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DYNAMICS OF EXTERNAL DEBT AND ITS IMPACT ON INVESTMENT PERFORMANCE IN EASTERN AFRICAN SUB-REGION COUNTRIES: A LONGITUDINAL PANEL ARDL ANALYSIS (1990–2023)

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Abstract

The rapid accumulation of external public debt in Eastern African Sub-Region Countries has raised concerns about its implications for investment performance and sustainable economic growth. This study examines the dynamics of external debt and its impact on investment performance, focusing on the long-run and short-run effects of external debt and debt servicing on domestic investment and foreign direct investment (FDI) from 1990 to 2023. Grounded in the Debt Overhang Theory and macro-financial stability frameworks, the research investigates the conditions under which debt functions as either a catalyst or a constraint for investment. A longitudinal panel research design was adopted, using secondary macroeconomic data from the World Bank's World Development Indicators. The study employs second-generation panel econometric techniques, including cross-sectional dependence tests, panel unit root analyses, and the Panel Autoregressive Distributed Lag (Panel ARDL) model estimated through the Pooled Mean Group (PMG) approach. This methodology allows heterogeneous short-run dynamics across countries while assuming homogeneity in long-run coefficients, enabling robust inference on both country-specific adjustments and regional equilibrium relationships. Findings reveal stable long-run relationships between external debt, macroeconomic variables, and investment. External debt positively and significantly affects domestic investment and FDI, suggesting that well-targeted borrowing enhances capital formation. Conversely, debt servicing negatively impacts FDI in the long run and constrains domestic investment in the short run, reflecting fiscal pressures and sustainability challenges. Inflation and high interest rates dampen domestic investment, while bank credit to the private sector consistently promotes investment. The study concludes that public debt's impact on investment is conditional on debt sustainability, macroeconomic stability, and financial sector development. It recommends prioritizing productive debt utilization, strengthening debt management capacity, stabilizing macroeconomic conditions, and deepening domestic financial markets to maximize investment benefits in the Eastern African Sub-Region countries.

Keywords: External debt, investment performance, domestic investment, foreign direct investment, Panel ARDL, Eastern Africa sub-Region Countries.

Introduction

The escalating levels of external debt across Eastern African Sub-Region countries have intensified apprehensions about their potential repercussions on investment efficiency and the prospects for sustained economic growth. This study focuses on the 18 countries classified under the UN M49 standard, Burundi, Comoros, Djibouti, Eritrea, Ethiopia, Kenya, Madagascar, Malawi, Mauritius, Mozambique, Rwanda, Seychelles, Somalia, South Sudan, Tanzania, Uganda, Zambia, and Zimbabwe, where external borrowing has expanded significantly over the past three decades (UN, 2023). While external debt can finance critical infrastructure and development projects, high debt servicing obligations reduce fiscal space for productive investment, crowding out domestic capital formation and constraining foreign direct investment (FDI) inflows (UNCTAD, 2023; World Bank, 2023). Rising global borrowing costs and macroeconomic volatility further exacerbate investment risks in these countries (Ecofin Agency, 2023).

Understanding the dynamic relationship between external debt, debt servicing, and investment is therefore critical. This study employs a longitudinal panel design and Panel ARDL methodology to analyze both short-run and long-run effects of external debt on domestic investment and FDI across Eastern African countries from 1990 to 2023, providing insights for debt management policies that enhance investment-led growth while maintaining fiscal sustainability. Between 2020 and 2024, public debt in East and Southern Africa averaged around 60–70% of GDP, surpassing the 60% benchmark for critical debt stress identified by the IMF and UNCTAD (IMF, UNCTAD, 2025). Eastern Africa Sub-Region Countries' share of external debt rose from approximately 19% of GDP in 2010 to nearly 29% in 2022, with debt servicing costs reaching a record \$487 billion globally for developing nations in 2023 (UNCTAD, 2025). Furthermore, median debt-to-GDP ratios in developing economies, including African nations, remained elevated at around 57.8% in 2024 (UNCTAD, 2025), underscoring consistently high debt levels across the region. Developing countries, particularly in Africa, now allocate 10% or more of government revenue solely to servicing debt, with over 60 countries in this category, illustrating a significant fiscal drain (UNCTAD, 2023).

UNCTAD estimates that half of developing countries spent at least 6.5% of export revenues on external debt servicing in 2023 (UNCTAD, 2023). High borrowing costs, two to four times those in the U.S., have resulted in negative net transfers, with 2023 seeing \$25 billion more outgoing in debt than incoming aid or disbursements (UNCTAD, 2023). These high debt service obligations have directly undermined developmental investment, limiting government capacity to fund infrastructure and social service projects. UNCTAD's World Investment Report 2025 reports a 26% drop in international project finance crucial for large infrastructure in 2024, and a 16% decline in investment in renewable energy (UNCTAD, 2025). The downturn was especially severe in least developed countries, where both domestic and international investment fell sharply (UNCTAD, 2025). These declines reflect tighter financing conditions tied to elevated debt burdens, elevating investor risk. In Eastern Africa, these trends have resulted in delayed or cancelled infrastructure projects and diminished progress toward SDGs and climate resilience.

Literature Review

Performance data from the UN Economic Commission for Africa show Eastern Africa's growth slowing from 5.4% in 2021 to 5.0% in 2023, with modest recovery to 5.5% in 2024 and 5.9% in 2025 projected (UNECA, 2024). Meanwhile, Africa's fiscal deficit rose to 4.5% of GDP in 2023, forecasted to reach 5.0% in 2024 (UNECA, 2024). Concurrently, gross fixed capital formation a measure of investment has remained subdued at subpar rates compared to pre-pandemic levels (UNECA, 2024). These fiscal and investment trends indicate mounting pressure on national budgets, hindering

development expenditures. According to World Bank projections, Sub-Saharan Africa's growth is expected to increase from 3.3% in 2024 to 3.5% in 2025, aided by a gradual boost in investment activity (World Bank, 2024). However, financing constraints linked to high debt levels will continue to restrict expansion in infrastructure spending. UNCTAD and the IMF advocate for debt restructuring, concessional financing, and improved debt transparency to alleviate fiscal burdens (UNCTAD, 2023; IMF, 2024). For Eastern African nations, prioritizing sustainable debt strategies and enhancing domestic revenue mobilization are essential to revitalize private and public investment and achieve inclusive growth.

Mendonça and Brito (2021) examined 24 developing countries between 1996 and 2018 using a panel data set and found that the increase in public debt has a detrimental effect on investments. In his study, Oche (2016) used the Vector Error Correction Model for South Africa's 1983–2013 data to show that there is a long-term, positive, and statistically significant association between public debt and foreign direct investment as well as interest rates. The study's conclusions show that foreign direct investments and exchange rates have a very small negative correlation. Based on the long-term outcomes, the researchers suggested increasing both the interest rate and the total amount of public debt to raise the level of public debt. Public debt increases are notable because they are associated with reduced private and public investment, even if both public and private consumption are adversely hit.

Jalles and Medas (2022) researched the increase in debt in 190 countries from 1970 to 2020. Corporate debt increases are followed by low levels of investment from the public and private sectors. However, there are drawbacks for both individual and communal use. According to Magud and Pikennagura's (2022) research, after unforeseen changes in public spending, investment at the corporate level rapidly rises above pre-shock levels, but the impact decreases (the classic Keynesian multiplier effect). Investment recovery is made possible by more stable fiscal policy, flexible exchange rates, and budgetary independence. Moreover, investors' reactions are influenced by the wording of financial legislation. Although they also cause private investment to rise above pre-shock levels, decreases in public consumption cause larger contractions in private investment than do changes in public investment. Sánchez-Juárez and García Almada (2022) analyzed 32 Mexican states between 1993 and 2012.

The findings of the GMM approach confirmed the favorable correlation between public investment and debt, which promotes economic growth. However, given that the researchers found that a 1% increase in the interaction between the public debt and investment variables results in a 0.0005% increase in economic growth, it does not imply that a competent economic policy plan is being executed. This framework's analysis of the connection between public debt and Investment growth is essential. Research has demonstrated that while low levels of public debt might promote capital accumulation and thereby spur growth, large levels of debt can impede growth by raising debt servicing costs and reducing available funds for investment (Veiga, Ferreira-Lopes, & Sequeira, 2015); Mensah et al., 2019). For example, Ndoricimpa draws attention to the fact that historically, high levels of public debt in sub-Saharan Africa have resulted in challenges with repayment and sluggish growth, mainly because of the costs associated with debt servicing (Ndoricimpa, 2017).

The findings from Rwanda, which point to a crucial debt convergence policy benchmark, emphasize the need for EASRC policymakers to set a sustainable public debt threshold that strikes a compromise between growth and fiscal discipline. ("Nonlinear Effects of Public Debt on Economic Growth: The Case of Rwanda", 2023). Moreover, the impact of governmental debt on private investment is another crucial factor. According to research, anti-corruption initiatives combined with

a well-designed debt management system can foster an atmosphere that is favorable to private investment in Eastern Africa (Aswata et al., 2018). Aswata et al. (2018) found that increasing private investment which is critical for the region's economic growth requires lowering corruption and improving institutional quality. This is consistent with the larger story that a more robust investment climate may be fostered by transparent public debt management and good governance (Owusu-Nantwi & Owusu-Nantwi, 2021).

Investment strategies are significantly influenced by regional integration within the Eastern Africa Sub-Region Countries (EASRC). Regional integration is a policy that the EASRC has adopted to boost economic development and improve local private investment as well as international trade (Mose et al., 2021). The issues presented by public debt and investment deficits can be addressed by member states sharing best practices and pooling resources more easily thanks to this integration. Regional policies can have a significant impact on investment since they can result in better market access, standardized laws, and infrastructure, all of which can draw in more capital (Mose et al., 2021).

The relationship between investments and savings in the EASRCs is also significant. According to Jalloh's research, the EASRCs has a weaker association between savings and investment because of coordinated government policies and flexible capital mobility (Jalloh, 2022). This implies that although savings are significant, they are not the only factors that influence investment; rather, the growth of human capital, infrastructure, and the caliber of institutions all play equally essential roles (Jalloh, 2022). As a result, initiatives to strengthen these variables may greatly enhance the region's investment results.

Methodology

Research Design

The study employed a longitudinal panel research design to examine the effect of external public debt on domestic investment in Eastern African sub-region countries over the period 1990–2023. This design was considered appropriate because it allows for the analysis of changes in macroeconomic variables over time while accounting for cross-country differences. A longitudinal approach is particularly useful for capturing both short-run dynamics and long-run equilibrium relationships, which are central to understanding the debt–investment nexus (Menard, 2020; Caruana et al., 2021). The panel structure further enabled the application of advanced econometric techniques capable of distinguishing temporary adjustments from persistent effects.

Research Paradigm

The study was anchored in the positivist research paradigm, which emphasises empirical measurement, objectivity, and statistical testing of hypotheses. Positivism was suitable for this research because the study sought to quantify the impact of external debt on domestic investment using observable macroeconomic data. By relying on econometric modelling and hypothesis testing, the paradigm facilitated the generation of findings that are verifiable and generalisable across countries (Creswell & Creswell, 2018). This approach also supported the formulation of evidence-based policy recommendations relevant to debt management and investment promotion in the region.

Nature and Sources of Data

The study utilised quantitative secondary panel data, covering multiple Eastern African countries over the study period. The panel nature of the data allowed for simultaneous analysis of time-series and cross-sectional variations. The variables included domestic investment, external debt, debt

servicing, bank credit to the private sector, inflation rate, and interest rate. All data were sourced from the World Development Indicators (WDI) database maintained by the World Bank. The WDI database was selected due to its reliability, consistency, and widespread use in macroeconomic research, ensuring comparability across countries and over time (World Bank, 2023).

Model Specification

Guided by the Debt Overhang Theory, the study specified an empirical model to analyse the relationship between external debt and domestic investment. The theory posits that excessive public debt discourages investment by increasing uncertainty and reducing expected returns (Krugman, 1988; Sachs, 1989). In line with this framework, domestic investment was treated as the dependent variable, while external debt and debt servicing were the key explanatory variables. Bank credit, inflation, and interest rates were included as control variables to account for macroeconomic conditions influencing investment decisions.

The functional relationship was specified as:

$$INV_{it} = f(ED_{it}, DS_{it}, BCR_{it}, INF_{it}, IR_{it}) \dots \dots \dots (1)$$

Panel ARDL Model Specification

For Foreign Direct Investment (FDI):

$$\begin{aligned} \Delta FDI_{it} = & \alpha_i + \phi_1 \Delta FDI_{i(t-1)} + \theta_1 \Delta ED_{it} + \theta_2 \Delta DS_{it} + \theta_3 \Delta BCR_{it} + \theta_4 \Delta IR_{it} + \theta_5 \Delta INF_{it} \\ & + \lambda (FDI_{i(t-1)} - \gamma_1 ED_{it} - \gamma_2 DS_{it} - \gamma_3 BCR_{it} - \gamma_4 IR_{it} - \gamma_5 INF_{it}) + \mu_i \\ & + \varepsilon_{it} \dots \dots \dots (2) \end{aligned}$$

For Domestic Investment (DINV):

$$\begin{aligned} \Delta DINV_{it} = & \varphi_i + \pi_1 \Delta DINV_{i(t-1)} + \pi_2 \Delta ED_{it} + \pi_3 \Delta DS_{it} + \pi_4 \Delta BCR_{it} + \pi_5 \Delta IR_{it} + \pi_6 \Delta INF_{it} + \\ & \rho (DINV_{i(t-1)} - \rho_1 ED_{it} - \rho_2 DS_{it} - \rho_3 BCR_{it} - \rho_4 IR_{it} - \rho_5 INF_{it}) + \mu_i + \varepsilon_{it} \dots \dots \dots (3) \end{aligned}$$

For estimation purposes, the model was transformed into a log-linear dynamic panel form, allowing coefficient interpretation as elasticities and reducing potential heteroskedasticity. Country-specific effects were incorporated to capture unobserved heterogeneity across countries.

Data Analysis Procedures

Trend Analysis

Trend analysis was conducted as a preliminary step to examine the historical behaviour of key variables over the study period. This descriptive analysis provided insights into long-term movements, cyclical patterns, and possible structural shifts in external debt, debt servicing, domestic investment, and macroeconomic indicators across the region. Trend analysis also helped in understanding the evolving debt-investment relationship prior to formal econometric modelling (Gujarati & Porter, 2009).

Cross-Sectional Dependence Test

To assess the presence of interdependence among countries, the study employed the Pesaran (2004) Cross-Sectional Dependence (CD) test. This test was necessary because economic shocks in one Eastern African country may spill over to others due to regional integration and shared external influences. Detecting cross-sectional dependence informed the choice of appropriate second-generation panel unit root and cointegration tests.

Panel Unit Root Test

The stationarity properties of the variables were examined using the Pesaran Cross-sectionally Augmented IPS (CIPS) unit root test. This test accounts for cross-sectional dependence and is

therefore more appropriate than first-generation unit root tests for regional panel data (Pesaran, 2007). Establishing the order of integration of the variables was a prerequisite for conducting panel cointegration analysis.

Panel Cointegration Test

To determine whether a long-run equilibrium relationship existed among the variables, the study applied the panel ARDL bounds cointegration approach. This method is suitable when variables are integrated of mixed orders, $I(0)$ and $I(1)$, and allows for heterogeneous short-run dynamics across countries (Pesaran, Shin, & Smith, 2001). The bounds test assessed whether domestic investment and public debt variables were cointegrated in the long run.

Estimation Techniques

The study estimated both the Mean Group (MG) and Pooled Mean Group (PMG) estimators. The MG estimator allows slope coefficients to vary across countries, recognising structural differences in economic and institutional settings (Blackburne & Frank, 2007). The PMG estimator, on the other hand, assumes homogeneity in long-run coefficients while allowing short-run dynamics and adjustment speeds to differ across countries. Given the similarities in long-run economic relationships within the Eastern African sub-region, the PMG estimator was considered more appropriate for the main analysis.

Diagnostic Tests

To validate the robustness of the estimated models, several diagnostic tests were conducted, including tests for serial correlation, heteroskedasticity, normality of residuals, and parameter stability. The results indicated that the models were correctly specified, stable over time, and free from major econometric problems, thereby enhancing confidence in the empirical findings.

Results and policy implications of the findings

Table 1: Panel Unit Root Result

Variables	Pesaran CIPS					Decision Order of Integration
	Level Intercept & Trend	5% Critical Value	First Intercept & Trend	Diff & value	Critical	
ED	-2.428	-2.75	-2.852	-2.75		$I(1)$
DS	-2.702	-2.75	-3.269	-2.75		$I(1)$
FDI	-3.140	-2.75	Nil	Nil		$I(0)$
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		$I(1)$

Source: Researcher's Computation Using EViews-13 (2025)

For external debt (ED), the test statistic at levels (-2.428) was higher than the 5% critical value (-2.75), indicating non-stationarity. However, after first differencing, the statistic (-2.852) was lower than the critical threshold, confirming stationarity. This outcome suggests that external debt follows a persistent trend across the panel, with shocks to debt levels leaving lasting effects unless differenced. Similarly, debt servicing (DS) was found to be non-stationary at levels (-2.702 > -2.75), but became stationary at first difference (-3.269 < -2.75). This implies that debt service obligations

tend to evolve with long-term persistence, meaning changes in repayment patterns are not quickly reversed and only stabilize after differencing.

In contrast, foreign direct investment (FDI) demonstrated stationarity at levels ($-3.140 < -2.75$), indicating that FDI inflows across the panel are mean-reverting and relatively stable over time. This result suggests that shocks to FDI do not produce permanent shifts in the long-run trajectory of investment flows, making FDI a more stable determinant in panel estimations. Domestic Investment, however, behaved differently: it was non-stationary at levels ($-2.379 > -2.75$) but became stationary after first differencing ($-3.614 < -2.75$). This implies that capital accumulation in physical assets is trend-driven and only stabilizes in differenced form, highlighting the persistence of investment shocks in the region.

The inflation rate (INF) produced a significant result, with the test statistic at levels (-4.180) below the critical value (-2.75). This confirms that inflation is stationary at levels, meaning it oscillates around a stable long-run mean. Therefore, inflation shocks, though they may be volatile in the short run, do not generate permanent divergence in the panel. Conversely, the interest rate (IR) was non-stationary at levels ($-2.342 > -2.75$) but became stationary after first differencing ($-2.890 < -2.75$). This indicates that interest rates are persistent in the long run, with shifts in monetary policy or financial market shocks leaving enduring impacts unless adjusted in differenced form. Finally, bank credit (BCR) exhibited strong non-stationarity at levels ($-1.901 > -2.75$), but stationarity at first difference ($-3.482 < -2.75$). This implies that credit provision to the private sector is highly trend-dependent, and shocks to credit growth are not quickly reversed, reflecting structural financial sector dynamics across the panel countries.

Taken together, these findings demonstrate that the variables in the model are integrated of mixed orders: FDI and inflation are stationary at levels ($I(0)$), while external debt, debt servicing, Domestic Investment, interest rates, and bank credit are stationary only after first differencing ($I(1)$). Importantly, none of the variables are integrated of order two ($I(2)$), which permits the use of cointegration and error-correction models. This mixed order of integration makes the **Panel ARDL (Autoregressive Distributed Lag) framework** particularly suitable for subsequent analysis, as it can accommodate variables of both $I(0)$ and $I(1)$ orders without requiring uniform integration levels.

The unit root results indicate that while FDI and inflation are stationary at levels, external debt, debt servicing, Domestic Investment, interest rates, and bank credit are stationary only after first differencing, reflecting persistent trends in debt and investment variables. These findings align with prior studies (Aswata et al., 2018; Maugu, 2023; Ndoricimpa, 2020), which highlight the enduring effects of public debt and macroeconomic factors on investment. The stability of FDI supports literature suggesting foreign inflows are less sensitive to shocks (Dacka, 2016; Ezeaku et al., 2023). Collectively, the results justify the use of Panel ARDL to model mixed-order variables and capture both long-run and short-run dynamics in the Eastern African context.

Panel Cointegration Test

Cointegration analysis is a vital step in time series and panel data econometrics, particularly when working with variables that are integrated of different orders, such as $I(0)$ and $I(1)$. Cointegration testing helps to determine whether a long-run equilibrium relationship exists among the variables, specifically between External Debt (ED) and investment. Establishing such a relationship is crucial

for applying the panel ARDL framework, which is designed to estimate both long-run and short-run dynamics.

Table 2: Panel Bounds Test Co-Integration Result

F-statistic: 8.220**

	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

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

Source: Researcher's Computation Using EViews-13 (2025)

As presented in Table 2, the Panel Bounds Test for co-integration examines whether a long-run equilibrium relationship exists among the study variables in the panel dataset. The reported F-statistic is 8.220, which is marked as significant ($p < 0.05$). Comparing this statistic to the critical bounds, the F-statistic exceeds the upper I(1) bound at all conventional significance levels (10%, 5%, 1%), both for the sample size and asymptotic values.

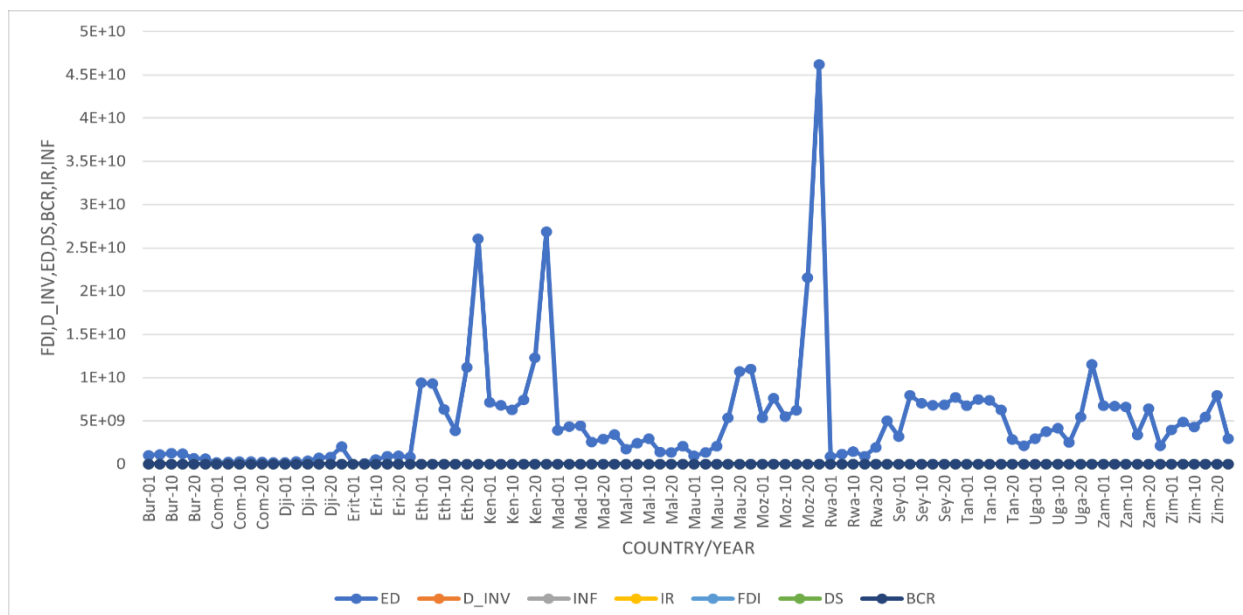
The F-statistic exceeding the I(1) upper bound rejects the null of no co-integration, confirming a stable long-run relationship between external debt, debt servicing, macroeconomic variables, and investment in Eastern Africa. The ARDL framework allows the separation of long-run homogeneous effects (PMG) and short-run country-specific dynamics. Despite short-run fluctuations in debt, interest rates, inflation, or credit, a stable equilibrium exists linking external debt and investment. This validates the long-run interpretation of debt's impact on domestic and foreign investment, supporting robust policy recommendations for the region.

The cointegration results confirm that external debt and investment variables in Eastern Africa share a significant long-run relationship, consistent with findings by Ndoricimpa (2020) and Were (2018), who emphasized the persistent influence of public debt on investment outcomes. The evidence aligns with Aswata et al. (2018), who also found cointegration between debt and macroeconomic indicators, suggesting that debt dynamics shape long-term investment patterns. However, the results contrast with Dacka (2016), who reported weaker long-run associations in some Sub-Saharan countries, pointing to country-specific fiscal and institutional differences. Overall, the findings support the view that public debt plays a binding role in determining investment performance across the region.

Trend Analysis

Figure 1: Multi-country Panel Trend Overview of debt and investment in the Eastern Africa Sub-Region Countries

Figure 1 illustrates multi-country panel trends of key macroeconomic and financial indicators, external debt (ED), domestic investment (D_INV), debt servicing (DS), bank credit (BCR), inflation (INF), interest rates (IR), and foreign direct investment (FDI) across Eastern Africa Sub-Region Countries from 2001 to 2020.



Source: Author's Computation using Excel (2025)

The chart shows that external debt (ED) dominates the trend line, with sharp spikes in Ethiopia, Kenya, Mozambique, and Rwanda, reflecting heavy reliance on external borrowing to finance infrastructure and development projects. Countries like Mozambique (2010s) and Kenya (post-2010) recorded particularly large surges in debt, indicating aggressive borrowing strategies. Meanwhile, domestic investment (D_INV), bank credit (BCR), and other macro variables appear relatively flat compared to external debt, suggesting that debt inflows overshadowed domestic financial mobilization in driving investment growth.

In Eastern Africa, these divergent patterns highlight both opportunities and vulnerabilities. While Ethiopia, Kenya, and Rwanda leveraged external borrowing to finance high-return projects, countries like Burundi, Eritrea, and Comoros maintained relatively modest debt and investment profiles, partly due to weaker fiscal capacity and fragile macroeconomic environments. The consistent but low levels of bank credit (BCR) across all countries point to underdeveloped financial systems, constraining domestic investment financing. Similarly, inflation and interest rate fluctuations, though less pronounced in the chart, contributed to investment volatility in fragile economies. Overall, the figure underscores a regional trend where external debt plays a dominant role in shaping investment outcomes, with sustainability hinging on prudent debt management and stronger domestic financial intermediation.

Recent studies in Africa broadly support the trends observed in the panel results for Eastern Africa Sub-Region Countries. For instance, Mensah et al. (2022) and Akinola & Egbetunde (2021) confirm that while external debt enhances investment in the short run, high debt servicing costs significantly crowd out domestic investment, a finding consistent with Madagascar, Eritrea, and Comoros. Similarly, Osei & Kim (2020) highlight the role of financial development, particularly bank credit, in promoting investment, which agrees with positive bank credit effects observed in Kenya, Ethiopia, and Burundi. On the other hand, studies like Fosu (2021) argue that inflation and interest rate volatility remain the primary deterrents to investment across Sub-Saharan Africa, which partially contrasts with the Eastern African trends, where debt dynamics appear more influential. Overall, the evidence aligns with contemporary African research showing that debt-financed investment can be beneficial only when paired with effective debt management and strong financial sector development.

Table 3: Domestic Investment Model: PMG (Panel ARDL) Result**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
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			

The results indicate a highly significant model (Log-Likelihood = -694.45) with both long-term persistent relationships and short-term dynamic effects in the data.

Source: Researcher's Computation Using EViews-13 (2025)

The Panel ARDL (Pooled Mean Group) estimates for the domestic investment model, presented in Table 3, provide clear evidence of both long-run and short-run determinants of domestic investment proxied by gross fixed capital formation in Eastern African sub-region countries. The model demonstrates strong statistical adequacy, as indicated by the significant log-likelihood value (-694.45). Moreover, the error correction term is negative and highly significant, confirming the existence of a stable long-run equilibrium relationship among domestic investment, public debt indicators, and macroeconomic control variables. In the long run, external debt exhibits a positive and statistically significant effect on domestic investment. This suggests that external borrowing, when effectively mobilized toward productive sectors such as infrastructure and capital formation, can enhance investment performance in the region. Similarly, debt servicing shows a positive and significant long-run association with investment, implying that consistent repayment of external obligations may strengthen fiscal credibility and improve access to financial resources, thereby supporting investment growth. These findings point to the importance of prudent debt management rather than the mere size of public debt.

By contrast, indicators of macroeconomic instability exert adverse effects on domestic investment. Inflation is found to negatively and significantly influence investment, indicating that rising price levels heighten uncertainty and weaken long-term investment planning. Likewise, interest rates display a strong negative relationship with domestic investment, reflecting the constraining effect of high borrowing costs on firms' ability to finance capital-intensive projects. In contrast, bank credit to the private sector has a positive and significant long-run impact, underscoring the role of financial sector development in mobilizing domestic resources for investment.

The short-run dynamics reinforce these long-run relationships while revealing important adjustment processes. The error correction coefficient indicates that nearly 89 percent of short-term deviations from long-run equilibrium are corrected within one year, suggesting a relatively rapid adjustment of domestic investment to macroeconomic shocks. In the short run, changes in external debt exert a strong positive influence on investment, confirming that debt inflows can immediately support financing needs. However, lagged debt servicing has a significant negative short-run effect, implying that repayment pressures can temporarily crowd out investment by diverting resources away from productive uses.

Inflation and interest rates continue to exert negative effects in the short run, particularly at lagged levels, highlighting the sensitivity of investment decisions to macroeconomic volatility. Conversely, bank credit maintains a positive and significant short-run effect, demonstrating that access to domestic financing consistently supports investment activity across both time horizons. Overall, the results suggest that external debt and financial deepening can promote domestic investment when debt is well-managed and supported by stable macroeconomic conditions. At the same time, inflationary pressures, high interest rates, and excessive short-term debt servicing obligations act as significant deterrents to investment. These findings are broadly consistent with empirical evidence emphasizing the growth-enhancing role of productive external borrowing and credit expansion (Were, 2018; Mensah et al., 2019), as well as studies highlighting the adverse effects of macroeconomic instability on capital accumulation (Nyoni & Bonga, 2017). However, the positive long-run role of debt servicing departs from earlier crowding-out arguments (Ogunmuyiwa, 2014).

Policy Implications of Findings

The findings have important policy relevance for Eastern African economies seeking to boost domestic investment as a foundation for structural transformation and long-term growth. The positive long-run effect of external debt on investment highlights the importance of strategic borrowing. Policymakers should ensure that debt is directed toward infrastructure, energy, and industrial projects that generate multiplier effects on domestic investment. However, the negative short-run impact of debt servicing emphasizes the need to strengthen debt sustainability frameworks. Countries should avoid excessive short-term repayment pressures by securing concessional financing, restructuring high-cost debt, and improving debt transparency.

The consistently negative effect of inflation on investment calls for robust macroeconomic stabilization policies. Central banks in Eastern Africa should pursue credible inflation-targeting regimes, strengthen monetary policy coordination, and address supply-side bottlenecks (such as food and energy costs) that drive price volatility. Stable inflation environments will reduce uncertainty, improve investor confidence, and enhance long-term capital formation. The strong negative effect of interest rates on investment in both the short and long run suggests that excessively high borrowing costs are a major impediment to private investment in Eastern Africa. Policymakers must balance the need for monetary stability with the goal of promoting investment.

This can be achieved through targeted interest rate policies, credit guarantee schemes, and concessional lending programs to support priority sectors such as manufacturing, agriculture, and infrastructure. Bank credit plays a consistently positive role in supporting investment, highlighting the centrality of financial sector reforms. Eastern African economies should focus on expanding access to affordable credit, deepening capital markets, and enhancing financial inclusion. Strengthening regulatory oversight, promoting digital financial services, and supporting SME financing will be critical for mobilizing domestic resources into productive investment activities. At

the regional level, the Eastern Africa Sub-Region Countries can amplify these outcomes by harmonizing debt management strategies, coordinating monetary policies to stabilize inflation and interest rates, and integrating financial markets to improve cross-border credit flows. A unified and stable investment climate across the region would enhance investor confidence, attract external financing

Table 4: Foreign Direct Investment Model: PMG (Panel ARDL) Result

Dependent Variable: D(FDI)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Long-run (Pooled) Coefficients				
DS	-1.357619	0.092864	-14.61936	0.0000
ED	0.748336	0.060206	12.42961	0.0000
INF	-0.008457	0.009980	-0.847417	0.3968
IR	0.059849	0.015115	3.959697	0.0001
BCR	0.155530	0.018709	8.313171	0.0000
Short-run (Mean-Group) Coefficients				
COINTEQ	-0.995045	0.215333	-4.620958	0.0000
D(FDI(-1))	0.145703	0.174849	0.833310	0.4047
D(DS)	2.195347	0.850702	2.580629	0.0099
D(ED)	0.397190	0.139688	2.843408	0.0044
D(INF)	-0.337329	0.088767	-3.800162	0.0001
D(IR)	-0.171181	0.118746	-2.283706	0.0224
D(BCR)	0.248067	0.119298	2.079389	0.0349
C	7.186839	2.223495	3.232226	0.0013
@TREND	-0.062931	0.072300	-0.870410	0.3841
Log-Likelihood:	-337.6741			

The results indicate a highly significant model (Log-Likelihood = -337.67) with both long-term persistent relationships and short-term dynamic effects in the data.

Source: Researcher's Computation Using EViews-13 (2025)

The Panel ARDL results estimated using the Pooled Mean Group (PMG) approach, reported in Table 4, provide important insights into the factors influencing foreign direct investment (FDI) across the sampled countries. The model performs well statistically, as reflected by a significant log-likelihood value (-337.67). In addition, the negative and highly significant error-correction term confirms the presence of a stable long-run relationship between FDI, public debt indicators, macroeconomic conditions, and financial development variables. In the long run, debt servicing emerges as a key deterrent to foreign investment. The results show a strong and statistically significant negative effect of debt servicing on FDI, indicating that high external repayment obligations undermine investor confidence. Elevated debt service burdens may signal fiscal stress, increase perceptions of sovereign risk, and reduce the government's capacity to support private sector activity, all of which discourage sustained foreign capital inflows. This outcome supports the view that debt sustainability, rather than access to borrowing alone, is central to maintaining an attractive investment environment.

By contrast, external debt displays a positive and significant long-run association with FDI. This suggests that external borrowing, when maintained at manageable levels and directed toward productive uses such as infrastructure and institutional development, can enhance a country's

attractiveness to foreign investors. The opposing effects of debt accumulation and debt servicing highlight the critical role of debt management and allocation efficiency. It is not the presence of debt itself that deters FDI, but rather the burden imposed by its servicing. Macroeconomic variables present mixed long-run effects. Inflation carries a negative but statistically insignificant coefficient, implying that price instability does not exert a consistent long-term influence on FDI across the panel. Interest rates, however, exhibit a positive and significant relationship with FDI. While seemingly counterintuitive, this result may reflect the role of interest rates as signals of monetary credibility and financial discipline, particularly in environments where investors associate higher rates with stable returns and effective macroeconomic management. Bank credit to the private sector also shows a positive and significant long-run effect, underscoring the importance of financial sector depth in facilitating foreign investment and strengthening domestic firms' capacity to engage with multinational enterprises.

Short-run dynamics further illuminate the adjustment process. The error-correction coefficient indicates that nearly all short-term deviations from the long-run equilibrium are corrected within a year, suggesting a high degree of stability in the system. In the short run, changes in debt servicing and external debt both exert positive effects on FDI, indicating that debt-related inflows or restructuring episodes may temporarily stimulate foreign investment. However, inflation and interest rate shocks negatively affect FDI in the short term, reflecting investors' sensitivity to sudden increases in costs and macroeconomic uncertainty. Bank credit continues to exert a positive influence, confirming the consistent role of financial development in supporting foreign investment inflows.

Overall, the findings reveal that FDI in the region is shaped by a combination of long-term structural conditions and short-term macroeconomic adjustments. External debt can support foreign investment when utilized productively, but excessive debt servicing erodes long-term investor confidence. Financial development consistently enhances FDI, while macroeconomic instability poses short-term risks. These results align with the existing empirical literature, which emphasizes the dual nature of public debt as both an opportunity and a constraint, depending on its sustainability, credibility, and policy discipline.

Policy Implications of Findings

The findings reveal that while external debt accumulation has a positive long-run effect on FDI, high levels of debt servicing exert a strong negative influence. This suggests that moderate borrowing directed toward infrastructure, human capital development, and productive sectors can signal investment opportunities and attract foreign investors. However, when external debt escalates into unsustainable repayment obligations, investor confidence is eroded. For Eastern African policymakers, the implication is that debt should be managed prudently, with a focus on concessional borrowing, improved debt transparency, and channelling resources into projects that generate long-run returns. Strengthening debt sustainability frameworks at both the national and regional levels will be essential to maintain investor confidence. Inflation exerts a significantly negative short-run effect on FDI, confirming that volatility in price levels undermines investor confidence and raises the cost of doing business.

Although inflation does not appear to have a systematic long-run effect, short-run shocks are sufficient to deter foreign inflows. This underscores the importance of sound monetary and fiscal policies aimed at maintaining single-digit inflation across Eastern African economies. Policy measures such as credible inflation-targeting frameworks, improved food and energy supply chains, and

disciplined fiscal management will help stabilize inflation expectations and improve the investment climate. The results suggest a dual role for interest rates: in the short run, higher interest rates discourage investment by raising borrowing costs, but in the long run, they are positively associated with FDI, likely reflecting financial stability and credible monetary policy. For Eastern Africa Sub-Region Countries, this indicates the need for a careful balance. Policymakers should avoid excessively high rates that crowd out investment in the short term, while ensuring that monetary policy frameworks remain credible and transparent. Strengthening central bank independence and enhancing monetary policy coordination within the EASRC can help maintain this balance, providing both stability and competitiveness to attract long-term investors.

Bank credit consistently enhances FDI inflows in both the short and long run, underscoring the central role of financial sector development in supporting foreign investment. A well-functioning banking system enhances the absorptive capacity of local firms, enabling them to partner with or complement foreign investors. For Eastern African economies, policies that expand access to credit, strengthen banking supervision, and promote inclusive financial systems will be critical. In particular, developing capital markets, expanding microfinance and SME financing, and integrating regional financial systems under the EASRC framework will amplify the attractiveness of the region as a destination for FDI. The results also carry broader implications for the Eastern African Community's regional integration agenda. By harmonizing debt management practices, coordinating inflation-targeting frameworks, and promoting cross-border financial integration, the EASRC can create a more predictable and attractive investment environment. Regional initiatives such as the Eastern African Monetary Union roadmap and regional capital market development strategies should be pursued vigorously to reinforce the region's collective bargaining power in attracting and retaining FDI.

Conclusions

The study concludes that public debt plays a dual role in shaping investment outcomes in Eastern Africa Sub-Region Countries. External debt, when maintained at sustainable levels and directed toward productive sectors, contributes positively to both domestic investment and foreign direct investment in the long run. This indicates that borrowing can serve as an important financing mechanism for infrastructure development and capital accumulation. However, excessive debt servicing obligations weaken investment performance, particularly foreign investment, by constraining fiscal space and increasing perceived sovereign risk.

Macroeconomic conditions remain critical determinants of investment. High inflation and elevated interest rates significantly undermine domestic investment by increasing uncertainty and borrowing costs. In contrast, financial sector development captured through bank credit to the private sector emerges as a consistent driver of investment across both domestic and foreign channels. The existence of strong long-run relationships and rapid adjustment speeds further suggests that investment responds systematically to debt and macroeconomic conditions over time.

Overall, the findings confirm that the effectiveness of public debt in promoting investment depends not on debt accumulation alone, but on sound debt management, macroeconomic stability, and strong financial institutions.

Policy Recommendations

In light of the empirical findings, this study advances targeted recommendations for national governments, fiscal authorities, central banks, and regional coordination institutions within the Eastern African Sub-Region Countries

First, national governments and Ministries of Finance should institutionalise prudent debt governance frameworks that prioritise sustainability over debt accumulation. External borrowing should be explicitly linked to clearly evaluated, growth-enhancing public investments, particularly in infrastructure, energy, and productive sectors with demonstrable multiplier effects. Governing bodies should strengthen debt sustainability analyses, integrate medium-term debt strategies into national development plans, and expand reliance on concessional and semi-concessional financing to reduce long-term debt servicing pressures.

Second, fiscal authorities should improve debt transparency and accountability mechanisms. This includes regular public disclosure of debt stock, maturity structures, and contingent liabilities, as well as parliamentary oversight of new borrowing. Enhanced transparency will reduce sovereign risk perceptions and strengthen investor confidence, particularly for foreign direct investment.

Third, central banks and monetary authorities should reinforce macroeconomic stability as a foundation for investment. Governing bodies should coordinate fiscal and monetary policy to contain inflationary pressures and avoid abrupt interest rate adjustments that discourage domestic investment. Strengthening inflation-targeting frameworks and improving policy credibility will support a stable investment climate.

Fourth, governments should deepen financial sector development through regulatory and institutional reforms. Expanding access to bank credit for the private sector, particularly small and medium-sized enterprises, should be prioritised through credit guarantee schemes, improved financial supervision, and capital market development. A more inclusive and resilient financial system will enhance the economy's absorptive capacity for both domestic and foreign investment.

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