EFFECT OF FOREIGN CAPITAL INFLOWS ON ECONOMIC GROWTH IN THE EAST AFRICAN COMMUNITY - 2009 to 2023

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DECLARATION

I, the undersigned, declare that this Thesis is my original work and that it has not been presented in any other university or institution for academic credit.

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ABBREVIATIONS AND ACRONYMS

AC	Americas and Caribbean
ADB	Africa Development Bank
ADF	Augmented Dickey-Fuller
AEC	African Economic Community
AfT	Aid for Trade
ARDL	Autoregressive Distributed Lag
ASEAN	Association of Southeast Asian Nations
BOP	Balance of Payment
CAPM	Capital Assets Pricing Model
CBBIR	Central Bank Base Interest Rate
COMESA	Common Market for Eastern and Southern Africa
CUEA	The Catholic University of Eastern Africa
DAC	Development Assistance Countries
DFI	Development Finance Institution
DII	Domestic Institutional Investors
DOLS	Dynamic Ordinary Least Square
DRC	Democratic Republic of Congo
DSSI	Debt Service Suspension Initiative
EAC	East African Community
EAP	East Asia and Pacific
EC	Efficiency Change
ECLAC	Economic Commission for Latin America and the Caribbean
ECM	Error Correction Model
ED	External Debt
EDLIS	External debt Converted to Natural Log, Inversed and Squared
EG	Economic Growth
EU	European Union
FAC	Factors of Absorptive Capacity

FCI	Foreign Capital Inflows
FDI	Foreign Direct Investments
FDILIS	FDI Converted to Natural Log, Inversed and Squared
FMOLS	Fully Modified Ordinary Least Squares
FPI	Foreign Portfolio Investments
FPILIS	FPI Converted to Natural Log, Inversed and Squared
FSD	Financial Systems Development
GBS	Graduate Business School
GDP	Gross Domestic Product
GDPIS	Gross Domestic Product Inversed and Squared
GMM	Generalized Method of Moments
HC	Human Capital
IMF	International Monetary Fund
IR	Interest Rate
IV	Instrumental Variable
LLC	Levin Lin and Chu Test
LM	Lagrange Multiplier
MENA	Middle East and Northern Africa
NACOSTI	National Commission for Science, Technology and Innovation
NARDL	Nonlinear Autoregressive Distributed Lag
ODALIS	ODA Converted to Natural Log, Inversed and Squared
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
OLS	Ordinary Least Square
PMG	Pooled Mean Group
PPP	Public Private Partnerships
PSM	Public Sector Management
PSTR	Panel Smooth Transition Regression
R&D	Research and Development

SADC	South Africa Development Community
SDGs	Sustainable Development Goals
SSA	Sub-Saharan Africa
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNDESA	United Nations Department of Economic and Social Affairs
UNSDGR	United Nations Sustainable Development Goals
USD	United States Dollar
VAR	Vector Autoregression
VIF	Variable Inflation Factor
WBG	World Bank Group
WBDI	World Bank Development Indicator

DEFINITION OF TERMS

External Debt (ED): Funds borrowed by a country from a source outside that country to be repaid or settled back through the currency in which the funds were initially borrowed (Yakubu, 2020).

Economic Growth (EG): Output derived from greater amounts of factor inputs or factors of production and greater productive efficiency in terms of increase in output per unit of input using the measure of gross domestic product as reference (Lelis, Calegario & Mendoca, 2020).

Foreign Capital Inflows (FCI): Global mobilities of capital funds from one geographical economy to another (Sokhanvar & Jenkins, 2020).

Foreign Direct Investment (FDI): Long-term relationships depicting persistent interests and control by a resident entity in one country (Parent entity) over an entity that is based within a nation other than a foreigner's (Sethi, Das, Sahoo & Mohanty, 2022).

Foreign Portfolio Investment (FPI): Consists securities and financial assets not providing direct control or ownership of an entity and are relatively liquid depending on market volatility of a nation other than a foreign investor's country (Derbali & Lamouchi, 2020).

Official Development Assistance (ODA): Are aid funded facilities outlined to boost economic growth and social ongoings of developing nations with the exclusion of loans and credits for military purposes (Nsanja, Kaluwa & Masanjala, 2021).

ABSTRACT

Foreign capital inflows to developing nations continue to increase tremendously in recent times. For this reason, this study sought to inquire the relevance of foreign capital inflows through examination of literature linking foreign inflows to economic growth within the East African Community (EAC) over the timeframe 2009 to 2023. The overall objective was to investigate the relationship and significance of inflows of foreign capital on economic growth within the EAC region. The study applied economic growth (EG) as the dependent variable. Official Development Assistance (ODA), Foreign Direct Investments (FDI), Foreign Portfolio Investments (FPI) and External Debt (ED) were employed as independent variables while Central Bank Base Interest Rates (CBBIR) as moderating variable for the reason that investors have to consider the cost of capital before making investment decisions. The specific goals were interrogating effects of ODA to economic growth, exploring the influence of FDI parallel to economic growth, ascertaining FPI outcomes on economic growth and investigating effects of ED on economic growth. This study further explored the moderating role of Central bank Base Interest Rates (CBBIR) in the relationship between inflows of foreign capital and economic growth in the region. Convergence (Catch-Up) theory anchored the study supported by the modern portfolio theory, theory of debt and the capital flow theory. Data was analyzed using the variable selection stepwise forward model along with measures of frequency, central tendency, dispersion and position as the main descriptive methods. EViews 14 software was employed for raw data manipulation and analysis. Results reveal that the foreign capital inflows taken as the predictive variables have no causal relationship to economic growth within the East African Community in the period under query. Again, the findings point to partial influence of CBBIR on the parallels linking individualized foreign capital inflows to economic growth within the East African Community. Foreign capital inflows may not have translated towards enhanced economic growth due to factors such as misallocation of resources, weak absorptive capacity and inadequate complementary investments in infrastructure. This suggests that influence of foreign capital inflows on economic growth is contingent on how effectively investments are integrated into a broader lucrative framework. This underscores the importance of diversifying foreign inflows into sectors with higher multiplier effects such as manufacturing and services which can create more jobs and foster innovation. By aligning foreign capital inflows with strategic development priorities, EAC countries can enhance its contribution to enhanced economic growth and transformation.

Key words: Official development assistance (ODA), foreign direct investments (FDI), foreign portfolio investments (FPI), external debt (ED), economic growth (EG), Central Bank Base interest rates (CBBIR), East African Community (EAC), Convergence theory (Catch-Up), Modern Portfolio Theory, Capital Flow Theory and Conventional Theory of Debt

CHAPTER ONE

INTRODUCTION

1.0 Introduction

This chapter is composed of the introduction conferring main elements linking Foreign Capital Inflows (FCIs) to Economic Growth (EG) within the East African Community (EAC) region. The background provides a detailed account of the four specific modes of capital inflows selected within this study, that is: Official Development Assistance (ODA), Foreign Direct Investment (FDI), Foreign Portfolio Investment (FPI) and External Debt (ED) and tentatively expounds on the relationship between these modes parallel to the dependent variable, which is economic growth (EG) through the moderating role of the Interest Rate (IR) variable. The chapter further advances problem statement, lays out research objectives and hypotheses, sets out substance and study scope and the conceptual framework.

1.1 Background of the Study

Research on international financial capital inflows is a key and increasingly controversial phenomenon in the global context due to diverse implications for investors, markets and economies (Zardoub, 2020a). It serves a critical role in the global investment process through provision of valuable information and insights for all participants (Yakubu, 2020). Research in global finance provides a thorough understanding of the overall economic status of a country through financial markets, industries and individual company performance trends. Findings of finance-based research in the global context are essential for making planning, development and investment decisions through the evaluation of risk and return and in determining best courses of action for given portfolios (Woo, 2020). Moreover, through the analysis of macro-financial data,

researchers can identify areas of potential growth and eventually develop strategies to capitalize on revealed opportunities (Capik, 2020).

Lack of funds for domestic investments is a major cause of the world's emerging nations' slow economic growth (Abouelfarag & Abed, 2019). The flow of capital from high-income countries with low interest rate returns to developing nations with low income but high interest rate returns is one way that fund movements have reacted to disparities in expected rates of return between nations (where capital resource availability is low but the profitability and market prospect ratios are high) (Derbali & Lamouchi, 2020). Attraction of foreign capital inflows into developing countries has appeared therefore to lessen or balance both savings restrictions and interest rate return variations across borders hence leading to perceived improved economic growth (Anetor, 2020a).

The goal of attracting foreign investment funds for local investment needs in order to boost economic growth has hence been stronger than ever for developing countries, despite the fact that the international policy for cross-border trade and investment has been seen to be more regulated and restrictive in the modern era (Agnihotri, 2022). Developing nations have consequently begun processes to loosen limitations and are instead increasing investment incentives to attract FCIs in the hope of boosting economic growth. It is for this reason research on FCIs is increasing in anticipation of reactions it may render to national economies and to investor activity trends on cross-border flow of funds while they search for favorable yields (Baba, 2020; Zardoub, 2020a).

Thus, the significance of foreign capital inflows (FCIs) as a source of investment finance for countries' broadening patterns is increasing among scholars (Ghosh & Khatun, 2021). Currently, the world is undergoing continuous financial liberalization, with money moving across borders at an unprecedented rate and, in most cases, requiring regulators to catch up in terms of policy (Ullah & Tahir, 2022). FCIs have increased dramatically in developing nations since the 1980s as a result of policies intended to remove obstacles and provide incentives and subsidies for economic growth (Abubakar, 2020). Globally, FCIs to developing nations reached USD 1.5 trillion in 2021 being a 52 percent rise compared to the year 2020 and 11 percent increase in comparison to the year 2019 (EU, 2022). Likewise, economic growth indicated a similar upward trend from -3.1 percent to a projected estimate of 6.0 percent, (Actual 2021, 5.9 percent) representing a 290 percent increase from year 2019 to 2021 (IMF, 2021).

A critical point of consideration on the effectiveness of FCIs is that an "enclave environment" has little to no beneficial impact on the rest of a host economy regarding positive FCI spillovers, limiting reorganization and expansion of domestic firms (V. B. Nguyen, 2021). Nevertheless, it is worthwhile noting that economic growth effect of FCIs has also been attributed to dependency on host economy conditions called “factors of absorptive capacity” (FAC) (Ibhagui, 2020). Economic growth may therefore be boosted through FCI with the condition that the FACs exceed certain thresholds (An & Yeh, 2021). Within this study, proxies for foreign capital inflows (FCIs) comprised of ODA, FDI, FPI and ED.

ODA is a crucial component of international development efforts towards a nation's commitment in fostering economic progress (Damianos, 2020). Non-governmental organizations, aid agencies

and international financial institutions use bilateral or multilateral financial support channels towards seeking economic development. For developing nations, ODA may be a significant source of FCI when stated as a percentage or proportion of government budgets, while it can be of little to no significance for other nations (Mwoya & Deusdedi, 2018). For instance, in comparison to the Americas and Caribbean which achieved ODA increase at 6 percent and a growth rate of 6.2 percent from 2020 to 2022, Sub-Saharan Africa (SSA) experienced a 16 percent increase in ODA from USD 53 billion to USD 62 billion within a similar period with a stunted cumulative economic growth rate of 2.7 percent (Abate, 2022). In addition, a high reliance on ODA may cause host countries' growth vulnerabilities more severe (Adams & Elassal, 2020). Relying solely on ODA is therefore equated to "putting all of one's eggs in one basket," exposing a nation to abrupt changes in both overall level of aid and preferred ODA applications towards economic growth (Ruwanpura & Perera, 2022). Conversely, ODA that is countercyclical may greatly smoothen or guarantee economic growth (Mwoya & Deusdedi, 2018).

Studies in international finance zero in on how ODA encourages trade and lowers prices, Abraham, (2021); Awad, (2021); Baba, (2020); Su & Taltavull, (2020), but few have examined how it affects economic growth. A flaw in current literature is that it exclusively assesses one type of foreign assistance towards a given goal or sector, such as grants, flood relief, health care, education, humanitarian aid, or any other specific type of aid, and compares the efficiency of sectoral target aid to that of overall economic growth (Ye, 2022). This shortcoming is brought about by the fact that development agencies and other ODA facilitators encourage the assessment of the efficacy of assistance by dividing the total amount of aid into several subsectors or operational levels. Studies on how total ODA as a whole rather than specific subsectors contributes to economic growth is

therefore ignored (Roy & Xiaoling, 2022). This inquiry therefore analyzed significance of overall ODA on overall economic growth assessing how different policies differed from one region to another in support of economic growth within the East African Community (EAC).

Compared to other forms of foreign capital inflows, FDI is deemed more advantageous to investors through the features of a longer investment time frame and more direct control and management by the investor (Sahu, 2021). FDI is a group of resources that consists of physical capital, readily available technology and production techniques, management know-how and market information (Ibhagui, 2020; Kosztowniak, 2022; Siladjaja & Anwar, 2020). Other than technology, quality and volume of infrastructure, it is additionally debatable whether FDI is beneficial to developing nations through the granting of access to international markets and developing policy coherence consistent with developed nations (Abbas, 2022).

The arguments that FDI can positively influence economic growth may appear logical (Villar, Mesa & Barber, 2020). The arguments have attracted various studies over time some suggesting that FDI positively affects economic growth, Azolibe, (2021); Ferreira, (2020); Karahan and Çolak, (2022) while other studies reveal the opposite to be true (An & Yeh, 2021; Das, 2020; Paul, 2020; Woo, 2020). Other studies, Alcaraz and Salamanca, (2022); Anarfo, Agoba, Sare and Gameti, (2021); Vidales and García-Pérez, (2019) have found evidence of a unidirectional and, in some cases, a bidirectional causal relationship between FDI and economic growth. Policy-makers are still unsure of the theoretical linkages intertwining the variables, despite the fact that FDI may impact economic growth (Sokhanvar & Jenkins, 2020). This study hence determined whether FDI pegged at above 15% of inflows positively affects economic growth, whether the effect comes

about directly or indirectly through other channels and whether FDI increases a host country's financial capital without reducing domestic capital formation and retention within the EAC.

When foreign investors purchase securities or other financial assets in a host country, this is known as foreign portfolio investment (FPI) (Ahmed, 2019). Mutual funds, common stock, bonds, exchange traded funds, or non-cash equivalent commodities like gold, produce, warrants, depositary receipts, and future derivatives are forms that characterize FPI (Hanif, 2020). Due to their speculative and high liquidity nature, FPIs are viewed as less desirable than FDI since they are seen as short-term attempts to earn quick money rather than a long-term investment inside a host economy (Anetor, 2020a).

FPI provides financing to markets in emerging economies in addition to enabling investors diversify their portfolios on a global scale (Panda & Kumar, 2020). The growth of international finance has come from investors pushing boundaries in search of higher returns and through diversification of risks within portfolios resulting to common stock investments and bonds in host countries (Adika, 2022). On the flipside, FPIs are highly susceptible to negative shocks, and as a result, asset prices change constantly in real time making them highly prone to panic selling leading to lower asset prices, causing widespread money shortages and quickly disrupting an economy (Hanif, 2020). There is emphasis therefore for liberalization of financial markets within developing nations for FPI to be attractive as huge capital bases from advanced nations pension schemes and money investment funds may serve as catalysts for the growth of developing or emerging equity markets (Prakash & Sethi, 2022).

FPI can be employed to fund profitable investment opportunities as inflows may act as a catalyst to build wealth in conditions exhibiting perfect capital markets (Haini, 2021). Better access to FPI funding may also lead to facilitating a widened and progressive expansion of host economy capital markets (Bhattacheryay, 2020).

Determining a justifiable percentage of FPI in comparison to other inflows involves considering several factors such as the economic goals of a domestic country, financial market stability of a domestic country and current stage of economic development (Tauseef & Dupuy, 2022). For instance, as a developed economy, the United States (U.S) receives substantial amounts of FPI ranging 30-40% in comparison to FDI (60-70%) owing to mature financial markets and attractiveness of U.S. securities (Marfatia, 2022). While there is no one-size-fits-all remedy of FPI proportion amongst various capital inflows, a balanced approach may range between 10-15% for emerging economies aiming for longer term stability (Chhimwal, Bapat & Guarav, 2021). This study thus examined consequence of FPI resources on economic growth while considering organization of domestic capital markets within the EAC.

In order to close budget deficits to the savings-investments gaps, developing economies seek external financing by borrowing from developed countries (Agyapong, 2020). External debt inflows consist of funds obtained from international corporations like International Monetary Fund (IMF) and The World Bank Group (WBG), foreign commercial banks and developed foreign nations (Chandio, 2019). Owing to insufficient public revenues collected through taxes, governments use both short and long-term external borrowing to support public spending (Hilton,

2021). The funds are usually in the form of tied loans applied for predefined purposes as determined by lender-borrower consensus (Heitzig, 2021).

Developing nations' external debt stockpile has exhibited indicators of unviability through sluggish and declining economic growth, despite the fact that rising external borrowing in recent years has been seen as a global phenom (Karajeh, 2023). For instance, external debt has risen to an average of 83 percent of the total FCIs within the EAC between 2019 to 2022 yet the economic growth rate has stagnated at an average of 3.6 percent within the period (ADB, 2022). Repayment of massive inventories of external debts has exhibited hurdles for emerging economies since nations with huge debt stockpiles experience adverse balance sheet effects in the presence of a depreciating currency (Mangani, 2022).

Excessive debt stockpiles beyond safe threshold levels is for this reason seen as a threat to an economy's growth and may result in collapse of critical financial policies (Ghecham, 2020; Joy & Panda, 2020; Mukhtarkhan, 2022; Omotor, 2021). Such accumulation and unsustainable debt conditions may further lead to depreciation of domestic currencies and sluggish growth of financial sectors (Dey & Tareque, 2020). Nevertheless, given that external borrowing may enhance economic growth, it is only justifiable if it can generate higher returns than its cost (Sharaf, 2022). This study thus endeavored to examine whether external debt inflows led to favorable economic growth within the EAC while considering cost of external debt capital between 2009 and 2023.

Economic growth (EG) is rise in output through the production of commodities and improvement in efficiency of services (Ibhagui, 2020). EG is a function of internal and external factors where

internal comprise domestic investment and absorptive capacity factors (FAC) within a country, and external factors relate to the FCIs individual characteristics (Awad, 2021; Beyene, 2022; Hayat & Tahir, 2021). Economic growth may be boosted by FCIs through the condition that the FACs exceed certain thresholds (An & Yeh, 2021). Financially developed nations achieve rates of growth almost double in comparison to economies exhibiting unstable financial markets, holding the level of foreign presence constant (Awdeh, 2021). This difference in growth rates is a key reason spelling out how one country may be many times wealthier than another (Singh & Kapuria, 2022).

Policymakers in developing nations pay most attention to necessity of attracting foreign capital as opposed to what plans should be laid down for optimal application of FCIs (Anetor, 2019). Essentially, the gallant goal of public finance is to ensure that varied capital inflows are distributed among various sectors in a way that promotes the cultivation of sustainable economic growth (Makhoba, Irrshad & Greyling, 2022).

Providers of capital survey for economic opportunities within countries that exhibit higher rates of returns on investments (Uyar, cemil & Kilic, 2022). Interest rates are a good indicator of returns and are traditionally high during incidences of strong credit demand, high monetary supply and as a result of increased mandatory reserves for banks (Tandrayen Ragoobur & Narsoo, 2022). Interest rates are thus a big determinant of how fast an economy grows specifically through their influence on business investments, stock markets and investor behavior, currency valuation and debt servicing costs. In relation to business investments, low interest rates can make it more attractive for businesses to borrow leading to increased business activity, job creation, and hence overall economic growth (Kamasa, Afful & Ennin, 2023). Bond issuances and share trading provide

investors in stock markets with higher earnings during times of high interest rates (Rakshit, 2022). The inverse is also true in reference to declining interest rates where debt securitized investments reap capital gains in regard to decrease in interest rates (Afful & Kamasa, 2020).

Low interest rates can additionally earn returns from traditional fixed savings accounts and debt securities less appealing leading to investors' preference for riskier securities in the form of common stock, to seek higher returns (Mroua & Trabelsi, 2020). This creates an avenue for increased capital inflows into a host nation's stock market potentially boosting stock prices which may in turn lead to positive efficient capital market developments (Hengjie, 2021; Li, 2020). Inversely and on a positive note, high interest rates can attract FCIs seeking more returns and leading to the appreciation of host country currency value (Akalpler & Duhok, 2018). This is however detrimental to exports of such an economy as they become more costly to foreign buyers and may potentially lead to retarded economic growth (Olamide & Maredza, 2023).

For foreign and local investors employing leverage for investing, debt servicing costs for borrowed funds can be influenced through changes in interest rates (Akalpler & Duhok, 2018). Lower rates reduce borrowing costs freeing up funds that can be used for investments, thus positively impacting economic activity for host nations (Olamide & Maredza, 2023). This leads investors to shop for low-cost funds usually in developed countries and in turn investing in economies that guarantee higher returns hence leading to increase in FCIs (Ledhem & Mekidiche, 2022). Both foreign and local investors will thus move low interest capital from resource abundant countries to resource scarce countries exhibiting higher interest rates (Lepori, 2022).

In relation to authorities, central banks employ changes in interest rates as a tool to achieve monetary policy goals (Ledhem & Mekidiche, 2022). By raising interest rates, central banks can slow down an overheating economy while the opposite can stimulate economic growth during periods of recession. It is important to note that the parallels interlinking interest rates and economic growth can be complex and may also vary based on fiscal policies and political factors (Ledhem & Mekidiche, 2022). Interest rates are for this reason a critical determinant of FCIs and thus serve as a vital element in ascertaining the moderating role they play in the link between FCIs and economic growth.

Globally, the United States (US) led developed nations in FCIs recording a 200 percent rise in inflows to USD 3,448 billion in 2021 boosted by external debt at USD 2,100 billion resulting from quantitative easing measures (WBDI, 2022b). The country's FPI was recorded at USD -291 billion in 2019, USD 687 billion in 2020 and USD -19.5 billion in 2021 indicating incidences of capital flight by investors. The country's economic growth rose by 310 percent from -2.8 percent in 2020 to 5.9 percent in 2021 (Picerno, 2022). In the European Union (EU), FPI formed a significant inflow to the region amounting to USD 1,290 billion compared to FDI (USD 377) and ODA (USD 32) in 2021. The EU region total FCIs stood at USD 3,093 representing 8% of total global FCIs. The EU's economic growth recorded an increase of 179 percent from -6.3 percent in 2020 rising to 5.0 percent in 2021 (IMF, 2021).

East Asia and Pacific (EAP) was noted as the second largest FCIs recipient after the US recording 39.4% of global FCIs in 2018 (An & Yeh, 2021). Although classified as a developing region, total FCIs stood at USD 3,100 billion from USD 1,800 billion, 72 % increase inclusive of external debt

from 2020 to 2022 (ASEAN, 2023). In comparison to the FCIs, economic growth rate within the region decreased to -3.4 percent from 4.9 percent between 2020 and 2021 thereafter rebounding to 2.9 percent in the year 2022 (IMF, 2023a). Similar to global trends, Americas and Caribbean (AC) saw FCI rebound in exclusion of external debt totaling USD 355 billion, a 38 percent increase in comparison to USD 257 billion in 2020 (ECLAC, 2022). The regions FCIs amounted to a mere 2.49 percent of GDP per capita being far less compared to the base year of 2010 (3.5 percent). Between 2019 and 2020, the region's economic growth rate decreased to -6.64 percent from 0.73 percent before rebounding to 6.55 percent in 2021 (IMF, 2022a).

Middle East and North African (MENA) region experienced an upward trend in FCIs since 2014 (Awdeh, 2021). Net inflows excluding external debt increased from USD 143 billion in 2020 to 190 billion in 2021 resulting to a 33 percent increase during the period as a result of restructuring regional value chains (WBDI, 2023). Net FDI represented a mere 2.29 percent of total global FDI inflows while region's economic growth pattern followed global trends through decreased growth in 2020 to -3.52 percent from 1.12 percent in 2019 but subsequently rebounded to 4.54 percent in 2021 (Awdeh, 2021; IMF, 2022a). Sub-Saharan Africa (SSA) experienced increased FCIs in exclusion of external debt totaling USD 157 billion, a 29 percent rise in comparison to USD 122 billion in 2019 (ADB, 2022). The inflows comprised of a 170 percent growth in FDI from USD 46 billion to USD 73, a 16 percent increase in official development assistance from USD 53 billion to USD 62 billion between 2019 to 2021. However, the trend in net FPI was similar to that of the United States decreasing considerably from USD -5 billion to USD -26 billion, a 420 percent reduction between 2019 and 2022. Between 2019 and 2021, the region's economic growth rate

decreased to -2.07 percent in 2020 from 2.56 percent in 2019 before rebounding to 4.2 percent in 2021 (IMF, 2022b).

Locally, the East African Community (EAC) is composed of seven countries: Uganda, Kenya, Rwanda, Tanzania, Burundi, Democratic republic of Congo (DRC) and South Sudan (DFI, 2022). With the exclusion of the DRC and South Sudan, the EAC experienced FCIs amounting to USD 97.5 billion, USD 107.7 billion and USD 117.4 billion in the years 2019, 2020 and 2021 respectively, a 16.9% growth in inflow (WBDI, 2023). Uganda led as the favorite destination for FDI by raking in 38 percent in 2019, 44 percent in 2020 and 41 percent in 2021 of the total FDI related inflows within the region. FPI within the region exhibited capital flight majorly caused by Kenya recording USD 7.8 million inflow, USD -266 million and USD -91 million in 2019, 2020 and 2021 respectively (WBDI, 2023).

Net ODA inflows in the region amounted to USD 9 billion in 2019, USD 11.4 billion in 2020 and USD 10.1 billion in 2021 being 9.2 percent, 10.5 percent and 8.6 percent of the total FCIs during the period (ADB, 2022). The regions external debt stock increased from USD 80.2 billion in 2019, USD 89.6 billion in 2020 and USD 98.8 billion in 2021 a rise of 23 percent during the period and comprising an average of 83 percent of total FCIs (WBDI, 2023). The average economic growth rate was 5.73 percent in 2019 to 0.33 percent in 2020 and 3.6 percent in 2021 (IMF, 2022a). This is a direct depiction of persistent challenges within the region in relation to economic growth despite receiving significant foreign capital inflows.

A key internal contributory factor for stalled economic growth is the region's limited diversification of its economic base (Njeri, 2015). The EAC economies heavily rely on the agricultural traditional sector which is susceptible to external shocks, climate change and fluctuations in global commodity prices (Bekere & Bersisa, 2019). The lack of substantial progress in transitioning to more resilient and value-added industries may also have hindered the region's ability to achieve sustained economic growth (Niyimba, 2019).

Insufficient development of infrastructure and connectivity within the region is an additional internal challenge towards economic retardation of the East African Community region (Agyapong, 2020; Bahati & Mbithi, 2022; Konstandina & Gachino, 2020). Despite increase in foreign capital inflows, inadequate investments in critical sectors such as transportation, energy and telecommunications have impeded economic integration and hindered cross-border trade (Konstandina & Gachino, 2020). Poor infrastructure not only increases transaction costs for businesses but definitely limits the competitiveness of products and services from the EAC countries in the global market (Gatimu, 2020). This lack of infrastructural development is an internal factor hindering the efficient movement of goods and services and creates bottlenecks that stifle economic progress (Njeri, 2015).

Nevertheless, it is worthwhile noting that concerns related to proper governance, corruption and political instabilities are internal ingredients posing significant challenges to the East African Community's economic progress (Isabella, Okello & Gibba, 2023). Weak institutions and ineffective governance structures are bound to create an environment that is less conducive to attracting and effectively utilizing foreign capital inflows (Bahati & Mbithi, 2022). The perception

of corruption within the region has deterred potential investors, limiting the positive impact of foreign capital inflows on the overall economic performance of the East African Community (Bahati & Mbithi, 2022). Until these underlying issues are addressed comprehensively, the EAC may continue to struggle with economic stagnation despite increases in foreign capital inflows (Gizaw, Habtamu, Bewuketu, Mengesha & Daregot, 2023).

The interplay between FCIs and economic growth in the East African Community (EAC) region is a critical yet underexplored area of research. Foreign capital inflows may stimulate economic growth by supplementing domestic savings, enhancing technological transfer and creating employment opportunities (Mohamad et al., 2020; Siladjaja & Anwar, 2020). However, the extent to which these inflows translate into positive economic growth outcomes depends on factors such as institutional quality, macroeconomic stability and absorptive capacity of recipient economies (Beyene, 2022; Yousaf et al., 2021). Within the EAC, where member states exhibit varying levels of economic development and governance structures, understanding these relationships is essential for designing policies that maximize benefits of FCIs while mitigating risks such as dependency and volatility.

This study thus positions to contribute to the present literature comprehensions through provision of empirical insights on how FCIs influence economic growth within the EAC, a region characterized by rapid integration efforts and untapped economic potential. By analyzing country-specific and regional data, this study seeks to shed light on the conditions under which FCIs most effectively drives economic growth thereby offering policymakers evidence-based recommendations. Given the EAC region aspirations for deeper economic cooperation and

industrialization, the findings will be particularly relevant in shaping strategies to attract and utilize FCIs efficiently. Ultimately, this study will fill a critical gap in regional literature, fostering informed decision-making and supporting the EAC's broader goals of economic convergence.

1.2 Statement of the Problem

Despite increasing foreign capital inflows to EAC, their effectiveness in promoting GDP growth remains inconsistent and poorly understood. Differences in economic growth rates measured through gross domestic product (GDP) exist amongst similar and dissimilar economies explaining contrasting wealth divergence between nations. Foreign capital inflows have been known to provide the necessitating platform for GDP advancements for several countries. However, irrespective of increased FCIs to developing countries, GDP remains dormant (An & Yeh, 2021; IMF, 2022a; Bakar, Omar & Fegilla, 2022; Zardoub, 2020a). For instance, due to limited domestic savings and bursting infrastructural financing needs, external debt rose to 83 percent of total FCIs within EAC in 2021 yet GDP remained at an average of 3.6 percent (ADB, 2022). Worthwhile noting is increase of 16 percent in FCIs within the EAC with the average GDP of 3.6 percent in comparison to other regional contexts; the Americas and Caribbean (AC), MENA and SSA GDP rates at 6.55 percent, 4.45 percent and 4.2 percent in 2021 respectively (Srinivasan & Peiris, 2022).

These varying differences reveal disconnects where countries receiving low levels of FCIs lead to greater GDP while others exhibiting higher levels of FCIs remain static or severely depressed in terms of GDP growth (Shittu, El, et al., 2020). These disconnects consequently form a critical basis for examining how the favorable effects of FCIs towards positive GDP outcomes remains to be proven. Agyapong, (2020), An and Yeh, (2021) and Anetor, (2019) further enhance the support for this study through their inconclusive findings based on contextual and methodological gaps on

external debt stock and GDP within SSA; GDP effect of FDI in emerging and developing Asia; and GDP effect of FPIs in India respectively. The moderating role of interest rates interlinking FCIs to GDP will be a key pointer since central banks use interest rates to control inflation by tightening monetary policy to curb price surges or loosen it to stimulate borrowing, spending and investment in search for GDP stability. This study thus explored how foreign capital inflows (FCIs) proxied through ODA, FDI, FPI and ED affected GDP together with the moderating influence that CBBIR held on this linkage in the period 2009 to 2023.

1.3 Research Objectives

1.3.1 General objective

Due to disconnects between FCIs and GDP forming basis for examining how the favorable effects of FCIs towards positive GDP outcomes remains to be proven, this study's overarching goal was to determine how foreign capital inflows affected economic growth proxied through GDP in the East African Community over 15 years from 2009 to 2023. Due to the complex and multifaceted nature of economic development and integration, direct measurement of key concepts is often impossible. Therefore, this study employed widely accepted quantitative proxies from reputable international sources, for instance World Bank, IMF, OECD to operationalize these concepts for empirical analysis. The chosen proxies are standard in the literature thus allowing for comparison and replication of results.

1.3.2 Specific Objectives

This sub-section gave specific objectives in relation to the effect of Official Development Assistance, Foreign Direct Investments, Foreign Portfolio Investments and External Debt on Economic Growth proxied through Gross Domestic Product (GDP), and moderating influence of central bank base interest rates to relationship linking FCIs to GDP.

I. To investigate the impact of Official Development Assistance on Economic Growth in the East African Community

II. To explore impact of Foreign Direct Investments on Economic Growth in the East African Community

III. To determine impact of Foreign Portfolio Investments on Economic Growth within the East African Community

IV. To analyze impact of External Debt inflows on Economic Growth within the East African Community

V. To assess moderating role of central bank base interest rates on relationship between Foreign Capital Inflows and Economic Growth in the East African Community

1.4 Hypothesis

This study was anchored on hypotheses below:

- **H_{01}** Official development assistance (ODA) does not statistically impact economic growth in the East African Community
- **H_{02}** Foreign direct investments (FDI) do not statistically impact economic growth in the East African Community
- **H_{03}** Foreign portfolio investments (FPI) do not statistically impact economic growth in the East African Community
- **H_{04}** External debt (ED) does not statistically impact economic growth in the East African Community
- **H_{05}** Central bank base interest rate (CBBIR) does not statistically moderate effects in the relationship between foreign capital inflows (FCI) and economic growth (GDP) within East African Community

1.5 Significance of the Study

An & Yeh, (2021) sought to provide basis for formulating theoretical and empirical opportunities for identifying economic growth-enhancing factors parallel to FCIs. In line with An & Yeh, (2021), this study sought to provide a starting point for economic growth benchmarking, for instance, how increases in FDI and FPI can build towards growth of securities markets and consequently economic growth. This study further aimed at serving as a basis for policy formulation within the EAC region central banks for accelerating productivity to reduce growth gaps between the region's economies and developed economies. In addition, the study set sight upon advancing the ideas of Abubakar, (2020); Beyene, (2022); Hilton, (2021); Onafowora, (2019) in relation to concepts of ODA, public debt and other intangible assets brought about as a result of FCI positive spillovers that include increased technological efficiency and productivity, market access, robust competition, human capital growth and crowding-in of direct investment of domestic firms in host countries. The study aimed to provide important documentation of theoretical formulations and applications for identifying economic growth-enhancing factors that would find usefulness among various stakeholders including researchers, academicians, and policymakers.

1.6 Scope and Delimitation of Study

The study sought to analyze effects of foreign capital inflows (FCIs), that is: ODA, FDI, FPI and ED on economic growth (EG) covering four EAC member states that are Kenya, Tanzania, Uganda and Rwanda for a period of 15 year from 2009 to 2023. The study excluded Burundi, Democratic Republic of Congo (DRC) and South Sudan for two reasons. The significant reason was that the DRC and South Sudan joined the EAC after 2019 and second reason was unavailability of FCIs data for the three countries crucial to the study. The study period was deemed an appropriate period of normal national financial and economic activity based on the fact that it followed 2008 global

financial crisis presupposing beginning of financial based reforms in line with Kuchler, (2020). The study applied net ODA, FDI, FPI and ED inflows as measurement proxies for the independent variables and further employed GDP annual growth rates as the measurement for economic growth (EG). This inquiry employed central bank base rates as proxies for the interest rates moderating variable.

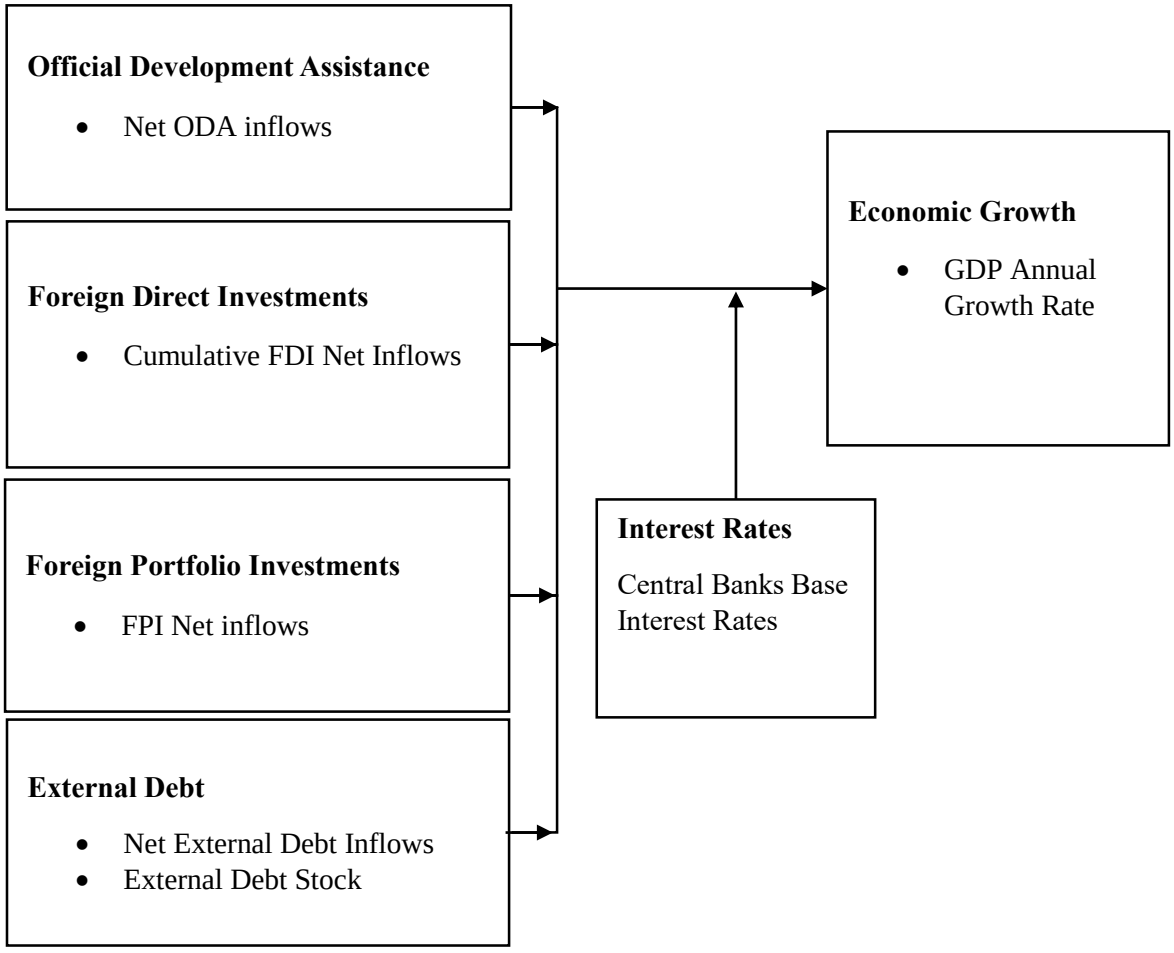
1.7 Theoretical Framework

This study is grounded in an integrated theoretical framework that examines the dynamic interplay between different capital inflows and their impact on the EAC's economic trajectory. Convergence theory provides the overarching goal, positing that poorer EAC economies can catch up to more advanced partners through mechanisms like capital accumulation and technology transfer, for which FDI is a key proxy, as it embodies the private, stable investment theorized to spur productivity gains. The Conventional Theory of Debt offers a critical caution framing External Debt and ODA (often concessional loans) as a double-edged sword, while they can finance essential infrastructure and bridge savings gaps to promote convergence, they also risk creating debilitating debt overhangs that could stifle future growth and stability. Simultaneously, Modern Portfolio Theory and Capital Flow Theory explain the behavior of FPI inflows, characterizing them as volatile, return-seeking capital that can deepen financial markets and provide liquidity but also introduce susceptibility to sudden stops and reversals, potentially exacerbating economic volatility within the still-developing and integrating financial systems of the EAC. Thus, this framework contends that the EAC's path toward convergence is not automatic but is critically shaped by complex and often conflicting influences of these distinct types of capital flows, each governed by its own theoretical logic.

1.8 Conceptual Framework

This section brings forth conceptual framework employed in the study. It gives interrelationship of variables employed composed of FCI as regressor variable while GDP as response variable. FCI was represented by proxy variables composed of ODA, FDI, FPI and ED. The response variable was Economic Growth (EG) proxied through GDP annual growth rate whereas proxies for the predictor variables were presented by their respective net inflows for the periods. The moderating variable was the EAC central banks base interest rates.

Figure 1: Conceptual Framework



Source: Researcher formulation

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter establishes the theoretical foundation for analyzing the distinct roles of foreign capital inflows in the economic dynamics of the East African Community (EAC). It synthesizes four core theoretical paradigms to construct a multifaceted analytical lens. The review begins with Convergence Theory setting the premise for how capital flows can potentially accelerate economic catch-up. It then integrates the Conventional Theory of Debt to provide a critical perspective on risks and sustainability concerns associated with external debt and official development assistance (ODA). Furthermore, Modern Portfolio Theory and Capital Flow Theory are employed to explain the drivers and volatile nature of foreign portfolio investment (FPI) and its differentiation from the long-term orientation of foreign direct investment (FDI). By interrogating the mechanisms, assumptions and predictions of these theories, this chapter provides the necessary framework to hypothesize how FDI, ODA, FPI and ED independently and collectively influence economic outcomes within the EAC's unique integration context.

2.1 Review of Theories

2.1.1 The Theory of Convergence (Catching Up Growth Theory)

Theory of convergence originated through Kerr, Harbison, Dunlop and Myers in 1960 after their collaborated book “Industrialism and Industrial Man”, that addressed concepts pertaining to dynamics between separate groups of entities. The theory states that developing economies will outpace their counterpart developed economies in connection to economic growth. Also referred to as the Catch-up effect, theory of convergence defines the parallels between two or more economies linking developed to developing nations. The scholars attributed this theory to role of

capital inflows in advancing technologies in processes and ways in which political establishments were run within developing countries. In light of how developing economies lagged behind, they could simply replicate technologies, methods and establishments applied by developed countries.

Proponents of the catching up growth theory include Abramovitz (1986) through the study on the causes of the Golden Era of economic growth experienced within Western Europe from 1948 to 1972. The author thereafter reveals that the key to the economic growth was the ability to absorb capital inflows from other countries thereby synchronizing a country's global integration. Hernandez (2018) agreed with Abramovitz (1986) positing that convergence arises where nations with low-income levels rapidly grow at faster rates than those with high incomes. Suehiro (2008) additionally asserted that developing economies could enhance their catch-up effect by opening up their economies for more capital inflows together with enhancement of free trade global markets. Akram, Sahoo and Rath (2020) studied current development processes across the world economies including the Asian, Latin-American, and Africa and found that the role of capital inflows towards the agricultural sectors as being instrumental in the catching-up process.

Nevertheless, Sachs and Warner (2005) have pointed out that convergence may not occur everywhere due to closed economic policies of some developing countries hindering economic growth through the non-receipt of capital inflows. Developing economies that easily attract foreign capital inflows are deemed to have a second-mover advantage in that they will be able to replicate and enhance production methods, technology, and high-quality financial institutions of the advanced economies and experience rapid growth rates and realize the catch-up effect as a result of capital inflows. The theory of convergence further combines the economic backwardness

phenom Gerschenkron (1951) and the absorption capacity, Suehiro (2008), being the ability of an economy to absorb capital inflows in various forms determined by the country's endogenous policy variables conducive towards the inflows. Thus, catching up is strongest in countries that are both economically and technologically backward and have endogenous policy determinants conducive to capital inflow absorption (Suehiro, 2008). This implies that through greater absorption capacity, backward countries will economically catch up with leading countries at a faster rate the greater their economical backwardness (Gerschenkron, 1951). This is described through a causal chain as follows:

Increased FDI inflows → (causes) → Establishment of new foreign-owned factories → (causes) → Transfer of new technology and management practices to the local economy → (causes) → Training and upskilling of the local workforce → (causes) → Spillover effects: Workers move to local firms, spreading knowledge & productivity gains → (causes) → An overall increase in productivity and efficiency (Total Factor Productivity) across the economy → (causes) → Sustained increase in GDP growth.

Thus, theory of convergence was employed within this study owing to the fact that development agencies and investors in developed countries experience diminishing return effects of capital within their host economies and therefore perceive that investment opportunities in developing countries entail higher profitable ventures in which to invest in. Secondly, the theory is critical towards spelling out why developing nations exhibit low levels of GDP per capita in comparison to their developed counterparts. Thirdly, this theory serves as a platform for further wholistic insights linked to scarcity of capital, labor availability and economic growth parallel to infusion of FCIs in developing states.

2.1.2 Modern Portfolio Theory

Harry Markowitz (1952) developed this theory through his study on “Portfolio Selection”. The theory states that investors are risk-averse and for a given level of expected return they will always prefer less risky portfolios. The theory was developed under the premise that fundamental analysts might take advantage of market inefficiencies and generate significant or abnormal returns by analyzing internal financial accounts of firms (Bhattacheryay, 2020). Modern portfolio theory emphasizes the analysis of individual securities available for investment by foreign portfolio investors (Suradiyanto, 2019).

Proponents of the modern portfolio theory include Sharpe (1961) through development of the Capital Asset Pricing Model (CAPM) that provided insights into the relationship between risk and expected returns for individual assets and portfolios thereby bridging the gap between theory and practice. Modigliani and Miller (1961) provide insights into how capital structure and the irrelevance of financing choices implicated portfolio theory within the corporate realm. The concept of "Tobin Separation Theorem” by Tobin (1998) provides additional insights of how investment decisions were to be separated from financing decisions for diversified portfolios. Risk management and derivatives pricing have influenced modern portfolio management practices through the studies of Black and Scholes (1973). Fama (1970) complements the modern portfolio theory assumptions by suggesting that asset prices reflect all available information. The findings from the proponents have played crucial roles in shaping and advancing the concepts of the modern portfolio theory and other related areas of finance.

Given that investors favor higher returns over lesser returns, portfolios are made up of the best-performing securities (Chance, 2003). Investors spread their resources over a variety of securities, indicating that considerations other than return are necessary. Investment beyond two assets for an investor is a sign of risk awareness but portfolio success is made possible through the rate of return (Bouteska & Regaieg, 2020). Simple or naive diversification is a common strategy for enlarging number of assets within a portfolio thereby lessening risk; consequently, investing in 100 distinct securities carries a tenfold lower risk than investing in only 10 similar securities (Andriansyah & Messinis, 2019).

Theoretically, FPI is posited to enhance economic growth in the EAC indirectly through its role in developing capital markets, lowering the cost of capital for firms, and signaling improved governance. However, this relationship is highly contingent on the depth and regulatory maturity of the EAC's financial markets and the stability of the macroeconomic environment. The volatile nature of FPI also suggests that its benefits are potentially offset by risks of sudden stops and reversals which can provoke instability. Therefore, the net effect of FPI on growth in the EAC is ultimately an empirical question that this research seeks to address.

In addition, even when future dividend payments are uncertain, diversification can nevertheless reduce overall portfolio risk to zero by purchasing a sufficient number of assets (Williams, 1938). Investors must plan for well diversified portfolios promising favorable returns owing to the "rule of large numbers," which permits portfolio return to identify with expected return. Modern portfolio theory is thus employed within this study to uncover determining factors associated with

risks that influence foreign portfolio investments and to investigate influence of FPIs on Economic Growth within the EAC.

2.1.3 Conventional Theory of Debt

The theory of conventional debt was developed by Elmendorf and Mankiw (1998) through their study titled "Government Debt". The theory states that debt has a positive short-term effect and negative long-term effect on economic growth. This theory distinguishes significance of debt on economic growth over short to medium-term to long-term (Chatterjee, Taylor & west, 2018). Owing to challenges of economic downturns, Keynes (1935) attaches greater significance to the state for its role in supplementing and correcting market imperfections. This theory may therefore be applied as an economical tool for the purpose of increasing demand for oversupplied commodities in substitution of an economy's failure to self-regulate (Malthus, 1803). Thus, the relevance of analyzing impact of External Debt inflows on Economic Growth within the East African Community

Proponents of the conventional theory of debt include Malthus (1803) admitting that public borrowing can be applied as a financing tool for the purpose of increasing spending for surplus commodities during periods of economic sluggishness. Mill (1859) eases his earlier notion of public borrowing by positing that the state can divert borrowings sourced from idle savings of companies or external debt to advantageous uses. In response to challenges of economic downturns, Keynes (1935) propounds and underpins significance of the state for its role in supplementing and correcting market imperfections. The Keynesian model advances two major arguments in support for public borrowing, that is; involving public authorities in value-added

activities for economic growth and inducing borrowing as a measure of correcting market imbalances similar to Malthus (1803).

Currency inflationary issues would however be unavoidable since indebtedness would lead to bringing in into circulation unused revenues and/or savings unmaterialized in investments to finance budget deficits (Barro, 1979). Returning to initial acceptable budget balances and reducing budget deficits would therefore be possible by the actions of the state through inducement of increased production through borrowing (Keynes, 1935). The conventional theory of debt assumes the short-term period framework of debt to be Keynesian in nature (Mangani, 2022). The economy is assumed to benefit from indebtedness over the short-term during recessionary periods. The view that this is preferable than other models in the short-term has been reflected in the public indebtedness policies promoted by the European Union Member States who increased public spending and reduced taxes to support the union (WBG, 2022).

The longer-term perspective of borrowings within the conventional debt model is considered to be neoclassical in nature where demand for borrowings is less relevant and the supply of factors of production is most relevant (Bilan, 2016). Financing budget deficits through debt is perceived as a product of reduced public and private savings, decreased investments, reduction of capital and an increment of interest rates hence taken to be negative towards economic growth (Kumar & Woo, 2021). Thus, a majority of countries are faced with the challenge of budgetary deficits for various reasons necessitating the application of the conventional theory of debt to query role of ED inflows to EG outcomes within the EAC.

2.1.4 Capital Flow Theory

The theory of capital flows was developed by Macdougall (1958). The theory states that the price of capital would facilitate its free movement from one capital abundant economy to a capital scarce economy thereby leading to efficiencies of its application across economic boundaries and in turn positive increase in economic growth. The scholar claims that interest rate spreads between economies is the key decisive factor of capital movement between countries. An increase in foreign interest rates would lead to capital flight from a domestic economy and on the contrary, domestic interest rate increases would lead to a reduction in domestic capital flight (Wu, 2021). A critical assumption of the Macdougall (1958) model is that foreign and domestic securities are perfect substitutes. The model tends to exhibit the picture that arbitrage within money markets will lead to an equilibrium of similar levels of domestic interest rates to that of the global interest rate.

Proponents of the capital flow theory include Meade (1978) emphasizing that increases in domestic interest rates at a given price and output levels would attract capital inflows leading to improvement of balance of payments. Fleming (1962) and Mundell (1963) further propound that floating exchange rate systems were more sensitive to capital flows than fixed exchange rate systems. Branson (1968) argues that capital flow theory contributed to the advancement of the modern portfolio theory through short-term capital flows arising from exports, exchange rates, interest rates and imports and long-term capital flows constituting domestic income, foreign and local interest rates.

Although capital outflows from an abundant economy may lead to a short-term reduction in productivity, economic growth would not necessarily decline as the economy would receive

returns on investment earned abroad (Mensah, Yiadom & Dziwornu, 2021). The authors maintain that a resource scarce country would experience a rise in GDP due to capital inflow and this would lead to a boost in its sectors. The capital flow theory also led to the advancement of the Monetary Analysis Theory where Markowitz (1999) reveals that demand for money would increase and lead to improved balance of payments in the event of increases in total output and price levels. However, higher interest rates would reduce monetary demand on the short-term as opposed to longer-term leading to a favorably maintained level of balance of payments (Mensah et al., 2021).

A resource scarce country would for this reason experience a rise in GDP due to capital inflow and this would lead to a boost in its sectors. The capital flow theory demonstrates that an economy's growth is a linear and direct function of foreign capital inflows due to the savings and investments gap challenges faced by most developing countries where domestic savings are insufficient to support economic growth (Anetor, 2019). This study thus applies the use of theory of capital flows to examine the moderating impact of interest rates linking parallels between FCIs and EG within the EAC.

2.2 Criticism of the Theories

2.2.1 Convergence Theory

The Lucas paradox or riddle is a challenge to the convergence theory (Lucas, 1990). This is the reality that despite emerging countries having lower GDP per capita levels, capital does not migrate from developed to developing economies. In contrast, the theories of Ricardo (1817) and Smith (1776) and the population growth theory of Malthus (1803) predict that funds should move from developed to developing economies due to effect of diminishing returns. Developing nations have lower GDP per capita levels explaining in part why they are still in the development process.

However, the relative scarcity of capital compared to labor in developing nations should mean that the returns associated with the injection of capital are larger than in industrialized nations (Malthus, 1803). In response, investors in wealthy nations should consider investing in developing economies as lucrative undertakings, but in practice, things do not appear to operate that way (Lucas, 1990).

Host economy endogenous differences in fundamentals affecting production structures of an economy such as differences in technology, unavailability of key production factors, stringent government regulations and inadequate financial structures lead to little or no capital inflows from developed economies (Srinivasan & Peiris, 2022). Although expected rates of returns might be higher in many developing economies, exogenous factors in relation to global funds market imperfections that include asymmetric information and sovereign risk create higher levels of uncertainties associated with potential returns (Srinivasan & Peiris, 2022). The application of convergence theory to analyze economic growth is critiqued for allegedly assuming nonlinearity, that is, a single path towards economic growth that developing countries should follow (western ideological bias) (Hsu, 2022).

2.2.2 Modern Portfolio Theory

A criticism of modern portfolio theory is that the assumption of diversification is not always supported in reality. This is attributable to the fact that diversification within an industry and between companies from the same country cannot shield investors from unfavorable environmental conditions or inherent risks (Rubinstein, 2003).

2.2.3 Conventional Theory of Debt

In relation to the theory of conventional debt, Malthus (1803): Mill (1859): Ricardo (1817) and Smith (1776) held borrowing to be unfavorable to economic growth. The scholars attributed role of the state to only ensure the smooth flow of monetary and fiscal operations and expected the state to refrain public authorities from intervening on economic matters. Malthus, (1803) and Smith, (1776) particularly argue and maintain the notion that public expenditure is unproductive in relation to the traditional tasks carried out by the state which include national defense, public order and maintaining diplomatic relations.

Wastage of resources is also highly imminent in public sectors compared to private sectors and state indebtedness may lead distortion of foreign private capital inflow from its productive application and divert to unproductive host country uses therefore leading to unfavorable effects on both the accumulation of capital and economic growth (Mangani, 2022). This means that the natural growth of a nation is delayed by indebtedness since private sector productive resources are diverted to public unproductive expenditure without hope of future production and recovery. Financing budget deficits through debt inflows is perceived to reduce public and private savings, decrease investments, reduce capital and lead to an increment of interest rates hence taken to be negative towards economic growth (Kumar & Woo, 2021).

2.2.4 Capital Flow Theory

In relation to the capital flow theory, the major criticism is that on a flat platform, domestic interest rates will always differ from global interest rates (Dornbusch, 1976).

2.3 A Wider Perspective on Variable Linkages

2.3.1 Influence of Official Development Assistance on Economic Growth

Majority of nations and development agencies concur that improving a country's potential to achieve economic growth may be facilitated through ODA (Roy, Xiaoling & Banik, 2021). ODA has seen a substantial increase in interest over the past 10 years to 2022, partly owing to the worldwide focus on achieving Sustainable Development Goals (SDGs) before 2030 (Ruwanpura & Perera, 2022). The United Nations (UN) has been at the forefront towards incorporating ODA within the economic growth formula of developing countries (Benziane, Law, Siong, Rosland & Daaniyall, 2022). This gesture has led to a boost in ODA following a substantial weakening of inflows to USD 37 billion during the 1990s to reaching USD 177 billion in 2021 (UNDESA, 2021).

While considering the importance of bettering people's lives, trade, commerce, and private money flows and investments carry greater weight or impact than assistance (Nowak-Lehmann & Gross, 2021). In light of this, increasing trade through ODA in way of Aid for Trade (AfT) is a likely path for economic growth (Bayale, 2020). Through designated enabling channels like Public Private Partnerships (PPPs), ODA for trade facilitation has been seen to standardize trade procedures including cross-border infrastructural development, for instance, "The China Road and Belt Initiative," and other crucial projects in the Asian continent (Benziane et al., 2022). Thus, this study assesses the impact of ODA proxied through net ODA inflows and its ratio on GDP per capita on EG in the EAC.

2.3.2 Influence of Foreign Direct investments on Economic Growth

Globalization is providing a platform for developing countries with opportunities to gain economic growth by way of international trade and investment (An & Yeh, 2021). Thus, a number of

governments, particularly the least developed ones, are enacting liberal laws to promote larger capital inflows from wealthier countries (Burmester & kennel, 2019). The development of global production and uniform policies are being driven by economic and technological factors, and this is being enabled by the liberalization of trade laws and rising FDI inflows (Alyousfi, 2021). Nevertheless, if globalization forces domestic enterprises to shut down due to a lack of savings or funds needed to improve technology and other processes, it could have undesirable spillover effects (Aluko, Ibrahim & Vo, 2021). Advantages that might otherwise flow to the rest of the economy therefore might not do so in cases where institutional obstacles, enclave environments or shortcomings in domestic organizations' absorptive capacity exist (Akobeng, 2020).

Financially, Foreign direct investment (FDI) should serve as an enabler towards raising domestic savings rates in recipient countries (Ahn, Jun & Leung, 2020). This financing may take the form of reinvestment of profits and equity capital purchases by foreigners within host countries that may have the potential to increase domestic savings rates in recipient nations. Spending on research and development (R&D) made possible through FDI is becoming an essential indicator of economic progress because engagement in R&D makes nations more competitive (Abbas, 2022). R&D through FDI may provide positive impact on economic growth as the march toward globalization accelerates, functioning as a stimulus for both domestic and international trade (Ebire & Shah, 2021). In considering the above, this study explores the significance of Foreign Direct Investment proxied through its ratio on GDP per capita on EG in the EAC.

2.3.3 Influence of Foreign Portfolio Investments on Economic Growth

Compared to FDI, foreign portfolio investments (FPI) require significantly less capital and due diligence, making them much more accessible to the average investor who has no influence over

the entity within which the investment is made (Ho & Odhiambo, 2020). Foreign portfolio investors, like any other investor, anticipate a speedy return on their investments due to liquidity, which makes them simpler to sell off than direct investments (Hausner & van Vuuren, 2020). Depending on investor preference, FPI destines to equity or debt instruments and similarities exist in determining which form an investor undertakes (Gupta & Ahmed, 2020). Although FPI lacks the element of enduring interest and control, it serves as a catalyst for host market liquidity, a critical channel through which resources are transferred from developed to developing countries (Kapuria & Singh, 2021).

Foreign investors prefer to undertake investment ventures in the host country's capital markets for securities where the markets are robust and expanding, with high interest rates becoming a strong basis for investment and inversely liquidate investments where markets are experiencing financial instability (Anetor, 2020a). In addition to providing capital and enhancing liquidity, FPI is a useful tool for fostering market efficiency which in turn may lead to economic growth (Chhimwal, Bapat & Gaurav, 2021). For instance, there is a higher likelihood that new businesses may receive start-up funding from FPI.

Moreover, businesses need to provide greater information in terms of quality and quantity as they compete for FPI financing towards the goal of an efficient capital market within host economies (Yousaf, Hanif, Ali & Moudud, 2021). As capital markets become more efficient, equity prices reflect underlying firm values more accurately and capital flows are allocated more effectively (De, Mohapatra & Ratha, 2021). The success of FPI in promoting healthy equity markets also encourages takeovers, which is where FDI and portfolio investing converge (Anetor, 2019). This

has the potential to transform underperforming companies into more effective and lucrative businesses, strengthening the firms, the financial return to FPIs, and the country towards increased economic growth (Derbali & Lamouchi, 2020). For these reasons, the study seeks further insights through examining the effect of FPI on EG within the EAC.

2.3.4 Influence of External Debt on Economic Growth

Despite negative foreign exchange movements relative to host nations currencies, borrowed funds may positively stimulate a nation's economic growth when used through competitive advantage and within productive industries (Katsampoxakis, 2022). On the downside, mismanagement or excessive consumption may lead to economic growth retardation. Although most lenders assist countries to solve short-term liquidity problems parallel to budget deficits, they have been critiqued to issue conditionalities and standard prescriptions that are only modelled to cater for excessive government spending, poor governance, excessive state bureaucracy and ownership and excessive government intervention in open markets (DFI, 2022; Foye, 2023; Marangos, 2022; Pratibha & Krishna, 2022). The public resents local leadership for accepting and implementing external conditionalities since recipient governments are thought to give up policy autonomy in exchange for funding (DiMartino, 2016). In considering the above, this study analyzes effect of ED inflows on EG within the EAC.

2.3.5 Moderating Role of Central Bank Base Interest Rates in the Relationship Between Foreign Capital Inflows and Economic Growth

Investors have to consider the cost of capital before making investment decisions (Lau, 2022). The use of debt or equity financing attracts servicing costs for capital influenced through changes in interest rates (Mehar, 2023). Lower rates reduce capital costs freeing up funds that can be used for investments, thus positively impacting economic activity for host nations (Mroua & Trabelsi,

2020). In turn, investors will shop for low-cost funds usually in developed countries and back track to invest the funds in economies that guarantee higher returns hence leading to increase in FCIs (Ledhem & Mekidiche, 2022). This study thus explores the moderating role of interest rates proxied through the central bank base interest rates of the EAC linking the parallels between FCIs and EG in the EAC.

2.4 Empirical Review

2.4.1 Official Development Assistance (ODA) and Economic Growth (GDP)

Abate (2022) explored the beneficial and harmful effects of ODA quantity and frequency to economic growth of developing nations and whether institutional freedom, progress and quality mattered in the ODA-economic growth linkage. The study utilized inflation proxied by consumer price index, trade openness proxied by import and export as a percent of GDP, expenditure of the government and investments as ODA independent variables indicators while GDP per capita as a measurement for EG was applied as the response variable. The author employed panel data covering 2002 to 2019 sourcing from 44 developing ODA recipient nations globally. The study further applied GMM and additionally utilized dynamic panel threshold regression towards uncovering the mediating role of institutional progression, freedom and quality in the link joining ODA and EG. The study findings revealed impact of ODA on EG was negatively and statistically significant at thresholds of -0.614 and > 60.521 for institutional quality and institutional freedom respectively. Above the thresholds, ODA was an avenue for positive economic growth suggesting that ODA recipient nations should consider beforehand reforming institutions in relation to progress, freedom and quality prior to receipt of frequent and large quantities of foreign aid.

Jena and Sethi (2021) empirically assessed effectiveness of ODA towards improvement of economic growth within South Asia beginning 1996 to 2017 employing a sample of 8 Southern Asian nations. The study utilized financial sector developmental progress, aid receipts, inflation, domestic investment and trade openness as predictor variables while GDP per capita as the response variable. The study employed panel fully modified OLS, Pedroni and Johansen Fisher cointegration and dynamic ordinary least square test to scrutinize periodical dynamics between the variables considered. The study revealed that short term and long-term correlation was present linking ODA to EG within Southern Asian countries. The study revealed unidirectional causality between ODA and EG suggesting positive linkage between variables.

Robert and Kim (2017) studied the significance of ODA on EG for East African Community nations Kenya, Uganda and Tanzania for 35 years between 1980 to 2014. The countries tended to receive larger amount of ODA in comparison to other EAC member states. The authors employed terms of trade, education and health quality as independent variables representatives of ODA and GDP per capita as response variable. The study utilized ARDL model. The findings for Uganda and Kenya revealed positive and significant effect of ODA on education and quality health during the long-term but revealed significantly negative influence during near-term. Tanzania had a significantly positive effect both short and longer term. The study additionally revealed that boost to education and health through ODA led to positively significant short and longer-term outcomes on EG in EAC.

Between 1980 to 2020, Edo, Owulatoyin and Ogunrinola (2022) assessed the influence of overall ODA on EG as well as whether bilateral and multilateral aid played complementary roles in the

private and public sectors of Sub-Saharan African (SSA) states. The study utilized exogenous element including development aid, foreign government spending, domestic private investments, and external trade as independent variables representing ODA and the endogenous element of GDP as response variable. The authors applied the GMM and vector error correction model techniques to estimate near-term and longer run impacts. Estimation findings revealed the significance of bilateral aid to GDP per capita was positively and statistically more significant than that of multilateral aid. This impact was nonetheless less significant to EG in comparison to outcomes of national spending and domestic investment. The analysis also showed that ODA supported the public and private sectors in promoting economic growth and that the only exogenous variable included in the estimation that was not significant was external trade.

Adams and Elassal (2020) assessed whether ODA contributes to economic growth while sampling Asian and African nations over the period 1980 and 2015. The authors performed a comprehensive literature analysis for over 70 years to set the scene for the assessment and to overcome the heterogeneity problem through the employment of two sets of sample countries. The study utilized inflation, population, domestic savings education, trade openness and corruption index as independent variables for ODA while GDP as response variable. A fixed-effects panel data model was employed for both samples (Asia and Africa). The independent variables chosen for modeling were derived using both empirical data and theoretical predictions. The analysis found no parallels linking ODA and longer term EG patterns in either the Asian or African contexts.

Mahembe and Odhiambo (2020) looked into whether ODA had helped to alleviate extreme poverty, if the form and source of ODA mattered, and whether political or economic freedom

improved economic effectiveness in developing nations. The study used GMM approaches, correcting for simultaneity and unobserved heterogeneity to account for endogeneity. The study incorporated democracy (institutional freedom and quality), globalization, trade openness and age-dependency ratio into the analysis as regressor variables for ODA and poverty as the response variable proxied through the inequality data set sourced from World Bank poverty indicator. The found that ODA did not statistically and significantly influence poverty reduction across all three poverty proxies.

2.4.2 Foreign Direct Investments (FDI) and Economic Growth (GDP)

An and Yeh (2021) evaluated how FDI affected EG in emerging and developing Asia in relation to sophistications of host nations' financial systems between 1996 and 2017. The study incorporated the use of financial systems development, government consumption, trade openness, population growth, labor effectiveness and inflation as predictive variables representing FDI and GDP per capita as the response variable. The study used panel smooth transition regression model, or threshold technique, to collect annual data from the 18 emerging and developing Asian nations. The authors examined various models using various financial development proxies. The study's findings established two unique financial development thresholds linking FDI and EG. Only when financial development was within two threshold values did FDI have a growth-enhancing effect. Notably, positive influence of FDI on EG decreased at high levels of financial institutional development.

Hagan and Amoah (2020) had prior to An and Yeh (2021) looked at whether the effect of FDI on EG was dependent on financial systems that took into account the instability of the financial markets. The use of a new financial market fragility metric marked a significant shift from past

studies. The study incorporated the use of average years of education, trade openness, government expenditure, domestic credit, geographical coverage in kilometers, costs and net loans fragilities as the independent variables representing FDI while GDP was incorporated as the response variable. The study used a panel data and generated estimations by way of instrumental variable approach. A pooled ordinary least square was also computed for robustness purposes. The study showed that FDI had a negligible but significant beneficial influence on EG in areas with unstable financial markets. Accordingly, the authors emphasized the need to include fragility of financial markets as a significant element affecting absorptive capacity when examining FDI and EG parallels in Africa.

Saleem, Shahzad, Hussein and Bashir (2020) investigated implications on allocating and directing FDI for optimal economic growth using yearly data of 24 Asian nations running between 1995 to 2016. The study incorporated FDI, fixed capital formation and inflation, as the independent variables, unemployment rates, trade openness and population as control variables whereas GDP per capita denoted EG as the response variable. Quantile regression and GMM were estimate methods used by the authors. The study categorized nations into high-income and low-income groups ensuring validity of empirical results and to examine the impact of income. The findings indicated that FDI was sensitive for Middle Eastern and high-income nations, indicating presence of variables other than FDI negatively impacted EG and that these nations needed to improve institutional quality.

Kumari, Lopez, Abbasi, Shabbir, Khan and Saleem, (2021) investigated the longer-run and causal linkage connecting FDI to economic growth in India while employing trade openness as a control

variable using data series from 1985 to 2018. The study applied vector autoregression (VAR) approach and Johansen cointegration test. The results confirmed non-existence of long-term link amongst variables. Revelations of VAR causality confirmed bi-directional influences indicating that FDI caused EG and vise-versa. The analysis confirmed no bi-directional causal link between trade liberalization and economic development.

Zardoub (2020b) analyzed effect of FDI on EG in 12 middle-income developing nations between 1990 to 2017. The author used ARDL model approach to query near-term and longer-term influence of FDI on EG. The findings showed ambiguous consequences. Depending on what investors anticipated, influence of the inflows on EG growth varied. Impact of FDI inflows on EG was found to detrimental during the near-run but insignificant during the longer-run. The author however discovered significance of remittances on EG was higher in the near-term as compared to long-term.

2.4.3 Foreign Portfolio Investments (FPI) and Economic Growth (GDP)

Within 21 advanced economies, Nguyen, Schinckus, Quang and Thuy, (2022) explored the influence of domestic and international uncertainty on the dynamics of portfolio investment from 2001 to 2016. In a setting where the global uncertainty index changed and the level and volatility of domestic economic policy was uncertain, the evolution of net FPI was examined. Two-stage linear unbalanced estimation approach was employed for provision of empirical analysis.

The analysis found that while a rise in global uncertainty indicator had significant positive impact on FPI inflows, a rise in volatility of domestic economic policy uncertainty had negative impact on FPI net inflows. Notably, FPI inflows increased when the international uncertainty index and

domestic economic policy uncertainty both increased at the same time, but decreased when these indicators' volatility increased instantaneously. The net portfolio investments were significantly positively impacted by an increase in unpredictability of domestic economic uncertainty and the global uncertainty indicator suggesting capital flight.

Gupta and Ahmed (2020) evaluated the factors influencing short and long-term flows of FPI into the Indian bond market from 2002 to 2016. The authors argued that the recipient nations' financial and macroeconomic stability was significantly impacted by the erratic nature of FPI movements into debt market. The study deployed the ARDL model and incorporated a mix of push and pull factors including interest rate differential, stock market returns in other emerging economies, exchange rate volatility, domestic stock market performance and dummy variables to monitor global ongoings such as unconventional monetary policies of developed countries and financial crisis. The analysis found that the primary pull element explaining dynamics of FPI within Indian debt markets was the interest rate differential. The Indian stock market's most widely accepted paradigm was the one relating capital flows to interest rate differentials.

By comparing Pakistan's equity market's FPI performance to that of other markets and examining what factors mattered for investing there, Tauseef and Dupuy (2022) examined foreign investors' knowledge of risk diversification advantages and potential return enhancement offered by Pakistan's equity market. Data from 22 established and 22 emerging nations were used to do a comparative analysis from 1993 to 2019. Data from 130 non-financial businesses in Pakistan were used for cross-sectional analysis, which was conducted using the Carhart (1997) and Fama and French (2015) models. Using turnover rate as a liquidity metrics, liquidity in a five-factor model

was examined. The study revealed that equity market in Pakistan offered huge diversification benefits if it resembled or emulated developed market portfolios. However, the study revealed that favorable returns were discovered by investors who preferred blue chip stocks with low book-to-market valuations.

Anetor (2019) examined the link between FPI and EG inhibited by financial development in 28 SSA countries between 1995 and 2017. The world development indicator (WDI) was used as a secondary data source while dynamic panel threshold regression and GMM were employed for analysis. The analysis discovered that whereas FPI had a beneficial influence on EG, FDI entailed negative and statistically negligible outcome on it. But when portfolio investment and financial development interacted, the effect was favorable being statistically significant, implying that financial institution development and advancement was a prerequisite for FPI to have a favorable influence on EG. The authors revealed minimal thresholds of financial development for positive outcomes on EG through FPI stood at 42.66 per cent.

In the backdrop of the housing crisis during the years 2000 to 2014, Derbali and Lamouchi, (2020) evaluated the extent of the relevance of FPI on volatilities of Southeast Asian emerging markets in contrast to the equivalent experience of the Indian economy. The autoregressive conditional heteroscedasticity (ARCH) model was applied to assess daily stock market index and daily FPI inflow of Thailand, Indonesia, Philippines, and India. The analysis revealed stock market results in all nations were significantly influenced by the net inflow of FPI. In the sample countries, the stock market's response to unpredictability from the FPI market varied depending on market conditions. Average market return volatility throughout Southeast Asia was considerably

influenced by historical data and volatility clustering. The study also reported that there existed significant country differences leading to bidirectional effects between volatility and FPI within stock markets.

2.4.4 External Debt (ED) and Economic Growth (GDP)

Sandow, Abayie and Duodu (2022) assessed the influence of ED on EG while accounting for public sector management (PSM) variability in 31 chosen Sub-Saharan African (SSA) nations from 2005 to 2017. The study explored how differing PSM quality complemented external debt towards influencing economic growth. The authors employed the panel smooth transition regression (PSTR) and GMM models for data analysis. Data from the WBDI was employed.

ED significantly hampered EG in SSA, according to the data obtained without accounting for variations in PSM quality. However, when foreign debt interacted with PSM quality, debt effect on EG tended to be favorable for SSA nations with high PSM quality. The findings also showed that nations with high PSM quality outgrew their counterparts insignificant PSM quality. PSTR additionally gave convincing evidence of nonlinear parallels linking regressor and response variables and projected that debt-to-GDP ratio should not exceed 45 percent.

Makhoba, Kaseeram and Greyling (2022) interrogated the dynamic and asymmetric links between governmental debt and EG in the Southern African Developing Communities (SADC), spanning 2000 to 2018. The study used PSTR to examine threshold influence of public debt impeding EG together with dynamic asymmetries debt and EG. Findings revealed debt entailed strong nonlinear influence on SADC's EG. The study found that once debt reached a certain percentage of GDP—60%—long-term economic growth began to suffer. When compared to the higher debt threshold

regimes, the lower debt threshold was determined to be statistically and significantly beneficial for long-term growth.

By separating the influence of public debt into transitory and permanent elements and looking at 37 OECD countries from 1980 to 2018, Abubakar (2020) investigated the influence of debt on EG of OECD nations. Mundlak decomposition was applied to separate temporary and longer-term effects of variables. The decomposed model was estimated using the Hausman test to cater for endogeneity issues. For a better comprehension of dynamics linking the variables, the study broke down OECD into nation group models. The study's conclusions showed that public debt had both a considerable permanent negative outcome on EC and a temporary beneficial influence in the entire OECD model. Debt exhibited higher negative long-term effects than a good near-term effect. In addition, the estimates from the disaggregated models showed that while the transitory impact of debt was negative across all nation groups, the opposite was apparent for permanent impact of debt.

Using yearly data from 1970 to 2015, Mensah, Allotey, Kumankoma and Coffie, (2020) looked at 38 African nations to ascertain if public debt threshold had any impact on EG while employing the ARDL model. The authors proved that the level and pattern of debt has an effect on economic expansion. Particularly, the authors discovered that economic growth was impeded when debt ranged 20 percent to 80 percent of GDP. The study determined that growing governmental debt between 45 to 75 percent of GDP had negative influences to EG in Africa. The study additionally showed that sampled African countries' economic growth was negatively impacted by constant increase in debt.

Between 1975 to 2020 in South Africa, Mavodyo (2022) looked into direct correlation linking budget deficits to EG while also considering ways in which deficits limited growth. The author used the dynamic ordinary least squares (DOLS) approach in an effort to compensate for endogeneity, which was widespread in economic growth regressions. The analysis found that a 10 percent rise in deficit slugged economic development by 0.2 percentage points after taking into account the forward linkage between deficit, spending and EG. Findings also indicated that the budget deficit's growth-restraining effects in South Africa were primarily caused by factors that adversely affected private and state capital accumulation advantages together with a decline in gross savings. Results, however, did not reveal any proof of a longer-term interest rate impact towards deficits reduction.

In SSA nations chosen at random from 1996 to 2016, Shittu, Ismail and Latiff (2020) explored the influence of governance connecting ED and EG. To analyze data from the World Governance and Development Indicator, the study employed OLS model after confirming that model variables had a long-term association and were free of unit roots. The study's findings supported existence of non-linear linkage connecting foreign debt and EG, with a net positive effect of $5.05 more in improved economic performance for every dollar increase in ED. While other data showed a mixed picture, the governance index showed a negative correlation with economic growth. Improvements in governance quality lowered negative effect of ED on EG by US $1.288 while simultaneously boosting its (net) positive effects by US $1.288, according to the interaction impact of governance on ED management.

Sharaf (2022) interrogated asymmetric and threshold level effects of Egypt's ED on economic development between 1980 to 2019. The short and longer-run equilibrium parameters were estimated using a vector error-correction and NARDL models. NARDL findings showed that positive and negative ED induced movements had a statistical and significant negative longer-term effect on EG. External debt impact on EG was negative in terms of magnitude. The impact of Egypt's ED on EG was symmetrical in the near and long-terms.

Over the period 1985 to 2016, Ezeaku and Onwumere (2019) evaluated the relative impact of external concessional indebtedness (bilateral and multilateral) on EG within 32 SSA nations. To estimate the model, the study employed the ARDL approach. These models included several estimators as follows: mean group, pooled mean group (PMG), and dynamic fixed effect. Hausman test was used after these estimators to identify the most effective and reliable estimator. Findings demonstrated that bilateral concessional indebtedness had a detrimental effect on economic expansion since a 1 percent rise induced decline of the economic by 38.1 percent shorter-term and 7.1 percent longer-term. It was discovered that multilateral concessional debts had a favorable effect on EG over the long and short terms. Coefficient of error term was negatively skewed indicating that the rate of fixation of deviations from the long-run equilibrium path was 89.4% per year.

2.5 Knowledge Gap

2.5.1 Theoretical and Conceptual Gap

This study employed convergence (catching-up), modern portfolio, conventional debt and capital flow theories in ascertaining the influence of FCI on EG. Due to diminishing returns effects in developed countries in comparison to developing nations, the application of catching-up theory

within the study was essential as it serves as a platform for more insights related to whether the infusion of foreign resources would lead to faster growth rates in comparison to developed countries (UNSDGR, 2022). In relation to risk and return, the modern portfolio theory was critical within this study towards uncovering determining factors that influence foreign investors to provide capital for developing economies.

Since the capital flow theory demonstrates that an economy's growth is a linear and direct function of FCIs due to the savings and investments gap challenges faced by most developing nations where there exist insufficient domestic savings to support EG, it plays a vital role towards gauging levels of returns encountered by investors. In addition, the theory is useful in exploring how interest rates within the purview of the study may moderate parallels linking FCIs and EG. Lastly, the financing of budget deficits through external debt is perceived as a product of reduced public and private savings, decreased investments, reduction of capital and an increment of interest rates hence taken to be negative towards economic growth (Kumar & Woo, 2021). In attribution to linkages involving a nation's national budget and its economic outcomes during budgetary deficits, the conventional theory of debt was key to the study's investigation on the contribution of external debt inflows to growth outcomes.

2.5.2 Contextual and Variable Gap

The study focuses on relation linking FCIs and EG of a select member countries within the EAC. The target population is the East African Community composed of the Republics of Tanzania, Kenya, Democratic Republic of Congo (DRC), Uganda, Burundi, South Sudan and Rwanda. The response variable is economic growth while the independent variable is represented by foreign capital inflows comprising official development assistance, foreign direct investments, foreign

portfolio investments and external debt. The study applied central bank base interest rates as the moderating variable between the response and predictor variables. All variables are proxied or indicated through net inflows with the exception of economic growth whose proxy is GDP per capita.

No other studies undertaken in relation to this study topic is yet to query the relationship between foreign capital inflows and economic growth within the EAC context. Thus, querying the linkage between FCIs and EG takes center stage within this unique context of the East African Community region having witnessed substantial foreign capital inflows in recent years. However, influence of these capital injections on overall EG is subject to a myriad of contextual factors. These include the region's historical economic structure, policy frameworks, institutional capacities and the diversification of industries. This study therefore aimed to delve into the interplay of the independent and dependent variables seeking to provide understanding of foreign capital inflows influences on the economic growth trajectory of the East African Community.

Moreover, this study recognizes the dynamic nature of global economic landscapes and the varying forms of foreign capital which may have distinct implications for economic growth noting that not all FCI forms contribute equally to EG within EAC. Consequently, variable analysis becomes crucial towards unraveling differential impacts of various FCIs within sectors like infrastructure development, human capital, and technological advancements within the member states. By establishing these contextual and variable gaps, the study aspired to offer additional insights that could inform policymakers and stakeholders on optimizing benefits of foreign capital inflows for fostering robust economic growth within the region.

2.5.3 Spatial Gap

The spatial aspect of this study aimed to give understanding of how foreign capital inflows impact different geographic regions within EAC. This study recognized that distribution of foreign capital may not be uniform across member states and regions, leading to spatial variations in economic growth. Regional disparities in infrastructure development, natural resource endowments and institutional capacities may influence the effectiveness of foreign capital in stimulating growth (Hagan & Amoah, 2020). The study may have opted to employ spatial analysis techniques seeking to identify clusters or zones within the East African Community where FCIs entail a more pronounced influence on EG thereby shedding light on the spatial dynamics that underlie the broader economic trends regionally.

Further, this study acknowledged the significant idea of cross-border interactions and economic linkages in shaping the spatial distribution of foreign capital effects. Trade and investment flows between neighboring countries within the East African Community create interdependencies that can amplify or mitigate positive or negative impacts of FCIs on EG. Analyzing these spatial relationships was not crucial towards the final regression results but would offer better understanding of the interconnectedness of economies within the region and identifying potential spillover effects of foreign capital on neighboring countries. By unraveling the spatial dimension linking FCIs to EG, the study sought to provide valuable insights into the geographical dynamics that shape the economic growth trajectory of the East African Community.

2.5.4 Methodological Gap

The study employed quantitative research design in line with An and Yeh (2021) and Zardoub (2020b) and applied the variable selection forward stepwise model for data analysis. This method

systematically reduces the risk of overfitting and mitigates multicollinearity issues, which is crucial for a regional study of the EAC where economic indicators are often interdependent. By sequentially adding variables that most significantly improve the model's explanatory power, it ensures the final specification is both statistically robust and theoretically interpretable, thereby strengthening the validity of the conclusions regarding which capital flows truly drive economic growth. In the EAC context, where economies are small, interconnected, and data can be limited and highly correlated, the forward stepwise selection model is significant as it systematically identifies the most impactful economic variables, for instance, FDI or specific debt types, from a limited dataset, avoiding overfitting and producing a parsimonious model that clarifies which capital flows truly drive growth amidst multicollinearity and regional spillover effects.

Additionally, since temporal dimensions dictated the evolvement of economic dynamics and policy environments over time, it therefore made it cumbersome for statistical analysis to capture true nature of relationships amongst variables. Understanding of the parallels linking study variables required a longitudinal approach that considered changes in economic policies, global economic conditions and regional dynamics over the extended period. The study employed time-series analysis to examine temporal variations in foreign capital inflows and economic growth thereby discerning trends, cyclical patterns and potential policy impacts. This enhanced the study's relevance and applicability in guiding policy recommendations for continued and sustained EG within EAC region.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

3.0 Introduction

This chapter confers methodology applied. Methodology relates to data concerns that include statistical models, target population, sampling frame, sampling technique, research design, data analysis and processing, sample size, data collection procedures, data collection instruments, estimation methods and testing of hypothesis. In addition, the chapter enumerates estimation techniques used to query the influence of foreign capital inflows on economic growth in the East African Community together with the moderating play of central banks base interest rates to parallels linking foreign capital inflows and economic growth.

3.1 Research Design

This study applied a three-dimensional model in relation to design. Firstly, this study employed a causal-comparative design while investigating the links between FCIs and EG within EAC. This design investigated the relationship between variables following the outcome of an event. In essence, following reports pertaining to economic growth outcomes, the research worked backwards examining pre-existing variables, ODA, FDI, FPI and ED, to be cognizant of potential causes to the GDP phenom irrespective of variable manipulation (Ebire & Shah, 2021). Zardoub, (2020a) is a proponent of causal-comparative design while analyzing effect of financial flows on economic growth in developing countries.

Secondly, this study utilized quantitative research design where the dependent, independent and moderating variable were descriptive and were presented through statistics, graphs, charts and in numerical form. Thirdly, this study adopted a positivist approach based on its emphasis on

objectivity, empirical evidence and systematic observations that are essential for producing reliable and replicable findings (Agnihotri, 2022). Through the ontological assumption that reality is objective, singular and independent of human perception or social construction, this study supported the view of a single and measurable reality that exists and operates according to fixed universal laws, enhanced on the belief that truth is discoverable through empirical observation, experimentation and logical analysis and upheld the reality that phenomena can be studied objectively free from the biases of observers. By relying on measurable data, a positivist approach would enable rigorous test of hypotheses within this study. This approach would blend within the quantitative aspect where statistical analysis would minimize bias and enhance validity. Ultimately, this study viewed positivism as an enabled channel that would provide a structured framework for advancing knowledge through verifiable and logical inquiry.

3.2 Target Population

The target population refers to the entire group of individuals, entities or elements that share specific characteristics relevant to the research hypotheses (Awad, 2021; Baba, 2020; Su & Taltavull, 2020). It represents the broader set from which this research may draw a sample or collect data from every member. The target population covered the EAC states composed of Rwanda, Uganda, Tanzania, Kenya, Burundi, the DRC and South Sudan covering 15 years from 2009 to 2023. Data was sourced from the World Bank Development Indicator (WBDI) on the basis of its classification of economies into varied hierarchies based on income levels (Hayat & Tahir, 2021). Four EAC member states (Republic of Kenya, Uganda, Tanzania and Rwanda) are categorized by the World Bank as Lower-Middle income level countries as their GDP per capita income ranges between USD 535 - USD 4045 WBDI (2022) hence their suitability within this study.

3.3 Sample and Sampling Procedures

This study employed purposive sampling based on data availability within the target population of member states of the EAC. Thus, out of the seven EAC member states, the study sampled four countries. The study excluded the Democratic Republic of Congo, Burundi and South Sudan for two reasons. The major reason was attributable to the fact that the Democratic republic of Congo South Sudan joined the EAC after 2019 and secondly, was unavailability of FCIs data for the three countries crucial to the study.

The study period was deemed an appropriate period of normal national financial and economic activity based on the fact that it followed 2008 financial crisis presupposing beginning of financial based reforms and ended following the Corona Virus pandemic in line with Kuchler, (2023). The study applied net ODA, FDI, FPI and ED inflows as measurement proxies for the independent variables and further employed GDP annual growth rates as the measurement for EG. This study utilized central bank base interest rates as proxies for the interest rates moderating variable.

3.4 Research Instrument

The study sought to employ secondary data emanating from World Bank Development Indicator (WBDI) repository and was to be complimented by data from the EAC Central Banks repositories. It can be very challenging to conduct a survey that will adequately capture past changes and developments within the proposed scope of the study. The WBDI repository is an authority that offers valid and reliable data (Ahmed, 2019). Based on this study's conceptual framework, the application of secondary data was a fit towards understanding how the variables in the study connected. The researcher therefore deemed the use of secondary data as suitable seeking to enhance ease in testing of hypotheses under investigation.

3.5 Data Collection Procedures

This study made use of annual financial data covering the period 2009 – 2023 (15 years). Data was sourced from the WBDI repository. The use of WBDI data was essential entailing a high degree of reliability and validity (Ye, 2022). The study emulated research performed by Adams and Elassal (2020); Beierlein (2020); Gnangnon (2020); Nwani (2021) who employed study periods of greater than seven years in relation to determining the effects of FCIs to EG in other global contexts. Authorization to collect data was sought from the Graduate Business Studies Department of the SOBE and thereafter, authorization to carry out research was thereafter granted on application by the National Commission for Science, Technology and Innovation (NACOSTI), which is a key requirement before conducting research in Kenya. Appendix 1 presents the data collection tool employed in the study.

3.6 Data Analysis and Processing Procedures

Data processing involves organizing, editing, classifying and tabulating raw data to prepare it for analysis (Katsampoxakis, 2022). Secondary data alone may not adequately address research questions or hypotheses unless it is systematically analyzed and structured to draw meaningful inferences (Ngunjiri, 2019). Statistical analysis encompasses a variety of techniques ranging from basic calculations like averages to advanced methods that require specialized software. While some approaches are computationally intensive, the fundamental principles of statistical testing remain accessible while modern computing tools have simplified complex mathematical procedures (Izadi et al., 2022).

This study utilized panel data analysis over fifteen-year period (2009–2023) towards assessing the impact of official development assistance, foreign direct investments, foreign portfolio

investments, and external debt capital inflows on economic growth. The Interaction-Term model was applied to evaluate how central bank base interest rates moderated parallels linking FCIs to EG. Yearly data spanning 2009 to 2023 was compiled and analyzed through the use of E-Views 14 analytical software.

This study applied statistical, quantitative and computational techniques to uncover patterns, relationships and themes within foreign capital inflows and economic growth parallels. The goal was to derive meaningful insights, validate findings and contribute original knowledge to the field of finance on a global perspective (Martins et al., 2022). Data analysis was performed using both ordinary least squares (OLS) and variable selection forward stepwise model along with measures of frequency, central tendencies, dispersions and position as main descriptive statistics. The dependent variable, economic growth (EG) was measured using GDP per capita. Official development assistance (ODA), foreign direct investment (FDI), foreign portfolio investment (FPI) and external debt (ED) were measured through suitability of their net or gross inflows as indicated in Table 3.0 and thereafter application of natural logarithms, inversion and squaring for non-biasedness and enhancement of analysis results.

The annual average central bank base interest rate for each of the EAC member nation was the indicator employed as the moderating variable. Data collected was be classified and tabulated and thereafter verified for accuracy, consistency and completeness. Frequency distributions, graphs, standard deviations, coefficient of variations and mean scores are descriptive statistical methods that set out main features of collected data. The study executed diagnostic tests and further

performed covariance analysis through correlation coefficients testing to determine directional association amongst study variables.

3.6.1 Justification for use of Panel Data Approach

Panel data, also known as longitudinal data refers to a dataset that tracks the same subjects over multiple time periods (Gatimu, 2020; Isabella et al., 2023). Unlike cross-sectional data referencing one entity over time, panel data combines both dimensions allowing researchers to observe how variables evolve across entities and time. Panel data enables the examination of dynamic behaviors, trends and causal relationships while controlling for unobserved heterogeneity individual characteristics that do not change over time but may influence results (Gnangnon, 2020; Olaniyan & Undesa, 2002). This type of data is valuable in finance where understanding change and persistence between variables is critical. Through the merging of time-series and cross-sectional observations, panel data enhances comparability providing richer datasets with greater variability and reduced collinearity among variables (Ngunjiri 2019).

The application of panel data is thus for the above reason justified through its ability to address key methodological challenges and enhance analytical rigor. First, it allows for fixed-effects or random-effects models which control for time-invariant unobserved variables while reducing omitted variable bias (Burgess et al., 2021; Ietto-Gillies, 2022; Karahan & Çolak, 2022). Secondly, panel data improves statistical efficiency by increasing the number of observations hence enabling more robust estimations even with limited samples (Luu, 2022). Thirdly, it assists researchers distinguish between short-term fluctuations and long-term trends which is a crucial advantage for policy or intervention based studies (Adika, 2022). By leveraging these strengths, this study seeks to produce more credible and nuanced findings strengthening contribution to scholarly knowledge.

3.6.2 Justification for use of Interaction-Term Model in Moderation Analysis

The interaction-term model allows for examining of conditional effects of moderation from a third variable in a way that without that third variable, such conditional effects cannot be formally assessed (Gizaw et al., 2023). Unlike simple subgroup analysis, the interaction-term model provides a statistically precise estimate or quantifies moderation of how much the moderator alters the relationship between the independent variables and the dependent variable through the moderating variable's coefficient (Niyimba, 2019). By including the interaction term alongside the main effects of both independent and dependent variables, the model accounts for their individual influences thus ensuring that the moderation effect is isolated and/or unbiased.

In addition, there exists flexibility in moderation testing in a way that the model can accommodate continuous and categorical moderators, enabling its versatility under different research contexts, for instance: testing if influence of FDI on EG varies with central bank base interest rates. Thus, the model enhances predictive accuracy in a way that omitting the interaction term if moderation exists leads to model misspecification and biased estimates while including it improves the model's explanatory and predictive power.

The interaction-term model provides empirical evidence for hypotheses where financial theories suggest that relationships are not uniform but context-dependent, for instance; monetary policy effect varies with market conditions. While other moderation methods may be limited within singularity of analysis by compatibility of advanced techniques, the interaction-term model effects can be tested in various regression frameworks including ordinary least squares (OLS), panel data and logit models and can also be extended to nonlinear moderation where theory is in support

(Bahati & Mbithi, 2022). This study will thus employ the interaction-term model to assist to determine whether the central bank base interest rates alter the influence of FCIs on EG within the EAC.

3.6.3 Descriptive Statistics

Examining key features of data within a variable without consideration of relationships with other variables is made possible through univariate analysis which refers to the simplest form of quantitative data analysis focusing on a single variable at a time (Azmete & Tsaedu, 2021; Isabella et al., 2023; Woldetensaye & Sirah, 2022). Since univariate analysis deals with one variable at a time, descriptive statistics are its primary tool. These statistics summarize and describe key features of data, including measures of central tendencies, measures of dispersions, frequency distributions and percentiles and graphical representations to visualize patterns (scattergrams, histograms and box plots).

This study sought to apply descriptive statistics through univariate analysis for data summarization towards providing a concise overview of the 2009 to 2023 dataset making it interpretable. For instance, average EG rate over the study's 15 years would give a quick snapshot of economic performance within the East African Community region. Descriptive statistics would further assist in data cleaning, identifying trends, missing values, skewness, normality, outliers and unusual values needing further investigation prior to advanced regression analysis. The descriptive statistics process would thus facilitate a comprehensive understanding of the dataset's structures thus supporting transparency in the study research

3.6.4 Operationalization of Study Variables

Table 3.0 presents the operationalization of variables employed.

Table 3.0: Operationalization of Study Variables

Variable	Indicators	Measurement	Empirical Studies/Citations
Official Development Assistance (ODA)	Inward ODA receipts	Ratio: Net Official Development Assistance Inflows (USD)	(Zardoub, 2020b) (Adika, 2022)
Foreign Direct Investment (FDI)	Inwards FDI receipts	Ratio: Net Foreign Direct Investments Inflows (USD)	(Ibhagui, 2020) (Hayat & Tahir, 2021) (Hussain & Bashir, 2020)
Foreign Portfolio Investment (FPI)	Inward FPI receipts	Ratio: Net Foreign Portfolio Investments Inflows (USD)	(Derbali & Lamouchi, 2020)
External Debt (ED)	External borrowing receipts	Ratio: Net External Debts Inflows (USD)	(Abubakar, 2020) (Beyene, 2022) (Shittu et al., 2018; Shittu, Ismail, et al., 2020)
Economic Growth (EG)	Annual Economic Growth reports	Annual Percentage Change in GDP per capita	(Sharaf, 2022) (Onafowora, 2019) (Makhoba et al., 2022)
Interest Rates (IR)	Central Banks Base Interest Rates	Average Central Bank Base Interest Rate	(Gupta & Ahmed, 2020) (Shittu et al., 2018) (Ibrahim, 2020)

Source: Researcher (2025)

3.6.5 Model Specification, Estimation and Case of Variables

This study employed a panel data multiple regression model and applied the Variable Selection Forward Stepwise estimation technique. The dataset combined both time-series and cross-sectional observations which were consolidated into panel structure and analyzed using panel regression methods. Regression analysis serves as a powerful modelling approach for examining causality linking variables thus enabling researchers to assess how one variable affects another. To enhance data reliability, a univariate analysis was first performed through descriptive analysis followed by a logarithmic transformation of the variables to mitigate issues related to scale disparities and heteroscedasticity. Further, multiple regression analysis was applied to evaluate simultaneous impact of several predictor variables on response variable. This approach allowed comprehensive assessment of how the multiple foreign capital inflow predictors collectively influenced economic growth within the east African Community region.

3.6.6 Interaction-Term Model Test for the Moderating Role of Interest Rates

Moderation occurs when a third variable, the moderator, alters the strength or direction of the relationship between an independent variable and a dependent variable (Awdeh, 2021). In relation to this study, it connotes that effects of FCIs on EG depend on levels of individual EAC central bank base interest rates. The emphasis for moderation testing was to identify boundary conditions, (when or for whom an effect holds), to explain inconsistent findings, (why an independent variable works in one group but not another) and to enhance theoretical precision by showing context-dependent effects (Agyapong, 2020).

A robust approach for testing of the central bank base interest rates moderation on the linkage between foreign capital inflows and economic growth within the panel data analysis is the

Interaction-Term Models with Fixed or Random Effects (Bajo-Rubio, 2022)**.** This model is superior on account of controlling for unobserved heterogeneity and handling time-varying and time-invariant moderators (Asunka, 2022). This study adopted the interaction-term models that comprised of the product of the moderator and each individual independent variable in the panel regression as applied by Mohamed, Malgit, Moragia and Mbugua, 2023; Obura and Anyango, 2016. The model is presented as:

$Y = \beta_0 + \beta_1 F + \beta_2 D + \beta_3 (F \times D) + \epsilon$

Where:

Y = Dependent variable

F = Independent variable

D = Moderator

(F x D) = Interaction term

Central bank base interest rates were introduced as the interacting term within the regression model in seeking to understand how they influenced direction and strength of response and predictor variables linkage. The hypothesis that interest rates do not have a moderating influence on the linkage between FCIs and EG was the beginning point that aimed to gauge the influence of capital inflows on EG contingent on the interest rate variable. The researcher conducted regression analysis taking into account ODA, FDI, FPI and ED as the independent variables representing the financial resources, economic growth as the response variable proxied through GDP and the central bank base interest rates as the moderating variable.

The moderation effect of interest rates was evaluated by including an interaction term between capital inflows and interest rates within the regression model. This interaction term represented product of capital inflows and central bank base interest rates, capturing combined impact of both

variables on EG. The researcher analyzed and interpreted the regression results to determine the presence and significance of moderating influence of interest rates in the linkage. If the interaction term would be statistically significant, it would indicate that interest rates indeed moderated the relationship between FCIs and EG. The sign and magnitude of the coefficient would provide insights into the direction and strength of this moderation. This analysis would contribute critical insights into how central bank base interest rates shaped influence of FCIs on a country's EG trajectory.

3.6.7 Testing for Model Validity: Fixed or Random Effects under Hausman Test

Hausman specification test is a guide towards deciding the suitability of multiple regression models for panel data analysis (Swamy, 2018). A key assumption in panel data analysis is that every element under observation possesses unique, unobserved characteristics that can or may not affect the predictor variables. These individual effects can be either be fixed or correlated with the regressors, or may be random or uncorrelated with regressors within balanced panel datasets (Rehman & Noman, 2020). To account for these differences, two primary regression models are used, that is the fixed effects (FE) model which controls for time-invariant individual characteristics by allowing intercepts to vary across entities, and the random effects (RE) model which treats individual differences as random disturbances (Dao & Ngo, 2022). The choice between these models is crucial as an incorrect specification can lead to biased or inefficient estimates.

Thus, the Hausman specification test is a key statistical tool employed to determine suitability on the appropriateness of fixed or random effects towards a given dataset. This test will be applied to compare the estimated coefficients from both models under the study's null hypothesis that random

effects approach is consistent and efficient. If the individual effects are uncorrelated with the predictor variables, thus supporting the random effects model, the estimates from both models should not differ significantly. However, if the null hypothesis is rejected through the test, it signifies suitability of fixed effects model owing to the random effects model's assumption of no correlation is violated, leading to biased estimates.

Yusuf (2020) emphasizes the importance of this test in panel data analysis whereby failing to account for unobserved heterogeneity can distort inference. The Hausman test thus serves as a diagnostic check to ensure model robustness guiding research toward most suitable estimation approach. Through the evaluation on whether individual effects are correlated with regressors, this test enhances the reliability of empirical findings. This study employs the test while assuming non-correlation of independent variables as the null hypothesis, thereafter seeking its guidance towards using fixed or random effects regression models for consistent results.

3.6.8 Study Research Equations

3.6.8.1 Influence of Foreign Capital Inflows on Economic Growth

This subsection presents the model that was applied in the study. This study employed panel data regression method due to its potential for analyzing causal relationships between variables over time in line with (Adika, 2022). The key null hypothesis adopted in the study was that none of the regressors was statistically significant towards influencing EG in the EAC. The regression equation was thus:

$$\mathbf{EG_t = b_0 + b_1ODA_{t1} + b_2FDI_{t2} + b_3FPI_{t3} + b_4ED_{t4} + b_5CBBIR_{t5} + et\ldots\ldots\ldots\ (Equation\ 3.10)}$$

Where:

t = 1, 2, ……, 15 = Years 2009 to 2023

$\mathbf{EG_t}$ = Economic Growth measure at time *t*

$\mathbf{ODA_t}$ = Official Development Assistance at time *t*

$\mathbf{FDI_t}$ = Foreign Direct Investments at time *t*

$\mathbf{FPI_t}$ = Foreign Portfolio Investments at time *t*

$\mathbf{ED_t}$ = External Debt at time *t*

$\mathbf{CBBIR_t}$ = Average Central Banks Base Interest Rate at time *t*

$\mathbf{b_s}$ = Regression coefficients

et = Error term

3.6.8.2 Moderating Role of CBBIR Linking FCIs to GDP in EAC

The moderating variable in study was central bank base interest rates. Null hypothesis held that the moderating variable did not affect the relationship between FCIs and EG within the EAC region. The hypotheses were estimated through panel data regression equations by the application of the Interaction-Term Model as follows:

1st Step: Moderating role of CBBIR on link between ODA and EG

$$\mathbf{EG_t = \alpha + \beta_1 ODA_{t1} + \beta_2 CBBIR_{t2} + \beta_3 (ODA \times CBBIR) + et} \quad \textbf{(Equation 3.11)}$$

2nd Step: Moderating role of CBBIR on link between FDI and EG

$$\mathbf{EG_t = \alpha + \beta_1 FDI_{t1} + \beta_2 CBBIR_{t2} + \beta_3 (FDI \times CBBIR) + et} \quad \textbf{(Equation 3.12)}$$

3rd Step: Moderating role of CBBIR on link between FPI and EG

$$\mathbf{EG_t = \alpha + \beta_1 FPI_{t1} + \beta_2 CBBIR_{t2} + \beta_3 (FPI \times CBBIR) + et} \quad \textbf{(Equation 3.13)}$$

4th Step: Moderating role of CBBIR on link between ED and EG

$$\mathbf{EG_t = \alpha + \beta_1 ED_{t1} + \beta_2 CBBIR_{t2} + \beta_3 (ED \times CBBIR) + et} \quad \textbf{(Equation 3.14)}$$

Where:

$\mathbf{EG_t}$ = Economic Growth measure at time *t*

$\mathbf{ODA_t}$ = Official Development Assistance at time *t*

$\mathbf{FDI_t}$ = Foreign Direct Investment at time *t*

$\mathbf{FPI_t}$ = Foreign Portfolio Investment at time *t*

$\mathbf{ED_t}$ = External Debt at time *t*

$\mathbf{CBBIR_t}$ = Average Central Banks Base Interest Rates at time *t*

$\boldsymbol{\alpha}$ = Intercept

$\boldsymbol{\beta_i}$ = Explanatory variable of ODA, FDI, FPI, ED and CBBIR

et = Error term

3.6.9 Stationarity (Panel Unit Root) Test

Testing time series properties of data is critical in statistical analysis to ensure that models are correctly specified and yield reliable inferences (Burmester & Scott-kennel, 2019). A time series is stationary if its mean and variance remain constant over time leading to reliable regression results (Shittu et al., 2018). Where time series is non-stationary, differencing or detrending can be applied to achieve stationarity before modeling. To prevent inconsistent estimations in modeling, this study applied stationarity tests to assess if values within different timeframes were unrelated.

The Levin, Lin and Chu (LLC) test was applied in preference to other tests within the study to check for the presence of a unit root in the panel data since the dataset comprised multiple time series with common properties (Yamen, 2021). The Levin Lin and Chu further took preference over other tests owing to its higher power in panel settings, that is, exploiting cross-sectional information and accounting for fixed effects and trends in panel data (Das, 2020). Also, the test was deemed best due to its features of adjusting for cross-sectional dependence and

heteroscedasticity. Null hypothesis was that panels had a unit root while alternate hypothesis held that panels were stationary.

3.6.9.1 Levin, Lin and Chu Test

The Levin, Lin and Chu (2002) panel unit root test presupposes a common unit root process across cross-sections thus making it suitable for balanced panels where all series share similar autoregressive properties (Beyene, 2022). This study employed the Levin, Lin and Chu model three with intercept and linear trend owing to the macro-economic nature of the dataset with trending behavior and also the fact that this model controls for both fixed effects and secular trends (Anetor, 2020a; Katsampoxakis, 2022).

Model 3: $\boldsymbol{\Delta y_{it} = \alpha_i + \delta_{it} + \rho y_{i,t-1} \sum_{j=1}^{pi} \theta_{ij} \Delta yi, t - j + \varepsilon_{it}}$**.....(Equation 3.15)**

Where:

$\boldsymbol{\Delta y_{it}}$ = Variable first difference y for unit i at time t

$\boldsymbol{\alpha_i}$ = Unit specific intercept (fixed effect)

$\boldsymbol{\delta_{it}}$ = Unit-specific linear trend.

$\boldsymbol{\rho}$ = Common autoregressive coefficient (test ρ=0 for unit root).

$\boldsymbol{\Theta_{ij}}$ = Coefficients for lagged differences (controls autocorrelation).

$\boldsymbol{\epsilon_{it}}$ = Error term

Additional superiorities of the Levin, Lin and Chu model three is the common assumption holding all units sharing similar or homogeneous autoregressive coefficients and a lag selection protocol that eliminates autocorrelation (Tran, 2021). This model relies on standardization in adjusting for cross-sectional dependence and sample size and employs a pooled ordinary least square (OLS) with Newey-West standard errors (Anetor, 2020a). The null hypothesis for model three was written

as H_0 ρ1 = 1 signifying that all panels have unit roots while alternate hypothesis was H_0 ρ1 < 1 implying that panels were stationary.

3.6.9.2 Augmented Dickey-Fuller test

The Augmented Dickey-Fuller Fisher (ADF) test is designed for single time series analysis but can also be adapted for panel data through conducting individual ADF tests for each cross-sectional unit and then combining the results (Bouteska & Regaieg, 2020; Hanif, 2020). However, this approach has limitations since it assumes independent unit root processes across panel units ignoring potential cross-sectional dependence which is common in panel data, that is, variables influenced by global shocks (An & Yeh, 2021). Secondly, running separate ADF tests reduces efficiency compared to dedicated panel unit root tests which exploit pooled information to improve power. Thirdly, while the ADF test can still be used to check stationarity conditions for each unit individually, it lacks robustness of panel-specific methods when dealing with shared trends or dependencies (Hanif, 2020).

Fisher-ADF Test Formular: $\boldsymbol{P = -2\sum_{i=1}^{N} ln(p_i) \sim X^2(2N)}$**…...…….(Equation 3.16)**

Where:

$\boldsymbol{P}$ = Fisher's combined test statistic

$\boldsymbol{p_i}$ = p-value from ADF test for *ith* cross-sectional unit

$\boldsymbol{N}$ = Number of cross-sectional units

$\boldsymbol{X^2(2N)}$ = Chi-square with 2*N* degrees of freedom

ADF test's null hypothesis assumes presence of unit root for each series. If the null hypothesis is rejected, the series is considered stationary, that is, constant mean and variance over time (Ullah & Tahir, 2022). However, panel data requires stricter conditions such as homogeneous stationarity in that all units become stationary through similar dataset transformations. The ADF test does not

account for these nuances making it less ideal compared to panel-optimized tests that control for cross-unit correlations or allow heterogeneous autoregressive coefficients. Notwithstanding, the ADF test provides a basic check supplementing panel-specific tests for reliable inference (Hanif, 2020).

3.6.9.3 Im, Pesaran and Shin W-stat

Im, Pesaran Shin (IPS) W-stat test is a powerful panel unit root test designed to address limitations of homogeneous tests like the Levin, Lin and Chu (LLC). Unlike LLC which assumes a common unit root process across all cross-sectional units, the IPS test allows for heterogeneous autoregressive coefficients making it suitable for panels where individual units may exhibit different stationarity properties (Ebire & Shah, 2021). The test combines individual ADF regressions for each unit and computes a standardized t-bar statistic which accounts for both cross-sectional and time-series dimensions of datasets (Agyapong, 2020). Null hypothesis, H_0 posits that panels have a unit root while alternative hypothesis, H_1 allows for some panels to be stationary as follows:

Im, Pesaran Shin W-stat Test: $$W_{1PS} = \frac{(N * \sum t_i)}{\sqrt{(\sum Var(t_i))}}$$ **.....(Equation 3.17)**

Where:

N = Number of series in the panel

t_i = Individual t-statistic from ADF test for the ith series

Var(t_i) = The variance of the ith t-statistic

This flexibility makes IPS useful for analyzing macroeconomic or financial panel data where units may respond differently to shocks. Cross-sectional independence is however assumed by the test and its reliability diminishes if this condition is violated. For presence of unit roots, the IPS test demands that the t-bar statistic falls below critical values signifying the failure to reject H_0. If the

null hypothesis is rejected, it suggests that at least some units are stationary, though not necessarily all (Hanif, 2020).

The test accommodates panels with trends or intercepts by allowing unit-specific deterministic components thus enhancing its applicability to real-world data (Beyene, 2022). Key conditions for valid inference include a balanced or near-balanced panel and a sufficiently large time dimension to ensure reliable estimation of individual ADF regressions (An & Yeh, 2021). When cross-sectional dependence is present, supplementary tests like the Pesaran CIPS or bootstrap-adjusted IPS variants are recommended (Hanif, 2020; Ullah & Tahir, 2022). Overall, this study will supplement the LLC and the ADF with the IPS since it will strike a balance between flexibility and power through its robust choice for heterogeneous panel data analysis.

3.7 Data Diagnostic Tests

Time series panel data was employed in the study to analyze specific variable behavior. Data was subjected to diagnostic tests in order to assess compliance with assumptions of the multiple regression model prior to performing analysis and also for robustness purposes and unbiasedness of findings. The tests included: linearity, normality, multicollinearity, serial correlation, heteroscedasticity, stationarity and model choice through Hausman specification test (random or fixed effects).

3.7.1 Linearity Test

A vital condition for data analysis is that the variables were required to exhibit a linear relationship (Abouelfarag & Abed, 2019). Cases of biased regression coefficients, biased standard errors and biased tests of statistical significance estimates may result from non-linearity of study variables relationship (Su & Taltavull, 2020). The Q-Q (Quantile-Quantile) scatter plot offers unique

advantages over formal statistical tests, for instance, the Shapiro-Wilk or Jarque-Bera, by providing a visual and intuitive assessment of distributional normality or linearity, enabling researchers to identify specific deviations including tails, skewness and outliers, that numeric tests might obscure (Agnihotri, 2022).

Unlike rigid hypothesis tests that yield a binary outcome, the Q-Q plot reveals the nature and location of non-linearity, that is, heavy tails or curvature, across entire distributions making it invaluable for diagnostic refinement of models (Awdeh, 2021). While Kolmogorov-Smirnov test or the Anderson-Darling test offers formal rigor, the Q-Q plot complements them by highlighting patterns through S-shapes for skewness and guides transformations through log adjustments without sample-size limitations. Its synergy with formal tests ensures robust normality and linearity assessment in empirical research. Thus, the Q-Q scatter plot will complement the normality test through detection of line-of-fit/trend line to assess normality and/or linearity between predictor and response variables.

3.7.2 Test of Normality

A critical test for detecting data normality departures based on kurtosis and skewness is the Jarque-Bera (Martins, Santos, Euginio & Morais, 2022). The Jarque-Bera test offers distinct advantages over other normality tests, for instance; Shapiro-Wilk, Kolmogorov-Smirnov and Anderson-Darling, by targeting skewness and kurtosis deviations from a normal distribution thus making it ideal for large sample financial analyses (Hasan et al., 2021; Shah et al., 2020). Unlike the Shapiro-Wilk test that is sensitive to small samples but computationally intensive, or the Kolmogorov-Smirnov test offering non-parametric benefits but less powerful for fat tails, the Jarque-Bera test

efficiently combines third and fourth moments into a single Chi-squared statistic hence providing a clear metric for departures from normality (Mavodyo, 2022).

In this study, the test's simplicity, reliance on asymptotic properties and integration with standard regression diagnostics in residual analysis made it useful towards model validation for the panel data. Where data analysis results reflected normality anomalies, data transformation into natural logarithms was a suitable remedy for non-normality. Null hypothesis used for normality held data would be collected from non-normal distributed population hence the researcher would reject the null hypothesis when the values of normality p-value < 0.05, otherwise the researcher would fail to reject null hypothesis with the verdict that data originated from a non-normal distribution.

3.7.3 Multicollinearity Test

Multicollinearity exists where several independent variables in a model are correlated in such a way that any one variable may be employed to perfectly estimate a particular parameter (Agyapong, 2020; Beyene, 2022; Dao & Ngo, 2022). Two variables are considered to be perfectly colinear when coefficients exhibit Variance Inflation Factor (VIF) values ranging from 0 to 0.75 leading to less reliable and biased statistical inferences where they exceed 0.75 (Agyapong, 2020). The study thus utilized correlation matrix adding to Peasrson's correlation test to examine multicollinearity.

3.7.4 Serial Correlation Test

Where error terms are correlated within preceding of consecutive periods, serial correlation arises giving rise to spurious results and biased statistical inferences (Martins et al., 2022). This occurs owing to differing time period error terms (ut) that are assumed to be uncorrelated within a linear regression model (Zardoub, 2020b). The study employed the use of the correlogram of residuals,

Durbin-Watson and the Breusch-Godfrey tests to assess for serial correlation on first-order basis or current values as a function of error term of previous values. The null hypothesis rule of thumb was that first-order serial correlation does not exist among the error terms between periods (Ferreira, 2020).

3.7.5 Heteroscedasticity Test

Where assumption of equal variances within the independent variables is not achieved, heteroscedasticity arises since the norm is that the error terms (ut) should always have constant disturbance variances (homoscedasticity) across observations (Azolibe, 2021). Specification errors, unusual observations and erroneous conversion of data, may lead to heteroscedasticity hence the emphasis to rectify heteroscedasticity (Agyapong, 2020). This study has applied the use of the Breusch-Pagan test for assessment of detecting variance dependence on predictors in line with (Panadès-Estruch, 2021).

Unlike the Goldfeld-Quandt test which requires sorting data by a specific variable and splitting samples, the Breusch-Pagan test can detect heteroskedasticity linked to any independent variable within the model including those not explicitly sorted or grouped thus offering maximum flexibility with regressors (Azolibe, 2021). Unlike the Park test which assumes a log-linear relationship between residuals and predictors, the Breusch-Pagan test relies on a squared residuals auxiliary regression on predictors avoiding strict distributional assumptions. The test further works well for linear models and can be extended to nonlinear contexts whereas tests like the White test, though more robust to model misspecification, may lose power due to their broader focus on all possible interactions or squares of regressors (Anetor, 2020b). This study thus applied the use of the Breusch-Pagan test due to its popular choice in statistical analysis:

3.8 Ethical Considerations

It is essential for researchers to make concrete evaluations for ethical dimensions as they arise (Agnihotri, 2022). Informed consent is a key principle of ethics in research and therefore for this study, even though the data was available within the public domain, the researcher was obligated to seek permission for its use through the laid down protocols. Secondary data should be analyzed using specific criteria as pertains to the period when the data was collected, data purpose and data content (Anetor, 2019). Plagiarism is a researcher-related ethical issue that involves using information from other research sources, thereafter failing to acknowledge sources within citations and references (Jena & Sethi, 2021). Anonymity in research refers to not including personal identification of participants in a study and this applies to this study where possible. The findings of the study will be shared with key participants where necessary and the researcher will keep all documentation and materials collected during and after the study for a minimum of five years following completion.

CHAPTER FOUR

PRESENTATION, DISCUSSION AND INTERPRETATION OF FINDINGS

4.0 Introduction

This study explored the influence of foreign capital inflows on economic growth within the East African Community for the period 2009 to 2023. The study investigated the impact that official development assistance, foreign direct investments, foreign portfolio investments and external debt entailed on EG proxied through GDP. In addition, this study evaluated moderating role of central bank base interest rates linking FCIs to EG. This chapter thus contains details of collected data, data analysis presentation, interpretation and discussion of findings with reference to specific objectives. Analysis was carried out through panel data approach and moderating influence of central bank base interest rates in linking FCIs to EG tested through the interaction-term model.

4.1 Descriptive Statistics of Study Variables

This study employed six variables: economic growth (EG) as the dependent variable, four independent variables being official development assistance (ODA), foreign direct investments (FDI), foreign portfolio investments (FPI) and external debt (ED). The moderating variable within the study was the central bank base interest rate (CBBIR). Study target population were 7 member states of the East African Community (EAC) between 2009 – 2023. Sample data covered East Africa Community countries that met specific study compliance criteria of both being a member of the EAC before 2009 and data availability for the study period 2009 to 2023. Thus, out of the 7 EAC member states through the compliance criteria, the study was able to successfully gather sufficient data for 4 countries: Kenya, Rwanda, Tanzania and Uganda. The study overlooked the inclusion of Burundi, South Sudan, The Democratic Republic of Congo (DRC) owing to insufficient data for Burundi and the fact that both DRC and South Sudan joined the EAC post

2009. Consequently, a sample response rate of 57 percent was attained relating to the population as depicted within appendix 2. Data was log transformed and normalized to address unbiasedness and/or spuriousness.

Table 4.0: Descriptive Statistics

	GDPIS	ODALIS	FDILIS	FPILIS	EDLIS	CBBIRLNI
Mean	0.0554	0.0022	0.0024	0.0040	0.0018	0.4544
Median	0.0561	0.0022	0.0024	0.0041	0.0018	0.4323
Maximum	0.0963	0.0024	0.0029	0.0063	0.0023	1.1088
Minimum	0.0170	0.0020	0.0021	0.0023	0.0012	0.3260
Std. Dev.	0.0196	0.0001	0.0002	0.0009	0.0003	0.1219
Skewness	-0.0632	0.5129	0.6899	0.3339	-0.5439	2.8308
Kurtosis	2.2895	2.2612	2.5068	3.0979	2.1930	14.9654
Jarque-Bera	1.3020	4.1306	5.3683	1.1392	4.5868	438.0609
Probability	0.5215	0.1268	0.0683	0.5658	0.1009	0.0000
Sum	3.3230	0.1305	0.1461	0.1461	0.1051	27.2667
Sum Sq. Dev.	0.0227	0.0000	0.0000	0.0000	0.0000	0.8769
Std. Error	0.0025	0.0000	0.0000	0.0001	0.0000	0.0157
Observations	60	60	60	60	60	60

Notations:

GDPIS – Gross Domestic Product, (Inversed and squared)

ODALIS – Official Development Assistance, (Natural logarithm, inversed and squared)

FDILIS – Foreign Direct Investment, (Natural logarithm applied and further inversed and squared)

FPILIS - Foreign Direct Investment, (Natural logarithm applied and further inversed and squared)

EDLIS – External Debt, (Natural logarithm applied and further inversed and squared)

CBBIRLNI – Central Bank Base Interest Rates, (Natural logarithm applied and further inversed)

As tabulated within Table 4.0 above, maximum value of the dependent variable GDPIS was 0.0963 and minimum value at 0.0170 with mean average at 0.0554 from 2009 to 2023. The data range was influenced by differences between GDPIS minimum and maximum values. The positive standard deviation value at 0.0196 indicated that the GDPIS within the East African Community did not fluctuate much from its mean. The positive mean of official development assistance stood at 0.0022 with a low standard deviation of 0.0001 signifying that ODALIS foreign capital inflows did not deviate much from their mean. Similar to ODALIS, the mean for foreign direct investments stood at 0.0024 with a positive accompanying standard deviation of 0.0002 signifying that FDILIS inflows within the East African Community region did not fluctuate far from their mean.

Foreign portfolio investment had positive average value of 0.0040 with low standard deviation of 0.0009 signifying that FPILIS did not deviate much from mean. Tabulation in Table 4.0 indicates mean for EDLIS at 0.0018 with positive standard deviation of 0.0003 signifying ED inflows within the EAC did not fluctuate far from their mean. The moderating variable central bank base interest rates had positive mean of 0.4544 with an accompanying standard deviation of 0.1219 signifying central bank interest rates were not highly explosive during the study period 2009 to 2023. Low

variation in FDI and ODA inflows within the EAC indicates a stagnant or predictable level of investment, which matters for growth analysis because it limits the statistical power to detect a meaningful relationship with GDP and suggests underlying structural bottlenecks—such as weak absorptive capacity, inconsistent policies, or saturated sectors—are preventing these capital flows from generating transformative, volatile growth spurts. This stability, rather than being a sign of health, may signal ineffectiveness or misallocation, making it difficult to empirically attribute economic growth changes to these inflows

4.2 Correlation of Study Variables

Table 4.1 summarizes correlation coefficient analysis results. This was conducted to evaluate relationships amongst variables. Multicollinearity, a condition where two or more independent variables are highly correlated can distort estimates of regression coefficients making it difficult to assess individual effect of each variable on other study variables (Abraham, 2021). Detecting and addressing multicollinearity is key to ensure reliability and interpretability of data models.

Table 4.1: Correlation Coefficient Results

	GDPIS	ODALIS	FDILIS	FPILIS	EDLIS	CBBIRLNI
GDPIS	1.0000 —					
ODALIS	0.0719 0.5850	1.0000 —				
FDILIS	0.0576 0.6620	0.6653 0.0000	1.0000 —			
FPILIS	0.0912 0.4881	0.2881 0.0256	0.1582 0.2272	1.0000 —		
EDLIS	0.0094 0.9431	0.7072 0.0000	0.2341 0.0717	0.4420 0.0004	1.0000 —	
CBBIRLNI	-0.2832 0.0283	-0.2907 0.0242	-0.1431 0.2752	0.0459 0.7271	-0.2283 0.0793	1.0000 —

To identify multicollinearity, the study applied a threshold of r > 75%, suggesting the presence of high correlation if the measure surpassed this value. Results in Table 4.1 indicate that although lower than the r > 75% threshold, concerns of multicollinearity were noted in correlation coefficients of the independent variable relationships between external debt (EDLIS) and official development assistance (ODALIS) at a rate of 70.72% with a high statistically significant p value = 0.0000 signifying that external debt and official development assistance significantly influenced each other in EAC region from 2009 to 2023. The correlation coefficient of ODALIS to GDPIS was 0.0719 with a p value = 0.5850 signifying a weak positive correlation between official development assistance and economic growth.

Foreign direct investments (FDILIS) inflows showed weak positive correlation to economic growth as its correlation coefficient stood at 0.0576 with a statistically insignificant p value = 0.6620. The correlation coefficients of FPILIS and EDLIS to GDPIS stood at 0.0912 and 0.0094 with p values at 0.4881 and 0.9431 respectively signifying weak positive correlation between both foreign portfolio investments and external debt inflows to economic growth. However, multicollinearity test of correlation coefficients between central bank base interest rates and both official development assistance and economic growth gave a result of -0.2907 and -0.2832 with high statistically significant p values = 0.0242 and 0.0283 respectively signifying strong negative correlations between central bank base interest rates and both official development assistance and economic growth.

4.3 Stationarity Test of Study Variables

This segment presents results of test of unit root conducted to check time-series properties of all variables employed within the study. Ensuring data is stationary strengthens reliability and accuracy of study empirical findings (Zardoub, 2020b). Stationarity, a condition where the

statistical properties of a time series such as mean and variance remain constant over time is an assumption critical in time-series models (Awdeh, 2021). Spuriousness may arise where data is non-stationary hence necessitating assurance stationary prior to dataset modeling.

Levin, Lin and Chu, (LLC) test was utilized to evaluate presence of unit roots within time-series variables while assuming unit root presence as the null hypothesis. The LLC was further complemented through Im, Pesaran and Shin together with the Augmented Dickey-Fuller test to further enhance non-biasedness of the study regression results. The tests were carried out at intercept for all variables independently and at 1st difference for the variables that exhibited the presence of unit roots at intercept level (An & Yeh, 2021; Beyene, 2022; Hanif, 2020).

Test for Unit Root of GDPIS - Intercept

Table 4.2: Panel Unit Root Test - GDPIS Intercept

Panel unit root test: Summary

Series: GDPIS

Sample: 2009 2023

Exogenous variables: Individual effects

Newey-West automatic bandwidth selection and Bartlett Kernel

Method	Statistic	Prob**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t* statistic	-1.0839	0.0000	4	60
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	-4.4494	0.0100	4	60
Im, Pesaran and Shin W-stat	-3.5200	0.2242	4	60

As tabulated within Table 4.2 above, the inversed and squared product of GDP within this study reject the null hypothesis confirming stationarity at level owing to the LLC t* statistic test owing to a resulting value of -1.0839 with a statistically significant corresponding p-value of 0.0000 at the 95% confidence level. Hence no presence of a unit root in GDPIS at intercept.

Test for Unit Root ODALIS - Intercept

Table 4.3: Panel Unit Root Test - ODALIS Intercept

Panel unit root test: Summary

Series: ODALIS

Sample: 2009 2023

Method	Statistic	Prob**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t* statistic	-0.9130	0.0001	4	60
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	-2.3650	0.4273	4	60
Im, Pesaran and Shin W-stat	-3.0733	0.0315	4	60

As tabulated within Table 4.3 above, the natural log, inversed and squared product of ODA within this study failed to show the presence of a unit root owing to the LLC t* statistic test owing to a resulting value of -0.9130 with a significantly statistical corresponding p-value of 0.0001 at both the 95% and 99% levels of confidence. Hence, similar to the GDPIS, unit root is not present in ODALIS at intercept.

Test for Unit Root for FDILIS at Intercept

Below Table 4.4 presents findings of natural log, inversed and squared product of FDI. The Levin, Lin and Chu test gave a value of -.0.7360 with corresponding statistically significant p-value of 0.0021 at both the 1% and 5% levels of significance thus implying absence of a unit root in the study variable at intercept. Hence, similar to both GDPIS and ODALIS, there exists no presence of a unit root within FDILIS at intercept.

Table 4.4: Panel Unit Root Test – FDILIS Intercept

Panel unit root test: Summary

Series: FDILIS

Sample: 2009 2023

Exogenous variables: Individual effects

Newey-West automatic bandwidth selection and Bartlett Kernel

Method	Statistic	Prob**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t* statistic	-0.7360	0.0021	4	60
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	-1.8672	0.6284	4	60
Im, Pesaran and Shin W-stat	-2.9165	0.0596	4	60

Unit Root Tests of FPILIS at Intercept

Table 4.5 presents below results of natural log, inversed and squared product of FPI. The Levin, Lin and Chu test gave a value of -.1.1112 with corresponding statistically significant probability value of 0.0000 at both the 1% and 5% levels of significance thus implying absence of a unit root

in the study variable at intercept. Hence FPILIS lacks a unit root at intercept.

Table 4.5: Panel Unit Root Test - FPILIS Intercept

Panel unit root test: Summary

Series: FPILIS

Sample: 2009 2023

Exogenous variables: Individual effects

Newey-West automatic bandwidth selection and Bartlett Kernel

Method	Statistic	Prob**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t* statistic	-1.1112	0.0000	4	60
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	-3.0340	0.1568	4	60
Im, Pesaran and Shin W-stat	-3.8746	0.0008	4	60

Test of Unit Root for EDLIS - Intercept

Table 4.6: Panel Unit Root Test - EDLIS Intercept

Panel unit root test: Summary

Series: EDLIS

Sample: 2009 2023

Exogenous variables: Individual effects

Newey-West automatic bandwidth selection and Bartlett Kernel

Method	Statistic	Prob**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t* statistic	-0.0963	0.5153	4	60
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	-2.5379	0.3574	4	60
Im, Pesaran and Shin W-stat	-0.9354	0.9962	4	60

Table 4.6 presents above results of natural log, inversed and squared product of ED. The Levin, Lin and Chu test gave a value of -0.0963 with corresponding statistically insignificant p-value of 0.5153, thus implying presence of unit root in the study variable at intercept. Hence, we we test EDLIS at 1st Difference as EDLIS at intercept contains a unit root.

Test for Unit Root for CBBIRLNI - Intercept

Table 4.7: Panel Unit Root Test - CBBIRLNI Intercept

Panel unit root test: Summary

Series: CBBIRLNI

Sample: 2009 2023

Exogenous variables: Individual effects

Newey-West automatic bandwidth selection and Bartlett Kernel

Method	Statistic	Prob**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t* statistic	-0.0303	0.0000	4	60
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	-3.0106	0.1663	4	60
Im, Pesaran and Shin W-stat	-3.4847	0.0057	4	60

Table 4.7 presents above results of the natural log and inverse product of CBBIR. The Levin, Lin and Chu test gave a value of -0.0303 with corresponding statistically significant p-value of 0.0000 at both the 1% and 5% levels of significance thus implying absence of a unit root in the moderating study variable at intercept. Hence there is no presence of a unit root for CBBIRLNI at intercept.

Test for Unit Root for EDLIS - 1st Difference

Table 4.8 below presents results of the natural log, inversed and squared product of EDLIS. The Levin, Lin and Chu test gave a value of -0.0721 with corresponding statistically significant p-value of 0.0000 at 1% and 5% levels of significance thus implying absence of a unit root at 1st difference. Hence no presence of unit root for EDLIS at 1st difference.

Table 4.8: Panel Unit Root Test - EDLIS 1st Difference

Panel unit root test: Summary

Series: EDLIS

Sample: 2009 2023

Exogenous variables: Individual effects

Newey-West automatic bandwidth selection and Bartlett Kernel

Method	Statistic	Prob**	Cross-sections	Obs
Null: Unit root (assumes common unit root process)				
Levin, Lin & Chu t* statistic	-0.07406	0.0034	4	60
Null: Unit root (assumes individual unit root process)				
ADF - Fisher Chi-square	-2.7494	0.1227	4	60
Im, Pesaran and Shin W-stat	-3.8361	0.0087	4	60

The unanimous rejection of the null hypothesis across all unit root tests (LLC, ADF, IPS) indicates that the panel series are stationary at level [I(0)]. This confirms that the variables exhibit constant mean and variance over time, validating the use of level data for regression analysis without risk of spurious results. It suggests stable, mean-reverting behavior in the economic processes, allowing reliable inference on the relationships between variables within the East African Community context.

4.4 Data Diagnostic Test Results

The findings of several diagnostics performed to improve reliability and validity of data modeled in the study are presented in this section. The accuracy of econometric models hinge on the quality of underlying raw data hence making diagnostic tests an essential step in the research process (Zardoub, 2020a). The study employed EViews 14 software for both data diagnostic testing and panel data analysis. Tests were performed for a series of standard diagnostic procedures including the Residual Statistics-Histogram Jarque Bera test for Normality, Quantile-Quantile (Q-Q) Scatter Plots test for Linearity, Covariance Analysis for multicollinearity, the Breusch-Pagan test for

heteroscedasticity and the Durbin-Watson autocorrelation test. Hausman specification test was performed to decide on most suitable regression model for panel data analysis.

These tests were a guide towards identifying potential issues such as non-normality, non-linearity, multicollinearity, heteroscedasticity and serial correlation (autocorrelation) which can adversely affect the panel model results and interpretations. Thus, the results of these tests played a pivotal role in directing the selection of suitable econometric procedures and guaranteeing the validity of conclusions. As a result, this section gives a thorough explanation of the diagnostic test results, enumerates their implications, and describes the corrective actions performed to solve any problems that were encountered. This created a strong foundation for the panel data analysis process.

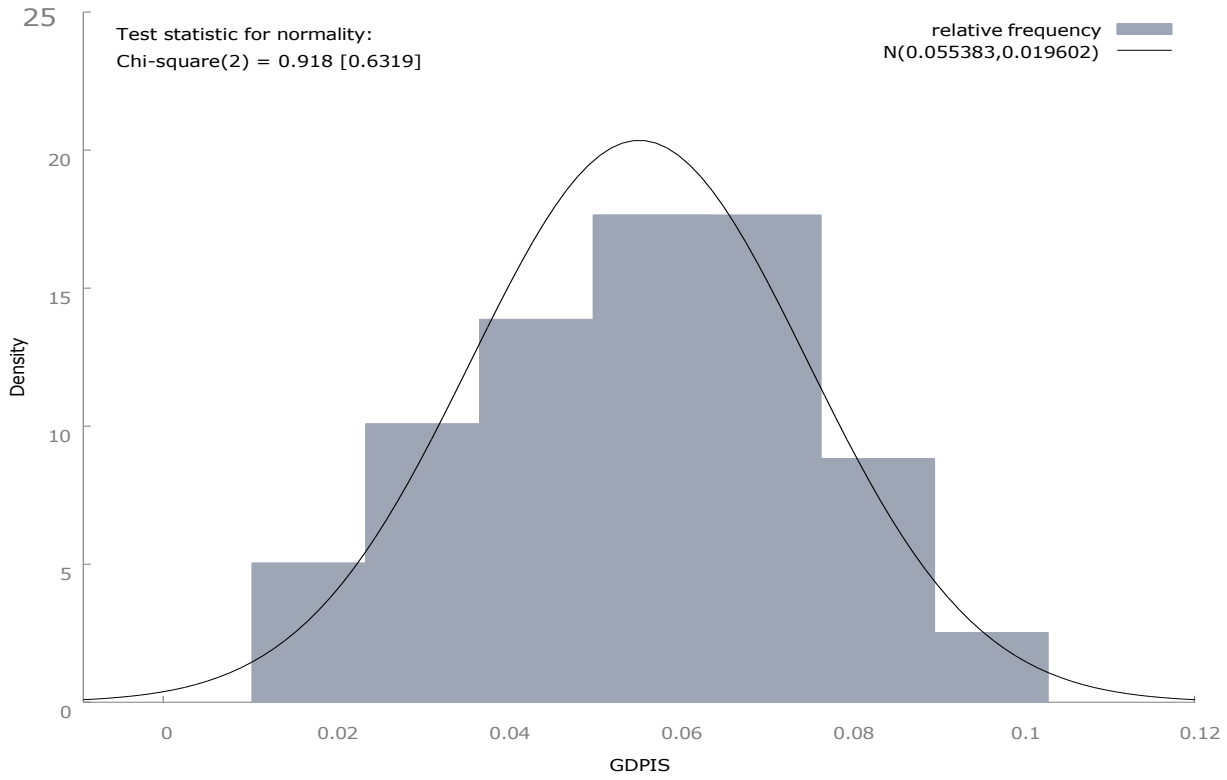
4.4.1 Normality Test Results

The data collected was tested for its normal distribution characteristics before analysis. Assessing the normality of the data distribution was a crucial step toward ensuring its validity for panel data analysis, and was further a key assumption affecting the accuracy of parameter estimates and research questions. In evaluating normality of data collected, panel fully modified ordinary least square method (FMOLS) was applied through Jarque Bera normality test.

Figure 2: Jarque-Bera Normality Test GDPIS

Series: Residuals Sample 2009 2023 Observations 60	
Mean	0.0554
Median	0.0561
Maximum	0.0963
Minimum	0.0170
Std. Dev	0.0196
Skewness	-0.0632
Kurtosis	2.2895
Jarque-Bera	1.3020
Probability	0.5215

Figure 2: Jarque-Bera Normality Test GDPIS



Data on the dependent variable gross domestic product inversed and squared (GDPIS) was tested through Jarque-Bera normality test statistic and presented numerically and graphically. Null

hypothesis held that dependent variable, GDPIS depicted a normal distribution. Figure 2 depicts results from the Jarque-Bera normality test statistic of the dependent variable compared to FCI inflows at 1.3020 with a p-value = 0.5215 which was above the desired tabulated p-value = 0.05. This signified that the data was normally. This finding was further collaborated by the statistical measures of skewness and kurtosis at -0.0632 and 2.2895 respectively, implying that the response variable's probability distribution was normal. Further, these findings point towards the data being bell curved with normal tails relative to the center of the normal distribution as depicted in figure 4.1.

4.4.2 Linearity Test Results

Testing for linearity of all variables assisted to validate appropriateness of the regression model and also sought to prevent scenarios of misleading results from nonlinear relationships. To evaluate linearity, the study employed graphical quantile to quantile (Q-Q) scatter plots in seeking to find a line-of-best fit (trend line) amongst quantiles of variables. All variables exhibited linear relationships proving that the data was not only normally distributed but also linearly consistent across levels. The graphs depicted that most dots or points fitted within the individual Q-Q scatter plots. The data set was therefore appropriate for employment in panel data analysis model. Linearity test results are as illustrated within figure 3 below.

Figure 3: Linearity Test

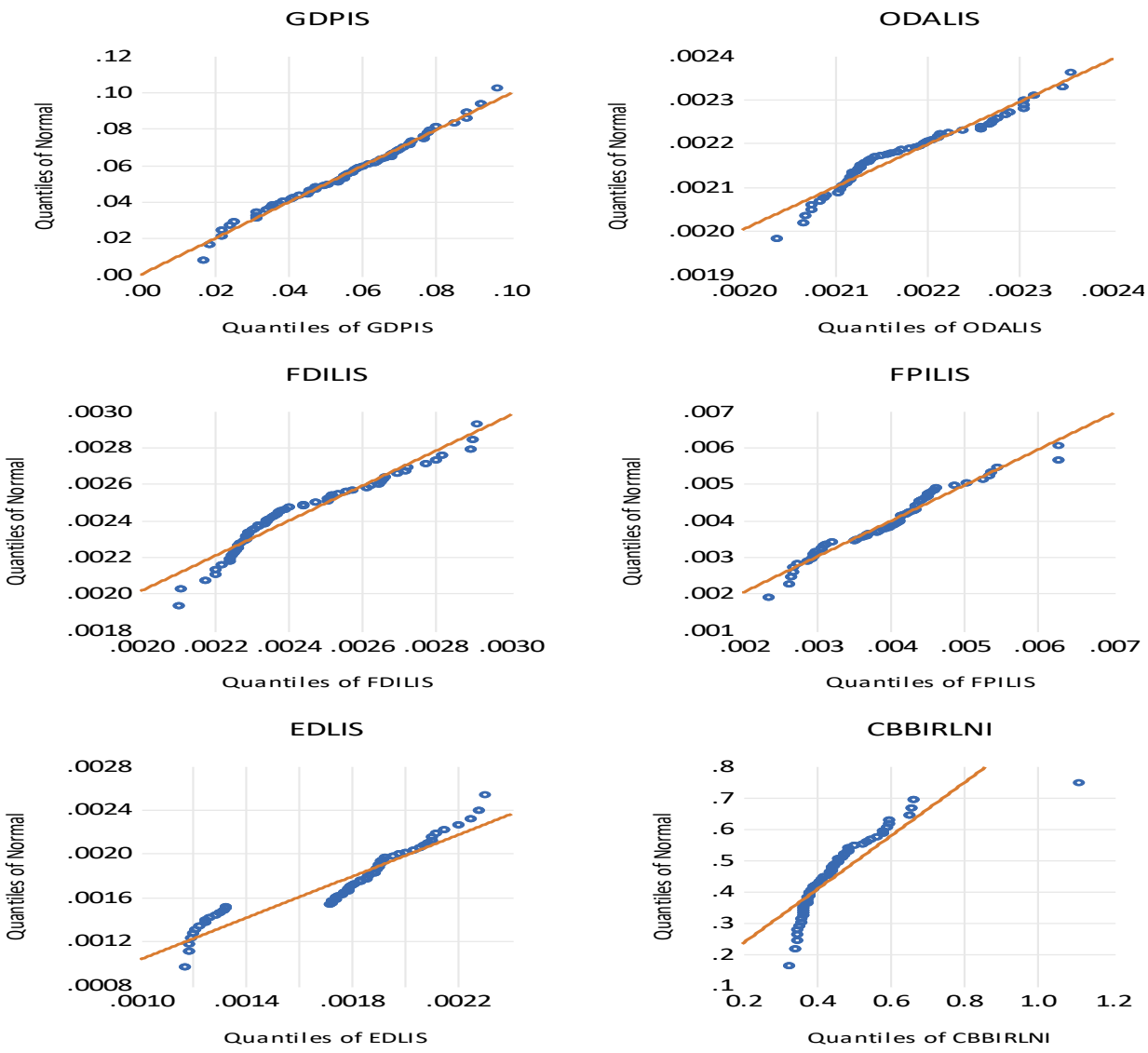


Figure 3: Linearity Test

4.4.3 Heteroskedasticity Test Results

This part presents results of heteroskedasticity test conducted to assess variance consistency of the error terms within the panel dataset before modeling. Breusch-Pagan-Godfrey test was employed to assess heteroskedasticity, with the null hypothesis assuming homoskedasticity of variances of the residuals as indicated within Table 4.9 beneath:

Table 4.9: Breusch-Pagan-Godfrey Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey			
Null hypothesis: Homoskedasticity			
F-statistic	2.3132	Prob. F (9,34)	0.0563
Obs*R-squared	10.5843	Prob. Chi-Square (9)	0.0603
Scaled explained SS	5.8505	Prob. Chi-Square (9)	0.3210

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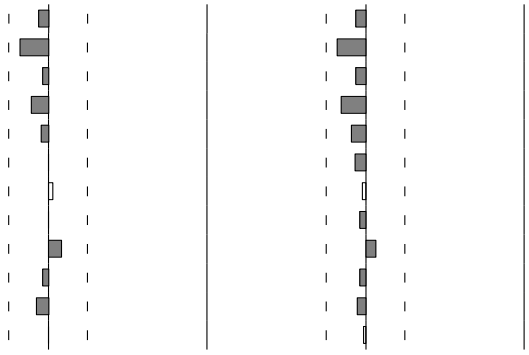
The heteroskedasticity test overall explanatory power of the study panel dataset using either the F-Statistic or Chi-Square statistic tests indicated that since both P-values > 0.05 at 0.0563 and 0.0603 respectively, there is no sufficient evidence to presume the existence of heteroskedasticity as per the Breusch-Pagan-Godfrey test. Variances of the error terms are therefore not responsive to values of the independent variables.

4.4.4 Serial Correlation (Auto Correlation) Test Results

This segment presents serial correlation tests results conducted to evaluate presence of auto-correlation within study's residuals of the panel data set. To detect serial correlation, the study employed correlogram of residuals, Durbin-Watson and the Breusch-Godfrey tests. Correlogram of residuals through the Q-Statistic results depicted no evidence of autocorrelation owing to p-values of Q-Statistic being $p > 0.05$ for both autocorrelation and partial correlation at 2 lags as indicated within figure 4 below.

Figure 4: Correlogram of Residuals

Sample: 2009 2023
Inculed observations:60



Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob
		1	-0.063	-0.063	0.2493	0.618
		2	-0.181	-0.186	2.3534	0.308
		3	-0.033	-0.060	2.4241	0.489
		4	-0.109	-0.157	3.2134	0.523
		5	-0.047	-0.094	3.3646	0.644
		6	0.005	-0.069	3.3667	0.762
		7	0.032	-0.019	3.4406	0.841
		8	0.005	-0.036	3.4421	0.904
		9	0.088	0.072	4.0015	0.911
		10	-0.035	-0.035	4.0921	0.943
		11	-0.076	-0.052	4.5289	0.952
		12	0.008	-0.011	4.5333	0.972

Figure 4: Correlogram of Residuals

The correlogram of residuals test through the Q-Statistic was collaborated by the Durbin-Watson test illustrated within Table 4.10 below.

Table 4.10: Breusch-Godfrey Serial Correlation LM and Durbin-Watson Tests

Breusch-Godfrey Serial Correlation LM Test

Null hypothesis: No serial correlation at up to 2 lags

F-statistic	1.2226	Prob. F (2,36)	0.3028
R-squared	2.6948	Prob. Chi-Square (2)	0.2599
S.E. of regression	0.0192	Durbin-Watson stat	1.9885
Prob(F-statistic)	0.9269		

Threshold for Durbin-Watson test ranges between 1.5 to 2.0 as evidence of serial correlation non-existence. Since the current value of Durbin-Watson test lies between this range at 1.9885, there is evidence to suggest that the variables are free of auto-correlation. Further, probability values of F-

statistic and R Squared, products of Breusch-Godfrey serial-correlation LM test are 0.3028 and 0.2599 respectively, thus the values are acceptable for modeling as they are above the threshold of p value = 0.05 as depicted in Table 4.10 above.

4.5 Regression Results

Panel data entails three modeling perspectives that include random, pooled and fixed effects models. This study applied use of Hausman Specification test in ascertaining highest suitable model.

4.5.1 Hausman Specification Test

The decision on whether to use a fixed effects or random effects model for regression analysis is crucial towards ensuring unbiased and consistent estimates in panel data analysis (Ebire & Shah, 2021). The fixed effects model accounts for unobserved heterogeneity by allowing for individual-specific intercepts while the random effects model assumes that individual-specific effects are uncorrelated with the explanatory variables (Agnihotri, 2022; An & Yeh, 2021; Beyene, 2022). A significant test result therefore indicates inconsistency of the random effects model hence favoring use of the fixed model.

Table 4.11: Hausman Specification Test - Effects of FCIs on GDP

Correlated Random Effects

Hausman Test Equation: OLSEQ02

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d	Prob.
Cross-section random	4.5249	5	0.4765

The critical parameter was that the preferred model to use was random effects in place of the fixed effects. The parameter assumed lack of correlation between predictors and individual effects hence consistent results. The test result of Hausman specification test produced a chi-Square statistic value of 4.5249 with p value = 0.4765. The resulting p-value > 0.05, thus the study applied random effects for the regression analysis.

4.5.2 Random Effects Results and Hypotheses Testing Findings

This segment presents findings of the panel data model. Panel data entailed time-series hence offering a unique advantage in capturing dynamics of study variables. Through utilization of panel data model, this analysis controlled for unobserved individual effects (omitted differing characteristics, but constant over time) thus improving the precision of estimates. The study applied the use of random effects based on Hausman Specification diagnostic results. Regression results were analyzed for impact of predictor variables on response variable cross-sectionally within EAC countries. Besides the findings, this segment interprets the coefficients and statistical significance of study variables providing implications of results of hypotheses originating from regression findings as shown within Table 4.12 below.

Table 4.12: Panel Estimation Equation - Effect of FCI on GDP

Dependent Variable: GDPIS

Method: Variable Selection (Cross-section random effects)

Sample (adjusted): 2009 2023

Included observations: 60

Number of always included regressors: 6

Selection method: Stepwise forwards

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
ODALIS	20.3438	66.9109	0.3040	0.7623
FDILIS	-2.3043	18.3311	-0.1257	0.9004
FPILIS	3.8331	3.3099	1.1580	0.2519
EDLIS	-11.3295	13.1075	-0.8643	0.3912
CBBIR	-0.0504	0.0219	-2.3013	0.0253
C	0.0443	0.1048	0.4227	0.6742
R-squared	0.1793	Mean dependent var		0.0553
Adjusted R-squared	0.0315	S.D. dependent var		0.0196
S.E. of regression	0.0193	Akaike info criterion		-4.9565
Sum squared resid	0.0202	Schwarz criterion		-4.7470
Log likelihood	154.6955	Hannan-Quinn criter.		-4.8745
F-statistic	1.2148	Durbin-Watson stat		2.0579
Prob(F-statistic)	0.3079			

Selection Summary

No regressors were chosen by the stepwise routine

The study's regression findings in Table 4.10 were built based on the Variable Selection Stepwise Forward model through the EViews 14 data analytical software. Variable selection stepwise forward model applies the technique of identifying the most significant predictors from a larger set of potential explanatory variables (Yakubu, 2020). This method systematically added variables one by one based on their statistical significance dependent on underlying p-values. Each variable's inclusion was contingent on its contribution to improving the regression model's overall fit. This study thus applied the variable selection method seeking to identify the most influential FCIs driving GDP. Further, the employment of the Stepwise Forward method assured statistically robust findings and provided meaningfulness to the study research questions.

The results indicate the R-Squared at 0.1793 suggesting that the predictor variables: ODA, FDI, FPI and the second lag of External debt (ED) taken jointly explain 17.93% of variations within response variable, GDPIS. F-statistic value at 1.2148 is statistically insignificant at p-value = 0.3079.

4.5.2.1 Official Development Assistance does not statistically impact Economic Growth in the East African Community

The regression results in Table 4.10 illustrate positive and statistically insignificant value of the coefficient for official development assistance variable (ODALIS) at = 20.3438 with t-statistic = 0.3040 and p-value = 0.7623 > 0.05 suggesting that official development assistance (ODALIS) is positively and statistically insignificant parallel to GDP in EAC. It implies that ODALIS at level, does not statistically influence GDPIS in the region. The regression results imply that the dataset fails to support evidence of a dynamic linkage between the predictor variable ODALIS to the dependent variable GDPIS. Possible explanations for the lack of influence of ODALIS on GDPIS

within the regression results may owe to inefficient allocation of ODALIS to productive sectors within EAC countries.

The statistically insignificant and positive impact of ODALIS on GDPIS within EAC context is aligned to findings of Jena and Sethi (2021), who reveals positive but statistically insignificant impact of foreign development aid to EG in 44 developing South Asian countries from 1996 to 2017. This is further supported by Mahembe and Odhiambo (2020) who reveal that ODA does not have a statistically significant effect to both poverty reduction and economic growth in developing countries. In their assessment, Adams and Elassal (2020) also found no link between ODA and long-term economic growth patterns in either the Asian or African contexts over the period 1980 to 2015. However, the results in Table 4.10 contrast to those of Robert and Kim (2017) whose findings show that ODA positively and significantly supported the public and private sectors towards promoting economic growth.

This panel data regression outcome is unexpected given the substantial inflows of ODA into the EAC region aimed at promoting development and economic growth. Several factors could explain this finding. First, ODA may be directed toward nonproductive sectors or short-term humanitarian projects that, while important for immediate relief and social welfare, do not directly contribute to long-term economic growth (Nwani, 2021). In addition, inefficiencies in the allocation and utilization of aid, for instance, corruption or poor governance, may reduce its effectiveness in fostering economic progress (Beierlein, 2020). Another possibility is that ODA leads to aid dependency where recipient countries rely on external assistance rather than fostering domestic investment and innovation hence stifling growth in the long run. Furthermore, the absorptive

capacity of EAC countries could be a limiting factor, where institutional and infrastructural constraints prevent the effective utilization of aid towards GDP promotion (Gnangnon, 2020).

These findings can also be interpreted through the lens of The Theory of Convergence (Catching Up Growth Theory), which suggests that less-developed economies have the potential to grow faster than advanced economies as they "catch up" by adopting existing technologies and practices from more developed countries (Ruwanpura & Perera, 2022). However, for convergence to occur, the EAC region requires strong institutions, sound governance, and effective utilization of ODA. Thus, the limited impact of ODALIS on GDPIS within EAC could indicate that structural weaknesses and institutional barriers are hindering the ability of the countries to capitalize on ODA as a means of narrowing the convergence gap with developed nations.

This aligns with the notion that convergence is not automatic but depends on the capacity of countries to effectively leverage external support and address internal inefficiencies (Roy et al., 2021). These revelation questions the role of ODA as a driver of GDP within the EAC and suggests that reforms in aid management along with policies that enhance institutional capacity as a necessity to boost impact of ODA on GDP within in the EAC. With these findings, since ODALIS does not statistically impact GDPIS within the EAC, we failed to reject null hypothesis.

4.5.2.2 Foreign Direct Investments do not statistically impact Economic Growth in the East African Community

Regression results in Table 4.10 illustrates a negative and statistically insignificant value of the coefficient for foreign direct investments (FDILIS) at -2.3043 with t-statistic = -0.1257 and p-value = 0.9004 > 0.05 suggesting that FDILIS is negatively and statistically insignificant to GDPIS within the EAC. This implies that FDILIS at level does not statistically influence GDP in the region. Possible explanations for the lack of influence of FDILIS on GDPIS within the regression results in Table 4.10 may owe to macroeconomic instability.

The negative and statistically insignificant impact of FDILIS on GDPIS at level within the East African Community context is in line with the findings of Karahan and Çolak (2022) who established that only when financial institutional development was within higher threshold values did FDI positively shift to become a growth-enhancing element in emerging and developing Asia countries between 1996 and 2017. It is notably amusing that the influence of FDI on EG within emerging and developing Asia would decrease at higher levels of financial institutional development. Moreover, Kumari et al. (2021) give similar findings to those in Table 4.10 after having investigated long-run to causal linkage connecting FDI to economic growth in India using data series from 1985 to 2018 and reveal a negative and statistically insignificant causal link between trade liberalization in the form of FDI to economic growth.

Zardoub (2020b) gives similar findings through analysis of FDI effect on EG in 12 middle-income developing nations between 1990 to 2017 and reveals that influence of FDI on EG is detrimental and insignificant in the long-run. Contrary to the findings in Table 4.10, Hagan and Amoah (2020)

reveal that FDI inflows have a positive and significant beneficial influence on economic growth in African countries with stable financial markets. The findings of Hagan and Amoah (2020) are similar to those of Saleem et al. (2020) who having analyzed implications on allocating and directing FDI for optimal economic growth using yearly data of 24 Asian nations running between 1995 to 2016 based on the Belt and Road Initiative, revealed that FDI was positively sensitive to economic growth for Middle Eastern and high income nations.

The panel data analysis reveals that FDI is negatively and statistically insignificant to GDP within the East African Community (EAC). This finding challenges the commonly held view that FDI is a key enabler of growth more so to developing states. Factors that may explain this result include; FDI inflows into the EAC may be concentrated in sectors with limited spillover effects where benefits are not widely shared optimally across economic platforms; Weak institutional frameworks including regulatory inefficiencies and inadequate governance could impede the effective utilization of FDI reducing its developmental impact; Absence of infrastructure and technology in the region may prevent the full absorption and productivity-enhancing effects of FDI (Adika, 2022); The presence of enclave environments: It is also possible that FDI in the EAC is geared more toward short-term gains rather than long-term developmental projects explaining the weak link to sustained economic growth (Mahembe & Odhiambo, 2020).

Convergence Theory posits that lower-income countries have the potential to grow faster than higher-income countries as they adopt advanced technologies and practices allowing them to "catch up" economically (Alcaraz & Salamanca, 2022). However, for convergence to occur, countries must have the institutional capacity, infrastructure and governance needed to leverage

external investment by way of FDI effectively. In EAC, the lack of significant economic growth driven through FDI suggests structural barriers that limit convergence. Weak institutional frameworks, low absorptive capacity and the concentration of FDI in enclave industries may explain why EAC countries struggle to close the income gap with higher-income regions.

From the perspective of Modern Portfolio Theory, the allocation of FDI could also explain its limited impact on GDP in the EAC. The theory advocates for investors to seek to maximize returns while minimizing risk through investments diversification. If FDI inflows into the EAC are directed toward low-risk, low-return sectors or projects with limited potential for significant economic spillovers, the result is surely minimal contributions to GDP growth. Furthermore, the lack of financial market depth and transparency in the EAC region may deter high-growth, risk-tolerant investments further undermining GDP potential of FDI. This underscores the need for policies that attract diversified, high-value investments while ensuring institutional support for their efficient allocation and utilization. This study thus failed to reject null hypothesis since regression findings revealed FDILIS does not statistically impact GDPIS within the EAC.

4.5.2.3 Foreign Portfolio Investments does not statistically influence Economic Growth in the East African Community

Regression results in Table 4.10 illustrate positive and statistically insignificant value of the coefficient for foreign portfolio investments (FPILIS) at = 3.8331, with t-statistic = 1.1580 and p-value = 0.2519 > 0.05 suggesting that the foreign portfolio investments (FPILIS) variable is positively and statistically insignificant parallel to GDP in EAC. This implies that FPILIS at level does not statistically influence GDPIS in the region. This regression results imply that the dataset

does not support evidence of dynamic linkage between predictor variable FPILIS to dependent variable GDPIS.

The positive but statistically insignificant impact of FPILIS on GDPIS within EAC taken as a whole is aligned with findings of Marfatia (2022) who revealed that while a rise in global uncertainty indicator had a significantly favorable influence on FPI, a rise in volatility of domestic economic policy uncertainty had limited impact on economic growth. Notably, FPI inflows increased when the international uncertainty index and domestic economic policy uncertainty within developing countries both increased simultaneously but aggravated economic growth due to capital flight between 2001 and 2016.

The panel data results in Table 4.10 indicate that FPILIS within EAC stock markets does not significantly spur or impact GDPIS across EAC member states. This lack of a significant relationship between FPILIS to GDPIS may be attributed to several factors including; Stock market underdeveloped with low market capitalization and limited liquidity giving rise to limited participation by both domestic and foreign investors (Haini, 2021; Hanif, 2020; Tran, 2020); Volatility associated with FPI tends to be short-term and highly responsive to global financial fluctuations resulting in unstable capital inflows that contribute to financial instability without providing sustained capital necessary for long-term growth (Gupta & Ahmed, 2020).

These findings can be analyzed using Modern Portfolio Theory where investors allocate their capital across assets to maximize returns for a given level of risk within a specified and limited timeframe (Marfatia, 2022). FPI inflows into EAC stock markets may be concentrated in

speculative assets as foreign investors prioritize minimizing risk as opposed to long-term economic growth contributions. Additionally, the fragmented and underdeveloped nature of EAC stock markets limits their attractiveness to investors seeking diversified portfolios. The misalignment between FPI inflows, investor return requirements and EAC GDP growth concerns suggests that the application of modern portfolio theory principles by investors may not always align with the development needs of host economies. Moreover, modern portfolio theory highlights the role of diversification in reducing investment risk (Tran, 2021). Nevertheless, limited availability of diversified financial instruments and opportunities within EAC markets may constrain investors' ability to apply this principle effectively. As a result, FPI inflows into EAC member states tend to focus on highly liquid but volatile assets, which increases financial instability and reduces the potential for sustained GDP promotion.

Addressing these structural market issues, such as improving liquidity, market transparency and the range of investment instruments available could enhance the alignment of FPI inflows with long-term growth objectives and reduce volatility associated with short-term capital flows. Thus, for most EAC countries, enhancing stock market development, improving regulatory frameworks and addressing FPI volatility remains a necessity to better harness FPI for positive GDP outcomes. This study thus failed to reject null hypothesis holding firm that GDPIS within the EAC was not statistically influenced by FPILIS.

4.5.2.4 External Debt has no statistical impact on Economic Growth in the East African Community

Regression results in Table 4.10 shows negative and statistically insignificant values of the coefficient for External Debt (EDLIS) at -11.3295 with t-statistic = -0.8643 and p-value = 0.3912 > 0.05 suggesting that the variable is negatively and statistically insignificant to GDP within the EAC. This implies that EDLIS at first difference and level does not statistically influence GDP in the region. This result signifies the dataset is not in support of a dynamic linkage between the predictor variable EDLIS to the dependent variable GDPIS.

The external debt to economic growth paradigm within Table 4.10 reveals a negative and statistically insignificant relationship of the variables within the East African Community in line with the findings of Sharaf (2022) who did not show any proof of a short to long-term influence of external debt to economic growth in Egypt from 1980 to 2019. Likewise, Shittu et al. (2020) revealed mixed findings supporting existence of non-linear linkage among foreign debt and EG within SSA nations from 1996 to 2016.

Contrary to these findings, Sandow et al. (2022) reveal that ED significantly hampered EG in Sub Saharan African countries through a combination of absence of public sector management systems and combined debt thresholds exceeding 45 percent between 2005 to 2017. Findings in Table 4.10 further contrast the study by Makhoba et al. (2022) who reveal that ED had a negative and statistically significant impact on South African Development Communities (SADC) economic growth above a combined public and external debt at 60 percent threshold level. In addition, Sharaf

(2022) reveals that positive and negative ED induced shocks had a statistically significant negative long-term effect on EG in Egypt between 1980 to 2019.

Even so, in terms of the forms of ED, Ezeaku and Onwumere (2019) demonstrate that bilateral concessional indebtedness has a statistically significant detrimental effect on economic expansion since a 1 percent rise in debt induced decline of the economy by 38.1 percent in the short-term and by 7.1 percent in the long-term. The study found multilateral concessional debts entailed favorable impact on EG over long and short terms within SSA over the period 1985 to 2016. Thus, the panel data analysis reveals that EDLIS does not have a significant impact on GDPIS across the sampled EAC member states.

The Conventional Theory of Debt provides a critical framework for understanding these findings positing that external borrowing can stimulate economic growth only if investment of such inflows is utilized in productive sectors that generate returns exceeding the cost of debt servicing. External debt becomes a burden where borrowed funds are misallocated or used inefficiently, as the interest payments and principal repayment obligations outweigh the economic benefits derived from the debt (Kwakwa & Uche, 2023). Within the EAC context, the lack of a statistically significant linkage between ED and GDP growth may indicate that ED is ineffectively channeled into high-growth sectors such as infrastructure, technology or education. Instead, inefficiencies in allocation, governance and fiscal mis-management appear to dilute its potential positive impact on GDP within EAC. Additionally, the theory emphasizes the risk of debt overhang, where excessive debt levels discourage private investment due to the perceived risk of future taxes or austerity measures to service the debt (Mangani, 2022). In the EAC, high external debt burdens may undermine

investor confidence and crowd out productive public investment further exacerbating unwanted effects on GDP. This theory underscores the importance of prudent debt management strategies, including maintaining sustainable debt levels, improving governance and targeting borrowed funds toward sectors with high potential for economic returns (Sharaf, 2022). Without these measures, positive benefits of EDLIS on GDPIS are unlikely to materialize leaving countries trapped in a cycle of debt servicing without achieving growth. These findings suggest that while EDLIS does not uniformly spur positive GDPIS within the EAC, the ability to manage EDLIS effectively and allocate it toward productive investments is crucial. With these regression findings, the study did not reject the null hypothesis that in truth, EDLIS does not statistically impact GDPIS within the EAC.

4.5.2.5 The Influence of Foreign Capital Inflows on Economic Growth in the East African Community

The general objective queried the influence of FCIs on EG within the EAC region. The constant C within Table 4.10 aggregated all indicators of foreign capital inflows. The findings illustrate a positive value for coefficient C at 0.0443 with a statistically insignificant p-value of 0.6742 implying a favorable linkage between FCIs to EG, though with an insignificant influence. Thus, all indicators aggregated within constant C failed to significantly influence EG in EAC between 2009 to 2023.

Regression R-squared stood at 0.1793 implying FCIs explained by a variance of 17.93% to changes of economic growth within the East African Community. Adjusted R-squared stood at 0.0315 deviating by 14.78% from R-squared suggesting that the regression results were a deficient model fit. F-statistic stood at 1.214 with an accompanying p-value 0.3079 being insignificant at

the 95% confidence level implying that the regression model was subjective. Notwithstanding, the absence of serial correlation was upheld through Durbin-Watson Statistic standing at an acceptable value of 2.0579 implying stability of the regression model.

4.5.2.6: Central Bank Base Interest Rates do not entail statistically significant effects to Economic Growth in the East African Community

Results in Table 4.10 gives negative statistically significant effect of CBBIRLNI on EG within EAC taken as a whole with the coefficient standing at -0.0504 and a probability value of 0.0253. This finding is in line with Gupta and Ahmed (2020) who after evaluating factors influencing short and long-term flows of FCI into the Indian stock market from 2002 to 2016 revealed that the primary pull element explaining dynamics of FCIs within stock markets was the interest rate differential relating capital inflows to interest rate differentials.

The panel data results reveal that central bank interest rates play a statistically significant negative role towards EG across EAC. Results in Table 4.10 further indicate that 1 unit increase in interest rates is associated with a 0.0504 decrease in GDP other factors held constant. A possible explanation for this negative effect is that competitive interest rates attract greater inflows of foreign capital by ensuring better returns on investment while simultaneously stimulating domestic investment (Haruna, 2021). Stable and well-regulated interest rates may reduce inflationary pressures and financial market volatility providing a stable environment in which foreign investors can commit to long-term projects (Swamy, 2018).

In this context, central banks in the EAC through their interest rate policies play a pivotal role in ensuring that foreign capital inflows translate into economic growth by maintaining low interest

rates, encouraging investment and fostering confidence among both foreign and domestic investors. The capital flow theory posits that capital flows across borders are driven by differences in expected returns between countries (Mehar, 2023). The author asserts that where one country or region offers higher returns on capital due to favorable interest rates or favorable investment return, foreign capital will be attracted to that country. In the context of the EAC, the findings are contrary to the theory suggesting that lower interest rate differentials are an essential factor determining FCI volume for positive GDP impact. Interestingly however, while above normal interest rates can attract FCIs in the short term, they may also create economic imbalances, such as inflation or speculative investments, which could in turn undermine long-term growth potential. The theory emphasizes the need for careful calibration of interest rates to avoid creating financial bubbles or excessive dependency on volatile capital flows that may destabilize an economy in the long run (Amoaning & Ahiakpor, 2022).

The negative influence of interest rates on economic growth underscores the importance of sound monetary policy in maximizing the GDP impact of external capital (Fedorova & Meshkova, 2021). These results suggest that EAC member states could further enhance benefits of FCIs through adoption of monetary policies that balance need for growth and investment while mitigating risks associated with volatile capital flows. These findings put upon pressure towards the critical role of central banks in enabling a favorable investment climate and optimizing impact of FCIs on GDP through interest rates.

4.6 Moderating Effect of Central Bank Base Interest Rates Linking Foreign Capital Inflows to Economic Growth in the East African Community

The fifth objective of this study was to examine how central bank base interest rates moderated the relationship linking FCIs to EG in EAC. As outlined in the methodology chapter, an interaction-term regression model was employed to analyze this moderating effect. The corresponding null hypothesis posited central bank base interest rates did not moderate linkage between FCIs and EG. The interaction term was introduced to assess role of interest rates fluctuations. This analysis thus investigated whether central bank base interest rates variations alter the strength of foreign capital inflows' impact to economic growth. The interaction-term approach allowed for testing only the individual effects of interest rate fluctuations.

4.6.1 Interaction-Term Model Test – Central Bank Base Interest Rates and Official Development Assistance to Economic Growth

Table 4.13: Test for Moderation - CBBIRLNI and ODALIS

Dependent Variable: GDPIS

Method: Panel Least Square

Sample (adjusted): 2009 2023

Periods include: 15

Cross-sections included: 4

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ODALIS	363.5906	185.7779	-1.9571	0.0553
CBBIRLNI	1.7818	0.8806	-2.0232	0.0478
ODALISCBBIRLNI	807.8507	409.7584	1.9715	0.0536
C	0.8596	0.4009	2.1441	0.0364
R-squared	0.1400	Mean dependent var		0.0553
Adjusted R-squared	0.0939	S.D. dependent var		0.0196
S.E. of regression	0.0186	Akaike info criterion		-5.0607
Sum squared resid	0.0194	Schwarz criterion		-4.9211
Log likelihood	155.8219	Hannan-Quinn criter.		-5.0061
F-statistic	3.0396	Durbin-Watson stat		2.1089
Prob(F-statistic)	0.0363			

Selection Summary

No regressors were chosen by the stepwise routine

The equation generated through the Interaction-Term Model for ODA was:

$EG_t = b_0 + b_1ODA_{t1} + b_2CBBIR_{t2} + b_3 (ODA \times CBBIR) + et$…… (Equation 3.11)

The test for moderation findings in Table 4.13 shows coefficients of the interaction-term constant C at a value of 0.8596 with statistically significant p-value = 0.0364 < 0.05 implying that CBBIR moderates ODA to influence GDP. The adjusted R-squared signifies a 9.39% chance of CBBIR influence to EG through the ODA variable.

4.6.2 Interaction-Term Model Test - CBBIR and FDI to GDP

The equation generated through the Interaction-Term Model for FDI was:

$EG_t = b_0 + b_1FDI_{t1} + b_2CBBIR_{t2} + b_3 (FDI \times CBBIR) + et$……...…… (Equation 3.12)

The test for moderation findings in table 4.14 shows coefficients of interaction-term constant C at 0.4041 with statistically significant p-value = 0.0190 < 0.05 implying that CBBIR moderates FDI positively to influence GDP.

Table 4.14: Test for Moderation – CBBIRLNI and FDILIS

Dependent Variable: GDPIS

Method: Panel Least Square

Sample (adjusted): 2009 2023

Included observations: 60

Periods include: 15

Cross-sections included: 4

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
FDILIS	-141.6958	71.8877	-1.9710	0.0537
CBBIRLNI	-0.8078	0.3778	-2.1378	0.0369
FDILISCBBIRLNI	329.4863	163.0143	2.0212	0.0480
C	0.4041	0.1673	2.4149	0.0190
R-squared	0.1430	Mean dependent var		0.0553
Adjusted R-squared	0.0971	S.D. dependent var		0.0196
S.E. of regression	0.0186	Akaike info criterion		-5.0642
Sum squared resid	0.0194	Schwarz criterion		-4.9246
Log likelihood	155.9270	Hannan-Quinn criter.		-5.0096
F-statistic	3.1158	Durbin-Watson stat		2.0877
Prob(F-statistic)	0.0332			

Selection Summary

No regressors were chosen by the stepwise routine

4.6.3 Interaction-Term Model Test – Central Bank Base Interest Rates and Foreign Portfolio Investments to Economic Growth

Table 4.15: Test for Moderation - CBBIRLNI and FPILIS

Dependent Variable: GDPIS

Method: Panel Least Square

Sample (adjusted): 2009 2023

Included observations: 60

Periods include: 15

Cross-sections included: 4

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FPILIS	-11.0035	16.7122	-0.6584	0.5130
CBBIRLNI	-0.1709	0.1549	-1.1035	0.2745
FPILISCBBIRLNI	29.2418	36.0294	0.8116	0.4205
C	0.1238	0.0714	1.7327	0.0886
R-squared	0.1016	Mean dependent var		0.0553
Adjusted R-squared	0.0535	S.D. dependent var		0.0196
S.E. of regression	0.0190	Akaike info criterion		-5.0171
Sum squared resid	0.0203	Schwarz criterion		-4.8774
Log likelihood	154.5132	Hannan-Quinn criter.		-4.9624
F-statistic	2.1130	Durbin-Watson stat		2.0488
Prob(F-statistic)	0.1088			

Selection Summary

No regressors were chosen by the stepwise routine

The equation generated through the Interaction-Term Model for FPI was:

$EG_t = b + b_1FPI_{t1} + b_2CBBIR_{t2} + b_3$ (FPI x CBBIR) + et…….…...…… (Equation 3.13)

The test for moderation findings in table 4.15 above shows coefficients of interaction-term constant C at 0.1238 with statistically insignificant p-value = 0.0886 > 0.05 implying that CBBIR does not moderate FPI to influence GDP. The interaction term is not statistically significant (p = 0.4205), suggesting that CB BIR does not moderate the relationship between FPIs and GDP.

4.6.4 Interaction-Term Model Test - CBBIR and ED to GDP

The equation generated through the Interaction-Term Model for ED was:

$EG_t = b + b_1ED_{t1} + b_2CBBIR_{t2} + b_3$ (ED x CBBIR) + et……. …..…..…… (Equation 3.14)

The test for moderation result in table 4.16 below illustrates coefficients of interaction-term constant C at 0.1551 with statistically insignificant p-value = 0.1205 > 0.05 implying that CBBIR does not moderate ED to influence GDP. There is no evidence that central bank interest rates influence the effect of external debt on GDP

Table 4.16: Test for Moderation - CBBIRLNI and EDLIS

Dependent Variable: GDPIS

Method: Panel Least Square

Sample (adjusted): 2009 2023

Included observations: 60

Periods include: 15

Cross-sections included: 4

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
EDLIS	-42.3574	52.7807	-0.8025	0.4256
CBBIRLNI	-0.1970	0.2016	-0.9771	0.3327
EDLISCBBIRLNI	81.3513	109.2326	0.7447	0.4595
C	0.1551	0.0983	1.5766	0.1205
R-squared	0.0924	Mean dependent var		0.0553
Adjusted R-squared	0.0438	S.D. dependent var		0.0196
S.E. of regression	0.0191	Akaike info criterion		-5.0068
Sum squared resid	0.0205	Schwarz criterion		-4.8672
Log likelihood	154.2058	Hannan-Quinn criter.		-4.9522
F-statistic	1.9012	Durbin-Watson stat		2.0501
Prob(F-statistic)	0.1398			

Selection Summary

No regressors were chosen by the stepwise routine

Through the Interaction-Term Model tests, the study concludes that central bank base interest rates partially moderate the relationship linking foreign capital inflows to economic growth through ODA and FDI.

4.7 Hypotheses Testing Results Summary

Table 4.17 below gives summary findings following testing of five hypotheses.

Table 4.17: Summary Hypotheses Test Findings

Hypotheses	**Coefficient**	**P - Value**	**Result**	**Conclusion**
H_{01}: Official development assistance does not impact economic growth in the East African Community	20.3438	0.7623	Positive and statistically insignificant	Failed to reject H_{01}
H_{02}: Foreign direct investments do not impact economic growth in the East African Community	-2.3043	0.9004	Negative and statistically insignificant	Failed to reject H_{02}
H_{03}: Economic growth in the East African Community is not statistically influenced by foreign portfolio investments	3.8331	0.2519	Positive and statistically insignificant	Failed to reject H_{03}
H_{04}: External debt has no statistical impact on economic growth in the East African Community	-11.3295	0.3912	Negative and statistically insignificant	Failed to reject H_{04}

Hypothesis	**Findings**	**Conclusion**

H_{05}: Central bank base interest rates do not entail statistical moderating effects to the relationship between foreign capital inflows and economic growth in East African Community	Applied Interaction-Term Model	Based on individual independent variables
Interaction-Term Model Findings		
CBBIR and ODA to GDP	CBBIR moderation to ODA influences GDP	Reject H_{05}
CBBIR and FDI to GDP	CBBIR moderation to FDI influences GDP	Reject H_{05}
CBBIR and FPI to GDP	CBBIR moderation to FPI influences GDP	Failed to reject H_{05}
CBBIR and ED to GDP	CBBIR moderation to ED influences GDP	Failed to reject H_{05}

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

Preceding chapters have laid the groundwork towards understanding complexities linking FCIs to EG within the EAC. This study's overarching goal was to determine how foreign capital inflows affected economic growth proxied through GDP in the East African Community over 15 years from 2009 to 2023. Building on the results, Chapter Five delves into a comprehensive provision of summary of findings situating them in a position to give plausible conclusions and recommendations to stakeholders and policymakers and for future research.

5.1 Summary of Findings

This study sought to address the FCIs and EG nexus by way of examining relevant literature linking the variables within the East African Community (EAC) context over the timeframe 2009 - 2023. The study applied economic growth as the dependent variable. Official development assistance, foreign direct investments, foreign portfolio investments and external debt were employed as independent variables. The central bank base interest rate was employed as a fitting moderating variable in evaluating its impact on parallels linking FCIs to EG. Summarized revelations of ODA, FDI. FPI, ED and the moderating role of CBBIR on FCIs to economic growth are presented as follows:

5.1.1 Official Development Assistance and Economic Growth in East African Community

Through the panel data multi-regression model, this study confirmed existence of positive linkage between ODA and EG within the study period. However, the relationship was statistically insignificant owing to the resulting p-value = 0.7623 > 0.05. This implied that ODA supported economic growth within the EAC albeit insignificantly within the 2009 – 2023 timeframe. Since

ODA inflows into developing regions are aimed towards promoting development, this result outcome relating to the level of statistical significance was unforeseen. There exists a high chance that ODA may be directed toward nonproductive sectors or short-term humanitarian projects within the EAC member states that, while important for immediate relief and social welfare, do not directly build towards longer-term EG.

An instance of ODA failing to spur economic growth in the EAC is the Arusha-Namanga-Athi River Road Project in Tanzania and Kenya funded by Japanese International Cooperation Agency (JICA) and African Development Bank (AfDB). This road (The Northern Corridor), was a major ODA funded project costing over USD 400 million aimed at improving regional trade between Tanzania and Kenya. Despite its completion, trade volumes between Kenya and Tanzania did not increase significantly due to persistent non-tariff barriers such as cumbersome customs checks and bureaucratic delays. Transport times barely improved because of roadblocks, weighbridges and corruption along the route (WBDI, 2023). The project was infrastructure focused but lacked complementary investments in logistics and small and medium enterprises support or trade facilitation. Thirdly, poor maintenance led to quick deterioration in some sections reducing long-term economic returns. Unlike toll-funded highways, for instance, Kenya's Thika Superhighway, the northern corridor ODA project had no sustainable financing mechanism for upkeep.

This case shows that ODA alone cannot guarantee economic growth if complementary reforms including trade policies and anti-corruption measures are missing. A differing possibility is that ODA leads to aid dependency where EAC member states rely on external assistance rather than fostering domestic investment and innovation hence stifling growth in the long run. Furthermore,

the absorptive capacity of recipient countries could be a limiting factor, where institutional and infrastructural constraints prevent the effective utilization of aid towards GDP promotion. Thus, the importance of a greater involvement and integration of local businesses and value chains prior to the initiation of ODA projects cannot be assumed.

5.1.2 Foreign Direct Investments and Economic Growth in the East African Community

Findings within the panel data multi-regression model further confirmed presence of negative linkage between FDI and EG from 2009 to 2023. However, the relationship was statistically insignificant owing to the resulting p-value = 0.9004 > 0.05. This signified that presence of FDI inflows hindered economic growth prospects of EAC member states albeit insignificantly. It is therefore interesting to note that the finding challenges the commonly held view that FDI is a key driver of growth more so to developing states.

It is a possibility that FDI inflows into the EAC member states may be concentrated in sectors with limited spillover effects where benefits are not widely shared optimally across economic platforms. Moreover, weak financial institutional frameworks including regulatory inefficiencies and inadequate governance levels serve as additional impediments towards effective utilization of FDI inflows for optimal economic growth. Adika, 2022 posits that absence of infrastructure and technology within developing regions consequently prevents full absorption and productivity-enhancing impacts of FDI to EG. The presence of enclave environments and possibility that FDI in the EAC is geared more toward short-term gains rather than long-term developmental projects could also serve as an explanation of the weak link to economic growth.

One notable example where FDI failed to lead towards significant EG within the EAC is the case of Tanzania's Bagamoyo Mega-Port Project initiated through Chinese FDI. In 2013, Tanzania contracted a USD 10 billion agreement with Chinese organization together with Oman's State General Reserve Fund to develop the Bagamoyo Port intended to be the largest port in East Africa. The project was expected to boost trade, create jobs and most significantly stimulate Tanzania's economy. Due to disagreements over terms, including Tanzania's refusal to grant a 99 - year lease and tax exemptions demanded by investors, the project was suspended in 2019. Despite FDI commitments, no significant infrastructure was built, and no economic benefits materialized.

This led to alternative port developments outpacing Bagamoyo that included Kenya's Lamu Port and Uganda's railway investments reducing the necessity for Bagamoyo and diminishing its potential impact. It is also interesting to note that Tanzania later shifted focus to expanding Dar es Salaam Port instead. While not all FDI was disbursed, Tanzania spent time and resources negotiating instead of investing in smaller, high-impact projects. This case shows that FDI does not automatically lead to growth if projects face governance disputes, unrealistic terms or shifting economic priorities. Unlike successful FDI driven projects, for instance: Ethiopia's industrial parks, Bagamoyo's failure highlights how poor execution and external factors can negate potential benefits. Notwithstanding, although statistically insignificant, the revelation of the linkage between FDI inflows and economic growth within EAC being negative remains perplexing.

5.1.3 Foreign Portfolio Investments and Economic Growth in the East African Community

This study confirmed within the EAC context the presence of a positive link between FPI and EG within the 2009 to 2023 study period. However, the relationship was statistically insignificant owing to the resulting p-value = 0.2519 > 0.05. This signified that FPI supported positive outcomes

of economic growth within the EAC insignificantly between the 2009 – 2023 timeframe. The lack of a significant relationship between FPI to GDP may be attributed to several factors that include stock market underdeveloped with low market capitalization and limited liquidity giving rise to limited participation by both domestic and foreign investors (Haini, 2021; Hanif, 2020; Tran, 2020).

In addition, volatility associated with FPI tends to be short-term and highly responsive to global financial fluctuations resulting in unstable capital inflows that contribute to financial instability without providing sustained capital necessary for long-term growth. FPI inflows into EAC stock markets may be concentrated in speculative assets as foreign investors prioritize minimizing risk as opposed to long-term economic growth contributions. Further, fragmented and underdeveloped nature of EAC stock markets limits their attractiveness to investors seeking diversified portfolios.

The collapse of the Ugandan stock market rally (2010–2015) driven by speculative FPI inflows that did not stimulate real economic development is a clear indicator of FPI failing to translate into sustained economic growth. Uganda Securities Exchange saw a surge in FPI in cross-listed blue-chip firms Umeme (electricity distributor) and Stanbic Bank Uganda fueled by high interest rates attracting "hot money" (Rapid Capital through borders), regional integration hype that was the EAC Common Market Protocol of 2010 and commodity price booms fueled through the coffee sector and Uganda’s oil prospects. FPI failed to deliver on positive economic growth outcomes due to speculative short-term equity purchases through "Hot Money" that had no productive investment, an unprecedented rise in global interest rates due to the US Federal Reserve tantrums of 2014 – 2015 that caused investors to pull out rapidly causing market instability and the ultimate

resulting currency depreciation. Thus, misalignments between FPI inflows, investor return requirements and EAC GDP growth concerns suggests that investors needs are not always aligned to economic growth needs of host economies.

5.1.4 External Debt and Economic Growth within East African Community

Findings related to parallels between ED and EG within EAC context confirmed presence of a negative link within 2009 to 2023 study period. The relationship was also statistically insignificant owing to the resulting p-value = 0.3912 > 0.05. This signified that a rise in external debt served as an impediment to economic growth within the EAC albeit insignificantly between the 2009 – 2023 timeframe. Within the EAC context, the lack of statistically significant linkage between ED and EG may be an indication that external debt is not being effectively channeled into high-growth sectors such as infrastructure, technology and learning. Instead, inefficiencies in allocation, governance, and fiscal mis-management appear to dilute its potential positive impact on economic growth within EAC.

A striking example of external debt failing to translate into economic growth in EAC is Kenya's Eurobond Debt (2014–2024), where borrowed funds did not deliver the promised infrastructure-led growth and instead exacerbated fiscal strain (Auditor General, 2019). Kenya issued USD 2.75 billion and USD 1 billion Eurobonds marketed as financing infrastructure projects in 2014 and 2018 respectively. Due to misallocations and corruption, at least USD 1 billion was unaccounted for, as admitted by Kenya's Auditor-General in 2018. Funds meant for roads and rail projects were diverted to opaque expenditures, only 3 of 32 berths at Lamu Port were built by 2024 delaying regional trade benefits, debt servicing overwhelmed public investment such that by 2023, Kenya spent over 60% of tax revenue servicing debt versus the EAC recommended 30% threshold (CBK,

2024). To exacerbate the situation, currency depreciation increased through the Kenyan shilling losing 50% of its value against the USD (2014–2024), ballooning debt repayment costs. In 2024, Kenya had to issue new Eurobonds to refinance old ones trapping it in a debt cycle. This cycle has led to an undesirable outcome where Kenya's total outstanding debt to GDP ratio surged from 40% (2013) to over 70% (2024) and economic growth has averaged just 4.5% (2015–2023), far below the 7% target needed to outpace debt. Debt beyond sustainable thresholds thus puts into question investor confidence and crowds out productive public investment further aggravating unwanted effects on economic growth.

5.1.5 Moderating role of Central Bank Base Interest Rates on Parallels Between Foreign Capital Inflows and Economic Growth within East African Community

Through panel data multi-regression model, this study confirmed the existence of a negative influence of central bank base interest rates on economic growth within the EAC. It was statistically significant owing to resulting p-value = 0.0253 < 0.05. This signified that reducing CBBIR in EAC led to a positive economic growth outcome through foreign capital inflows within the 2009 – 2023 timeframe. In addition, further tests of moderation through the Interaction-Term Model within section 4.6, Tables 4.11 to 4.14 provide evidence supporting significance of FCIs interaction terms in the relationship between FCIs to GDP.

Central banks' balance inflation and economic growth by adjusting base interest rates, that is: higher rates curb inflation by reducing borrowing and spending but may lead to slower growth while minimal rates stimulate investments and consumption but increases risks towards inflation. For instance, a cut in rates can boost FDI by lowering capital costs for long-term projects and encourage ODA funded initiatives (Beyene, 2022; Marangos, 2022; Saadaoui et al., 2022).

Conversely, higher rates may attract FPI by offering better returns, but excessive hikes can deter FDI and ODA by increasing debt burdens and stifling economic activity. Results in Table 4.11 and 4.12 clearly indicate that CBBIR statistically and significantly moderated individual parallels of ODA and FDI to GDP based on the constant C coefficient values of 0.8596 and 0.4041 supported through p-values of 0.0364 and 0.0190 < 0.05 successively. This implied that CBBIR played a positive significant role of moderating both ODA and FDI towards positive economic growth outcomes.

Conversely, results in Table 4.13 and 4.14 show that CBBIR failed to statistically and significantly moderate individual parallels of FPI and ED to GDP based on the constant C coefficients standing at 0.1238 and 0.1551 through their p-values of 0.0886 and 0.1250 > 0.05 accordingly. This implied that CBBIR role of moderating both FPI and ED towards positive economic growth outcomes was weak. In essence, EAC central banks must calibrate rates to keep price stability for a conducive environment conducive to both domestic growth and external capital inflows.

Possible explanation for this mixed findings is that competitive lending interest rates attract greater inflows of foreign capital by ensuring better returns on investment while simultaneously stimulating domestic investment (Haruna, 2021). Stable and well-regulated interest rates induce spending and simultaneously reduce inflationary pressures and financial market volatility, providing a stable environment in which foreign investors can commit to long-term projects (Swamy, 2018). Within this context, central banks in the EAC through their interest rate policies play a pivotal role in ensuring that foreign capital inflows translate into economic growth by

maintaining low interest rates, encouraging investment, and fostering confidence among both foreign and domestic investors.

5.2 Conclusions

This section provides critical conclusive insights into the relationship linking FCIs and EG in the EAC while embracing ideas of other similar empirical studies associated to developing countries within the global scene. The panel data multi-regression model confirmed that all independent variable indicators of FCIs: ODA, FDI, FPI and ED as a joint unit, did not significantly influence economic growth proxied through gross domestic product in the period 2009 to 2023. Nevertheless, the moderating variable: central bank base interest rates engaged positively and was statistically significant in the link between ODA and FDI to EG and was statistically insignificant for FPI and ED to EG in EAC. The analysis thus underscores the importance of EAC context institutional frameworks and other complementary factors in determining the future outcomes of FCIs on EG.

5.2.1 Impact of Official Development Assistance on Economic Growth within East African Community

Findings reveal existence of positive link between ODA and GDP within EAC in the period 2009 to 2023 albeit insignificant. While the relationship is not robust, it suggests that increases in ODA can highly contribute to EG if strategically applied. Theory of convergence which posits that poorer economies tend to grow faster than wealthier ones and eventually catch up, provides a useful framework for understanding how ODA can be optimized to bridge development gaps within EAC. WBDI, 2023 indicates EAC member states; Rwanda and Uganda have experienced higher GDP growth rates, averaging 6% to 7% annually, compared to the regional average, partly due to targeted investments in infrastructure and human capital funded by ODA.

This aligns with the convergence theory as these countries have utilized external ODA resources to accelerate their development trajectories and reduce income disparities relative to other member states within the EAC. To maximize the impact of ODA, there exists a need for EAC member states to prioritize investments in areas that foster long-term productivity and inclusive growth. For instance, ODA can be channeled toward infrastructure development, education, and healthcare, which are critical for building the foundational capacities required for optimal economic growth. IMF, 2022a postulates that countries allocating ODA to these sectors tend to experience higher multipliers in terms of GDP growth. Additionally, regional integration initiatives like the EAC Common Market and the East African Infrastructure Master Plan may amplify benefits of ODA by creating economies of scale and enhancing cross-border trade and investment.

By focusing on these areas, ODA can assist EAC countries overcome structural bottlenecks and move closer to the convergence threshold where they can compete more effectively in the global economy. Noteworthy is that ODA effectiveness in driving optimal economic growth is further a product of addressing intrinsic challenges such as administrative inefficiencies, corruption and weak organizational frameworks. The World Bank's Worldwide Governance Indicators reveal that EAC countries score relatively low on metrics such as administrative effectiveness and corruption control thus undermining impact of ODA. Strengthening governance and accountability mechanisms is therefore essential to ensure that ODA is utilized efficiently and transparently. Furthermore, aligning ODA with regional and national development plans such as Vision 2030 and Agenda 2063 together with fostering partnerships with private sectors may enhance its catalytic effect on economic growth. By adopting a strategic and inclusive approach to ODA utilization, the

EAC can harness its potential to accelerate convergence in turn achieving sustainable economic progress.

5.2.2 Influence of Foreign Direct Investments on Economic Growth within East African Community

Findings reveal a negative albeit statistically insignificant link between FDI and GDP in EAC from 2009 to 2023. This perplexing result challenges conventional wisdom as FDI is often viewed as an abled catalyst for EG growth through capital accumulation, technology conveyance and job creation. However, the findings align with aspects of modern portfolio theory which emphasize that the quality and allocation of investments matter more than their sheer volume. In the EAC context, FDI inflows may not have translated into significant economic growth due to factors such as misallocation of resources, weak absorptive capacity and inadequate complementary investments in infrastructure. WBDI, 2022a indicates that while FDI inflows to the Asian region averaged USD 7.6 billion annually between 2015 and 2020, GDP remained modest averaging 5.3% during the same period.

This suggests that influence of FDI on GDP is contingent on how effectively investments are integrated into a broader lucrative framework. For instance, Tanzania and Kenya have attracted substantial FDI in agriculture but the sector has not consistently driven inclusive growth. This underscores the importance of diversifying FDI into sectors with higher multiplier effects such as manufacturing and services which can create more jobs and foster innovation. By aligning FDI with strategic development priorities, EAC countries can enhance its contribution to enhanced economic growth and transformation.

5.2.3 Effect of Foreign Portfolio Investments on Economic Growth within East African Community

The study findings reveal positive though statistically insignificant linkage between FPI and EG within the EAC from 2009 to 2023. While the relationship is not robust, it is suggestive that FPI has the potential to contribute to economic growth albeit with significant restrictions. Modern portfolio theory stresses significance of risk mitigation and diversification in investment decisions and this applies to both investors and recipient countries. In the EAC context, FPI inflows have provided liquidity to financial markets and supported expansion and progress of capital markets evidenced by the growth of stock exchanges in Kenya, Uganda, Rwanda and Tanzania. Nonetheless, volatility and short-term nature of FPI pose challenges for macroeconomic stability.

In the EAC, FPI has primarily flowed into government securities and listed equities which while beneficial for public financing and corporate capital raising, have limited direct linkages to productive sectors of the economy. ADB, 2022 shows that FPI inflows in Africa averaged USD 2.1 billion annually between 2015 and 2020 but contribution to GDP remained marginal due to limited integration with real economic activities. This underscores the need for policies that channel FPI toward investments with higher developmental impact such as infrastructure bonds or green financing initiatives which can align investor returns with long-term growth objectives.

5.2.4 Impact of External Debt on Economic Growth within East African Community

Findings reveal negative though statistically insignificant link between ED and EG in the EAC from 2009 to 2023. This result aligns with the conventional theory of debt which posits that while external borrowed funds may furnish resources essential for investment and development, excessive levels of debt hinder EG through diversion of resources away from the most productive

activities toward borrowings servicing. In the EAC, external debt has been a critical source of financing for infrastructure projects and social programs but its impact on economic growth has been muted due to inefficiencies in debt utilization. For instance, EAC external debt stock grew from USD 20.7 billion in 2009 to USD 62.3 billion in 2023 yet economic growth rates remained modest averaging 5.3% annually over the same period (UNCTAD, 2022). This suggests that benefits of ED contingent on management effectiveness and optimum allocation.

The conventional theory of debt also highlights the importance of debt sustainability in ensuring that borrowing contributes to longer-term EG. When external debt supersedes a country's capacity to repay, it leads to debt distress, reduced investor confidence and macroeconomic instability. IMF, 2022b; Mohamad et al., 2020 posit that in reference to the Debt Sustainability Framework, several EAC countries including Kenya and Uganda are at moderate risk of debt distress with External Debt-to-GDP ratios exceeding 35%. High debt servicing costs have constrained fiscal space limiting many countries' ability to invest in key sectors like healthcare, infrastructure and education. For instance, in 2022, Kenya allocated approximately 25% of its revenue to debt servicing reducing funds available for development projects (WBDI, 2023). This underscores the need for prudent debt management practices including prioritizing concessional loans, improving public investment efficiency and enhancing revenue mobilization to ensure that external debt supports rather than aggravates economic growth.

5.2.5 Moderating role of Central Bank Base Interest Rates Linking Foreign Capital Inflows to Economic Growth

Findings reveal positive and statistically significant moderating role of central bank base interest rates on linkage between both ODA and FDI inflows on EG in the EAC in the period 2009 to 2023.

On the contrary, the findings also reveal positive but statistically insignificant moderating role of central bank base interest rates on the relationship between both FPI and ED inflows on economic growth. This suggests that higher base interest rates mostly used as a tool to gauge inflation and stabilize currencies may enhance economic growth. According to the capital flow theory, higher home interest rates are expected to attract foreign capital through offering higher returns. However, in the EAC context, elevated interest rates may have had a direct effect by increasing borrowing costs, increasing private sector investment and creating a favorable environment for foreign investors.

However, it is noted that EAC countries with relatively high base interest rates such as Uganda, averaging 10.5% between 2015 and 2020, experienced lower FDI inflows compared to countries with more moderate rates such as Rwanda, averaging 5.5% over the same period (WBDI, 2023). This highlights the intricate symmetry that central banks have to strike between fostering an investment-friendly environment and retaining inflation to a minimal. Moderating effect of high base interest rates on FCIs underscores significance of coordinated monetary and fiscal policies in promoting economic growth. High interest rates can exacerbate fiscal pressures by increasing the cost of government borrowing thereby limiting public investment in critical sectors such as infrastructure and education (Kosztowniak, 2022).

EAC countries with higher interest rates allocated a larger share of their budgets to debt servicing leaving fewer resources for development projects as in the case of Kenya. To mitigate these challenges, EAC member states should adopt a holistic approach that combines prudent monetary policy with expansionary fiscal measures such as targeted tax incentives for foreign investors and

increased public spending on infrastructure. This would create a more conducive environment for foreign capital inflows while supporting longer-term EG. To optimize parallels between FCIs and EG, EAC central banks should consider adopting a more flexible and forward-looking monetary policy framework. This could include gradually lowering base interest rates in tandem with improved inflation management and exchange rate stability as recommended by the IMF.

Regional integration efforts such as the EAC Monetary Union can enhance macroeconomic stability and reduce volatility of foreign capital inflows making the region more attractive to foreign investors. By aligning monetary policy with broader developmental goals and leveraging fiscal measures to complement these efforts, the EAC can create a balanced policy environment that maximizes the benefits of foreign capital inflows while minimizing risks. Ultimately, a coordinated approach to fiscal and monetary policies can be vital in ensuring that FCIs contribute to sustainable and inclusive economic growth within the EAC. EAC countries should coordinate interest rate policy with targeted investor incentives to achieve growth-aligned capital inflows.

5.3 Recommendations to Stakeholders and Policymakers

The study findings reveal that foreign capital inflows, including ODA, FDI, FPI and ED did not statistically and significantly influence EG in the EAC between 2009 and 2023. This outcome challenges conventional expectations that FCIs from developed to developing countries driven by globalization and the integration of financial markets would act as a catalyst for EG.

5.3.1 Recommendations on Influence of Official Development Assistance on Economic Growth within East African Community

While the relationship between ODA and GDP within the EAC context is not robust, it is suggestive that ODA has the potential to contribute to economic growth if strategically utilized.

To maximize impact of ODA, governments in the EAC should prioritize investments in quarters with high growth multipliers like infrastructure, education and healthcare. For instance, Rwanda's successful use of ODA to fund its Vision 2020 development program has been instrumental in transforming its economy with GDP growth averaging 7.5% annually between 2009 and 2019. By aligning ODA with national development plans and focusing on projects that address critical bottlenecks, EAC member states can enhance efficacy of aid in driving sustainable EG.

Regionally, the EAC Secretariat and council of ministers play a crucial role in ensuring that ODA is efficiently managed and allocated. Country specific ministries of finance, planning and regional cooperation together with national development agencies can play a role of strengthening governance and transparency in the use of ODA to prevent mismanagement and corruption which can undermine its impact. For instance, Tanzania's establishment of the External Finance Division within its Ministry of Finance has improved the coordination and monitoring of ODA-funded projects leading to better outcomes (EAC, 2023). Additionally, these authoritative bodies should work closely with development partners to ensure that ODA inflows are effectively integrated into the broader macroeconomic framework avoiding distortions such as exchange rate volatility or inflationary pressures. Through adoption of fiscal and monetary policies, EAC countries can create a stable environment that maximizes the developmental impact of ODA.

Regional cooperation and integration are also critical for optimizing the use of ODA in the EAC. Collaborative initiatives such as the East African Infrastructure Master Plan can leverage ODA to fund cross-border projects that enhance connectivity and trade. For instance, construction of the Standard Gauge Railway (SGR) in Kenya partially funded by ODA has been deemed to enhance

transport efficiencies and boosted trade with neighboring countries. Similarly, regional institutions such as the East African Development Bank can play significant part in channeling ODA toward projects that benefit multiple member states fostering collective growth and reducing disparities. By pooling resources and coordinating efforts, EAC can amplify impact of ODA and achieve economies of scale.

Finally, engaging the private sector and civil society is essential to ensure that ODA-funded projects are sustainable and inclusive. Public-private partnerships (PPPs) can mobilize additional resources and expertise enhancing efficiencies and positive impact of ODA. For instance, Uganda's use of PPPs to develop its energy sector supported through ODA has increased electricity access and spurred industrial growth. Civil society organizations can likewise monitor implementation of ODA projects while ensuring that they benefit marginalized communities. By fostering collaborations amongst various public and private institutions, EAC can create a holistic approach to ODA utilization that drives optimal economic growth and reduces poverty. These recommendations if implemented effectively can transform ODA into a powerful tool for achieving EAC enhanced economic growth.

5.3.2 Recommendations on Influence of Foreign Direct Investments on Economic Growth within East African Community

Study results suggest while FDI entails potential to enhance EG, its impact in the EAC has been limited due to structural and policy-related challenges. To harness FDI for optimal economic growth, governments in the EAC should prioritize creating an enabling environment that attracts high-quality investments. This includes improving ease of conducting business through aligning regulatory processes, enhancing openness and reducing red-tape bureaucratic hurdles. For

instance, Rwanda's remarkable transformation into one of Africa's most business-friendly destinations rank 38th worldwide within World Bank's 2020 "Ease of Conducting Business Index" has attracted significant FDI into sectors such as Information Communication Technology, tourism and manufacturing contributing to its average GDP growth of 7.5% between 2009 and 2019. By adopting similar reforms, other EAC member states can unlock the full potential of FDI impact to positive GDP outcomes.

Central banks and finance ministries play a critical role in ensuring macroeconomic stability which is essential for attracting and retaining FDI. High inflation and exchange rate volatility can deter foreign investors. For instance, Kenya's Central Bank has maintained relative macroeconomic stability through prudent monetary policies which has assisted attract FDI into sectors like renewable energy and financial services. Finance ministries should additionally focus on creating investor-friendly tax regimes and offering targeted incentives for priority sectors such as agriculture processing, manufacturing and infrastructure. By aligning fiscal policies with investment promotion strategies, EAC countries can enhance their appeal to foreign investors and ensure that FDI contributes to long-term economic growth.

Regional integration and infrastructure development are key to maximizing the impact of FDI in the EAC. Cross-border infrastructure projects such as the East African Crude Oil Pipeline can attract large-scale FDI while fostering regional trade and connectivity. Further, the EAC Secretariat should work with member states to harmonize investment policies and create a unified regional investment framework. This would reduce fragmentation, enhance the region's competitiveness and attract FDI into parts with higher growth potential like energy, logistics and digital economies.

Fostering linkages between FDI and domestic economies is crucial to ensure that foreign investments generate spillover effects such as job creation, technology transfer and skills development. Governments should encourage foreign investors to partner with local firms and invest in capacity-building initiatives. For instance, Tanzania's partnership with multinational companies in the natural gas sector has led to the development of local supply chains and the transfer of technical expertise which is a boost to positive GDP outcomes. Establishing special economic zones and industrial parks as seen in Ethiopia's successful Hawassa Industrial Park can attract FDI while promoting industrialization and export diversification. These recommendations if implemented effectively can transform FDI into a powerful driver for escalated economic growth.

5.3.3 Recommendations on Influence of Foreign Portfolio Investments on Economic Growth within East African Community

While FPI is capable of contributing to EG, its impact within EAC has been limited due to factors such as market volatility, shallow financial markets and weak regulatory frameworks. To harness FPI for optimal economic growth, governments and stock market authorities should prioritize deepening and stabilizing financial markets through financial derivative instruments fintech innovations diaspora bonds and Islamic financing. This will enhance market liquidity, improve transparency and strengthen investor protection mechanisms. For instance, the Nairobi Securities Exchange (NSE) in Kenya has implemented reforms such as automated trading systems and stringent disclosure requirements which have attracted FPI and contributed to the growth of its capital markets. By adopting similar measures, other EAC member states can create more attractive environments for FPI.

Central banks and finance ministries play a critical role in ensuring macroeconomic stability which is essential for attracting and retaining FPI. High inflation, exchange rate volatility and unpredictable monetary policies can deter foreign investors. For instance, Uganda's Central Bank has maintained relative stability in inflation and exchange rates which has helped attract FPI into government securities and corporate bonds. Finance ministries should also focus on developing a diverse range of financial based instruments like the infrastructure and green bonds to attract FPI into sectors that align with national development priorities. By aligning fiscal and monetary policies with capital market development goals, EAC countries can enhance their appeal to foreign portfolio investors and ensure that FPI contributes to long-term economic growth.

Regional integration and harmonization of capital market regulations are key to maximizing impact of FPI in the EAC. Cross-border initiatives, such as the East African Capital Markets Infrastructure Project can enhance market connectivity and attract FPI by creating a larger and more integrated investment destination. For instance, the integration of Dar es Salaam Stock Exchange and the NSE enabled cross-listings and increased liquidity demonstrating how regional cooperation can amplify the benefits of FPI. Additionally, the EAC Secretariat should work with member states to harmonize regulatory frameworks and reduce barriers to cross-border investments. This would enhance the region's competitiveness and attract FPI into sectors with potential like renewable energy, technology and infrastructure.

Advancing linkages between FPI and the real economy is crucial to ensure that portfolio investments generate broader economic benefits. Governments and stock market authorities should encourage FPI inflows into projects that support infrastructure development, small and

medium enterprises (SMEs) and innovation. For instance, Rwanda's issuance of green bonds to fund sustainable infrastructure projects has attracted FPI while addressing critical development needs. Further, establishing venture capital funds and innovation hubs as seen in South Africa's successful technology sector can channel FPI toward high-growth startups and SMEs. By creating synergies between portfolio investments and real economic activities, the EAC can ensure that FPI contributes to inclusive and magnified economic growth. These recommendations, if implemented effectively, can transform FPI into a powerful driver of augmented GDP outcomes within EAC.

5.3.4 Recommendations on Influence of External Debt on Economic Growth within East African Community

This study findings reveal negative though statistically insignificant link between external debt and GDP in EAC from 2009 to 2023. This suggests that while ED can be a vital source for development financing, its influence on EG in the EAC has been limited due to inefficiencies in debt utilization, high servicing costs and weak institutional frameworks. To optimize the use of external debt, governments in the EAC should prioritize borrowing for high-impact projects that align with national development plans and have clear growth multipliers. For instance, Ethiopia's use of external debt to fund the Grand Ethiopian Renaissance Dam has not only addressed energy deficits but also positioned the country as a regional power exporter demonstrating how strategic borrowing can drive long-term economic growth. By focusing on projects in infrastructure, energy and human capital development, EAC member states can ensure that external debt contributes to continued growth.

Central banks and finance ministries play a critical role in ensuring that external debt is managed prudently and transparently. Strengthening debt management frameworks, improving public

financial management and enhancing transparency are essential to prevent mismanagement and corruption. For instance, Kenya's establishment of Public Debt Management Office has improved monitoring and reporting of ED though beyond threshold limits in turn enhancing transparency. Central banks should work closely with finance ministries to maintain macroeconomic stability as high inflation and exchange rate volatility can exacerbate debt servicing challenges. By adopting sound fiscal and monetary policies, EAC countries can create a stable environment that maximizes the developmental impact of external debt.

Regional cooperation and integration are also crucial for optimizing the use of external debt in the EAC. Regional institutions such as the East African Development Bank can enhance activities in coordinating debt-financed projects benefiting multiple member states fostering collective growth and reducing disparities. By pooling resources and coordinating efforts, the EAC can amplify the impact of external debt and achieve economies of scale. Further, Public-private partnerships (PPPs) can mobilize additional resources and expertise enhancing the efficiency and impact of debt-financed projects. Development partners like World Bank and African Development Bank can provide technical assistance and concessional financing in support of high-return income projects. By fostering collaborations amongst private and public partners, the EAC can create a holistic approach to ED utilization that drives optimal EG.

5.3.5 Recommendations on Role of Central Bank Base Interest Rates Linking Foreign Capital Inflows to Economic Growth within East African Community

The study findings reveal a negative and statistically significant influence of central bank base interest rates on economic growth in the EAC from 2009 to 2023. This suggests that high base interest rates often used to control inflation and stabilize currencies can deter FCIs and hinder EG.

To enhance positive impact of FCIs on EG, central banks in the EAC should adopt a balanced approach to monetary policy that prioritizes both price stability and investment-friendly interest rates. For instance, Rwanda's central bank has maintained relatively low and stable base interest rates, averaging 5.5% between 2015 and 2020, which has supported FCIs into sectors such as technology and tourism bestowing to the country's average GDP of 7.5% during the period.

By carefully calibrating interest rates to balance inflation control and investment promotion, EAC central banks can create a more conducive environment for foreign capital inflows. Finance ministries and governments should work closely with central banks to ensure that monetary policy aligns with broader economic development goals. High base interest rates can increase borrowing costs for businesses and governments reducing private sector investment and limiting public spending on growth-enhancing projects. For instance, Kenya's Central Bank has collaborated with the National Treasury to implement targeted credit for Small and Medium Enterprises assisting to mitigate impact of high interest rates on access to credit. Additionally, governments should complement monetary policy with fiscal measures such as tax incentives for foreign investors and increased public investment in infrastructure. By leveraging regional integration and adopting a holistic approach to monetary policy, the EAC can create a balanced policy environment that maximizes the benefits of foreign capital inflows for optimal economic growth.

5.4 Study Contribution

This study makes contribution to the scholarly discourse on economic growth by challenging conventional assumptions on role of FCIs in driving GDP in developing regions and in particular the EAC. While existing literature emphasizes positive influence of FCIs on EG, this study reveals ODA, FDI, FPI and ED did not significantly influence GDP in the EAC between 2009 and 2023.

This finding emphasizes significance of contextual factors like absorptive capacity, institutional quality and policy frameworks in determining the effectiveness of FCIs. For instance, while ODA has been instrumental in Rwanda's development through targeted investments in infrastructure and human capital, its impact in other EAC countries has been muted due to governance challenges and misallocation of resources (WBDI, 2022a). Similarly, FDI inflows into extractive industries in Tanzania and Uganda have not translated into broad-based growth due to limited linkages with the domestic economy (IMF, 2021). These insights highlight the need for a more nuanced understanding of how FCI interacts with local conditions to influence positive economic outcomes.

This study makes distinct theoretical and empirical contributions to the literature on foreign capital inflows and economic development. Theoretically, it advances the field by integrating four established theories: Convergence, Modern Portfolio, Conventional Debt, and Capital Flow into a novel and cohesive framework that explicitly models Central Bank Base Interest Rates (CBBIR) as a pivotal moderating mechanism thus offering a more nuanced theoretical lens for understanding the conditional effects of capital inflows. Empirically, the study provides critical, context-specific evidence by demonstrating that the relationship between foreign capital inflows and economic growth in the EAC is statistically insignificant in isolation but is significantly conditioned by monetary policy, a finding that challenges the assumption of universal efficacy of FCIs and provides a data-driven basis for policymakers to prioritize synergistic fiscal-monetary policy alignment over the mere attraction of capital.

This study makes a significant methodological contribution through its rigorous application of the interaction-term model within a panel regression framework to precisely quantify the moderating

role of CBBIR. By moving beyond simplistic direct-effect models, this approach allowed for the isolation and measurement of how monetary policy conditions the efficacy of each type of foreign capital inflow thereby transforming an abstract theoretical proposition into a testable empirical relationship. This methodology provides a replicable blueprint for future research in other developing regions seeking to understand the critical interplay between capital flows and domestic policy environments offering a more nuanced analytical tool than conventional models.

This study further contributes to the growing body of literature on significance of financial markets and debt sustainability toward economic growth. While FPI and ED are often seen as critical sources of financing, their impact in the EAC has been limited by shallow financial markets, high volatility and debt servicing challenges. For instance, Kenya's efforts to attract FPI through capital market reforms have yielded mixed results as global financial shocks and domestic macroeconomic instability have deterred long-term investments (ADB, 2022). Similarly, this study's findings on external debt align with research by Were (2001), which highlights risks of debt overhang and crowding-out effects in sub-Saharan Africa. By examining these variables in the EAC context, this study provides insights into conditions under which FCIs can, or cannot drive economic growth contributing to debates on optimal financing strategies for EAC member states.

The analysis of moderating role of central bank base interest rates on linkage between FCIs and EG is another key contribution of this study. The findings reveal that base interest rates partially moderate this relationship significantly for ODA and FDI and insignificantly for FPI and ED through the Interaction-Term Model test suggesting that monetary policy is vital in shaping impact

of FCIs to economic growth. The study's focus on central bank base interest rates as a moderating variable adds depth to the literature on monetary policy and foreign capital inflows emphasizing the need for balanced and forward-looking interest rate policies that support both price stability and investment. By integrating these insights, this study advances scholarly understanding on the complex parallels linking FCIs, monetary policy and EG offering a foundation for future research on these dynamics in other developing regions.

5.5 Areas for Further Studies

The findings of this study revealing that foreign capital inflows do not significantly influence economic growth in the EAC between 2009 and 2023 open several avenues for future research. One critical area is the exploration of contextual and institutional factors that may mediate linkage between FCIs and EG. For instance, future studies could investigate how governance quality, regulatory frameworks and absorptive capacity (e.g., human capital and infrastructure) influence the effectiveness of ODA, FDI, FPI and ED in driving growth. A comparative analysis across EAC member states such as Rwanda's successful use of ODA versus Tanzania's challenges with FDI in extractive industries could provide deeper insights into why FCI modes fail to translate into economic growth in some contexts but succeed in others.

Further, future research can examine the significance of regional integration initiatives like the East African Monetary Union in enhancing impact of FCIs by creating larger markets and reducing transaction costs. While this study highlights the negative and significant moderating influence of high interest rates, further research could explore how other monetary policy tools such as reserve requirements, exchange rate regimes, and macroprudential regulations influence capital flows and growth outcomes. Interaction between fiscal and monetary policy in attraction and management

of FCIs is an additional avenue that could be examined. For instance, how do tax incentives, public investment strategies and debt and risk management practices complement or counteract the effects of monetary policy on FCIs?

A promising area for future research is the role of unregulated decentralized finance mechanisms in shaping FCIs to economic growth. Future research should explore the emerging paradigm of Decentralized Finance (DeFi): a blockchain-based ecosystem of peer-to-peer financial protocols and services that operate without traditional central intermediaries like banks. Its significance in the African context lies in its potential to democratize access to capital, facilitate cross-border investments and lower transaction costs thereby addressing critical financial inclusion and infrastructure gaps that currently limit the efficacy of traditional foreign capital inflows.

Investigating how DeFi platforms could serve as alternative channels for foreign investment, remittances and targeted lending within the EAC presents a pioneering avenue to understand the next evolution of capital flows and their impact on regional economic growth. The rise of blockchain technology, cryptocurrencies and peer-to-peer lending platforms has transformed the global financial landscape enabling cross-border fund movements that bypass sovereign and/or traditional regulatory frameworks. Future studies could explore how these decentralized mechanisms are influencing both FCIs and economic growth not only within EAC but also other geographical region contexts. For instance, the use of cryptocurrency remittances in Kenya and Uganda has grown significantly offering a faster and cheaper alternative to traditional remittance channels.

However, lack of regulation and potential risks such as volatility and money laundering raises questions on the longer-term influence of unregulated decentralized finance towards economic stability and growth within sovereign entities. Investigating these dynamics could provide valuable insights for policymakers seeking to harness the benefits of decentralized finance while also mitigating risks. Addressing these areas may provide comprehensive understanding of mixes required to optimize the impact of FCIs on EG in developing regions.

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APPENDICES

Appendix 1: Data Collection Tool

Table 0.1: Data Collection Tool

Year	Country	Net FDI	Net FPI	Net ODA	External Debt	Interest Rates	GDP Per Capita

Appendix 2: Table 4.16: Research Response Rate

Table 0.2: Research Response Rate

Categories	Frequency	Percentage
Population	7	100%
Sampled Countries reached	4	57.14%
Excluded Countries	3	42.86%

Appendix 3: Table 4.17: Economic Growth (EG) Rates of EAC Sampled Countries

Table 0.3: Economic Growth Rates of EAC Sampled Countries

GDP Range %	Frequency	Percentage
0 - 3.99	7	15.91%
4 - 4.99	6	13.64%
5 - 5.99	11	25.00%
6 - 6.99	11	25.00%
7 - 7.99	3	6.82%
Above 8	6	13.64%
Total	**44**	**100%**

Source: World Development Indicator (WDI)

Appendix 4: Table 4.18: Official Development Assistance (ODA)

Table 0.4: Official Development Assistance

ODA ($ Million)	Frequency	Percentage
700 – 1099	6	14%
1100 – 1599	7	16%
1600 – 2099	11	25%
2100 – 2599	12	27%
2600 – 3099	5	11%
3100 – 3599	3	7%
Total	**44**	**100%**

Source: World Development Indicator (WDI)

Appendix 5: Table 4.19: Foreign Direct Investments (FDI)

Table 0.5: Foreign Direct Investments

FDI ($ Million)	Frequency	Percentage
100 – 350	12	27%
351 – 700	6	14%
701 – 1050	10	23%
1051 – 1400	10	23%
1401 – 1750	3	7%
Above 1750	3	7%
Total	**44**	**100%**

Source: World Development Indicator (WDI)

Appendix 6: Table 4.20: Foreign Portfolio Investments (FPI)

Table 0.6: Foreign Portfolio Investments

FPI ($ Million)	Frequency	Percentage
0 – 35	32	73%
36 – 70	3	7%
71 – 105	3	7%
106 – 140	2	5%
Above 175	4	9%
Total	**44**	**100%**

Source: World Development Indicator (WDI)

Appendix 7: Table 4.21: External Debt (ED)

Table 0.7: External Debt

ED ($ Million)	Frequency	Percentage
Below 1499	3	7%
1500 – 4999	9	20%
5000 – 9999	10	23%
10000 – 14999	10	23%
15000 – 19999	5	11%
Above 20000	7	16%
Total	**44**	**100%**

Source: World Development Indicator (WDI) 2024

Appendix 8: Table 4.22: Central Banks Base Interest Rates (CBBIR)

Table 0.8: Central Banks Base Interest Rates

CBBIR %	Frequency	Percentage
5 - 5.9	2	5%
6 - 6.9	5	11%
7 - 7.9	5	11%
8 - 8.9	10	23%
9 - 9.9	11	25%
Above 10	11	25%

Total	44	100%

Source: World Development Indicator (WDI) 2024

Appendix 9: GDP Data

Country	Year	GDP Rate %	GDPIS
Kenya	2009	3.3069	0.0504
Kenya	2010	8.0585	0.0454
Kenya	2011	5.1211	0.0381
Kenya	2012	4.5687	0.0579
Kenya	2013	3.7978	0.0693
Kenya	2014	5.0201	0.0597
Kenya	2015	4.9677	0.0405
Kenya	2016	4.2135	0.0563
Kenya	2017	3.8380	0.0679
Kenya	2018	5.6479	0.0313
Kenya	2019	5.1142	0.0782
Kenya	2020	0.2728	0.0587
Kenya	2021	7.5905	0.0574
Kenya	2022	4.8466	0.0426
Kenya	2023	5.4258	0.0340
Uganda	2009	6.8015	0.0616
Uganda	2010	5.6376	0.0315
Uganda	2011	9.3917	0.0413
Uganda	2012	3.8375	0.0679
Uganda	2013	3.5869	0.0777
Uganda	2014	5.1063	0.0684
Uganda	2015	5.1879	0.0372
Uganda	2016	4.7810	0.0637
Uganda	2017	3.1314	0.0734
Uganda	2018	6.3039	0.0552
Uganda	2019	6.4387	0.0241

Uganda	2020	2.9513	0.0357
Uganda	2021	3.5366	0.0800
Uganda	2022	4.5880	0.0475
Uganda	2023	5.2319	0.0765
Tanzania	2009	5.2691	0.0660
Tanzania	2010	6.3365	0.0249
Tanzania	2011	7.6722	0.0170
Tanzania	2012	4.5002	0.0494
Tanzania	2013	6.7816	0.0217
Tanzania	2014	6.7325	0.0221
Tanzania	2015	6.1606	0.0963
Tanzania	2016	6.8671	0.0712
Tanzania	2017	6.7623	0.0919
Tanzania	2018	5.4681	0.0534
Tanzania	2019	5.8000	0.0697
Tanzania	2020	1.9920	0.0352
Tanzania	2021	4.3214	0.0535
Tanzania	2022	4.5660	0.0880
Tanzania	2023	5.1881	0.0472
Rwanda	2009	6.2483	0.0456
Rwanda	2010	7.3347	0.0186
Rwanda	2011	7.9584	0.0558
Rwanda	2012	8.6415	0.0634
Rwanda	2013	4.7198	0.0449
Rwanda	2014	6.1672	0.0763
Rwanda	2015	8.8569	0.0727
Rwanda	2016	5.9707	0.0581
Rwanda	2017	3.9182	0.0651
Rwanda	2018	8.5165	0.0538
Rwanda	2019	9.4474	0.0312
Rwanda	2020	3.3737	0.0879

Rwanda	2021	10.8580	0.0728
Rwanda	2022	8.1577	0.0550
Rwanda	2023	8.2413	0.0847

Appendix 10: Official Development Assistance (ODA)

Country	Year	ODA (M $)	ODALIS
Kenya	2009	1903.3800	0.0022
Kenya	2010	1814.6500	0.0022
Kenya	2011	2599.5100	0.0021
Kenya	2012	2827.6399	0.0021
Kenya	2013	3450.9099	0.0021
Kenya	2014	2776.8101	0.0021
Kenya	2015	2779.4700	0.0021
Kenya	2016	2481.6001	0.0021
Kenya	2017	2770.6001	0.0021
Kenya	2018	2675.1799	0.0021
Kenya	2019	3442.1299	0.0021
Kenya	2020	4222.5898	0.0020
Kenya	2021	3176.9199	0.0021
Kenya	2022	2732.5701	0.0021
Kenya	2023	3582.7032	0.0021
Uganda	2009	1524.8800	0.0022
Uganda	2010	1835.4900	0.0022
Uganda	2011	1628.6100	0.0022
Uganda	2012	1728.9600	0.0022
Uganda	2013	1775.1700	0.0022
Uganda	2014	1695.5100	0.0022
Uganda	2015	1846.7200	0.0022
Uganda	2016	1999.5100	0.0022
Uganda	2017	2247.1101	0.0022

Uganda	2018	2089.0701	0.0022
Uganda	2019	2213.4399	0.0022
Uganda	2020	3277.5801	0.0021
Uganda	2021	2564.0601	0.0021
Uganda	2022	2146.6599	0.0022
Uganda	2023	1944.8729	0.0022
Tanzania	2009	2480.5801	0.0021
Tanzania	2010	3191.7400	0.0021
Tanzania	2011	2495.2800	0.0021
Tanzania	2012	2937.9299	0.0021
Tanzania	2013	3550.8401	0.0021
Tanzania	2014	2725.6899	0.0021
Tanzania	2015	2906.8301	0.0021
Tanzania	2016	2616.3401	0.0021
Tanzania	2017	2891.0701	0.0021
Tanzania	2018	2638.8501	0.0021
Tanzania	2019	2325.0801	0.0021
Tanzania	2020	2424.2500	0.0021
Tanzania	2021	2618.0500	0.0021
Tanzania	2022	2728.7200	0.0021
Tanzania	2023	2958.9710	0.0021
Rwanda	2009	887.7700	0.0024
Rwanda	2010	1119.7300	0.0023
Rwanda	2011	1300.5000	0.0023
Rwanda	2012	926.7100	0.0023
Rwanda	2013	1122.4500	0.0023
Rwanda	2014	1062.6801	0.0023
Rwanda	2015	1224.9200	0.0023
Rwanda	2016	1312.9500	0.0023
Rwanda	2017	1378.7300	0.0023
Rwanda	2018	1201.8300	0.0023

Rwanda	2019	1272.1000	0.0023
Rwanda	2020	1721.8300	0.0022
Rwanda	2021	1330.3199	0.0023
Rwanda	2022	1120.5500	0.0023
Rwanda	2023	1376.0575	0.0023

Appendix 11: Foreign Direct Investments (FDI)

Country	Year	FDI (M $)	FDILIS
Kenya	2009	116.2576	0.0029
Kenya	2010	178.0646	0.0028
Kenya	2011	1450.4748	0.0022
Kenya	2012	1380.1737	0.0023
Kenya	2013	1118.8250	0.0023
Kenya	2014	820.9376	0.0024
Kenya	2015	619.7245	0.0024
Kenya	2016	469.5333	0.0025
Kenya	2017	1346.0853	0.0023
Kenya	2018	767.7615	0.0024
Kenya	2019	469.9403	0.0025
Kenya	2020	426.3052	0.0025
Kenya	2021	463.3489	0.0025
Kenya	2022	393.5831	0.0026
Kenya	2023	1504.3428	0.0022
Uganda	2009	841.5708	0.0024
Uganda	2010	543.8727	0.0025
Uganda	2011	894.2939	0.0024
Uganda	2012	1205.3885	0.0023
Uganda	2013	1096.0000	0.0023
Uganda	2014	1058.5645	0.0023
Uganda	2015	737.6521	0.0024

Uganda	2016	625.7044	0.0024
Uganda	2017	802.7041	0.0024
Uganda	2018	1055.3534	0.0023
Uganda	2019	1303.0050	0.0023
Uganda	2020	1191.4854	0.0023
Uganda	2021	1648.2403	0.0022
Uganda	2022	2952.9417	0.0021
Uganda	2023	2886.0105	0.0021
Tanzania	2009	952.6300	0.0023
Tanzania	2010	1813.2000	0.0022
Tanzania	2011	1229.3610	0.0023
Tanzania	2012	1799.6461	0.0022
Tanzania	2013	2087.2613	0.0022
Tanzania	2014	1416.0881	0.0023
Tanzania	2015	1506.0249	0.0022
Tanzania	2016	864.0400	0.0024
Tanzania	2017	937.7000	0.0023
Tanzania	2018	971.5769	0.0023
Tanzania	2019	1217.2353	0.0023
Tanzania	2020	943.7653	0.0023
Tanzania	2021	1190.5074	0.0023
Tanzania	2022	1264.6680	0.0023
Tanzania	2023	1338.8203	0.0023
Rwanda	2009	118.6700	0.0029
Rwanda	2010	216.1926	0.0027
Rwanda	2011	112.1275	0.0029
Rwanda	2012	269.6156	0.0027
Rwanda	2013	233.7638	0.0027
Rwanda	2014	313.9972	0.0026

Rwanda	2015	162.0838	0.0028
Rwanda	2016	279.7473	0.0026
Rwanda	2017	274.0260	0.0026
Rwanda	2018	366.1923	0.0026
Rwanda	2019	263.1723	0.0027
Rwanda	2020	152.6141	0.0028
Rwanda	2021	211.8961	0.0027
Rwanda	2022	305.1019	0.0026
Rwanda	2023	459.1664	0.0025

Appendix 12: Foreign Portfolio Investments (FPI)

Country	Year	FPI (M $)	FPILIS
Kenya	2009	2.6368	0.0046
Kenya	2010	22.1059	0.0035
Kenya	2011	20.1228	0.0035
Kenya	2012	257.1170	0.0027
Kenya	2013	296.8201	0.0026
Kenya	2014	954.3388	0.0023
Kenya	2015	10.8081	0.0038
Kenya	2016	72.1672	0.0031
Kenya	2017	61.6675	0.0031
Kenya	2018	251.3084	0.0027
Kenya	2019	8.4456	0.0039
Kenya	2020	273.5396	0.0026
Kenya	2021	97.4539	0.0030
Kenya	2022	207.1619	0.0027
Kenya	2023	48.7507	0.0032
Uganda	2009	131.0614	0.0029
Uganda	2010	70.4929	0.0031
Uganda	2011	105.5131	0.0029
Uganda	2012	14.0679	0.0037
Uganda	2013	94.8495	0.0030
Uganda	2014	4.8447	0.0042
Uganda	2015	10.1013	0.0038
Uganda	2016	16.2792	0.0036
Uganda	2017	14.9340	0.0037
Uganda	2018	66.2018	0.0031
Uganda	2019	14.4591	0.0037
Uganda	2020	0.3065	0.0063

Uganda	2021	6.3877	0.0041
Uganda	2022	4.6560	0.0042
Uganda	2023	7.5639	0.0040
Tanzania	2009	3.0388	0.0045
Tanzania	2010	3.1907	0.0045
Tanzania	2011	3.3502	0.0044
Tanzania	2012	3.5178	0.0044
Tanzania	2013	3.5178	0.0044
Tanzania	2014	3.6936	0.0044
Tanzania	2015	3.8783	0.0043
Tanzania	2016	3.8783	0.0043
Tanzania	2017	3.8783	0.0043
Tanzania	2018	0.8827	0.0053
Tanzania	2019	5.5000	0.0042
Tanzania	2020	5.5000	0.0042
Tanzania	2021	5.1901	0.0042
Tanzania	2022	5.5000	0.0042
Tanzania	2023	6.9803	0.0040
Rwanda	2009	6.5099	0.0041
Rwanda	2010	7.5448	0.0040
Rwanda	2011	87.5554	0.0030
Rwanda	2012	5.9356	0.0041
Rwanda	2013	1.7030	0.0049
Rwanda	2014	1.3586	0.0050
Rwanda	2015	2.5418	0.0046
Rwanda	2016	3.0000	0.0045
Rwanda	2017	0.3095	0.0063
Rwanda	2018	5.7758	0.0041
Rwanda	2019	2.8879	0.0045

Rwanda	2020	1.0082	0.0052
Rwanda	2021	4.0988	0.0043
Rwanda	2022	0.7795	0.0054
Rwanda	2023	0.8574	0.0054

Appendix 13: External Debt (ED)

Country	Year	EDS (1000 M$)	EDLIS
Kenya	2009	7	0.0013
Kenya	2010	7	0.0013
Kenya	2011	8	0.0013
Kenya	2012	9	0.0013
Kenya	2013	11	0.0013
Kenya	2014	14	0.0013
Kenya	2015	16	0.0012
Kenya	2016	17	0.0012
Kenya	2017	22	0.0012
Kenya	2018	25	0.0012
Kenya	2019	28	0.0012
Kenya	2020	30	0.0012
Kenya	2021	33	0.0012
Kenya	2022	33	0.0012
Kenya	2023	43	0.0012
Uganda	2009	3	0.0021
Uganda	2010	3	0.0021
Uganda	2011	3	0.0021
Uganda	2012	4	0.0021
Uganda	2013	9	0.0019
Uganda	2014	9	0.0019
Uganda	2015	10	0.0019
Uganda	2016	10	0.0019

Uganda	2017	12	0.0019
Uganda	2018	12	0.0019
Uganda	2019	14	0.0018
Uganda	2020	17	0.0018
Uganda	2021	19	0.0018
Uganda	2022	19	0.0018
Uganda	2023	25	0.0017
Tanzania	2009	8	0.0019
Tanzania	2010	9	0.0019
Tanzania	2011	10	0.0019
Tanzania	2012	12	0.0019
Tanzania	2013	14	0.0018
Tanzania	2014	16	0.0018
Tanzania	2015	18	0.0018
Tanzania	2016	19	0.0018
Tanzania	2017	21	0.0018
Tanzania	2018	22	0.0018
Tanzania	2019	24	0.0017
Tanzania	2020	26	0.0017
Tanzania	2021	29	0.0017
Tanzania	2022	30	0.0017
Tanzania	2023	30	0.0017
Rwanda	2009	1	0.0023
Rwanda	2010	1	0.0023
Rwanda	2011	1	0.0022
Rwanda	2012	2	0.0022
Rwanda	2013	2	0.0022
Rwanda	2014	3	0.0021
Rwanda	2015	3	0.0021

Rwanda	2016	4	0.0020
Rwanda	2017	5	0.0020
Rwanda	2018	6	0.0020
Rwanda	2019	7	0.0020
Rwanda	2020	8	0.0019
Rwanda	2021	9	0.0019
Rwanda	2022	10	0.0019
Rwanda	2023	11	0.0019

Appendix 14: Central Banks Base Interest Rates (CBBIR)

Country	Year	CBBIR
Kenya	2009	10.0960
Kenya	2010	12.5270
Kenya	2011	4.5262
Kenya	2012	9.3135
Kenya	2013	9.2939
Kenya	2014	8.2491
Kenya	2015	6.2688
Kenya	2016	10.1181
Kenya	2017	5.6567
Kenya	2018	8.4880
Kenya	2019	7.8311
Kenya	2020	6.7146
Kenya	2021	7.4276
Kenya	2022	5.9684
Kenya	2023	6.5465
Uganda	2009	12.7434
Uganda	2010	13.7612
Uganda	2011	11.3735

Uganda	2012	21.4881
Uganda	2013	19.0146
Uganda	2014	15.6774
Uganda	2015	16.5547
Uganda	2016	18.2334
Uganda	2017	15.8908
Uganda	2018	14.7479
Uganda	2019	15.4654
Uganda	2020	15.9855
Uganda	2021	16.2939
Uganda	2022	17.5365
Uganda	2023	15.6476
Tanzania	2009	5.4922
Tanzania	2010	4.6747
Tanzania	2011	2.4643
Tanzania	2012	4.5914
Tanzania	2013	5.6486
Tanzania	2014	9.6557
Tanzania	2015	7.9129
Tanzania	2016	7.8963
Tanzania	2017	14.7470
Tanzania	2018	13.9486
Tanzania	2019	14.3629
Tanzania	2020	9.6375
Tanzania	2021	10.7587
Tanzania	2022	9.8476
Tanzania	2023	9.7563
Rwanda	2009	8.9369
Rwanda	2010	13.3870

Rwanda	2011	8.8403
Rwanda	2012	11.4386
Rwanda	2013	14.2463
Rwanda	2014	11.9608
Rwanda	2015	16.7660
Rwanda	2016	11.6743
Rwanda	2017	8.3284
Rwanda	2018	17.6565
Rwanda	2019	13.7174
Rwanda	2020	9.0273
Rwanda	2021	12.9483
Rwanda	2022	5.4059
Rwanda	2023	5.3822

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