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Original Research

BOND MATURITY AND INSTITUTIONAL FACTORS AFFECTING THE GOVERNMENT BOND MARKET SIZE IN TANZANIA

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ABSTRACT
This study examines how bond maturity interacts with institutional factors to influence the size of Tanzania's Government Bond Market (GBM), It focuses on two objectives: examining how institutional factors such as bank size, stock market size affecting GBM size; and instigating how bond maturity moderates these relationships. The analysis is informed by Market Microstructure Theory, and Institutional Theory. Using annual time-series data for 1997–2024 from the Bank of Tanzania, Ministry of Finance, Dar es Salaam Stock Exchange, and National Bureau of Statistics, the study applies a two-step Difference Generalised Method of Moments (GMM) estimator to manage endogeneity and dynamic feedback. Findings show that strong institutional frameworks such as bank size and stock market size significantly affect GBM size and bond maturity exhibits a statistically significant moderating effect, indicating that institutional factors differ across short-, medium-, and long-term segments. This demonstrates that maturity structure is a critical institutional mechanism influencing liquidity, risk allocation, price discovery, and long-term market resilience. The study contributes by establishing bond maturity as a moderating construct in sovereign bond-market research, providing rare evidence from a frontier African market, and proposing a triangular interaction model linking institutional drivers of GBM size.

Keywords: Government Bond Market, Bank Size, Stock Market Size, Market Microstructure Theory, Institutional Theory, and Bond Maturity.

INTRODUCTION
Government bond markets (GBMs) constitute a central pillar of contemporary financial systems, providing governments with reliable and sustainable domestic financing while supporting macroeconomic stabilisation, monetary-policy transmission, and financial-sector development (Banerjee et al., 2024; Omodero & Alege, 2021; Ma & Laurenceson, 2019; AfDB, 2021; World Bank, 2023). A well-developed GBM lowers sovereign borrowing costs, strengthens fiscal planning through predictable financing conditions, and establishes a benchmark yield curve for pricing corporate instruments. It also improves liquidity management and collateral availability across the banking sector, thereby reinforcing financial stability and sectoral resilience. In many economies, GBMs facilitate the mobilisation of domestic savings and contribute to sustainable debt management. Their effectiveness depends not only on macroeconomic fundamentals but also on institutional strength and market efficiency. This underscores the strategic importance of GBM expansion for both economic governance and financial deepening.

The development of GBMs is anchored in several theoretical perspectives. Institutional Theory (North, 1990) emphasises the role of governance quality, regulatory credibility, and enforcement capacity in building investor confidence and supporting active market participation. Market Microstructure Theory (O'Hara, 1995) highlights how information asymmetry, trading mechanisms, and market structure affect liquidity, price discovery, and trading efficiency. Together, these theories suggest that GBM growth is shaped by the interaction of macroeconomic fundamentals, institutional quality, market design, and transactional efficiency. Thus, both structural and institutional conditions critically determine how markets achieve depth and stability.

Across developing and frontier markets, GBMs have grown in relevance as governments seek to reduce dependence on volatile external borrowing and mobilise domestic resources for infrastructure and long-term investment (IMF, 2023). However, African bond markets display uneven development. South Africa and Kenya, for example, have more liquid secondary markets and diversified investor bases, whereas Tanzania's GBM remains relatively shallow, characterised by limited investor participation and weak secondary trading (FSB, 2022; Soumaré, Kanga & Faye, 2021). These disparities correspond with Institutional Theory and Transaction Cost Economics, which predict that markets lacking regulatory legitimacy and efficient trading systems face persistent liquidity constraints. In Tanzania, these structural limitations restrict the effectiveness of the GBM in supporting fiscal sustainability and broader financial-sector growth. Hence, institutional capability and market-design considerations remain central to GBM advancement.

Tanzania provides an instructive context for analysing GBM performance. Despite ongoing reforms since the market's inception in 1997, secondary trading remains concentrated among a narrow group of pension funds and commercial banks, indicating limited competition and weak price discovery (BoT, 2023). The maturity structure remains heavily tilted toward short- and medium-term instruments, limiting the establishment of a long-term benchmark curve and heightening refinancing risk (IMF, 2023; Were & Mollel, 2023). This imbalance affects liquidity conditions (O'Hara, 1995), alters investor incentives (Wicksell, 1936), exposes governance limitations (North, 1990), and increases participation frictions (Williamson, 1985). Collectively, these constraints illustrate how maturity structure, institutional capacity, and transaction costs jointly suppress GBM deepening in Tanzania.

Empirical research on Tanzania's GBM remains scarce despite its macroeconomic significance. Existing studies primarily emphasise macroeconomic determinants—such as inflation, fiscal balance, and public debt while neglecting institutional and structural channels through which these factors operate (Burger, Warnock & Warnock, 2022). Bond maturity is often treated merely as a descriptive or control variable, rather than a behavioural mechanism capable of moderating the influence of key drivers (Kim & Ostry, 2020; Ko, 2022). Consequently, it remains unclear whether macroeconomic, institutional, and structural determinants affect short-, medium-, and long-term maturities in the same way. Furthermore, the combined effects of these determinants are underexplored, leading to reforms that focus mainly on issuance volumes rather than liquidity, participation, and efficiency. This study therefore investigates how institutional factors influence GBM size in Tanzania and examines the moderating role of bond maturity in shaping the relationship between macroeconomic, institutional, and structural drivers of GBM development.

LITERATURE REVIEW

Market Microstructure Theory explains how financial assets are traded within specific market structures, regulations, and institutional environments, focusing on how trading mechanisms, information asymmetry, transaction costs, and order flows influence price formation, liquidity, and overall market efficiency. This theory is particularly relevant in secondary markets such as the Government Bond Market (GBM), where real-time trading behaviour and institutional design play a crucial role, especially in emerging markets like Tanzania. Foundational scholars including Scholes (1972), Engle (2000), Glosten and Milgrom (1985), O'Hara (1995), and Kyle (1985) demonstrate how information disparities, market-making rules, volatility, and strategic trading shape financial outcomes. The theory assumes markets are neither frictionless nor perfectly efficient, as traders face transaction costs, liquidity constraints, and heterogeneous information. Consequently, bond maturity interacts with institutional features such as bank size, financial stability, and market participation to influence market depth, risk perceptions, and investor behaviour. Tanzania's GBM from 1997 to 2023 illustrates these principles, with institutions such as CRDB, NMB, and NBC favouring long-term bonds in stable periods but shifting toward short-term instruments during episodes of uncertainty. Thus, Market Microstructure Theory provides a coherent framework for understanding how transaction frictions, liquidity conditions, and information dynamics shape maturity choices and the evolution of the GBM.

Institutional Theory offers a complementary macro-level explanation of how rules, norms, and formal structures govern economic and organisational behaviour, emphasising that well-functioning institutions reduce uncertainty, enhance legitimacy, and support market development. Rooted in the work of Commons (1931) and North (1990), the theory argues that both formal elements laws, regulations, enforcement mechanisms and informal elements trust, norms, and cultural expectations shape market outcomes. In the context of the GBM, institutional strength determines investor confidence, regulatory predictability, and the effectiveness of public debt management. The maturity structure of bonds mediates institutional effects: when institutions are credible and stable, investors prefer long-term bonds, supporting deeper markets and more efficient liquidity allocation. Conversely, weak governance, inconsistent fiscal policy, or fragile legal enforcement encourage investors to hold short-term securities to reduce exposure to long-horizon risks. Tanzania's GBM reflects this behaviour, as periods of institutional consolidation encouraged long-term issuance, while phases of regulatory uncertainty shifted demand toward shorter tenors. When integrated with Market Microstructure Theory, Institutional Theory explains how governance frameworks shape trading costs, liquidity conditions, and investor responses across different maturities.

Together, Institutional Theory and Market Microstructure Theory provide a holistic framework for analysing how institutional quality and trading mechanisms interact to shape GBM performance, particularly through the channel of bond maturity. Institutional Theory highlights the importance of rules, stability, and legitimacy at the macro-level, whereas Market Microstructure Theory focuses on micro-level processes such as liquidity provision, order flows, and transaction frictions. Their intersection reveals that strong institutions enhance microstructural efficiency, while poor institutions amplify trading costs and information disparities, undermining market development. In Tanzania, shifts in bond maturity patterns from 1997 to 2024 closely align with institutional reforms, regulatory adjustments, and evolving liquidity conditions. Bond maturity moderates the relationship between institutional factors and GBM size by shaping investor time horizons, risk assessments, and participation incentives. In weak institutional environments, short-term maturities dominate due to high uncertainty and elevated transaction costs; in strong institutional settings, long-term maturities deepen the market and improve liquidity. Overall, the synthesis of these theories demonstrates that institutional strength and microstructural efficiency jointly determine GBM evolution,

offering practical insights for designing reforms that strengthen governance, optimise maturity profiles, and enhance the resilience of Tanzania's government bond market.

Empirical Analysis

The evolution and growth of Tanzania's Government Bond Market (GBM) are influenced by a complex interaction of institutional capability, structural factors, and the maturity profile of sovereign debt instruments. Whereas prior studies have often analysed these determinants in broad or generic terms, the current study employs a more targeted method. It highlights institutional factors specifically bank size, stock market depth, and bond maturity alongside structural elements such as financial market deepening, existing trading systems, the quantity of bond instruments, and the level of investor engagement. This focused approach enables a more detailed assessment of how these elements jointly affect the magnitude, fluidity, and overall efficacy of the GBM. The analysis examines how growth in the GBM enhances public financial management, including improved risk diversification for government borrowing, decreased dependence on external funding, and bolstered ability for financing long-term public projects.

The Effect of Bank Size on GBM Size

Banks play a major role in several African government bond markets by underwriting government securities, providing liquidity, and enabling price discovery. Empirical research from Smaoui et al. (2017) indicates a favourable correlation between big, well-capitalized banks and the growth of GBM. These banks often serve as dependable primary dealers and anchor investors, thereby maintaining demand for government bonds and enhancing market stability. This dominance may provide a twofold impact. Although big banks may improve liquidity and fortify the market, excessive concentration may restrict participation from other institutional and ordinary investors. This crowding-out diminishes competition and variety among investors, eventually undermining secondary market activity and hindering overall market growth.

This disparity underscores the need of achieving a suitable balance between concentration and diversification in sovereign bond markets. The excessive dominance of a few banks might diminish market vitality and constrain the prospects for long-term GBM growth. Based on these observations, the study developed and evaluated the following null hypothesis:

H1: The size of the banking sector has no significant effect on the government bond market size in Tanzania.

The Effect of the Stock Market Size and GBM Size

The stock market functions as a supplementary entity to the government bond market by presenting alternate avenues for capital mobilisation, delivering significant price signals, and facilitating risk diversification across financial assets. Efficient equity markets often promote the advancement of sovereign bond markets by elevating investor sophistication and promoting cross-asset liquidity. Tjandrasa et al. (2020) demonstrate an inverse correlation between government bond rates and stock market indices, indicating that cohesive and dynamic capital markets enhance overall market efficiency.

Notwithstanding this potential, several African nations, including Tanzania, encounter structural impediments such as restricted liquidity, diminutive market size, and little engagement from institutional investors. Agbo and Odo (2020) contend that these limits diminish the stock market's ability to effectively facilitate the growth of the sovereign bond market. Consequently, GBMs in these situations generally depend on a limited investor demographic, mostly including commercial banks and pension funds. This reliance constrains diversity and hinders the long-term development of the bond market. According on the empirical literature, the following null hypothesis was formulated:

*H2**:** The size of the stock market has no significant effect on the government bond market size in Tanzania.*

Bond Maturity as a Moderator of Institutional Factors and GBM Size

The maturity structure of sovereign debt is a fundamental component of capital market strategy, affecting the translation of institutional variables into market depth, liquidity, and pricing efficiency. Maturity profiles influence the supply side via government issuance patterns and the demand side by determining investor preferences and risk tolerances. Long-term bonds enhance macro-financial stability by mitigating refinancing risks, stabilising the yield curve, and appealing to long-term institutional investors, such pension funds and insurance firms. This enhances fiscal resilience and promotes long-term market growth (Kim & Ostry, 2020). In contrast, risk-averse investors, such as banks, often choose short-term bonds because of their enhanced liquidity and reliable cash flows. Excessive dependence on short-term debt elevates rollover risk and amplifies susceptibility to liquidity shocks, compromising fiscal planning and destabilising the market (Ko, 2019).

Empirical research underscores the need of maturity management. Mega and Widayat (2019) illustrate that synchronising interest rates with suitable maturities lowers borrowing expenses and default risks. Baker et al. (2003) further demonstrate that maturity structure affects market liquidity and price dynamics. Simultaneously, a research by the Bank of Thailand (2020) indicates that increasing long-term rates exacerbate market volatility and heighten investor risk premiums, demonstrating how inadequately managed maturity structures might undermine the advantages of institutional robustness. These data confirm that bond maturity serves a crucial moderating function, influencing whether institutional advantages result in a more profound and robust GBM or are compromised by volatility.

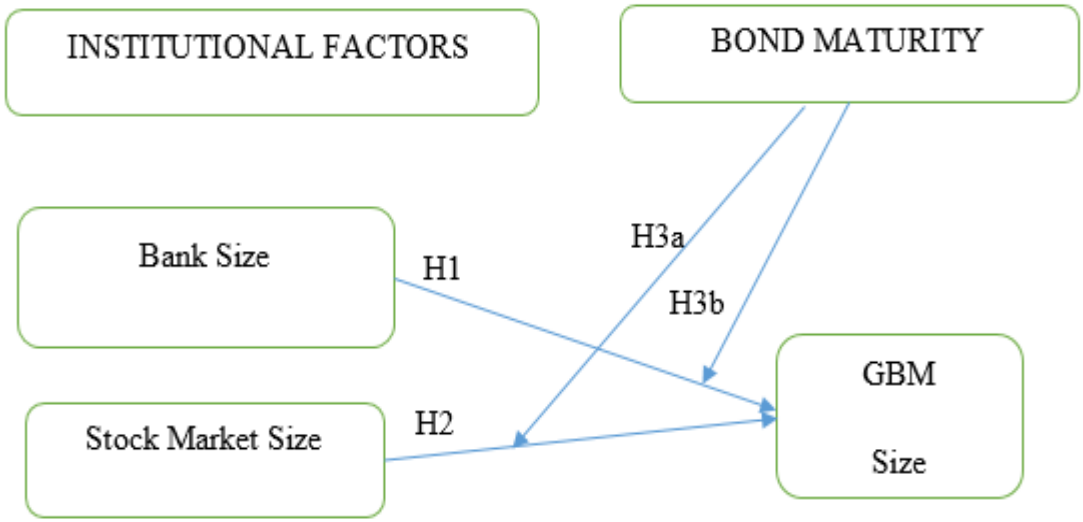
***H3a**: Bond maturity does not moderate the relationship between the size of the banking sector and the government bond market size in Tanzania.*

***H3b**: Bond maturity does not moderate the relationship between the size of the stock market and the size of Tanzania's government bond market.*

THEORETICAL FRAMEWORK

The conceptual framework, based on theoretical underpinnings and empirical discoveries, asserts that institutional factors such as bank size and stock market depth affect the size of the GBM both directly and indirectly. These effects also function via bond maturity, which serves as a moderating variable. The magnitude of GBM, considered an endogenous variable in this research, is quantified by the ratio of outstanding domestic bonds to GDP. This methodology is corroborated by several empirical investigations, including those conducted by Burger et al. (2018), Aman (2020), Khalid and Rajaguru (2018), and Agbo and Odo (2020). The framework demonstrates how institutional and moderating variables together influence GBM results (see to Figure 1: Conceptual Model).

Figure 1: Conceptual Model



Source: Researcher's Conceptualisation (2023).

METHODOLOGY OF THE STUDY

The purpose of this research was to examine the determinants of the size of Tanzania's Government Bond Market (GBM) and to assess how bond maturity moderates the relationship between institutional factors and GBM size. The study specifically investigated how bank size and stock market resilience influence GBM performance, drawing on both quantitative analysis and established theoretical frameworks (Glosten & Milgrom, 1985; O'Hara, 1995). Through this approach, the research sought to generate a clearer and more comprehensive understanding of the institutional drivers shaping GBM development and to determine the extent to which bond maturity conditions these relationships, thereby producing evidence that can guide informed policymaking.

The study was conducted in Tanzania, where the government introduced the GBM in 1997 to mobilise domestic funds, finance budget deficits, and reduce reliance on external borrowing. Despite these objectives, the market has yet to realise its full potential, making Tanzania a compelling empirical setting for examining institutional capacity, regulatory evolution, and market structure. Guided by the positivist research paradigm, the study assumes that economic and financial phenomena exist independently of human interpretation and can be objectively observed and measured (Collins, 2010). This paradigm aligns with the quantitative design used, which prioritises hypothesis testing, statistical modelling, and causal inference. These methodological choices are further justified by major financial reforms undertaken by the Bank of Tanzania (BoT), the Capital Markets and Securities Authority

(CMSA), and the Dar es Salaam Stock Exchange (DSE) to strengthen the domestic debt market and enhance transparency. The study draws on Market Microstructure Theory to analyse how transaction costs, information asymmetries, and trading mechanisms influence liquidity, price discovery, and overall market efficiency (Biais, Glosten & Spatt, 2005).

A deductive research approach was adopted, progressing from theoretical propositions to empirical validation. Hypotheses grounded in established literature were subsequently tested using secondary time-series data covering the period 1997–2024, sourced from the Bank of Tanzania, National Bureau of Statistics, Ministry of Finance and Planning, and the Dar es Salaam Stock Exchange. This approach is consistent with the view that deductive reasoning is suitable when research aims to evaluate and refine theory-driven propositions (Babbie, 2020). The design enabled the conversion of theoretical constructs such as interest rates, fiscal balance, bond issuance, foreign debt, and liquidity into quantifiable variables for econometric modelling using the Generalised Method of Moments (GMM), an approach well suited to addressing endogeneity and dynamic relationships (Arellano & Bond, 1991). Reliance on longitudinal secondary data increased reliability, validity, and robustness in the empirical estimation process, thereby enhancing the study's ability to derive policy-relevant insights into the institutional and maturity-related factors influencing the growth and performance of Tanzania's Government Bond Market (see Table 1).

Table 1: Operationalisation and Measurement Variables

Variables	Indicators & Acronym	Conceptualization	Measure	Notation	Source
Dependent Variable	Government Bond Market (GBM) Size	The value of the outstanding domestic government bonds.	The ratio of the value of outstanding	(TVGBs/GDP)X100	Nkwenda (2020)
Independent Variables	**Indicators & Acronym**	**Conceptualization**	**Measure**	**Notation**	**Source**
Institutional Factors	Bank Sector Size (BS)	The total assets owned by the bank.	Total Asset	(TAY_t - TAY_t - 1/TAY_{t-1})X100	Shahbaz, Rahman & Afza (2015)
	Size of the stock market (SMS)	The value of all shares in the companies issued and tradable on the public market	Market capitalisation. an absolute value that measure the total values of all shares of the company	($MCapY_t$ - $MCapY_{t-1}$/$MCapY_{t-1}$)X100	Tjandrasa et al. (2020); Agbo and Odo (2020)
Moderator	Bond Maturity (BM)	This is the time when the bond issuer must repay the original bond value to the bondholder.	Weighted Average Yield for short (ST), medium (MT), and long (LT)-term (T) based	WAY for ST(i.e., less than 5 years), WAY for MT (i.e., 5 - less than 10 years), , & WAY for LT (	Aitken and Comerton-Forde 2003

Source: Researcher's Computation (2024).

Data Collection Methods

This study employed a structured quantitative data collection approach, firmly grounded in secondary data sources, and guided by the conceptual and empirical frameworks outlined earlier. The collecting approach encompassed 1997–2024 and was arranged around three types of variables: (1) dependent variable Government Bond Market (GBM) size; (2) independent variables institutional characteristics (bank sector size and stock market size); and (3) moderating variable bond maturity.

(a) Overall Data Collection Approach

Data were aggregated using the Microsoft Excel Data Sheet (MEDS), particularly designed to collect, document, and verify the yearly observations. This organised framework guaranteed uniformity in data input, temporal alignment, and precise calculation of ratios and growth rates. Data triangulation was used to confirm consistency across many sources, including the BoT, CMSA, DSE, MoFP, and NBS. Additional data were obtained from global databases, including the IMF's International Financial Statistics (IFS), the World Bank's World Development Indicators (WDI), and the African Development Bank (AfDB). Every variable was verified for internal consistency, completeness, and temporal precision. Furthermore, documentation analyses of the BoT's annual reports, CMSA bulletins, DSE market summaries, and MoFP debt statements were conducted to provide a contextual interpretation of the identified patterns. This amalgamation of quantitative extraction and institutional document analysis guarantees empirical accuracy and analytical profundity.

(b) Data Verification and Processing

To guarantee validity and dependability, all numerical data underwent several verification processes, including cross-source validation, temporal consistency assessment, and unit standardisation. Data sets from the Bank of Tanzania and the International Monetary Fund were analysed for consistency, and all monetary figures were adjusted to constant Tanzanian shillings (base year 2015) to exclude inflationary impacts. Descriptive and trend analysis were used to identify outliers or structural fractures. Linear interpolation was used to maintain data continuity in areas with slight gaps, avoiding the introduction of bias. The finalised harmonised dataset was exported to Stata 17 for econometric estimate using the two-step system generalised method of moments (GMM) technique.

(c) Ethical and Practical Considerations

Because the study relied exclusively on publicly available secondary data, no human subjects were involved and formal ethical clearance was not required. However, all institutional sources were properly acknowledged, and procedures were transparently documented to maintain integrity. The use of officially published data enhances the authenticity, reproducibility, and policy relevance of the research findings. This enhanced data-collection framework ensures methodological rigor by integrating multiple institutional sources, extending temporal coverage, and applying systematic verification procedures. The triangulated approach mitigates narrowness, strengthens reliability, and aligns with the best practices in applied financial econometrics for emerging market bond studies.

Validity and Reliability

The Sargan and Arellano-Bond tests for first- and second-order correlations were used to ascertain the optimal econometric model. GMM estimates need external instruments. The Sargan test was used to evaluate the econometric model and instrument parameters. The estat Sargan command in E-View 13.0 performs the Sargan test (Baum et al., 2003). Consequently, if the Sargan test yielded negligible results, it suggested that the econometric parameters used external instruments (Sargan, 1958). The Arellano-Bond test for no autocorrelation examined a robust exogeneity assumption under the null hypothesis that error components from the two periods were uncorrelated. Bond commands execute post-estimation evaluations (Hansen, 1982; Sargan, 1958).

DATA ANALYSIS

The study's analysis was carried out using the Generalised Method of Moments (GMM) in E-Views 13.0, which included both descriptive and inferential statistical approaches. The mean, median, standard deviation, skewness, kurtosis, and Jarque-Bera normality test were used to summarise the distributional features of the data. These diagnostics ensured that the dataset's fundamental features were well recognised prior to model estimation. Inferential analysis was conducted using dynamic GMM regression models to test the research hypotheses and discover causal links between institutional characteristics and the size of Tanzania's Government Bond Market (GBM), as well as to analyse the moderating influence of bond maturity.

GMM was chosen because of its well-known capacity to deal with endogeneity, unobserved heterogeneity, and serial correlation, all of which are significant issues in macro-financial time-series datasets (Arellano and Bond, 1991). The differenced GMM estimator (Arellano-Bond) was first used because it removes unobserved fixed effects via first-differencing and use lagged levels of endogenous variables as internal instruments (Arellano & Bover, 1995). This technique is particularly appropriate for datasets in which structural factors vary gradually over time, such as institutional and market-development indices. Although both Difference GMM and System GMM were studied, the System GMM estimator was eventually discarded for empirical and theoretical reasons.

While System GMM mixes equations in differences and levels to yield efficiency benefits in highly persistent panels (Blundell & Bond, 1998), its validity is dependent on extra moment requirements that need strong assumptions about stationarity and instrument relevance. According to preliminary estimates, these assumptions did not hold in the Tanzanian dataset, as shown by the difference-in-Hansen test and the danger of instrument proliferation. In contrast, the two-step Difference GMM was shown to be more defensible, especially when estimated with collapsed instruments and a limited lag depth to avoid overfitting (Roodman, 2009). The two-step GMM estimator was chosen because it produces heteroskedasticity-robust standard errors (Windmeijer, 2005) and improves finite-sample efficiency.

Diagnostic tests were used to verify model assumptions, such as the AR(1) and AR(2) serial-correlation tests, the Hansen J-statistic for over-identifying limitations, and the Sargan test for instrument validity. These tests, taken together, proved the instrument set's statistical validity and the lack of second-order autocorrelation. Interaction terms were included in the GMM models to account for the moderating effect of bond maturity on the relationship between institutional variables and GBM size. This enabled the investigation to determine if the degree and direction of institutional impacts varied with short-, medium-, and long-term maturities. The addition of interaction variables resulted in a more nuanced understanding of market behaviour, demonstrating how institutional capacity transmits differentially throughout the sovereign yield curve and across investment time periods.

Overall, the use of the two-step Difference GMM provides a robust and empirically informed analytical framework for investigating the factors influencing Tanzania's government bond market. It maintained consistent parameter estimates, addressed endogeneity problems, and produced policy-relevant conclusions that were appropriate for both academic and institutional audiences.

(1) $$Y_{j,t} = \beta_0 + \beta_1 \mathrm{BS}_{j,t} + \beta_2 \mathrm{SMS}_{j,t} + \beta_3 W_{j,t} + \mu' 2_{j,t} + \mu 1_{j,t} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (Eqn\ 4.1)$$

Whereby:

$Y_{i,t}$ = Dependent variable (Government bond market size-GBM size) at time period ‘t’

Institutional factors = Independent variables such that BS, and SMS;
BS = Bank Size
SMS = Stock Market Size
W = Estimated unobservable variable:
j = indicators
β_0, $\beta_1\beta_2$, β_3, …, are the parameters to be estimated.
$\mu'2_{j,t}$, &$\mu'2_{j,t}$Are the estimated and non-estimated error terms (2)

$$Y_{j,t} = \beta_0 + \beta_1 \mathrm{BS}_{j,t} + \beta_2 \mathrm{SMS}_{j,t} + \beta_3 \mathrm{BS}_{j,t} ST_BM_{j,t} + \beta_4 \mathrm{BS}_{j,t} MT_\mathrm{BM}_{i,t} + \beta_5 \mathrm{BS}_{j,t} LT_\mathrm{BM}_{i,t} + +\beta_6 \mathrm{SMS}_{j,t} ST_BM_{j,t} + \beta_7 \mathrm{SMS}_{j,t} MT_\mathrm{BM}_{i,t} + \beta_8 \mathrm{SMS}_{j,t} LT_\mathrm{BM}_{i,t} + \beta_9 \mathrm{BM}_{i,t} + \beta_{10} W_{j,t} + \mu'2_{j,t} + \mu 1_{j,t} \quad (4.2)$$

Whereby
BM= Moderating factor (Bond Maturity)
ST_BM =Short Term Bond Maturity
MT_BM =Medium Term Bond Maturity
LT_BM = Long Term Bond Maturity

FINDINGS

Descriptive Analysis

Table 2 presents the descriptive statistics for the key variables included in the study, covering a sample of 28 annual observations. The variables examined were Government Bond Market (GBM) size, bank size, stock market size, and bond maturity structure (short-term, medium-term, and long-term maturities). The descriptive results provided insights into the central tendency, dispersion, and distributional properties of the data.

Government Bond Market (GBM) Size

GBM size has a mean value of 0.068 and a median of 0.047, indicating that the Tanzanian bond market remains relatively small in proportion to GDP. The maximum (0.195) and minimum (0.027) values indicate moderate variations in market depth over the study period (1997–2024). The standard deviation (0.054) reflects a moderate dispersion around the mean, implying that market size fluctuated across years, possibly due to differences in issuance volumes or investor participation. The positive skewness (0.767) shows that the distribution is slightly right-skewed, indicating that a few years recorded higher-than-average GBM sizes. Kurtosis (2.491), which is slightly below the normal value of 3, suggests a fairly normal distribution with light tails. The Jarque–Bera probability (0.218) exceeded 0.05, implying that the GBM size variable did not significantly deviate from normality.

Bank Size

Bank size exhibits a mean of 17,759.55, and a median of 11,836.10, indicating the presence of a few large banks that raise the average. The large standard deviation (18,359.27) confirms the substantial variability in the banking sector size across the sample period. The maximum (83,361.20) and minimum (1,930.17) values further suggest structural expansion in the banking industry over time, likely associated with financial liberalization and sector reforms. The high skewness (1.849) and leptokurtic kurtosis (6.909) indicate that the distribution is heavily right-skewed with a long tail, reflecting the dominance of a few large banks in Tanzania's financial system. Nonetheless, the Jarque–Bera probability (0.957) suggests that deviations from normality are not statistically significant.

Stock Market Size

Stock market size has a mean of 4.786 and a median of 2.935, implying that the Tanzanian equity market remains small relative to the banking sector. The standard deviation (2.686) shows moderate dispersion, with values ranging from 1.347 to 9.811, indicating gradual growth in market capitalization during the study period. The positive skewness (0.445) suggests a slight rightward tilt, implying that some years have higher capitalization relative to the mean. The kurtosis (1.930) and Jarque–Bera probability (0.323) indicate an approximately normal distribution.

Short-Term Bond Maturity

Short-term bonds (≤5 years) have a mean maturity of 11.056 years, median of 9.852, and standard deviation of 3.662, showing moderate variation in short-term issuances. The distribution exhibited mild positive skewness (0.138) and kurtosis (1.807) below 3, implying a relatively flat distribution. The Jarque–Bera probability (0.417) confirmed that the variable was approximately normally distributed.

Medium-Term Bond Maturity

Medium-term bonds (6–10 years) have a mean of 11.854 and a median of 12.199, suggesting that most government securities are concentrated around this maturity range. The standard deviation (4.016) shows a moderate spread, while a slightly negative skewness (-0.068) indicates near-symmetry. The kurtosis (1.611) and Jarque–Bera probability (0.321) suggest that the distribution was relatively flat and normal.

Long-Term Bond Maturity

Long-term bonds (≥10 years) display a mean of 13.642 and median of 14.659, indicating a gradual shift toward issuing longer-dated securities over time. The standard deviation (3.861) indicates moderate variability, whereas the negative skewness (-0.479) suggests that most values are concentrated above the mean, indicating a tendency toward longer maturities. The kurtosis (1.839) and Jarque–Bera probability (0.267) confirm a near-normal distribution of long-term maturities.

Table 2: Descriptive Analysis

	GBM Size	Bank Size	Stock Market Size	Bond Maturity		
				Short Term Maturity	Medium Term Maturity	Long Term Maturity
Mean	0.068	17759.550	4.786	11.056	11.854	13.642
Median	0.047	11836.100	2.935	9.852	12.199	14.659
Maximum	0.195	83361.200	9.811	17.467	18.174	18.664
Minimum	0.027	1930.168	1.347	5.138	6.422	7.686
Std. Dev.	0.054	18359.270	2.686	3.662	4.016	3.861
Skewness	0.767	1.849	0.445	0.138	-0.068	-0.479
Kurtosis	2.491	6.909	1.930	1.807	1.611	1.839
Jarque-Bera	3.045	3.785	2.260	1.749	2.273	2.640
Probability	0.218	0.957	0.323	0.417	0.321	0.267
Observations	28	28	28	28	28	28

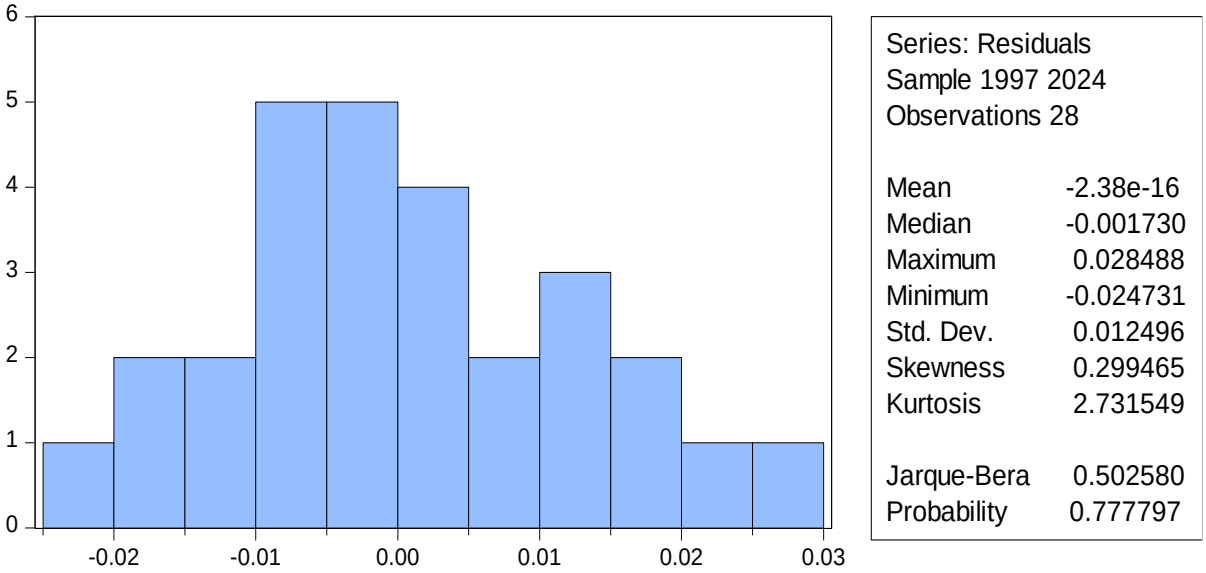
Source: Researcher's Computational (2025)

Diagnostics Test

Normality Test

The normality of the data was evaluated using the Jarque–Bera (JB) statistic, which concurrently analyses skewness and kurtosis to ascertain if the distribution of each variable substantially diverges from a normal distribution. The test findings demonstrate that all variables possess p-values beyond the standard 5 percent significance level, suggesting that the null hypothesis of normality remains unrefuted. In other words, there is no statistical evidence indicating that the data deviate from a Gaussian distribution. In Figure 2 the skewness coefficients indicate that the variables exhibit just little asymmetry and are within the permissible limits for econometric analysis. The kurtosis values are well matched with the mesokurtic standard of three, indicating a lack of significant tail heaviness or extreme peakedness. Collectively, these results affirm that the dataset functions appropriately and does not display aberrations that skew the parameter estimations. From an econometric standpoint, the validation of normality is crucial, especially for models estimated using the generalised method of moments (GMM), since regularly distributed series bolster the dependability of moment conditions and facilitate sound conclusions. Moreover, normalcy ensures that the underlying error term structure aligns with theoretical predictions, hence enhancing overall model resilience.

Figure 2: Normality Test



Source: Researcher Computational (2025)

Heteroskedasticity Test: Breusch-Pagan-Godfrey

The Breusch–Pagan–Godfrey test was used to assess the existence of heteroscedasticity in the residuals. The findings in Table 4.2 indicated an F-statistic of 0.460 with a probability of 0.802, significantly above the 5 percent significance level. The Obs*R-squared statistic of 2.651 with a p-value of 0.754, together with the Scaled Explained SS statistic of 1.209 with a p-value of 0.944, corroborate that the null hypothesis of homoscedasticity remains unrefuted. In other words, there was no statistical evidence of heteroscedasticity in the error terms. The results in Table 3 indicate that the model's residuals demonstrate homoscedasticity, fulfilling a fundamental assumption of classical linear regression and enhancing the dependability of the coefficient estimations. The lack of heteroskedasticity guarantees that the standard errors are both unbiased and efficient, hence confirming the validity of subsequent hypothesis testing and inference. This strengthens the overall reliability of the estimated model and validates the suitability of the used estimation method.

Table 3: Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.460	Prob. F (5,22)	0.802
Obs*R-squared	2.651	Prob. Chi-Square (5)	0.754
Scaled explained SS	1.209	Prob. Chi-Square (5)	0.944

Source: Researcher's Computational (2025)

Breusch-Godfrey Serial Correlation LM Test

The Breusch–Godfrey LM test was used to assess serial correlations in the residuals. The test findings indicate an F-statistic of 3.624 with a probability value of 0.071, and an Obs*R-squared statistic of 3.101 with a corresponding probability of 0.062. Both p-values, although somewhat above the usual 5 percent significance level, remained below the 10 percent threshold. The findings in Table 4 indicates a lack of statistically significant evidence for serial association at the 5 percent level, however the result nears marginal significance when assessed at the more lenient 10 percent threshold. This shows that the null hypothesis of no serial correlation cannot be rejected at the stringent 5 percent confidence level, signifying that the model's residuals are not statistically connected with time. The proximity of the p-values to the 5 percent threshold indicates a need for care; the underlying data may exhibit weak or borderline autocorrelation, which might become significant if the sample size or lag structure is modified. Consequently, although the present estimation is deemed valid and devoid of classical first-order autocorrelation at the 5 percent significance level, the closeness of the test statistics to the rejection threshold warrants the application of robust standard errors (or GMM with a suitable instrument framework) to enhance efficiency and protect against any residual mild correlation.

Table 4: Breusch-Godfrey Serial Correlation LM Test

F-statistic	3.624	Prob. F (1,29)	0.071
Obs*R-squared	3.101	Prob. Chi-Square (1)	0.062

Source: Researcher's Computational (2025)

Multicollinearity Test

Multicollinearity was evaluated by the Variance Inflation Factor (VIF), concentrating on the centred VIF values, which serve as the acceptable criteria for identifying linear dependency among explanatory variables. The findings in Table 5 indicate that all centred VIF values remain within the standard critical limit of 10, with Bank Size (7.695), Stock Market Size (5.394), Short-Term Maturity (5.118), Medium-Term Maturity (3.320), and Long-Term Maturity (6.137) all within permissible tolerance ranges. This signifies that none of the variables exhibits strong correlation with others that might skew coefficient estimates or inflate standard errors detrimentally. Despite the elevated uncentred VIF values, they are not applicable for inference when a constant component is present, and so do not indicate a multicollinearity issue. The constant (C) is inherently linked to a significantly uncentered VIF due to its formulation, and hence does not indicate a specification problem. The centred VIF findings indicate that the model is not significantly affected by multicollinearity, and each variable has unique explanatory value. This improves the stability and dependability of the regression coefficients and guarantees that the variance of the estimators stays below acceptable limits, thereby facilitating accurate inferences and consistent interpretations of the estimated effects.

Table 5: Multicollinearity Test

Variable	Coefficient Variance	Uncentered VIF	Centered VIF
BS	0.030	58.087	7.695
SMS	0.066	33.851	5.394
ST_BM	0.019	24.706	5.118
MT_BM	0.034	18.856	3.320
LT_BM	0.016	42.902	6.137
C	0.022	56.745	NA

Source: Researcher's Computational (2025)

Unit Root Test

The stationarity characteristics of the variables were analysed with the Augmented Dickey–Fuller (ADF) test. The findings indicate that all variables achieve stationarity after differencing, confirming their integration order as I(1), except for Bank Size, which requires second differencing and is therefore integrated of order I(2). The findings in Table 6 indicate that the Government Bond Market Size (GBM) achieves stationarity at the first difference, exhibiting an ADF statistic of −4.829 (p = 0.001), signifying robust statistical significance at the 1 percent level. The Stock Market Size attains stationarity at the first difference, exhibiting an ADF statistic of −4.979 (p = 0.000). All three maturity variables Short-Term Maturity (ADF = −4.609, p = 0.001), Medium-Term Maturity (ADF = −3.118, p = 0.038), and Long-Term Maturity (ADF = −3.847, p = 0.007) demonstrate similar behaviour, achieving stationarity after initial differencing. Bank Size needed two rounds of differencing to achieve stationarity, as shown by its second-difference ADF statistic of −3.444 and a p-value of 0.018, indicating that it is I(2).

Implications for the Econometric Model

The combination of integration orders for the majority of variables I(1) and I(2) significantly influences model specification. i. Cointegration framework: Given that most variables are I(1), the likelihood of cointegration is credible, particularly when a long-term equilibrium link is present among them. ii. Appropriateness of System GMM / Dynamic Modelling: The use of the generalised method of moments (GMM) is suitable since it does not need all variables to be I(0), provided they are not I(2) in levels. As bank size stabilises at I(2), using differences in the instrument matrix addresses this concern. iii. Prevention of spurious regression: Achieving stationarity by differencing guarantees that future estimates remain unbiased by stochastic trends, thus safeguarding against erroneous conclusions.

Table 6: Unit Root Test

GBM Size (1st Difference -Intercept)	*t-Statistic*	Prob.*
Augmented Dickey-Fuller test statistic	-4.829	0.001
Bank Size (2nd Difference-Intercept)	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.444	0.018
Stock Market Size (1st Difference-Intercept)	*t-Statistic*	Prob.*
Augmented Dickey-Fuller test statistic	-4.979	0.001
Short Term Maturity (1st Difference -Intercept)	*t-Statistic*	Prob.*
Augmented Dickey-Fuller test statistic	-4.609	0.001
Medium Term Maturity (1st Difference -Intercept)	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-3.118	0.038
Long Term Maturity (1st Difference -Intercept)	*t-Statistic*	Prob.*
Augmented Dickey-Fuller test statistic	-3.847	0.007

Source: Researcher's Computational (2025)

Hypotheses Testing

This segment of the research aimed to investigate the influence of institutional characteristics on the magnitude of the Government Bond Market (GBM) in Tanzania, and to assess the degree to which bond maturity moderates this connection. The regression findings in Table 7 indicate that both institutional factors, bank size and stock market size, have statistically significant impacts on GBM performance. Nonetheless, these effects function in opposing directions and are also influenced by the maturity profile of government securities regarding their issuance and circulation. This research aims to investigate the impact of bank size on GBM size in Tanzania. This research evaluated the following null hypotheses.

H1: The size of the banking sector has no significant effect on the government bond market size in Tanzania.

Table 7 demonstrates that bank size has a positive and statistically significant influence on GBM size ($\beta = 0.126$, $p = 0.000$), suggesting that an increase in the banking sector's scale directly enhances the bond market's depth. Banks serve a crucial function as principal investors in government securities and as liquidity providers in the secondary market. Bigger and more liquid banks are better equipped to absorb government securities, therefore augmenting market depth and boosting trading activity. This research refutes Hypothesis H1, which asserts that the size of the banking sector does not significantly influence the government bond market. In contrast, the second purpose of the research was to assess the impact of stock market size on GBM size in Tanzania. This research evaluated the following null hypotheses.

H2: The size of the stock market has no significant effect on the government bond market size in Tanzania.

Table 7 indicates that the coefficient for stock market size is negative and statistically significant ($\beta = -0.036$, $p = 0.043$), implying a minor substitution impact between equities instruments and government bonds. Tanzania's financial system, characterised by a limited investor base and the prevalence of institutional participants, suggests that increased engagement in the stock market diminishes the immediate demand for government debt instruments among investors. This study indicates that stock market growth now does not enhance bond market expansion but rather competes for a finite reservoir of long-term investable capital. Consequently, Hypothesis H2, which posits that stock market size does not significantly influence GBM size, is rejected.

The moderating effect of bond maturity is very significant. Short-term maturities have a significant positive impact (β = 0.382, p = 0.000), indicating that short-dated securities improve liquidity by facilitating frequent portfolio rebalancing and encouraging more aggressive trading. Medium-term maturities also provide a positive contribution (β = 0.237, p = 0.000), but with a little diminished intensity, signifying their role in facilitating rollover investment strategies and incremental market development. In contrast, long-term maturities have a negative and substantial impact on GBM size (= -0.052, p = 0.000), indicating that extended tenors are often found in "buy-and-hold" portfolios, which diminishes circulation and undermines liquidity transmission in the secondary market.

The model's overall fit reinforces the validity of these results, with an R-squared of 0.895 and an adjusted R-squared of 0.869, indicating that institutional variables and maturity structure combined account for about 87 percent of the variance in GBM size. The Durbin–Watson statistic (1.981) indicates no serial correlation, but the J-statistic probability (0.512) supports the suitability of the instrumental variable framework inside the System GMM estimation method.

Table 7: Hypotheses Testing

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BS	0.126	0.008	15.115	0.000
SMS	-0.036	0.017	-2.166	0.043
ST_BM	0.382	0.027	14.105	0.000
MT_BM	0.237	0.050	4.783	0.000
LT_BM	-0.052	0.012	-4.183	0.000
C	0.328	0.013	25.378	0.000
R-squared	0.895	Mean dependent var		0.070
Adjusted R-squared	0.869	S.D. dependent var		0.055
S.E. of regression	0.020	Sum squared resid		0.008
Durbin-Watson stat	1.981	J-statistic		12.195
Instrument rank	19	Prob(J-statistic)		0.512

Source: Researcher's Computational (2025)

Regression Analysis

The objective of this part of the study was to examine how institutional factors affect the size of the Government Bond Market (GBM) in Tanzania and to evaluate the extent to which this relationship is moderated by bond maturity. The results in Table 8 show that bank size continues to exert a positive and highly significant influence on GBM size (β = 0.100, p = 0.000), reaffirming the earlier finding that a stronger banking sector stimulates bond market expansion through its role as a primary holder and liquidity supplier in government securities. Accordingly, H1, which states that the size of the banking sector has no significant effect on GBM size in Tanzania, is rejected. However, the interaction terms reveal that this effect is not uniform across maturities. Specific objective three (a). This study investigates how bond maturity moderates the relationship between bank size and GBM size in Tanzania. This study tested the following null hypotheses.

H3a: Bond maturity does not moderate the relationship between the size of the banking sector and the government bond market size in Tanzania.

The results in Table 8 indicate a positive and significant moderating coefficient for short-term maturities (β = 0.009, p = 0.016), suggesting that when banks invest more in short-tenor securities, their influence on GBM size is amplified by faster turnover and more frequent

portfolio rebalancing. Similarly, the interaction with medium-term maturities remains positive and statistically significant (β = 0.067, p = 0.005), implying that medium-tenor bonds reinforce the contribution of bank size to market growth by supporting stable rollover investment strategies. In contrast, the interaction between bank size and long-term maturities is negative and significant (β = -0.093, p = 0.000), indicating that long-dated securities weaken the institutional growth effect by tying up liquidity in buy-and-hold portfolios. This confirms that bond maturity materially alters the extent to which banking depth translates into an overall bond market expansion. Regarding the second objective, the study aimed to determine the effect of stock market size on GBM size in Tanzania. This study tested the following null hypotheses.

*H2**:** The size of the stock market has no significant effect on the government bond market size in Tanzania.*

The stock market size in Table 8 reinforce this maturity-differentiated mechanism. The direct effect of stock market size is negative and significant (β = -0.226, p = 0.000), signalling a substitution effect whereby deeper equity markets absorb part of the investment flows that would otherwise support the government bond market, leading to the rejection of Hypothesis H2. Based on objective three (b). This study investigates how bond maturity moderates the relationship between stock market size and GBM size in Tanzania. This study tested the following null hypotheses.

***H3b**: Bond maturity does not moderate the relationship between the size of the stock market and the size of Tanzania's government bond market.*

The moderating results in Table 4.8 show no significant interaction between stock market size and short-term maturities (p = 0.112), suggesting that shorter-dated bonds do not meaningfully offset this crowding-out effect. However, stock market size moderated by medium-term maturities intensifies the negative effect (β = -0.454, p = 0.001), confirming that investors treat medium-term government securities and equities as close substitutes in their portfolios. In contrast, the interaction with long-term maturities reverses direction and becomes positive and highly significant (β = 0.561, p = 0.000), implying that equity market development complements GBM growth only at the long end of the yield curve, likely due to the pension fund and insurance fund portfolio diversification motives. Collectively, the results in Table 4.8 provide strong empirical evidence that bond maturity moderates the relationship between institutional development and GBM size, validating the rejection of Hypothesis H3. The moderating coefficients reveal that short- and medium-term bonds strengthen institutional spillovers, whereas long-term bonds dampen bank-led expansion and enhance stock market complementarities. The excellent model fit (Adjusted R^2 = 0.892), absence of serial correlation (Durbin–Watson = 1.883), and valid instrumentation (J-statistic p = 0.7956) further confirmed the robustness of the estimated effects.

Table 8: Moderation Role

Variable	Coefficient	Std. Error	t-Statistic	Prob.
BS	0.100	0.009	10.548	0.000
BS_ST_	0.009	0.003	2.690	0.016
BS_MT_	0.067	0.021	3.218	0.005
BS_LT_	-0.093	0.021	-4.366	0.000
SMS	-0.226	0.048	-4.711	0.000
SMS_ST_	-0.040	0.024	-1.676	0.112
SMS_MT_	-0.454	0.115	-3.953	0.001
SMS_LT_	0.561	0.112	4.998	0.000
C	-0.375	0.023	-16.215	0.000
R-squared	0.924	Mean dependent var		0.071
Adjusted R-squared	0.892	S.D. dependent var		0.055
S.E. of regression	0.031	Sum squared resid		0.017
Durbin-Watson stat	1.883	J-statistic		6.230
Instrument rank	19	Prob(J-statistic)		0.796

Source: Researcher's Computational (2025)

DISCUSSION OF FINDINGS

This study investigated the influence of institutional factors, specifically bank size and stock market size, on the Government Bond Market (GBM) size in Tanzania. The results indicate that institutional development, particularly the growth of the banking sector, is pivotal in determining the size of the GBM in Tanzania. This finding aligns with institutional theory, which asserts that the depth of financial markets is contingent upon the intermediation capacity of key institutional players. In relation to this objective, the study analysed the impact of bank size on GBM size in Tanzania and tested the following null hypotheses.

H1: The size of the banking sector has no significant effect on the government bond market size in Tanzania.

The findings indicate that in developing countries like Tanzania, banks function not just as liquidity providers but also as primary absorbers of state issuances. The affirmative transmission mechanism identified in this study corroborates prior findings from regional and international research (e.g., Adelegan & Radzewicz-Bak, 2022; Mbate, 2020), which indicated that well-capitalized banking institutions are essential for the development of domestic debt markets. Consequently, the findings validate the notion that banking institutions prevail in financial intermediation, and their balance sheet increase inherently bolsters bond market growth. Specific Objective Three (a). This research examines the extent to which bond maturity influences the link between bank size and GBM size in Tanzania. This research evaluated the following null hypothesis.

H3a: Bond maturity does not moderate the relationship between the size of the banking sector and the government bond market size in Tanzania.

The findings on the moderating influence of bond maturity provide more theoretical insights. Short- and medium-term maturities enhance the beneficial relationship between institutional capacity and bond market performance, aligning with microstructure theory's focus on turnover, trading incentives, and rebalancing frequency. These maturities promote liquidity-enhancing conduct and enable more efficient price discovery processes. This expands the literature by demonstrating that institutional depth does not inherently lead to market

deepening, unless the maturity structure facilitates active trading. Conversely, extended maturities mitigate the influence of banking sector advancement on the GBM, a conclusion aligned with the "buy-and-hold" behaviour seen in African public debt markets (IMF, 2023; AfDB, 2023). Institutional investors, like pension funds and insurance firms, often retain long-term bonds until maturity, therefore diminishing secondary market activity and constraining liquidity. This research assessed the impact of stock market size on the magnitude of the GBM in Tanzania. This research evaluated the following null hypothesis.

*H2**:** The size of the stock market has no significant effect on the government bond market size in Tanzania.*

The findings indicate that the adverse impact of stock market size on bond market development corresponds with the market microstructure perspective, implying that in thin and shallow financial markets, defined by a limited investor base, various financial assets vie for the same reservoir of long-term capital. The discovery indicates that in Tanzania, equity and government bond markets operate as substitutes instead of complements, thereby expanding upon prior research, such as that by Agyeman and Frimpong (2020), by demonstrating that complementarities between asset classes arise only after the investor base is adequately diversified. In this respect, the outcome also somewhat contradicts research on more sophisticated or diverse African markets, where the growth of stock markets and the deepening of bond markets occur concurrently. In Tanzania, institutional concentration constrains this dual growth. According to goal three (b). This research examines the extent to which bond maturity influences the link between stock market size and GBM size in Tanzania. This research evaluated the following hypothesis.

H3b: Bond maturity does not moderate the relationship between the size of the stock market and the government bond market size in Tanzania.

Nonetheless, the extended maturities enhance the stock market, indicating that over prolonged periods, the rationale for institutional portfolio diversification aligns more closely with capital preservation and duration-matching strategies rather than liquidity supply. This contributes to the research by emphasising that the relationship between institutional growth and the maturity structure is bidirectional, heterogeneous, and tenor-specific. The rejection of the moderating neutrality hypothesis (H3) affirms that the impact of institutional forces is contingent rather than absolute. Consequently, bond maturity serves as a structural transmission mechanism rather than a passive market attribute. This supports the assertion of institutional theory that market results arise not just from the existence of institutions, but from the arrangement of institutional incentives integrated inside the market's framework, specifically regarding tenor structures. These findings integrate institutional and market microstructure theories by demonstrating that, whereas institutional depth fosters market expansion, microstructural elements like bond maturity dictate the conversion of that capacity into liquidity. In established financial systems, this translation is assumed; nevertheless, in emerging markets, it is influenced by tenor asymmetries, risk appetites, and the investment timelines of key participants.

CONCLUSIONS

Examining institutional factors affecting GBM size. When BS and SMS were directly regressed on GBM size. The findings demonstrate that BS has a statistically significant favourable impact on GBM size. A unit increase in BS corresponds to a rise in GBM size. In contrast, SMS has a statistically negative and negligible effect on GBM size. Proposing that SMS increases do not affect GBM size. When BS and SMS were moderated by ST_BM, MT_BM, and LT_BM, the findings demonstrate statistically significant and favourable effects on GBM size when BS was moderated by ST_BM and MT_BM. Conversely, when moderated by LT_BM, it adversely affects the very large GBM size. The augmentation of BS results in the enlargement of GBM size when influenced by ST_BM and MT_BM.

However, the elevation of BS, when moderated by LT_BM, considerably diminishes GBM size. The findings indicate a statistically negative and inconsequential effect on GBM size when moderated by ST_BM, but the effect is substantial when moderated by MT_BM. However, the data demonstrate a favourable and highly significant effect when SMS was regulated by LT_BM. The rise in SMS, when controlled by ST_BM, has no impact on GBM size, but decreases GBM size when moderated by MT_BM. Moreover, the augmentation of SMS results in a corresponding rise in GBM size when controlled by LT_BM.

CONTRIBUTIONS

This study makes several important contributions to the understanding of how institutional factors and bond maturity jointly influence the size of Tanzania's Government Bond Market (GBM). Empirically, the research demonstrates that institutional factors specifically bank size (BS) and stock market size (SMS) affect GBM size in maturity-dependent ways. Bank size exerts a positive and statistically significant influence on GBM size when moderated by short-term and medium-term maturities, while its effect becomes negative under long-term maturity, revealing that institutional depth does not uniformly support all segments of the market. Stock market size, on the other hand, has negligible influence on short-term securities but becomes highly influential in expanding long-term GBM segments, confirming that stock market development enhances confidence and diversification for long-duration bonds. The thesis also distinguishes between nominal deepening (expansion in outstanding debt stock) and functional deepening (improvements in liquidity and turnover), showing that large auction subscriptions do not necessarily translate into an active market. Collectively, these findings establish that the GBM is not homogenous: maturity structure acts as a behavioural mechanism that shapes how institutional capacities translate into market expansion, thereby enriching the theoretical understanding of bond market segmentation in frontier economies.

RECOMMENDATIONS

Based on the empirical findings, several policy recommendations are proposed to strengthen the maturity-aligned development of Tanzania's GBM. First, authorities should reinforce the institutional and market infrastructure supporting long-term bonds, as these securities are particularly sensitive to weaknesses in governance, transparency, and legal enforcement. This requires deeper capital-market reforms, stronger investor-protection mechanisms, and the establishment of market-making obligations for long-term benchmark bonds. Second, because bank size predominantly supports short- and medium-term maturities, reforms should enhance the liquidity-provision role of banks by expanding inter-dealer trading platforms, broadening the repo market, lowering transaction costs, and requiring continuous two-way quotes for benchmark securities. Third, the stock market must be strengthened to support long-term GBM growth through enhanced electronic trading systems, intraday settlement cycles, and improved post-trade reporting, ensuring integration between the equity and bond markets. Fourth, the Debt Management Strategy should adopt maturity-sensitive issuance calendars that balance

ST, MT, and LT securities according to market absorption capacity and should incorporate secondary-market indicators such as turnover and yield-curve continuity into performance criteria. Together, these reforms would promote a GBM that is not merely large in issuance but functionally liquid, institutionally robust, and maturity-balanced.

AREAS FOR FUTURE RESEARCH

Several promising avenues for future research arise from the findings and limitations of this study. First, future research could extend this maturity-moderation model to a cross-country panel to determine whether the observed patterns in Tanzania are structural features of African bond markets or context-specific outcomes. A panel study involving countries such as Kenya, Uganda, Ghana, Rwanda, and Zambia would allow broader inference and capture institutional diversity. Second, future studies should utilise high-frequency secondary-market data such as bid-ask spreads, turnover ratios, and repo volumes to build liquidity-sensitive models grounded in Market Microstructure Theory, capturing price discovery and trading dynamics with higher precision. Third, the use of institution-level or security-level datasets would allow analysis of how different investor categories (banks, pension funds, insurers, asset managers, and foreign investors) adjust their maturity preferences and liquidity behaviour in response to macroeconomic and institutional signals. Fourth, researchers may examine the impact of specific policy reforms using regime-shift or event-study methodologies to assess whether major institutional changes alter the maturity-adjusted determinants of market size. Lastly, a comprehensive yield-curve modelling framework that incorporates maturity segmentation, liquidity premiums, and institutional credibility would provide deeper insights for debt managers, rating agencies, and investors. These future research directions would enrich the understanding of bond market evolution in developing nations transitioning from issuance-driven to liquidity-driven market development.

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