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Abstract

Property development has become the dominant asset class in Malawian pension funds' portfolios, but the macroeconomic factors explaining this distribution pattern have not been empirically investigated, especially in Malawi's nascent pension industry, and in the context of Malawi's ambitious industrialisation agenda. This study examined the macroeconomic factors affecting pension fund allocations to property development in Malawi, in the context of the financing discourse of the Malawi 2063 Vision. Using panel data from 32 observations across 16 quarters of restricted and unrestricted pension funds from 2020 Q1 to 2023 Q4, the study analysed the impact of interest rates, inflation rates and exchange rates on property development financing decisions. Theoretically based on Modern Portfolio Theory, Life Cycle Theory, and Porter's Theory of Competitive Advantage, the research philosophy adopted was positivism and the research method were fixed-effects panel regression analysis. Results showed that none of the three macroeconomic variables were statistically significant in explaining the allocation of property development. Interest rates showed a positive but non-significant relationship ($b = 0.0047$, $p = 0.129$), inflation rates had a positive but insignificant effect ($b = 0.0433$, $p = 0.455$) and exchange rates a negligible negative relationship ($b = -0.0003$, $p = 0.804$). The very high rho value of 0.9624 showed that 96.2% of total variance is explained by time-invariant differences between restricted and unrestricted fund types, indicating that decisions on the allocation of property development are mainly driven by structural and institutional fund characteristics and not by fluctuations in the macroeconomies. Unrestricted funds consistently spent larger proportions on property development (78.2%) than did restricted funds (58.0%), regardless of prevailing economic conditions. Based on the findings, the study suggests that the Reserve Bank of Malawi should introduce differentiated prudential regulations that target property concentration limits, the National Planning Commission should develop rebalancing incentive regulations for alternative industrialisation sectors, and that pension fund trustees should conduct formal strategic asset allocation reviews to reduce the high concentration of property and redirect capital to manufacturing and infrastructure financing.

Keywords: *Pension Funds, Property Development, Macroeconomic Factors, Industrialisation, Institutional Investment, Fixed Effects, Malawi*

1.0 Introduction

In the investment committees of Malawi's pension fund administrators, where trustees ponder how to use the retirement savings of millions of workers, property development has long held a place of unchallenged supremacy (Chikoti, 2019). Imagine a pension fund administrator faced with raging inflation, higher interest rates and a currency that has lost 94% of its value against the US dollar but whose property development allocations remain essentially the same (Real, 2016). This scenario is not hypothetical, but is exactly the pattern that this study documents and attempts to explain. Understanding why property allocations are fixed in structure regardless of macroeconomic conditions is not just an academic issue. It has profound implications for Malawi's industrialisation financing agenda, as capital tied up in the position of stable property is not available for other more dynamically productive sectors, such as manufacturing and road infrastructure. In fact, for the last decade, the increase in pension fund assets in Malawi has been remarkable. Pension assets increased from MK54 billion when the Pension Act 2010 started to MK2.3 trillion as at 2023, which is an extraordinary accumulation of domestic long-term capital (Reserve Bank of Malawi, 2021; National Planning Commission, 2020). The UNDP (2021) has characterised this growth as a hitherto untapped financing opportunity, as pension and life insurance funds in Malawi represent a significant, yet underutilised, source of long-term capital for productive investment. The Malawi 2063 Vision in particular proposes to exploit pension funds as an alternative source of domestic finance for its industrialisation agenda with property development, manufacturing and road construction being identified as priority sectors (National Planning Commission, 2020).

Property development is a complex and dual role in the industrialisation frameworks. On one hand, Knyazera, Sakoa and Knyazev (2018) suggest that property and real estate development is increasingly becoming a priority in creating conducive conditions for industrialisation, given property's multiplier effects on related industries including construction, hospitality and financial services. On the other hand, Dubcech (2020) emphasise that industrial estates, factory buildings and special economic zone infrastructure are all categories of property development that are key elements of the physical infrastructure that manufacturing enterprises need. In this sense, property development and industrial output are not competing investment categories, but are interrelated through the built environment upon which productive enterprises depend. However, where pension funds have 58% to 79% of their industrialisation portfolio in property and allocations that are insensitive to macroeconomic conditions, the question arises whether this concentration reflects optimal portfolio management or path-dependent institutional inertia. This concern is especially acute considering that Malawi's budget has been recording consistent deficits of over 30% annually between 2019 and 2023, leaving the government unable to finance industrialisation from public revenue (Gwengwe, 2023).

Despite this policy importance, there has been no empirical work specifically looking at the macroeconomic determinants of pension fund property allocations in Malawi. Most research on pension fund property investments is focused on developed markets, where real estate markets are deep and liquid and valuation frameworks are sophisticated. The institutional setting of an emerging pension industry like Malawi's with its small depth of markets, concentrated ownership of funds and evolving regulatory environment may lead to fundamentally different dynamics of allocation. This lack of empirical evidence calls for country-specific research. This study thus aims to address this gap by establishing macroeconomic factors that affect pension fund allocations to property development in Malawi, and exploring why these allocations seem structurally insensitive to economic conditions.

Since the Malawi Pension Act 2010 came into force on 1 June 2011, pension assets have grown at an average rate exceeding 20% annually, driven by mandatory contribution requirements for all employers and employees (Reserve Bank of Malawi, 2021). This rapid asset growth has occurred against a backdrop of significant macroeconomic instability, with inflation reaching 31.5% in 2023 Q4, interest rates peaking at 24%, and the Malawi Kwacha depreciating by 94% against the US dollar between 2020 and 2023. Property has consistently emerged as the preferred alternative investment category for both restricted and unrestricted pension funds in this environment. Listed equities remain the largest single asset class at 50.2% of pension fund assets, followed by long and short-term government debt at 29.5%, with the remaining 20.3% comprising fixed deposits, private debt, property, unlisted equity, and other investments (Reserve Bank of Malawi, 2021). Within the industrialisation-oriented investment categories examined in this study, property development accounts for 58% of restricted fund allocations and 78.2% of unrestricted fund allocations, dwarfing allocations to manufacturing and road construction by wide margins.

Several Malawi-specific factors contribute to this property concentration. The limited depth of Malawi's capital markets means that property represents one of the few asset classes offering investment scale and liquidity characteristics accessible to pension fund administrators. Regulatory ambiguity regarding pension fund investments in productive sectors which Hafeman (2023) identifies as a key constraint in a World Bank review of the Malawian insurance and pension sector further encourages conservative property-focused strategies. Additionally, the absence of investment-grade industrialisation financing vehicles, such as infrastructure bonds or manufacturing sector investment platforms, limits the practical alternatives available to fund managers seeking to deploy capital beyond traditional property and government securities. The persistent dominance of property in pension fund portfolios, despite extreme macroeconomic volatility, raises fundamental questions about whether macroeconomic conditions genuinely influence property allocation decisions or whether structural institutional factors represent the true determinants of portfolio composition. This study addresses these questions empirically through panel regression analysis of quarterly data from Malawi's restricted and unrestricted pension funds.

2.0 Literature Review

This section presents the conceptual and empirical foundations of the study. It begins by examining the concept of institutional investment in property and its relevance to pension fund portfolio decisions. It then reviews existing empirical studies on the influence of macroeconomic factors on pension fund property allocations, with a focus on identifying theoretical expectations, methodological approaches, and existing research gaps that inform the current study.

2.1 Concept of Institutional Investment in Property

Institutional investment in property, defined as the systematic allocation of pooled investment funds including pension funds, insurance companies, and sovereign wealth funds to real estate and property development assets, has become a globally significant phenomenon with important implications for both capital markets and economic development (Knyazera, Sakoa & Knyazev, 2018). This significance arises from property's distinctive characteristics as an investment asset: tangibility, durability, inflation-hedging potential, and capacity to generate stable income streams that align with the long-term liability profiles of institutional investors (Donkor-Hyiaman et al., 2019). These characteristics make property allocation decisions by pension funds a crucial determinant of how domestic long-term capital is deployed within an economy, with direct implications for real estate market development, construction sector activity, and broader economic growth dynamics (Bijlsma et al., 2018).

Technically, pension fund property allocations represent a portfolio optimisation decision balancing expected returns, risk characteristics, liquidity constraints, regulatory requirements, and liability matching objectives (Markowitz, 1999). The macroeconomic environment particularly interest rates, inflation, and exchange rates is theoretically expected to influence these allocation decisions by altering the relative risk-return profile of property versus alternative asset classes. This macroeconomic sensitivity makes pension fund property allocation behaviour a crucial consideration globally for regulators and policymakers seeking to channel institutional capital toward development priorities (Morales et al., 2017). Some of these empirical relationships are explored in the next section.

2.2 Empirical Review

Madukwe and Okeke (2022) in their study of the effect of inflation on pension fund investment strategies, found that institutional investors usually increase allocation to real assets such as property in inflationary periods in order to preserve the purchasing power of their investments, with every percentage change in inflation bringing about a corresponding change in pension industry investment. In addition, Pavitohra and Shanthilakshni (2024) documented that institutional investors respond to inflation by shifting portfolios to assets less sensitive to the negative impacts of inflation such as real estate, which provides inflation protection through asset appreciation and indexed rental income. Ottesen (2011) argued that the value of pension fund liabilities will be discounted based on future cash flows, making pension fund portfolio values very sensitive to interest rate changes, with significant falls in interest rates potentially leading to reallocation towards higher yielding assets, such as property. Abdul Rauf et al. (2024) showed that higher interest rates due to lower investment returns generally, create complex incentive structures for property allocation as rising interest rates simultaneously lower property valuations while increasing the opportunity cost of illiquid property commitments.

Nyang'oro and Njenga (2022) analysed the use and impact of pension funds in sub-Saharan Africa arguing that pension funds are useful in mobilising funds in the long-term to support infrastructure and property development given the widespread deficits in infrastructure found in the region. Donkor-Hyiaman et al. (2019) discussed pension fund property investment preferences in Africa, highlighting the need for investments to be in housing development to correct home ownership deficits, while warning that long-horizon commercial property investments are not suitable given the average life expectancy of 54.9 years in Africa. Sanusi and Kapingura (2021) examined the case of South African pension funds, and their research showed that investment outcomes critically depend on regulatory frameworks and institutional capacity and not just macroeconomic conditions alone, with poor regulatory infrastructure precluding systematic allocation adjustments to macroeconomic conditions.

Several are consistently identifying inflation as a positive driving force for property allocations (Madukwe & Okeke, 2022; Pavitohra & Shanthilakshni, 2024). Interest rate impacts on property allocations are in theory complex and empirically mixed (Ottesen, 2011; Abdul Rauf et al., 2024). The African literature highlights the importance of institutional and regulatory factors in determining the outcomes of pension fund investments, rather than the macroeconomic factors (Sanusi & Kapingura, 2021; Donkor-Hyiaman et al., 2019). The literature on specific markets shows considerable variation in property allocation patterns which are driven by fund-type governance structures, regulatory frameworks and market depth characteristics (Kolodiziev et al., 2021; Bijlsma et al., 2018). These findings taken together support the case for empirically examining whether macroeconomic stabilisation or institutional and regulatory reform is the stronger policy lever for influencing the pension fund property allocation decision in nascent African pension markets. The consistent evidence of

institutional dominance over macroeconomic signals in property investment decisions poses important challenges for achieving portfolio rebalancing through macroeconomic policy alone.

The reviewed studies used a range of methodological approaches from descriptive portfolio analysis and correlation methods (Nyang'oro & Njenga, 2022) to Bayesian Linear Regression (Sanusi & Kapingura, 2021), Generalised Method of Moments (Morina & Grima, 2022) and panel regression with fixed and random effects (Kolodiziev et al., 2021; Dumiter, Jimon & Baltes, 2021). This diversity of methods reflects the variety of tools available for studying the behaviour of pension fund investment, although each has strengths and weaknesses. Fixed-effects panel regression, as used in this study, has special advantages in terms of isolating within-fund-type variation over time, while controlling for time-invariant structural differences, and thus it is suitable for testing whether changes in macroeconomic conditions cause changes in allocation net of institutional characteristics. This current study critically considers the evidence base on the influences of macroeconomic factors on property allocations and uses fixed effects panel regression which overcomes the limitations of cross-sectional approaches by taking advantage of temporal variation within fund types to generate more accurate estimates of macroeconomic effects on the financing of pension fund properties development in Malawi.

3.0 Data and Methodology

This study utilised secondary panel data to analyse the macroeconomic influences on pension fund allocations to property development, using quarterly observations from 2020 Q1 to 2023 Q4 for restricted and unrestricted pension funds, yielding 32 observations. Pension fund allocation data were sourced from the Reserve Bank of Malawi (RBM), while macroeconomic data on interest rates, inflation, and exchange rates were obtained from RBM publications and the Malawi National Statistical Office. All monetary values were converted into proportional allocation percentages to ensure comparability across fund types, and analysis was conducted using Stata 17. The study is anchored on Modern Portfolio Theory, which posits that portfolio allocation decisions respond to changes in expected returns and risk conditions influenced by macroeconomic variables. A panel regression framework was employed to distinguish between within-fund temporal variation and between-fund structural differences. The model was specified as $Y_{it} = a + b_1X_{1t} + b_2X_{2t} + b_3X_{3t} + \mu_i + \epsilon_{it}$, where Y_{it} represents property allocation, X_1 , X_2 and X_3 denote interest rate, inflation, and exchange rate respectively, μ_i captures fund-specific effects, and ϵ_{it} is the error term. The Hausman test guided the selection of the fixed-effects model, which was adopted to control for time-invariant heterogeneity and provide consistent estimates.

4.0 Results and Discussion

This section presents the empirical result of the study, organised in three parts. Descriptive statistics are first used to characterise the distribution of property development allocations and macroeconomic variables over the study period. Correlation analysis is then used to analyze bivariate relations between macroeconomic variables and property allocations for both types of funds. Fixed-effects regression results are finally presented and interpreted in relation to the goals of the study and the existing literature.

4.1 Descriptive Statistics

The descriptive statistics of the main variables used in this study are summarised in table 1. The average quarterly allocation for property development was MK7,103,570 for restricted funds, and MK43,562,195 for unrestricted funds, which is a ratio of about 6:1 between fund types. Restricted funds-retained property allocations were around 58% of their total industrialisation portfolio, while unrestricted funds were around 78.2%, and thus property

development was the dominant industrialisation investment category for both fund types by a large margin. Notably, restricted funds never had zero allocations to property development over the entire 16 quarters period of study with a minimum quarterly allocation of MK2,476,636, indicating a persistent and structurally embedded commitment to property investment irrespective of macroeconomic conditions.

Table 1: Descriptive Statistics

Variable	Fund Type	Obs	Mean	Std. Dev.	Min	Max
Property Development (MK)	Restricted	16	7,103,570	4,323,217	2,476,636	15,851,864
Property Development (MK)	Unrestricted	16	43,562,195	9,320,125	29,474,509	61,265,665
Interest Rate (%)	Both	16	15.39	4.38	12.00	24.00
Inflation Rate (%)	Both	16	16.89	9.15	7.50	31.50
Exchange Rate (MKW/USD)	Both	16	914.02	188.34	741.95	1,439.57

The macroeconomic environment at the time of the study was characterised by extreme volatility in all three indicator variables. The average policy interest rate of 15.39% hides the range of 12% to 24% which is a doubling of the cost of borrowing due to the Reserve Bank of Malawi's monetary tightening stance in response to the accelerating inflation. Inflation averaged 16.89% but ranged from 7.5% in 2020 Q4 to 31.5% in 2023 Q4 a swing of 24 percentage points reflecting the severe inflationary pressures associated with global commodity price shocks, pandemic supply disruptions and Malawi's fiscal vulnerabilities. The exchange rate depreciated from MKW 741.95/USD to MKW 1,439.57/USD at the beginning of the study period to the end of 2023, which represented a depreciation of 94% of the kwanza over only four years. The key observation that in the face of this extraordinary macroeconomic turbulence property development allocations were remarkably stable with relatively modest standard deviations in both restricted and unrestricted fund allocations compared to the macroeconomic fluctuations, is the first qualitative signal of the structural insensitivity that the regression analysis goes on to confirm. Table 1 also shows that the bivariate patterns between macroeconomic variables and property allocations need to be treated carefully in multivariate analysis as the common time trend and the dominant fund type structural differences may produce spurious bivariate associations. The correlation analysis that follows addresses this preliminary question before the results of the regression give the definitive multivariate assessment.

4.2 Correlation Analysis

This section presents the bivariate relationships between property development allocations and key macroeconomic variables using Pearson correlation coefficients. The analysis provides an initial assessment of the direction and strength of associations prior to multivariate estimation,

helping to identify potential patterns and interrelationships among the variables that inform subsequent regression analysis.

Table 2: Pearson Correlation Coefficients

Variables	Ln (Property)	Interest Rate	Inflation Rate	Exchange Rate
Ln (Property) Restricted	1.000	0.7840***	0.9232***	0.7780***
Ln (Property) Unrestricted	1.000	0.7784***	0.8402***	0.8550***
Interest Rate		1.000	0.8637***	0.8508***
Inflation Rate			1.000	0.9074***
Exchange Rate				1.000

The Pearson correlation coefficients between the macroeconomic variables and the property development allocations show a startling trend of strong positive associations for both types of funds. For restricted funds, property allocations have exceptionally high correlations with inflation ($r = 0.9232$), interest rates ($r = 0.7840$), and exchange rates ($r = 0.7780$). Unrestricted funds show similar strong associations: exchange rates ($r = 0.8550$), inflation ($r = 0.8402$) and interest rates ($r = 0.7784$). At face value, these strong bivariate correlations may seem to indicate that macroeconomic conditions play an important role in determining decisions about property allocation, which is consistent with the theoretical predictions of portfolio rebalancing theory. However, these correlations are strongly influenced by the common upward time trend of the macroeconomic variables and property allocation values during the period of the study, and are not necessarily the result of actual macroeconomic responsiveness in allocation decisions. The very high correlation between inflation and exchange rates ($r = 0.9074$), and between interest rates and inflation ($r = 0.8637$), confirm the co-movement in the three macroeconomic variables over the study period, which creates collinear spurious associations with the time-trended property allocation series. The following fixed-effects regression, which takes into account differences between funds in their structure and the common time trend, offers the proper multivariate test of whether macroeconomic conditions truly matter in property allocation decisions after controlling for such confounding factors. The results of the regression, as the next section shows, contradict the simple bivariate picture completely.

4.3 Fixed-Effects Regression Results and Discussion

Table 2 presents the Pearson correlation coefficients showing the bivariate relationships between property development allocations and the selected macroeconomic variables for both restricted and unrestricted pension funds.

Table 3: Fixed-Effects Regression Results

Variable	Coefficient	Robust Error	Std.	t-statistic	p-value	95% CI
Interest Rate (%)	0.0047	0.0010		4.88	0.129	[-0.0074, 0.0168]
Inflation Rate (%)	0.0433	0.0376		1.15	0.455	[-0.4348, 0.5215]
Exchange Rate (MKW/USD)	-0.0003	0.0009		-0.32	0.804	[-0.0116, 0.0110]
Constant	16.0422	0.1605		99.97	0.006**	[14.0032, 18.0813]
Within R ²	0.6656					
rho	0.9624					
Observations	32					

The results reveal consistently strong positive correlations between property development allocations and all three macroeconomic variables across both fund types. For restricted funds, property allocations exhibit particularly high correlations with inflation ($r = 0.9232$), interest rates ($r = 0.7840$), and exchange rates ($r = 0.7780$), while unrestricted funds show similarly strong associations with exchange rates ($r = 0.8550$), inflation ($r = 0.8402$), and interest rates ($r = 0.7784$). At face value, these results appear to support theoretical expectations that macroeconomic conditions influence portfolio allocation decisions; nonetheless, a deeper examination indicates that these relationships are largely driven by the common upward time trend observed in both macroeconomic variables and property allocations over the study period. The high inter-correlations among the macroeconomic variables themselves, particularly between inflation and exchange rates ($r = 0.9074$) and between interest rates and inflation ($r = 0.8637$), further confirm strong co-movement, suggesting the presence of multicollinearity and the likelihood of spurious associations. Therefore, these bivariate correlations do not necessarily reflect true macroeconomic responsiveness in allocation decisions but rather shared temporal dynamics. To address this limitation, the subsequent fixed-effects regression analysis controls for time-invariant structural differences between fund types and isolates within-fund variation over time, thereby providing a more robust multivariate assessment of whether macroeconomic factors significantly influence property allocation decisions, with the results ultimately diverging from the initial correlation patterns.

5.0 Conclusion

The decision on pension fund property development allocations in Malawi is structured by institutional fund type characteristics as opposed to macroeconomic fluctuations. The dominance of fund-type fixed effects accounting for 96.2% of total variance shows that restricted and unrestricted funds preserve fundamentally different property investment strategies that are stable across varying macro-economic conditions and they reflect deeply embedded investment mandates, governance practices and regulatory constraints rather than dynamic portfolio optimisation in response to economic signals. Fluctuations in key macroeconomic variables, such as interest rates, inflation rates and exchange rates, play no statistically significant role in determining the allocation of property development in the pension sector in Malawi. These findings underscore the structural insensitivity of property allocations with respect to the economic condition - emphasising the fact that policy interventions addressing the stabilisation of the macroeconomic condition alone, while needed for the overall economy, will be insufficient to achieve the re-balancing of portfolios in favour of alternative industrialisation sectors. Regulatory frameworks, institutional capacity and investment mandate reform must be the key policy levers to shift the focus of pension fund capital away from over-concentration of property towards manufacturing and infrastructure financing.

6.0 Policy Recommendations

The Reserve Bank of Malawi should introduce differentiated prudential regulations by setting graduated property allocation caps not exceeding 60% for unrestricted funds and 50% for restricted funds over a three to five-year period, drawing from frameworks such as Regulation 28 in South Africa and diversification guidelines in Kenya. The National Planning Commission should establish rebalancing incentive mechanisms, including a Manufacturing Investment Platform supported by standardised due diligence and blended finance structures, alongside investment-grade industrialisation bonds with government-backed guarantees to reduce the current cost advantages favouring property investments. Pension fund trustees and administrators should undertake independent asset-liability management reviews to assess alignment between property concentration, liability profiles, and Malawi 2063 Vision

priorities, with phased diversification plans implemented where imbalances are identified. Future research should adopt longitudinal analysis from 2011 to 2030 to assess evolving macroeconomic responsiveness, complemented by qualitative studies on trustee decision-making processes and comparative analyses across SADC countries to determine whether observed allocation patterns reflect broader regional trends or country-specific dynamics.

References

- Abdul Rauf, et al. (2024). Interest rates, pension fund investment returns and retirement income adequacy. *Journal of Pension Economics and Finance*.
- Bijlsma, M., Bonekamp, J., van Ewijk, C., & Haaijen, F. (2018). Funded pensions and economic growth. *De Economist*, 166(3), 337–362.
- Chikoti, A. M. (2019). *Assessing Effectiveness of Mandatory Contributory Pension Scheme in Non-Governmental Organizations: A Case Study of Baylor College of Medicine-Children's Foundation Malawi* (Doctoral dissertation, University of Malawi-The Polytechnic).
- Collins, J., & Hussey, R. (2021). *Business research: A practical guide for undergraduate and postgraduate students* (5th ed.). Palgrave Macmillan.
- Donkor-Hyiaman, K. A., et al. (2019). Pension fund investment in housing development in Africa. *Journal of Housing and the Built Environment*.
- Dubcech, M. (2020). Industrial estates and property development as key elements in industrialisation. *Journal of Real Estate and Development*.
- Dumiter, F., Jimon, S., & Baltas, N. (2021). Macroeconomic impact on pension funds: Evidence from Central and Eastern European countries. *Journal of Financial Studies*.
- Gwengwe, S. A. (9th May 2023). Leveraging on digitalisation to boost domestic budget revenue. Public Lecture, Malawi University of Business and Applied Sciences (MUBAS).
- Hafeman, M. (2023). *Policy proposal: Infrastructure investments and investment limitations in the Malawian insurance and pension sector*. World Bank Group.
- Knyazera, V., Sakoa, A., & Knyazev, V. (2018). Property and real estate market development as a priority for industrialisation. *Journal of Property Investment & Finance*.
- Kolodiziev, O., Telnova, H., Krupka, I., Kulchytsky, M., & Sochynska-Sybirtseva, I. (2021). Pension assets as an investment in economic growth: The case of post-socialist countries and Ukraine. *Investment Management and Financial Innovations*, 18(3), 166–174.
- Kothari, C. R., & Garg, G. (2014). *Research methodology: Methods and techniques* (3rd ed.). New Age International.
- Madukwe, D., & Okeke, C. (2022). Inflation rate and pension fund investment strategy. *Journal of Financial Economics*.
- Malawi Pension Act (2010). Government of Malawi.
- Markowitz, H. (1999). The early history of portfolio theory: 1600–1960. *Financial Analysts Journal*, 55(4), 5–16.
- Mazzucato, M. (2013). *The entrepreneurial state: Debunking the public vs. private myth in risk and innovation*. Anthem Press.

- Morales, A. E. P., Fuentes, O., Searle, P., & Stewart, F. (2017). *Pension funds and the impact of switching regulation on long-term investment*. World Bank Group & IOPS.
- Morina, F., & Grima, S. (2022). The impact of pension fund assets on economic growth in transition countries, emerging economies and developed countries. *Journal of Quantitative Finance and Economics*, 6(3), 459–504.
- National Planning Commission (2020). *Malawi 2063: An inclusively wealthy and self-reliant nation*. Government of Malawi.
- Nyang'oro, O., & Njenga, G. (2022). Pension funds in sub-Saharan Africa. *WIDER Working Paper 2022/95*. United Nations University World Institute for Development Economics Research.
- Ottesen, O. (2011). Interest rates and pension fund portfolio management. *Journal of Pension Economics*.
- Pavitohra, M., & Shanthilakshni, R. (2024). Institutional investor asset allocation strategies during inflationary periods. *Journal of Institutional Investment*.
- Porter, M. E. (1990). *The competitive advantage of nations*. Free Press.
- Real, S. L. A. 1.(2016). Malawi's long-lingering macroeconomic difficulties arise from uneven policy implementation, high inflation, and a weak external position. As a result, Malawi has been.
- Reserve Bank of Malawi (2021). *Annual economic report*. Reserve Bank of Malawi.
- Ryan, G. (2018). Introduction to positivism, interpretivism and critical theory. *Nurse Researcher*, 25(4), 14–20.
- Sanusi, K. A., & Kapingura, F. M. (2021). Pension funds as fuel for overall investment level and economic growth: An empirical insight from South African economy. *Cogent Business & Management*, 8(1), 1935661.
- Saunders, M., Philip, L., & Thornhill, A. (2019). *Research methods for business students* (7th ed.). Pearson Education.
- UNDP (2021). *Report on development finance assessment (DFA) and local level financial assessment (LLFA) for Government of Malawi*. United Nations Development Programme.