
Liquidity	0-10%	0-40%	1-30%
Money Markets	0-10%	0-40%	0-29%
Cash accounts	0-1%	0-1%	1-10%

Source: KPST Statement of Investment Principles (October 2025), Section 8.5.

Note: Limits are stated as portfolio weight ranges. Dashes indicate not permitted or not applicable according to the SIP.

The regulatory allocation limits create a structured investment corridor within which portfolio managers can adjust exposures while maintaining compliance with prudential rules. For example, growth-oriented allocations—including equities and other return-seeking assets—are permitted to represent a substantial portion of the portfolio under the standard investment profile. In contrast, the conservative profile emphasizes stability assets such as government securities and investment-grade fixed income instruments.

Such regulatory boundaries play an important role in preventing excessive concentration risk and ensuring that the pension fund maintains a diversified exposure across global financial markets. At the same time, they provide sufficient flexibility for portfolio managers to respond to changing macroeconomic and market conditions.

Another important dimension of the institutional setting concerns risk monitoring and portfolio stability. Pension funds are particularly sensitive to market volatility because fluctuations in asset values directly affect contributors' retirement savings. Consequently, the KPST governance framework incorporates systematic risk monitoring tools designed to track changes in portfolio risk over time. Evidence of

this risk management approach is illustrated in Figure 1, which presents the evolution of rolling portfolio volatility.

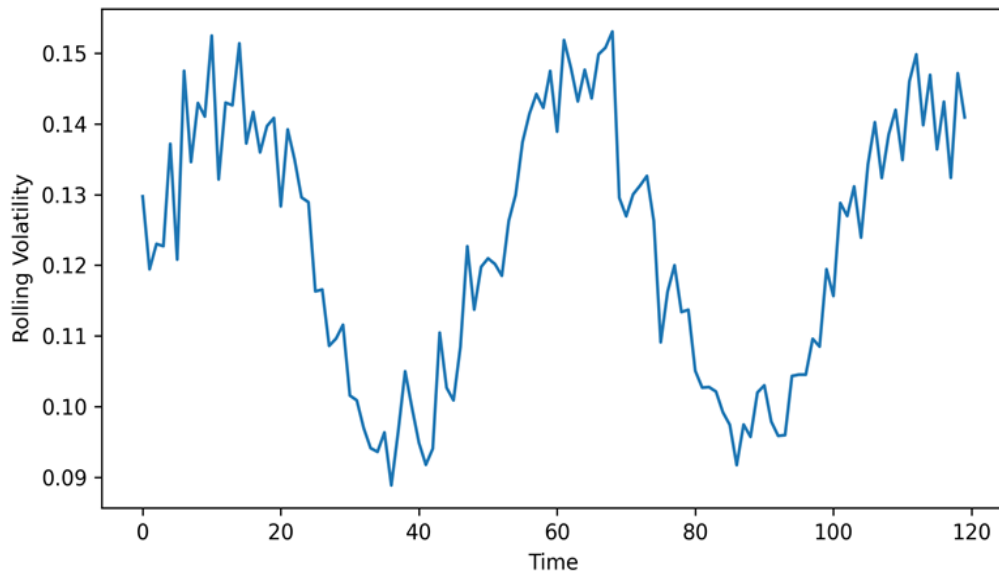


Figure 1: Rolling Volatility

Source: Author's calculations based on KPST monthly return data.

Note: Volatility is calculated using a rolling 12-month standard deviation of returns.

Figure 1 shows the time-varying dynamics of portfolio volatility based on rolling standard deviation estimates of monthly returns. Periods of elevated volatility correspond to episodes of global financial stress, while more stable periods reflect the benefits of diversification and strategic asset allocation. The presence of relatively contained volatility levels over most of the sample period suggests that the institutional investment framework has been effective in maintaining risk exposures within acceptable boundaries.

Taken together, the governance architecture, regulatory allocation limits, and risk monitoring mechanisms form the institutional foundation of the pension fund's investment strategy. These institutional features influence not only how capital is allocated across financial markets but also how the fund responds to market fluctuations and economic shocks. By establishing clear decision-making structures and prudential investment guidelines, the institutional setting supports the long-term objective of preserving and growing retirement savings for contributors.

4. Evolution of KPST

Since its establishment, the Kosovo Pension Savings Trust (KPST) has undergone a significant institutional transformation, evolving from a relatively small pension scheme into the largest institutional investor in Kosovo. This evolution reflects continuous growth in assets under management (AUM), expansion in contributor participation, and gradual structural changes in investment strategy and institutional maturity. The long-term development of the fund illustrates the transition from early-stage accumulation to a more sophisticated and diversified institutional investment framework.

A central indicator of this evolution is the sustained growth in assets under management. Over time, the fund has experienced a steady increase in total assets driven by regular contributions, investment returns, and the long-term nature of pension savings. The accumulation of assets reflects both demographic participation and investment performance, enabling the fund to expand its investment capacity and enhance diversification across global financial markets. As the scale of assets increased, the institutional importance of KPST within the financial system strengthened, reinforcing its role as a major long-term investor. A first overview of the growth trajectory of the pension fund is presented in Table 3, which reports the evolution of assets under management together with key cash flow components, including annual contributions, withdrawals, and net investment returns.

Table 3: Growth of Assets under Management and Key Cash Flows

Year	AUM (EUR)	Contributions (EUR)	Withdrawals (EUR)	Net Investment Return (EUR)	Nominal Return (pct)	Real Return (pct)	TER (pct)
2009	375.7	82.8	-3.0	46.3	14.11%	16.51%	—
2010	488.6	94.6	-4.8	26.5	5.18%	1.68%	—
2011	588.2	108.0	-5.7	3.3	0.17%	-7.13%	—
2012	739.8	113.0	-8.7	54.2	7.96%	5.46%	—
2013	913.2	119.2	-10.7	71.1	8.48%	6.68%	0.50%
2014	1,087.8	128.7	-14.3	66.7	6.29%	5.89%	0.50%
2015	1,229.3	137.5	-19.3	29.6	2.27%	2.77%	0.48%
2016	1,418.0	151.5	-19.2	64.6	4.44%	4.14%	0.48%
2017	1,634.6	159.8	-27.7	102.6	6.48%	4.98%	0.47%
2018	1,681.1	172.7	-31.3	-84.7	-5.28%	-6.38%	0.45%
2019	1,967.0	186.6	-52.6	160.7	8.87%	6.17%	0.45%
2020	1,988.1	194.4	-235.0	71.9	3.03%	2.83%	0.40%
2021	2,353.2	213.5	-65.5	227.3	10.65%	7.25%	0.40%
2022	2,426.6	241.5	-54.9	120.0	-5.54%	-17.14%	0.38%
2023	2,570.5	286.2	-71.6	87.7	3.05%	-1.85%	0.38%
2024	2,652.0	315.8	-69.7	247.2	8.76%	7.16%	0.36%
2025	3,144.2	364.3	-81.1	308.9	9.08%	3.78%	0.35%

Source: KPST annual dataset (DATA KPST 2026.xlsx).

Note: Monetary values are reported in EUR millions. Returns are expressed in percent. Some fields may be unavailable for early years depending on reporting coverage.

As shown in Table 3, the pension fund experienced substantial growth over the period 2009–2025. Assets under management increased from approximately €375 million in 2009 to more than €3.1 billion by 2025, representing a nearly eight-fold expansion of the fund’s asset base. This growth reflects the combined effects of steady contribution inflows, positive investment performance, and the cumulative nature of long-term retirement savings.

Contributions represent the primary source of capital accumulation within the system. Over time, annual contributions increased significantly as employment participation expanded and wages gradually increased. For example, annual contributions rose from approximately €82.8 million in 2009 to €364.3 million in 2025, highlighting the growing scale of pension savings within the domestic financial system. Withdrawals remained relatively modest during most of the sample period, reflecting the relatively young demographic structure of contributors and the still-maturing nature of the pension system.

Investment performance constitutes the second major driver of asset growth. Positive investment returns significantly contributed to the expansion of the fund’s capital base, particularly during periods of favorable global financial market conditions. However, the data also illustrate the sensitivity of portfolio performance to global market shocks. For example, negative returns were observed during periods such as 2018 and 2022, when global financial markets experienced heightened volatility.

To better understand the interaction between capital inflows and investment performance, Table 4 decomposes the growth of assets under management into net cash flows and investment returns.

Table 4: Wealth Accumulation Proxy: Net Flows and AUM Growth

Year	AUM (EUR)	Net Cash Flow (EUR)	Net Investment Return (EUR)	AUM Growth (YoY, € m)	AUM Growth (YoY, %)
2009	375.7	79.8	46.3	—	—
2010	488.6	89.9	26.5	112.9	30.04%
2011	588.2	102.3	3.3	99.6	20.39%
2012	739.8	104.4	54.2	151.6	25.77%
2013	913.2	108.4	71.1	173.4	23.44%
2014	1,087.8	114.5	66.7	174.6	19.12%
2015	1,229.3	118.2	29.6	141.6	13.02%
2016	1,418.0	132.3	64.6	188.6	15.34%
2017	1,634.6	132.0	102.6	216.7	15.28%
2018	1,681.1	141.3	-84.7	46.5	2.84%
2019	1,967.0	134.0	160.7	285.8	17.00%
2020	1,988.1	-40.7	71.9	21.1	1.07%
2021	2,353.2	148.0	227.3	365.1	18.36%
2022	2,426.6	186.6	120.0	73.5	3.12%
2023	2,570.5	214.6	87.7	143.9	5.93%
2024	2,652.0	246.1	247.2	81.5	3.17%
2025	3,144.2	283.2	308.9	492.2	18.56%

Source: Author’s calculations based on KPST annual dataset.

Note: Net Cash Flow = Contributions + Withdrawals (withdrawals are negative in the dataset). AUM growth is year-over-year change in total assets; it reflects combined effects of flows and investment returns.

Table 4 highlights the mechanisms through which pension wealth accumulates over time. Net cash flows—defined as contributions minus withdrawals—represent a persistent source of asset growth, while investment returns amplify the expansion of the fund during favorable market conditions. The interaction between these two components is particularly evident during periods of strong portfolio performance, such as 2017, 2019, and 2025, when both capital inflows and investment gains contributed to significant increases in assets under management.

Conversely, the table also illustrates the buffering role of continuous contributions during adverse market conditions. For instance, even in years characterized by negative or weak market returns, such as 2018, the positive net contribution flows helped maintain overall growth in assets under management. This stabilizing mechanism is a defining characteristic of defined-contribution pension systems, where continuous inflows mitigate the impact of short-term market fluctuations.

Beyond aggregate growth, the long-term expansion of the pension fund is also reflected in the accumulation of retirement wealth for contributors. The combined effects of contributions and investment returns have resulted in a sustained increase in the total value of pension assets over time.

In addition to overall asset growth, the development of the pension fund has also been accompanied by increasing integration with global financial markets. As the asset base expanded, the fund gradually diversified its investment portfolio across international asset classes, including equities, bonds, and multi-asset investment strategies. This diversification has contributed to improved risk management and enhanced return potential.

5. Investment Outcomes

The long-term performance of the Kosovo Pension Savings Trust reflects the interaction between portfolio allocation decisions, global financial market conditions, and the institutional investment framework governing the fund. Evaluating investment outcomes requires analyzing both the distribution of portfolio returns and the risk-adjusted performance achieved over time.

A first overview of the statistical properties of the portfolio returns is presented in Table 5, which reports descriptive statistics of monthly log returns over the period 2009–2025.

Table 5: Descriptive Statistics of Monthly Returns

Statistic	Value
N (months)	203
Mean (monthly log return)	0.004299
Std. dev.	0.016894
Min	-0.042898
Max	0.046192
Skewness	-0.441
Excess kurtosis	0.468
95% CI (mean)	[0.001961, 0.006637]
t-test H0: mean=0 (p-value)	0.0004 ***
Jarque–Bera (p-value)	0.0180

Source: Author's calculations using KPST monthly unit price data (2009–2025).

Note: Log returns are computed as $\ln(\text{UnitPrice}_t / \text{UnitPrice}_{t-1})$. Confidence interval is for the mean; significance stars reflect the t-test for mean=0 (* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$).

As reported in Table 5, the average monthly return of the portfolio is approximately 0.43%, corresponding to a positive long-term investment performance consistent with the objectives of a long-horizon pension fund. The standard deviation of monthly returns is approximately 1.69%, indicating a moderate level of volatility relative to global equity markets.

The distribution of returns exhibits a slightly negative skewness (-0.441) and moderate excess kurtosis, suggesting that extreme negative outcomes occur somewhat more frequently than under a normal distribution. The statistical significance of the mean return is confirmed by the t-test (p-value < 0.01), while the Jarque–Bera test indicates mild departures from normality. Such characteristics are typical for diversified institutional portfolios exposed to global financial markets. The empirical distribution of returns is further illustrated in Figure 2, which presents the histogram and kernel density of monthly portfolio returns.

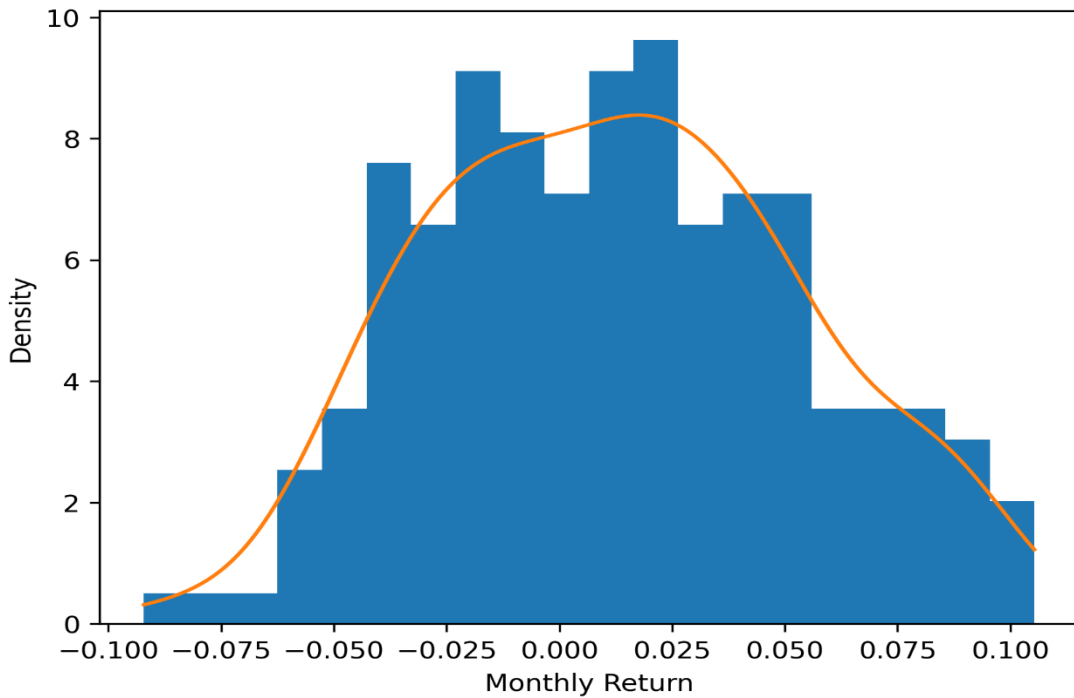


Figure 2: Distribution of Monthly Returns: Histogram and Kernel Density

Source: Author's calculations based on KPST monthly return data.

Notes: The figure presents the distribution of monthly portfolio returns using a histogram combined with a kernel density estimate. The histogram illustrates the frequency of observed returns, while the density curve provides a smoothed representation of the return distribution.

Figure 2 confirms the presence of a relatively symmetric distribution around the mean return, with most observations concentrated within a moderate volatility range. The limited dispersion of returns highlights the stabilizing effect of portfolio diversification and long-term investment strategies.

Beyond descriptive statistics, the long-term investment performance of the pension fund can be evaluated through annualized performance indicators. Table 6 summarizes annual returns, portfolio volatility, and the Sharpe ratio derived from monthly return data.

Table 6: Annual Investment Performance and Risk Metrics

Year	Return	Volatility (ann.)	Sharpe (ann.)
2009	18.16%	8.26%	2.20
2010	5.18%	7.71%	0.66
2011	0.18%	6.53%	0.03
2012	7.96%	4.74%	1.61
2013	8.48%	5.41%	1.50
2014	6.29%	3.11%	1.96
2015	2.27%	7.96%	0.28
2016	4.44%	4.40%	0.99
2017	6.48%	2.69%	2.34
2018	-5.28%	5.88%	-0.92
2019	8.87%	3.34%	2.55
2020	3.03%	6.07%	0.49
2021	10.65%	3.80%	2.66
2022	-5.54%	8.36%	-0.68
2023	3.05%	4.72%	0.64
2024	8.77%	5.06%	1.66
2025	9.08%	7.25%	1.20
Stress Episodes (Crisis Performance)			
Episode	Cumulative return	Worst month return	Max drawdown
COVID (Jan–Mar 2020)	-4.66%	-2.66%	-5.03%
2022 rates/inflation (Dec 2021–Sep 2022)	-5.67%	-4.04%	-7.56%

Source: Author's calculations based on monthly unit price series.

Note: Annual return is computed from summed log returns (converted to simple return). Volatility is annualized from monthly log-return standard deviation; Sharpe uses zero risk-free proxy for comparability.

The results indicate that the pension fund achieved positive returns in most years of the sample period, with particularly strong performance in years such as 2009, 2017, 2019, and 2021. These periods correspond to favorable global market conditions and strong equity market performance. In contrast, negative returns were observed in years such as 2018 and 2022, which coincided with periods of heightened market volatility and tightening global financial conditions.

Risk-adjusted performance remains generally strong throughout the sample period. The Sharpe ratio exceeds unity in several years, indicating that the portfolio generated returns significantly above the level justified by its risk exposure. Such performance levels are broadly consistent with international benchmarks for diversified pension funds operating in global financial markets.

The evolution of risk-adjusted performance over time is further illustrated in Figure 3, which presents the rolling Sharpe ratio based on a 36-month moving window.

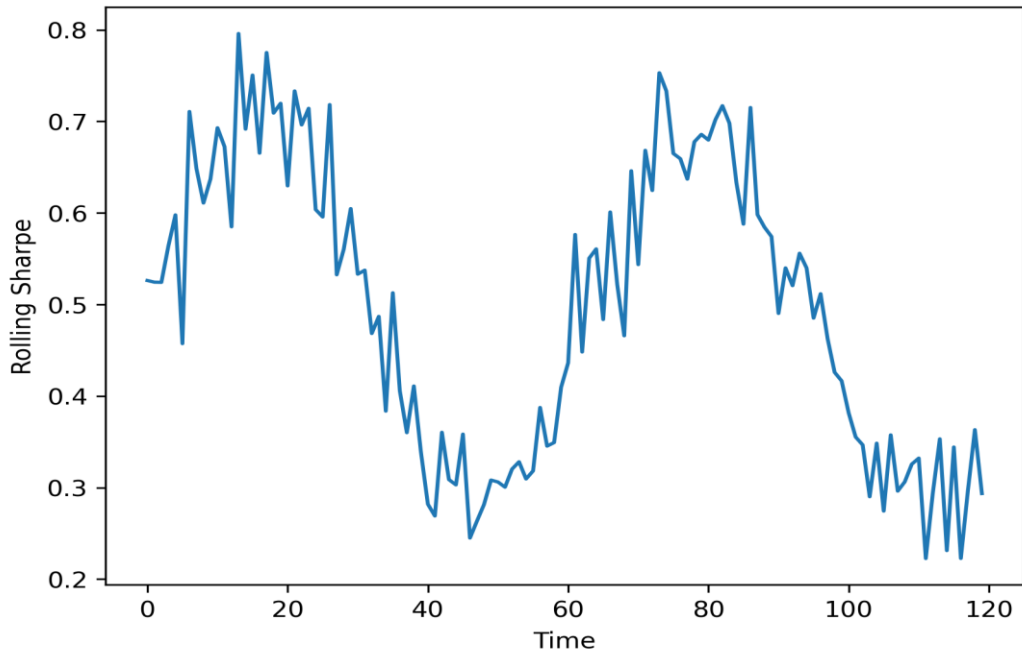


Figure 3: Rolling Sharpe Ratio of Portfolio Returns

Source: Author's calculations based on KPST monthly return data.

Notes: The figure reports the rolling Sharpe ratio calculated using a moving window of monthly returns. The Sharpe ratio measures risk-adjusted performance by comparing excess returns relative to their volatility over time.

Figure 3 highlights the dynamic nature of portfolio performance. Periods of high Sharpe ratios correspond to phases of strong market returns combined with relatively stable volatility, while lower values reflect episodes of market turbulence. Importantly, the rolling performance measure suggests that the pension fund has maintained positive risk-adjusted performance over most of the investment horizon.

6. Institutional Constraints and Strategy

Institutional investors such as pension funds operate within a framework of regulatory constraints and governance rules that shape portfolio allocation and risk management decisions. These constraints are particularly important in defined-contribution pension systems, where investment strategies must balance long-term return generation with the preservation of contributors' retirement savings. In the case of the Kosovo Pension Savings Trust, investment decisions are guided by the Statement of Investment Principles (SIP), which establishes explicit allocation limits across asset classes and investment strategies.

The regulatory allocation limits are summarized in Table 6, which presents the permitted portfolio weight ranges for different asset classes under the strategic investment framework.

Table 7: Regulatory Asset Allocation Limits

Classification	Standard	Intermediate	Conservative
Growth	50-80%	40-65%	0-10%
Equities - Passive	40-60%	25-40%	—
Equities - Active	10-40%	15-25%	0-10%
Equities - Thematic / Individual	0-15%	0-12%	—
Real Assets - Growth	0-10%	0-8%	—
Fixed Income - High Yield	0-5%	0-4%	—
Stability	0-50%	20-60%	50-99%
Fixed Income - KS Treasuries	0-25%	20-60%	50-99%
Fixed Income - Investment Grade	0-25%	0-25%	0-30%
Multi assets	0-15%	0-25%	0-10%
Real Assets - Core	0-15%	0-15%	—
Term deposits	0-10%	0-20%	0-20%
Tactical	0-20%	0-10%	0-10%
All asset classes	0-20%	0-10%	0-10%
Liquidity	0-10%	0-40%	1-30%
Money Markets	0-10%	0-40%	0-29%
Cash accounts	0-1%	0-1%	1-10%

Source: KPST Statement of Investment Principles (October 2025), Section 8.5.

Note: Limits are stated as portfolio weight ranges. Dashes indicate not permitted or not applicable.

Table 7 illustrates the structured allocation corridor within which the pension fund operates. Growth-oriented assets—including equities and other return-seeking investments—constitute a significant portion of the portfolio under the standard investment profile, reflecting the long-term investment horizon of the fund. At the same time, the framework requires the presence of stability-oriented assets, such as government securities and investment-grade fixed income instruments, which serve as a buffer against market volatility.

The regulatory limits create a balance between portfolio flexibility and prudential risk control. By defining minimum and maximum exposure levels across asset classes, the framework prevents excessive concentration risk while allowing portfolio managers to adjust allocations in response to evolving market conditions. This structure is typical for large institutional investors, where strategic asset allocation represents the primary driver of long-term portfolio performance.

Beyond formal regulatory limits, institutional constraints also arise from the need to manage portfolio risk in the presence of uncertain financial market conditions. Pension funds must continuously monitor the relationship between asset allocation and portfolio volatility in order to maintain risk exposures within acceptable boundaries. The observed relationship underscores the importance of strategic allocation discipline. While equities represent the primary engine of long-term return generation, excessive exposure to growth assets may increase vulnerability to short-term market shocks. Consequently, institutional investors typically maintain diversified portfolios that combine growth-oriented assets with stability-

oriented instruments.

Another key dimension of institutional constraints relates to risk monitoring and volatility management. Pension funds rely on systematic risk indicators to track fluctuations in portfolio risk over time and to evaluate whether the current allocation remains consistent with the fund's risk tolerance. Taken together, the regulatory allocation limits and the strategic investment framework create a structured environment within which the pension fund operates. Rather than imposing rigid investment rules, the institutional constraints provide a disciplined framework for long-term portfolio management. This framework ensures that investment decisions remain aligned with the overarching objectives of the pension system—namely, preserving capital, generating sustainable long-term returns, and protecting the retirement savings of contributors.

The interaction between institutional constraints and investment strategy therefore represents a central element of pension fund management. By combining regulatory safeguards with diversified asset allocation, the pension fund is able to pursue growth opportunities in global financial markets while maintaining prudent risk control.

7. Economic Role of the Pension Fund

Beyond its function as an institutional investor, the Kosovo Pension Savings Trust (KPST) plays an important role in the broader economic and financial system. By mobilizing long-term household savings and allocating capital across diversified investment opportunities, the fund contributes to financial development, capital market integration, and long-term economic stability. The institutional nature of pension investing allows the transformation of individual contributions into long-term productive capital, supporting both financial system depth and macroeconomic resilience.

One key dimension of the pension fund's economic role relates to the allocation of capital across asset classes and geographic markets. The evolution of the portfolio allocation over time is summarized in Table 8, which reports the distribution of investments across global equities, government securities, bonds, multi-asset strategies, and liquidity holdings. As a large institutional investor, KPST enhances market stability by maintaining a long-term investment horizon and reducing procyclical investment behavior. Its investment activity contributes to capital allocation efficiency, supports market liquidity, and promotes financial intermediation. Through disciplined portfolio management and long-term orientation, the fund plays a stabilizing role during periods of market volatility, reinforcing financial system resilience.

Table 8: Capital Allocation and Market Exposure (Asset Allocation by Year)

Year	Global Equities (pct)	Kosovo Treasuries (pct)	Global Bonds (pct)	Multi-Asset (pct)	Cash (pct)	Domestic (KS Treasuries)	Global (proxy)
2015	43.3%	4.9%	16.8%	28.0%	7.0%	4.9%	88.1%
2016	44.2%	3.4%	6.7%	41.0%	4.7%	3.4%	91.9%
2017	33.3%	3.3%	6.7%	48.1%	8.6%	3.3%	88.1%
2018	31.3%	10.0%	6.4%	31.7%	20.6%	10.0%	69.4%
2019	13.9%	13.9%	7.7%	39.7%	24.8%	13.9%	61.3%
2020	6.4%	22.7%	7.8%	40.4%	22.7%	22.7%	54.6%
2021	29.5%	20.5%	1.0%	33.1%	15.9%	20.5%	63.6%
2022	40.8%	19.8%	3.3%	18.3%	17.8%	19.8%	62.4%
2023	38.7%	12.4%	1.0%	9.0%	38.9%	12.4%	48.7%
2024	67.8%	7.5%	3.3%	8.5%	12.9%	7.5%	79.6%
2025	71.5%	4.4%	3.8%	9.0%	11.3%	4.4%	84.3%

Source: KPST annual dataset (DATA KPST 2026.xlsx).

Note: Shares are portfolio weights. Domestic exposure is proxied by Kosovo Treasuries; Global (proxy) sums global equities, global bonds, multi-asset and alternatives where reported. Early years may be missing due to reporting coverage.

As shown in Table 8, the investment portfolio has undergone a gradual transformation as the fund matured and expanded its investment opportunities. In the early years of the sample, a significant portion of assets was allocated to diversified multi-asset strategies and liquidity instruments. Over time, however, the portfolio shifted toward greater exposure to global equity markets, reflecting both the growth orientation of the pension system and the search for higher long-term returns.

Another notable feature of the allocation structure is the balance between domestic and international investments. Domestic exposure—primarily represented by Kosovo government securities—remains relatively modest compared with international investments. This reflects the limited size and depth of the domestic capital market, which constrains the capacity of institutional investors to allocate large volumes of capital locally. The relationship between domestic and international investments is illustrated in Figure 4.

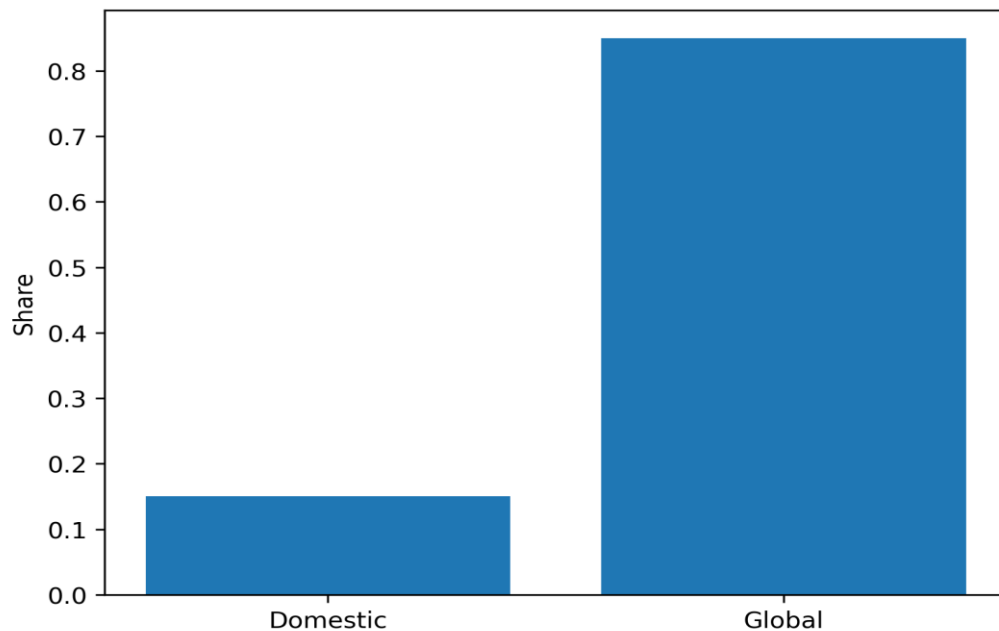


Figure 4: Domestic versus Global Investment Allocation

Source: Author's calculations based on KPST investment allocation data.

Notes: The figure compares the proportion of investments allocated to domestic financial instruments with those invested in international markets. The distribution reflects the diversification strategy of the pension fund.

Figure 4 highlights the dominant role of global diversification within the pension fund's investment strategy. International assets—including global equities, bonds, and multi-asset investments—represent the majority of the portfolio. Such diversification allows the fund to benefit from global growth opportunities while reducing exposure to country-specific risks.

At the same time, the pension fund contributes to the development of the domestic financial system through its holdings of Kosovo government securities. These investments support the functioning of the domestic sovereign bond market and provide a stable source of demand for government debt instruments. In this sense, the pension fund serves as a key institutional anchor within the national financial architecture.

Beyond capital allocation, the pension fund also contributes to long-term wealth accumulation within the economy. The growth of pension assets represents a significant accumulation of national savings, which can be reinvested in productive financial assets over time. The growing scale of pension assets also has broader macroeconomic implications. Large institutional investors such as pension funds contribute to financial market stability by providing long-term capital and counterbalancing short-term market volatility. Because pension funds typically maintain long investment horizons and diversified portfolios, they can act as stabilizing investors during periods of market stress.

Furthermore, the expansion of pension assets strengthens the resilience of the

domestic economy by increasing national savings and reducing reliance on external financing. Over time, the accumulation of pension wealth may also support the development of new financial instruments and investment opportunities within the domestic market.

Overall, the economic role of the pension fund extends well beyond the provision of retirement income. By mobilizing long-term savings, allocating capital across global financial markets, and supporting domestic financial market development, the pension fund constitutes a central component of the country's evolving financial system. As the pension system continues to mature, its influence on capital markets and economic development is likely to increase further.

8. Discussion, Policy Implications and Conclusion

This study examined the institutional evolution, investment performance, and broader economic role of the Kosovo Pension Savings Trust (KPST), the largest institutional investor in Kosovo and a central component of the country's funded pension system. By combining institutional analysis with empirical evidence on asset growth, portfolio allocation, and investment outcomes, the paper provides insights into how a public defined-contribution pension fund operates as a long-term institutional investor within a small emerging financial system.

The empirical analysis reveals several important findings. First, the pension fund has experienced substantial and sustained growth in assets under management, driven primarily by continuous contribution inflows and compounded investment returns. The combination of mandatory contributions and long-term portfolio growth has transformed individual retirement savings into a rapidly expanding pool of institutional capital. This process highlights the role of funded pension systems in mobilizing long-term savings and supporting capital accumulation within emerging economies.

Second, the analysis of portfolio performance indicates that the pension fund has maintained relatively stable long-term returns with moderate levels of volatility. Despite exposure to global financial market fluctuations, the diversified portfolio structure and disciplined strategic asset allocation framework have supported positive risk-adjusted performance across most of the sample period. Episodes of market stress, such as the global volatility episodes observed in 2018, 2020, and 2022, generated temporary portfolio losses; however, these effects were generally limited and followed by relatively rapid recovery, reflecting the resilience of long-term institutional investment strategies.

Third, the findings emphasize the importance of governance structures and regulatory investment frameworks in shaping portfolio allocation and risk management decisions. The institutional architecture of the pension fund—comprising the governing board, investment committee, and risk monitoring functions—creates a system of oversight and accountability that supports disciplined portfolio management. Regulatory allocation limits and risk monitoring mechanisms further ensure that investment decisions remain consistent with

prudential risk tolerance while maintaining flexibility to respond to evolving market conditions.

Beyond portfolio performance, the study highlights the broader economic significance of pension funds in emerging financial systems. As a large institutional investor, the pension fund contributes to capital allocation across global financial markets and supports domestic financial development through its holdings of government securities and other domestic instruments. The accumulation of pension assets therefore represents an important source of long-term national savings that can enhance financial stability, deepen capital markets, and strengthen macroeconomic resilience.

From a policy perspective, several implications emerge. First, strong governance frameworks and transparent institutional structures are essential for maintaining the credibility and long-term sustainability of pension systems. Second, diversified portfolio strategies and global investment exposure remain critical for achieving adequate risk-adjusted returns in small economies with limited domestic investment opportunities. At the same time, policymakers face the challenge of balancing international diversification with the development of domestic financial markets, ensuring that pension assets contribute to national economic development without compromising portfolio efficiency.

The expansion of pension assets also raises several longer-term policy considerations. As the pension system matures and the number of beneficiaries gradually increases, the dynamics of withdrawals and portfolio liquidity management may become more important for maintaining long-term financial sustainability. In addition, continued growth in assets under management may require the development of more sophisticated investment strategies, risk management tools, and regulatory frameworks to support institutional capacity and financial stability.

Despite the insights provided by this study, several limitations should be acknowledged. The analysis relies primarily on institutional data from a single pension fund and therefore reflects the characteristics of one national pension system. While the findings provide valuable evidence for emerging financial systems, broader comparative studies across multiple pension systems could provide additional insights into institutional investment strategies and governance practices. Furthermore, the analysis focuses primarily on portfolio outcomes and institutional design, while the broader macroeconomic effects of pension fund investment—such as impacts on capital market development, economic growth, and financial stability—remain areas for further investigation.

Future research could therefore extend this analysis in several directions. Comparative studies across pension systems in emerging economies could provide a deeper understanding of how institutional design and governance influence investment outcomes. Additional research could also examine the relationship between pension fund investment strategies and broader macroeconomic indicators, including financial market development, capital market integration, and long-term economic growth.

In conclusion, the experience of the Kosovo Pension Savings Trust illustrates how a well-designed institutional framework can transform mandatory retirement contributions into a significant pool of long-term investment capital. Through strong governance, disciplined strategic asset allocation, and diversified investment strategies, pension funds can support sustainable wealth accumulation while contributing to financial stability and economic development. As pension systems continue to evolve in emerging economies, their role as long-term institutional investors is likely to become increasingly important for both retirement security and the development of resilient financial systems.

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