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External Debt and Domestic Investment in Eastern Africa. Assessing Debt Sustainability and Investment Dynamics

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Abstract:

External debt remains a key development finance instrument for many developing economies, yet its impact on domestic investment is highly debated. In Eastern Africa, rising debt levels have raised concerns about fiscal sustainability and investment performance. This study examines the effect of external debt on domestic investment in sixteen Eastern African countries over the period 1990–2023. The objective is to assess both the short-run and long-run relationship between external debt and domestic investment while considering debt sustainability dynamics. The study uses panel data and applies the Pooled Mean Group (PMG) estimator within an Autoregressive Distributed Lag (ARDL) framework to capture heterogeneous short-run effects and homogeneous long-run relationships. The results show a significant long-run negative relationship between external debt and domestic investment. This effect is mainly driven by high debt servicing obligations and reduced fiscal space. Short-run results are mixed, with some countries experiencing temporary positive effects depending on country-specific conditions and debt utilization patterns. Diagnostic tests confirm the robustness and reliability of the model. The findings imply that unsustainable borrowing can undermine domestic capital formation in the long run. However, well-managed external debt can still support investment in the short

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term. The study recommends stronger debt sustainability frameworks, prudent borrowing strategies, and improved domestic resource mobilization to enhance investment-led growth in Eastern Africa.

Keywords:

External Debt, Domestic Investment, Debt Overhang, Debt Sustainability, Eastern Africa

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Introduction

External debt has become a central issue in global macroeconomic management, particularly for developing and emerging economies seeking to sustain domestic investment and economic growth. In many low- and middle-income countries, external borrowing is used to bridge fiscal gaps, finance infrastructure, and support development programs. However, rising debt levels have also raised concerns about debt sustainability and its potential to constrain domestic investment through high repayment obligations and reduced fiscal space. According to the World Bank (2024), total external debt in developing countries exceeded $9.3 trillion in 2023, reflecting a sharp increase driven by post-COVID-19 recovery financing and large-scale infrastructure investments. At the same time, global interest payments reached unprecedented levels, diverting resources away from productive investment and weakening long-term growth prospects (UNCTAD, 2024).

Africa remains one of the most affected regions by rising external debt pressures. The continent's public debt stock reached approximately $1.8 trillion in 2023, with average debt-to-GDP ratios exceeding 60% (IMF, 2023). More than 25 African countries are either in debt distress or at high risk of debt distress. In addition, borrowing costs in Africa are significantly higher than in advanced economies, limiting access to affordable capital. As a result, a large share of government revenue is now directed toward debt servicing rather than investment in productive sectors such as infrastructure, health, and education (UNCTAD, 2024). This situation has reduced domestic credit availability, weakened private sector growth, and slowed job creation (Iyoha, 1999; Fagbemi, 2020).

Within Eastern Africa, the external debt challenge has become more pronounced and increasingly linked to declining investment performance. Countries such as Kenya, Uganda, Tanzania, and Ethiopia have recorded rising debt-to-GDP ratios, with some exceeding 50% and Kenya surpassing 68% in 2023 (IMF, 2023; MoFPED, 2023). The region's external debt stock now exceeds $150 billion, while debt servicing consumes over 30% of government revenues (World Bank, 2024). This situation has reduced fiscal space for public investment in critical sectors such as infrastructure, manufacturing, and social services. It has also increased sovereign risk and discouraged private sector participation, thereby contributing to persistent underinvestment across the region (Akomolafe, 2015; Were, 2018). Consequently, domestic investment in Eastern Africa remains below 20% of GDP, compared to the global average of approximately 27% (UNCTAD, 2024).

Despite these concerns, empirical evidence on the causal relationship between external debt and domestic investment in Eastern Africa remains limited and fragmented. Most existing studies focus on single-country analyses or treat Africa as a homogeneous unit, overlooking country-specific differences in debt management systems, institutional quality, and macroeconomic conditions. Furthermore, many

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studies rely on outdated datasets or methodologies that do not adequately capture both short-run dynamics and long-run equilibrium relationships between external debt and investment.

Against this background, the main aim of this study is to examine the causal relationship between external debt and domestic investment in Eastern African Sub-Region countries over the period 1990–2023, with a particular focus on debt sustainability implications. The study is guided by three key questions. First, what is the long-run relationship between external debt and domestic investment in Eastern Africa? Second, how does external debt affect domestic investment in the short run across countries with different macroeconomic conditions? Third, to what extent does debt servicing influence or displace domestic investment in both the public and private sectors?

To address these questions, the study analyzes panel data from sixteen Eastern African countries using advanced econometric techniques that capture both dynamic adjustments and long-term relationships. The expected outcome is to generate robust empirical evidence on how external debt influences investment behavior in the region and to identify whether current debt levels are sustainable or potentially harmful to long-term investment growth.

The significance of this study lies in its contribution to policy and academic discourse on debt sustainability and investment dynamics in developing economies. By focusing on Eastern Africa, the study provides region-specific insights that can inform fiscal policy, borrowing strategies, and investment planning.

Literature Review

The empirical literature on external debt and domestic investment presents mixed and context-dependent findings across regions. A large body of studies conceptualizes external debt as both a development financing tool and a potential constraint on investment, depending on its level, structure, and management efficiency. This dual nature of debt is central to the debt overhang and crowding-out hypotheses, which form the analytical basis of most empirical investigations in developing economies. Empirical evidence from Sub-Saharan Africa largely supports the argument that excessive external debt negatively affects domestic investment. Iyoha (1999) provides early evidence showing that rising external debt reduces investment in African economies through increased debt servicing obligations and reduced fiscal space. Similarly, Were (2018) finds that high debt levels constrain capital formation by diverting government resources away from productive investment toward debt repayment. These findings support the Debt Overhang Hypothesis (H1), which posits that increasing external debt reduces domestic investment in the long run.

Fosu (2019) further strengthens this argument by showing that debt accumulation reduces governments' ability to finance infrastructure and industrial development, thereby weakening long-term investment

capacity. In this context, the dominant empirical conclusion is that unsustainable debt levels are associated with lower domestic investment, particularly in economies with weak fiscal institutions and limited revenue bases. Studies from West Africa provide additional but nuanced evidence on the debt–investment relationship. Akomolafe (2015) and Joy and Panda (2020) find that increasing external debt in countries such as Nigeria and Ghana leads to a crowding-out effect, where domestic credit to the private sector declines due to increased government borrowing. This supports the Crowding-Out Hypothesis (H2), which states that external debt reduces private investment by limiting access to financial resources.

For example, Ghana's rising debt burden, which reached 68% of GDP in 2022, has been associated with reduced investment in productive sectors such as manufacturing and agriculture (IMF, 2023). Similarly, Ogunjimi (2019) notes that while concessional borrowing may initially stimulate investment through infrastructure development, reliance on non-concessional loans increases macroeconomic instability, discourages private investment, and may lead to capital flight. These findings suggest that the impact of external debt is not uniform but depends on debt composition and fiscal discipline. In contrast, some empirical studies report that external debt can positively influence investment when efficiently managed. Evidence from North African countries such as Egypt and Morocco demonstrates that external borrowing can enhance domestic investment if it is directed toward productive sectors. Elbadawi and Ndulu (2016) show that these countries successfully used external loans to finance infrastructure, energy, and industrial expansion, resulting in sustained investment-to-GDP ratios above 25%. These findings support the Debt Productivity Hypothesis (H3), which argues that external debt can increase domestic investment when allocated efficiently and supported by strong institutions. The implication is that debt effectiveness depends not only on its size but also on governance quality and investment efficiency.

Empirical findings specific to Eastern Africa reveal more complex and mixed outcomes. Ndoricimpa (2020) and Were (2018) observe that external borrowing may initially stimulate domestic investment by providing additional financial resources for development projects. However, over time, rising debt accumulation leads to fiscal pressure, higher debt servicing costs, and reduced investment capacity. This suggests a non-linear relationship hypothesis (H4), where external debt has a positive effect on investment at lower levels but a negative effect once a critical threshold is exceeded. The evidence indicates that Eastern African economies may experience a turning point beyond which debt becomes detrimental to investment growth.

Based on the reviewed studies, the following hypotheses are derived.

H1 (Debt Overhang Hypothesis): External debt has a negative long-run effect on domestic investment. (Iyoha, 1999; Were, 2018; Fosu, 2019)

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H2 (Crowding-Out Hypothesis): External debt reduces private investment through reduced access to credit. (Akomolafe, 2015; Joy & Panda, 2020)

H3 (Debt Productivity Hypothesis): External debt can positively influence investment when efficiently managed and allocated to productive sectors. (Elbadawi & Ndulu, 2016)

H4 (Non-linear/Threshold Hypothesis): The relationship between external debt and investment is non-linear, with positive effects at low levels and negative effects beyond a threshold. (Ndoricimpa, 2020)

Geographical Scope of the Study

This study examines 16 countries in the Eastern African sub-region. The United Nations introduced the Eastern Africa classification under the M49 standard in 1969 to group countries for statistical purposes. By 2025, the classification included 18 countries: Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Rwanda, Seychelles, Somalia, South Sudan, Tanzania, Uganda, Zambia, and Zimbabwe (UN, 2025). However, Somalia and South Sudan were excluded due to data limitations, resulting in a final sample of 16 countries. This geographical focus is important because the region increasingly relies on external debt to finance infrastructure, fiscal deficits, and development activities. Greater dependence on non-concessional borrowing has heightened exposure to exchange rate fluctuations, rising global interest rates, and declining export revenues. These pressures have reduced fiscal space and constrained both domestic and foreign investment. Additionally, strong regional integration through EAC, COMESA, and IGAD implies that debt challenges in one country can spill over to others, making the region appropriate for comparative analysis of debt, investment, and fiscal sustainability.

Methods and Data

This study adopted a structured literature-based methodological approach combined with an empirical panel econometric framework. The literature review followed a systematic approach inspired by PRISMA principles to ensure transparency in identification, screening, and selection of relevant studies. Literature was sourced from Google Scholar, Scopus, Web of Science, IMF eLibrary, and the World Bank Open Knowledge Repository. The search strategy used keyword combinations such as *"external debt AND domestic investment," "debt overhang AND investment," "public debt AND private investment in Africa,"* and *"debt sustainability AND economic growth in East Africa."* Only peer-reviewed articles, policy reports, and working papers published between 1990 and 2025 were included.

The selected literature was analyzed through thematic synthesis, focusing on empirical findings, theoretical explanations, and methodological approaches. Studies were grouped by region (Sub-Saharan Africa, West Africa, North Africa, and Eastern Africa) and by methodology (panel data, ARDL,

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VAR, and cointegration techniques). Descriptive classification was also conducted based on publication year and journal type to identify research trends and gaps in the debt–investment literature.

Research Design

This study employed a longitudinal panel research design covering 16 Eastern African countries over the period 1990–2023. The design is suitable because it captures both short-run dynamics and long-run equilibrium relationships between external debt and domestic investment while accounting for country heterogeneity and time effects.

The general functional relationship is specified as:

$$INV_{it} = f(ED_{it}, DS_{it}, BCR_{it}, INF_{it}, IR_{it})$$

The empirical model is specified in log-linear dynamic panel form as:

$$\ln INV_{it} = \alpha_i + \beta_1 \ln ED_{it} + \beta_2 \ln DS_{it} + \beta_3 \ln BCR_{it} + \beta_4 INF_{it} + \beta_5 IR_{it} + \varepsilon_{it}$$

where $\alpha_i$captures country-specific effects and $\varepsilon_{it}$is the stochastic error term.

To capture both short-run and long-run dynamics, the Panel ARDL model is specified as:

$$\Delta DINV_{it} = \phi_i + \sum \pi_1 \Delta DINV_{it-1} + \pi_2 \Delta ED_{it} + \pi_3 \Delta DS_{it} + \pi_4 \Delta BCR_{it} + \pi_5 \Delta IR_{it} + \pi_6 \Delta INF_{it} + \lambda(DINV_{it-1} - \rho_1 ED_{it} - \rho_2 DS_{it} - \rho_3 BCR_{it} - \rho_4 IR_{it} - \rho_5 INF_{it}) + \mu_i + \varepsilon_{it}$$

The error correction term is:

$$ECT_{it} = DINV_{it-1} - \rho_1 ED_{it} - \rho_2 DS_{it} - \rho_3 BCR_{it} - \rho_4 IR_{it} - \rho_5 INF_{it}$$

and the speed of adjustment is captured by λ.

Additional Econometric Tests and Models

Cross-Sectional Dependence (Pesaran CD Test)

$$CD = \sqrt{\frac{2}{TN(N-1)}} \sum_{i=1}^{N-1} \sum_{j=i+1}^{N} \hat{\rho}_{ij}$$

where T= time periods, N= countries, and $\hat{\rho}_{ij}$= pairwise correlation of residuals.

Panel Unit Root Test (CIPS)

$$\Delta y_{it} = \alpha_i + \beta_i t + \gamma_i y_{it-1} + \sum_{k=1}^{p_i} \delta_{ik} \Delta y_{it-k} + \varepsilon_{it}$$

CIPS statistic:

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$$CIPS = \frac{1}{N}\sum_{i=1}^{N} t(\gamma_i)$$

Panel Cointegration (UECM / ARDL Bounds Model)

$$\Delta y_{it} = \alpha + \sum \beta_j \Delta y_{it-j} + \sum \gamma_k \Delta x_{it-k} + \sum \delta_l \Delta q_{it-l} + \lambda_1 y_{it-1} + \lambda_2 x_{it-1} + \lambda_3 q_{it-1} + \varepsilon_{it}$$

Null hypothesis: $H_0: \lambda_1 = \lambda_2 = \lambda_3 = 0$

Variable Symbol	Variable Name	Description	Measurement / Proxy	Data Source
lnINV	Domestic Investment	Total domestic investment representing capital formation within the economy	Gross Fixed Capital Formation (% of GDP), logged	World Bank (WDI)
lnED	External Debt	Total stock of external debt owed to foreign creditors	External Debt (% of GDP), logged	World Bank (WDI)
lnDS	Debt Servicing	Payments made on external debt (principal + interest)	Debt Service (% of GNI or exports), logged	World Bank (WDI)
lnBCR	Bank Credit to Private Sector	Financial resources provided to the private sector by financial institutions	Domestic Credit to Private Sector (% of GDP), logged	World Bank (WDI)
INF	Inflation Rate	General increase in price levels indicating macroeconomic instability	Annual % change in Consumer Price Index (CPI)	World Bank (WDI)
IR	Interest Rate	Cost of borrowing and return on savings	Lending Interest Rate (%)	World Bank (WDI)
ε_it	Error Term	Captures unobserved factors affecting domestic investment	Not directly observed	—

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α_i	Country-specific Effect	Unobserved heterogeneity across countries	Fixed/Random country-specific intercept	—
t	Time Dimension	Time period of analysis	1990–2023	—
i	Cross-sectional Unit	Individual country in the panel	16 Eastern African countries	—

Table 1: Definition and Measurement of Variables used in the log-linear dynamic panel model

Results

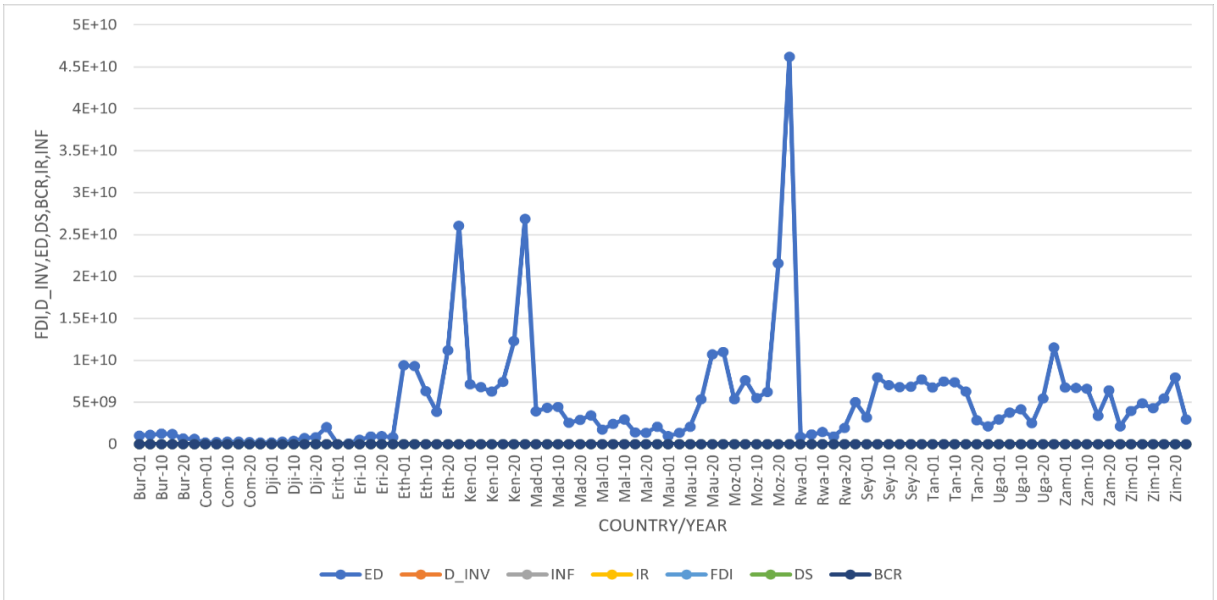

Figure 1: Multi-country Panel Trends (Source: Author's Computation using Excel (2025))

Investment trends in East Africa are heavily influenced by external debt, according to the chart. Ethiopia, Kenya, and Mozambique have seen significant upticks in borrowing for infrastructure, while domestic investment and bank credit have shown little change, pointing to weak domestic financial mobilization. Burundi and Eritrea, facing fragile fiscal systems, exhibit low debt and investment levels. Constrained bank credit signals underdeveloped financial sectors, with inflation and interest rate volatility adding further instability. Empirical studies (Mensah et al., 2022; Akinola & Egbetunde, 2021; Fosu, 2021) support these findings, demonstrating that external debt can provide a short-term investment boost but

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can crowd out domestic investment as debt servicing escalates. Prudent debt management and robust financial intermediation are crucial for sustainable development.

Null hypothesis: Estimator is statistically similar to the PMG estimator

Estimator	Stat.	DOF	p-Value
Mean Group	2.133880	5	0.8303

Table 2: PMG Hausman Specification Test

To establish the appropriateness of the PMG estimator, a Hausman test was conducted, with the results presented in Table 2. The test produced a statistic of 2.1339 with 5 degrees of freedom, and a p-value of 0.8303. Given that this p-value substantially surpasses the 5% significance threshold, we are unable to reject the null hypothesis. This outcome implies that the PMG and MG estimators are statistically indistinguishable, thereby validating the selection of the PMG approach for this investigation. The study's findings indicate that while short-run dynamics of debt and investment vary among countries within the Eastern African Sub-Region, their long-run relationships exhibit a tendency to converge. This convergence is likely attributable to common structural and macroeconomic drivers, such as a shared reliance on external borrowing and comparable fiscal challenges. Prior studies, notably those by Ndoricimpa (2020), Asteriou et al. (2020), and Mensah et al. (2019), have reported analogous results, demonstrating the PMG model's proficiency in identifying uniform long-run effects of public debt on investment across different regions. These findings further underscore the relevance of the debt overhang and crowding-out theories.

Null hypothesis: No cross-section dependence (correlation) in residuals

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	581.4133	120	0.0000
Pesaran scaled LM	29.78410		0.0000
Pesaran CD	17.13644		0.0000

Table 3: Cross-Section Dependency Test

Table 3 showcases the results of the cross-sectional dependence analysis. The rejection of the null hypothesis (no cross-sectional dependence) at the 1% significance level across the Breusch-Pagan LM

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test (581.41, p = 0.0000), Pesaran Scaled LM test (29.78, p = 0.0000), and Pesaran CD test (17.14, p = 0.0000) provides strong evidence of significant interconnectedness among countries in the Eastern African Sub-Region. This implies that economic shocks or policy shifts in one nation are likely to have a substantial ripple effect on the investment decisions of other countries within the region. Consequently, the adoption of second-generation panel estimators, such as the Pooled Mean Group (PMG) model, is well-supported by these findings. These results align with prior research by Maugu (2023) and Gichigo (2023) on regional spillovers related to economic integration, though they differ from Magumisi's (2021) observations of weaker interdependencies in Zimbabwe. Ultimately, the data emphasize the highly integrated nature of the East African economies

Pesaran CIPS					
Variables	**Level Intercept & Trend**	**5% Critical Value**	**First Diff Intercept & Trend**	**5% Critical value**	**Decision Order of Integration**
ED	-2.428	-2.75	-2.852	-2.75	I(1)
DS	-2.702	-2.75	-3.269	-2.75	I(1)
DIV	-2.379	-2.75	-3.614	-2.75	I(1)
INF	-4.180	-2.75	Nil	Nil	I(0)
IR	-2.342	-2.75	-2.890	-2.75	I(1)
BCR	-1.901	-2.75	-3.482	-2.75	I(1)

Table 4: Panel Unit Root Result

Unit root tests indicated that the variables under investigation exhibit diverse integration orders. External debt (ED) and debt servicing (DS) were non-stationary in their raw form but transitioned to stationary after first differencing, a hallmark of long-term persistence and slow adjustment to shocks. Domestic investment and bank credit (BCR) also required differencing to achieve stationarity, pointing to a gradual evolution of capital formation and financial flows. Notably, foreign direct investment (FDI) and inflation (INF) were stationary at their initial levels, suggesting stable underlying trends. The interest rate (IR), while non-stationary in levels, became stationary after first differencing, highlighting the persistent influence of monetary policy. These findings collectively confirm that all variables are integrated of order I(0) or I(1). This crucial insight validates the application of the Panel ARDL model, which is well-suited to handle mixed integration levels for dependable long-run and short-run estimations.

F-statistic: 8.220**

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	10%		5%		1%	
Sample Size	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
30	2.525	3.560	3.058	4.223	4.280	5.840
Asymptotic	2.200	3.090	2.560	3.490	3.290	4.370

Table 5: Panel Bounds Test Co-Integration Results
(Source: Researcher's Computation Using EViews-13 (2025))

* I(0) and I(1) are respectively the stationary and non-stationary bounds.

As evidenced by Table 5 and the Panel Bounds Test, a significant long-term equilibrium relationship is established among external debt, debt servicing, macroeconomic factors, and investment in Eastern African Sub-Region Countries. The F-statistic (8.220, $p < 0.05$) exceeding the upper I(1) bound invalidates the null hypothesis of no co-integration, signifying a robust and enduring link between external debt and investment, even amidst short-term economic fluctuations. This conclusion resonates with prior research by Ndoricimpa (2020) and Were (2018), who identified persistent debt impacts on investment, and with Aswata et al. (2018), who documented similar co-integration phenomena. However, these findings diverge from Dacka's (2016) observations of less pronounced relationships in some Sub-Saharan countries. Ultimately, the data strongly suggests that external debt is a fundamental determinant of long-term investment trends in East Africa.

Dependent Variable: D(D_INV)

Method: ARDL

Variable	Coefficient	Std. Error	t-Statistic	Prob.
	Long-run (Pooled) Coefficients			
ED	5.001067	0.210592	23.74769	0.0000
DS	0.330285	0.083575	3.951953	0.0001
INF	-0.103083	0.022232	-4.636683	0.0000

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IR	-0.245980	0.025326	-9.712667	0.0000
BCR	0.242553	0.027213	8.913131	0.0000
	Short-run (Mean-Group) Coefficients			
COINTEQ	-0.886640	0.203114	-4.365235	0.0000
D(D_INV(-1))	0.174114	0.122005	1.427107	0.1543
D(ED)	4.905073	1.624885	3.018721	0.0025
D(DS(-1))	-0.492051	0.123951	-3.969722	0.0001
D(INF(-2))	-0.253199	0.109685	-2.501868	0.0120
D(IR(-1))	-1.073685	0.265780	-4.039751	0.0000
D(BCR)	0.252036	0.110759	2.275532	0.0231
C	1.011834	1.136922	0.889977	0.3660
@TREND	0.153796	0.291025	0.528463	0.5974
Log-Likelihood:	-694.4525			

Table 6: Domestic Investment Model: PMG (Panel ARDL) Results

Table 6 displays the Panel ARDL (PMG) findings concerning domestic investment in Eastern African Sub-Region Countries. The model demonstrates robustness, evidenced by a significant log-likelihood value of -694.45 and a negative error correction term (-0.887, $p < 0.01$), which affirms long-run stability.

In the long run, external debt (5.001, $p < 0.01$) and debt servicing (0.330, $p < 0.01$) exhibit a positive impact on investment. This suggests that judicious utilization of debt and consistent repayment practices contribute to increased capital formation. Conversely, inflation (-0.103, $p < 0.01$) and interest rates (-0.246, $p < 0.01$) tend to diminish investment capacity, whereas bank credit (0.243, $p < 0.01$) acts as a catalyst for investment.

The short-run dynamics largely reflect these trends. External debt (4.905, $p < 0.01$) and bank credit (0.252, $p < 0.05$) are found to stimulate investment. However, lagged debt servicing (-0.492, $p < 0.01$), inflation (-0.253, $p < 0.05$), and interest rates (-1.074, $p < 0.01$) appear to impede investment in the short term.

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Normality Test				Decision	Remarks
Jarque-Bera Test	1.348	Prob	0.510	Prob > 0.05	Normally distributed
Serial Correlation LM Test					
F Statistics	1.075	Prob	0.442	Prob > 0.05	Abs of Serial Correlation
Homoskedasticity Test					
Breuch-Pagan-Godfrey Test	1.306	Prob	0.300	Prob > 0.05	Abs of Heteroskedasticity

Table 7: Result of the Diagnostic Test (Source: Researcher's Computations Using EViews 10)

The Panel ARDL model, employed to investigate the connection between external debt and domestic investment in Eastern African Sub-Region Countries, has been validated by the diagnostic tests presented in Table 6. These tests confirm the model's statistical soundness and its compliance with core regression assumptions, bolstering confidence in its findings.

Crucially, the Jarque-Bera test (JB = 1.348, p = 0.510) indicated that the model's residuals are normally distributed, a prerequisite for reliable hypothesis testing. Furthermore, the Serial Correlation LM test (F = 1.075, p = 0.442) found no signs of autocorrelation, suggesting that the residuals are independent and that the standard errors are consistent and trustworthy. The Homoskedasticity test (F = 1.306, p = 0.300) also supported the assumption of constant variance, which is vital for generating precise coefficient estimates.

Collectively, these results highlight the model's dependability. This strong validation underscores the accuracy of its coefficients and the credibility of its policy recommendations concerning debt and investment management in the region.

Discussion

The empirical results of this study provide important insights into the relationship between external debt and domestic investment in Eastern African Sub-Region countries, with clear implications for debt sustainability and long-term economic resilience. Overall, the findings show that debt dynamics in the region are not only a macroeconomic issue but also a sustainability challenge, particularly in balancing fiscal space, investment needs, and intergenerational economic stability.

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The unit root analysis revealed that domestic investment, interest rates, and bank credit become stationary only after first differencing, indicating strong persistence and structural rigidity in the financial and investment systems of Eastern Africa. This finding is consistent with Aswata et al. (2018), Maugu (2023), and Ndoricimpa (2020), who argue that debt and investment variables in developing economies exhibit slow adjustment to shocks due to weak institutional buffers and dependence on external financing. From a sustainability perspective, this persistence suggests that policy shocks such as debt accumulation or fiscal tightening have long-lasting effects on investment capacity, potentially delaying sustainable development outcomes. In contrast, the stationarity of foreign direct investment (FDI) supports Dacka (2016) and Ezeaku et al. (2023), who find that FDI is relatively resilient to macroeconomic volatility. This resilience is important for sustainability because it implies that external private capital can partially stabilize investment even when domestic fiscal conditions are constrained. The suitability of the Panel ARDL model is therefore reinforced, as it effectively captures both short-run instability and long-run sustainability relationships in the data.

The domestic investment results show that external debt and bank credit positively influence investment in the long run when efficiently managed. This aligns with Were (2018) and Mensah et al. (2019), who argue that external borrowing can support capital formation when directed toward productive sectors such as infrastructure and energy. From a sustainability standpoint, this supports the idea of “productive debt,” where borrowing contributes to future growth and reduces dependency on aid. However, this positive effect depends heavily on governance quality, project selection efficiency, and debt allocation mechanisms. Without these, debt risks becoming unsustainable, undermining both economic and environmental development goals.

The findings further confirm that inflation and high interest rates negatively affect domestic investment, consistent with Nyoni and Bonga (2017). This relationship highlights a key sustainability concern: macroeconomic instability reduces long-term investment in green infrastructure, industrial development, and social services, all of which are essential for achieving Sustainable Development Goals (SDGs). Stable macroeconomic conditions are therefore not only growth-enhancing but also central to sustainable development planning in the region.

A particularly important and somewhat contrasting result is the positive long-run effect of debt servicing on investment. This finding diverges from Ogunmuyiwa (2011), who argues that debt servicing reduces available resources for investment. However, in the Eastern African context, this may reflect improved fiscal discipline, enhanced creditworthiness, and stronger access to concessional financing. From a sustainability perspective, this suggests that predictable debt servicing can improve investor confidence and reduce sovereign risk, thereby supporting long-term investment flows. Nevertheless, this positive interpretation is conditional; excessive debt servicing obligations can quickly reverse gains by crowding out social and development expenditure.

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The diagnostic tests confirm the reliability of the econometric model and are consistent with Pesaran et al. (2001) and Samargandi et al. (2015), who emphasize the importance of ensuring normality, absence of serial correlation, and homoskedasticity in panel estimation. The absence of these issues strengthens confidence in the results. However, as noted by Chudik and Pesaran (2015), the presence of cross-sectional dependence remains a potential limitation. This is particularly relevant for sustainability analysis in integrated regions like Eastern Africa, where economic shocks, climate risks, and policy decisions often spill across borders. In terms of sustainability implications, the findings highlight a dual reality. External debt can either support or undermine sustainable development depending on how it is managed. When used productively, it enhances infrastructure investment, financial deepening, and economic transformation. However, when mismanaged, it leads to debt overhang, reduced fiscal space, and weakened investment capacity, ultimately slowing progress toward sustainable economic and social development. Therefore, the study complements existing literature by reinforcing the need for debt sustainability frameworks that prioritize long-term investment efficiency rather than short-term fiscal relief.

Conclusion

This study examined the effect of external debt on domestic investment in 16 Eastern African Sub-Region countries over the period 1990–2023. Using a Panel ARDL (PMG) approach, the study assessed both short-run dynamics and long-run relationships among external debt, debt servicing, bank credit, inflation, and interest rates. The results confirm the existence of a long-run equilibrium relationship between external debt and domestic investment. The findings further show that while external debt can support investment in the short run under certain conditions, its long-term effect depends strongly on debt management efficiency, macroeconomic stability, and financial sector performance.

The study makes several contributions to existing theoretical literature on debt and investment. It supports the Debt Overhang Theory by confirming that excessive external debt can constrain long-term investment through fiscal pressure and reduced investor confidence. However, the results also refine this theory by showing that external debt is not inherently harmful; its effect is conditional on institutional quality, credit market development, and macroeconomic stability. This introduces a more nuanced, sustainability-oriented interpretation of debt dynamics in developing economies.

The study also extends the crowding-out hypothesis by demonstrating that financial development, particularly bank credit, can offset some negative effects of external debt. This suggests that well-functioning financial systems are critical for sustaining investment even under high debt conditions.

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Policy Recommendations

Adopt sustainable borrowing strategies that prioritize concessional and long-term financing for productive sectors such as infrastructure, energy, and manufacturing.

Strengthen debt sustainability frameworks to ensure borrowing remains within manageable thresholds and supports long-term development goals.

Enhance macroeconomic stability by controlling inflation and maintaining stable interest rates to encourage private sector investment.

Deepen financial sector development by improving access to credit, especially for SMEs and domestic investors.

Improve public investment efficiency through stronger project appraisal, monitoring, and accountability mechanisms.

Promote regional fiscal coordination to reduce spillover risks from debt distress among interconnected economies.

Areas of Future Research

Future studies should extend this analysis by incorporating institutional quality indicators, environmental sustainability variables, and climate finance dimensions. Additionally, disaggregating investment into public and private components, as well as sector-specific analysis, would provide deeper insight into how external debt affects structural transformation and sustainable development in Eastern Africa.

Declaration

The authors declare that this manuscript is original, has not been published previously, and is not under consideration for publication elsewhere, either in whole or in part. The study is the result of the authors' independent research work, and all sources of information used have been appropriately acknowledged and referenced.

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