



An econometric analysis of the
relationship between economic
globalisation and public debt in South
Africa

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DECLARATION

I, Moitshepi Moeng, declare that

An econometric analysis of the relationship between economic globalisation and public debt in South Africa

is my own work and that all sources that have been used have been fully acknowledged and indicated by means of the appropriate referencing guidelines set out by the North-West University. The dissertation has not, in part or whole, been submitted to any other higher education institution for examination.

M.P. MOENG

Signature

26/11/2024

Date

DEDICATION

To my beloved mother, Lydia Moeng, whose steadfast love and support have been my guiding light, and to my niece and nephew, Lebone and Kano, may you always remember that it is never too early or too late to reach for the stars. I hope this inspires you to always dream big and chase those dreams fearlessly.

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ABSTRACT

In recent decades, globalisation has reshaped economic landscapes worldwide, increasing the interconnectedness of markets and intensifying cross-border trade and financial flows. Emerging economies, such as those in sub-Saharan Africa, face unique challenges in managing the consequences of economic integration as they navigate the risks and opportunities that come with increased exposure to global trade and capital markets. For South Africa, one of the largest economies on the African continent, globalisation presents a double-edged sword. While trade and financial openness can spur economic growth and development, these processes also complicate public debt management. Amid rising debt levels and fiscal constraints, understanding how various dimensions of globalisation, specifically trade and financial integration, affect public debt has become essential for informing policy and ensuring economic stability. This complexity has made public debt management an urgent priority in South Africa.

Given these rising concerns, South Africa's growing public debt has raised apprehensions about the country's fiscal health and long-term economic stability. As the government seeks to address structural budget deficits and pressing socio-economic demands, it faces the added complexity of navigating an increasingly globalised economy. Although globalisation can foster growth, it also heightens exposure to external financial pressures, potentially exacerbating public debt. While extensive research exists on globalisation's effects on economies worldwide, few studies examine its distinct impact on South Africa's public debt. Furthermore, much of the existing literature has relied on broad proxies, such as foreign direct investment (FDI) and trade openness, which only partially capture the complexities of globalisation. This study seeks to address this gap using the KOF Globalisation Index, a more comprehensive measure differentiating between *de facto* (actual flows) and *de jure* (policy measures) globalisation. The research aims to provide a clearer picture of how specific facets of globalisation affect South Africa's debt burden.

In light of the above discussion, the primary objective of this study was to examine the relationship between economic globalisation and public debt in South Africa. To achieve this objective, the study utilised secondary annual time-series data collected from the South African Reserve Bank (SARB), the KOF Swiss Economic Institute, and the World Bank Development Indicators. Covering the period from 1980 to 2022, this dataset provided 43 annual observations, carefully chosen based on data availability and relevance. This timeframe captures the critical phase of South Africa's integration into the global economy, coinciding with the lifting of Apartheid-era sanctions. For data analysis, the study employed econometric techniques, specifically the autoregressive distributed lag (ARDL) model and the error correction model (ECM), to accurately investigate both short- and long-run dynamics. These models allowed for a robust assessment of globalisation's impact on public debt within the South African context.

The study's findings revealed that economic globalisation has distinct effects on South Africa's public debt, with notable differences between trade and financial globalisation and between *de jure* and *de facto* aspects. In the short-run, trade globalisation is associated with a reduction in public debt, while financial globalisation exerts a positive and significant impact, indicating a rise in debt levels. Over the long term, *de jure* financial globalisation, driven by policy-based financial openness, is linked to a sustained increase in public debt. This suggested that financial integration may place upward pressure on debt levels. Conversely, trade globalisation, particularly in its *de facto* form, is associated with a reduction in public debt over time, indicating its role as a stabilising factor.

Therefore, based on the discussed empirical findings, the study recommended promoting and diversifying trade globalisation by expanding export markets through trade agreements and regional partnerships, as well as supporting small and medium enterprises (SMEs) to participate in international trade. Furthermore, to mitigate the effects of financial globalisation, the study recommended carefully managing capital flows and external debt in addition to reforming financial legislation to balance integration and debt management in South Africa. The study concluded that while globalisation can facilitate economic growth, effective debt management and policy adaptation are essential for minimising potential vulnerabilities in an increasingly interconnected global economy.

Keywords: *economic globalisation, financial globalisation, trade globalisation, public debt, South Africa*

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LIST OF ACRONYMS

ADB:	African Development Bank
ADF:	Augmented Dickey–Fuller
AEC:	ASEAN Economic Community
AfCFTA:	African Continental Free Trade Area
AGOA:	African Growth and Opportunity Act
AIC:	Akaike information criterion
ARDL:	Autoregressive-Distributed Lag
ASEAN:	Association of Southeast Asian Nations
ATK/FP:	A.T. Kearney/Foreign Policy Globalisation Index
AU:	African Union
BEE:	Black Economic Empowerment
BIS:	Bank for International Settlements
BLUE:	Best linear unbiased estimators
BOP:	Balance of Payments
BRI:	Belt and Road Initiative
BRICS:	Brazil, Russia, India, China, and South Africa
CAASA:	Comprehensive Air Services Agreement
CABRI:	Collaborative Africa Budget Reform Initiative
CFI:	Corporate Finance Institute
COMESA:	Common Market for Eastern and Southern Africa

CPI:	Consumer Price Index
CUSUM:	Cumulative sum of recursive residuals
CUSUMQ:	Cumulative sum of squared residuals
DOLS:	Dynamic Ordinary Least Squares
DSCR:	Debt service coverage ratio
DSF:	Debt Sustainability Framework
DSR:	Debt service ratio
ECI:	Economic Complexity Index
ECM:	Error correction model
ECT:	Error correction term
EIA:	Energy Information Administration
EPA:	Economic Partnership Agreement
ETF:	Exchange traded funds
EU:	European Union
FDI:	Foreign Direct Investment
FIO:	Fraser Institute Organisation
FMOLS:	Fully Modified Ordinary Least Squares
FPE:	Final prediction error
FSCA:	Financial Sector Conduct Authority
GDP:	Gross Domestic Product
GEAR:	Growth, Employment, and Redistribution
GFC:	Global Financial Crisis

GFCF:	Gross Fixed Capital Formation
GMM:	Generalised Method of Moments
GND:	Gross National Debt
HDI:	Human Development Index
HHI:	Herfindahl-Hirschmann Index
HIC:	High-income countries
HIPC:	Heavily indebted poor countries
HPC:	Heavily indebted poor countries
HQ:	Hannan-Quinn
IDA:	International Development Association
IDZ:	Industrial development zones
ILO:	International Labour Organization
IMF:	International Monetary Fund
ITA:	International Trade Administration
JB:	Jacque-Bera
JSE:	Johannesburg Stock Exchange
KOF:	Konjunkturforschungsstelle
KOFGI:	KOF globalisation index
KPSS:	Kwiatkowski–Phillips–Schmidt–Shin
LDC:	Least developed countries
LIC:	Low-income countries
LR:	Likelihood ratio

MIC:	Middle-income countries
MSME:	Micro, Small, and Medium Enterprise
MTDS:	Medium-Term Debt Management Strategy
MWALD:	Modified Wald test
NATO:	North Atlantic Treaty Organization
NBER:	National Bureau of Economic Research
NGI:	New Globalisation Index
NGO:	Non-Governmental Organisations
NGS:	National Geographic Society
NRGI:	Natural Resource Governance Institute
NWU:	North-West University
OECD:	Observatory of Economic Complexity
OECD:	Organization for Economic Cooperation and Development
OLS:	Ordinary least square
PA:	Prudential Authority
PIIE:	Peterson Institute for International Economics
PP:	Phillips-Perron
PwC:	PricewaterhouseCoopers
RBA:	Reserve Bank of Australia
RCEP:	Regional Comprehensive Economic Partnership
RDP:	Reconstruction and Development Programme
RSA:	Republic of South Africa

SACU:	Southern African Customs Union
SADC:	Southern African Development Community
SAHO:	South Africa History Online
SAIIA:	South African Institute of International Affairs
SAMI:	South African Market Insights
SARB:	South African Reserve Bank
SARS:	South African Revenue Service
SEAISI:	South-East Asia Iron and Steel Institute
SIC:	Schwarz information criterion
SOE:	State-Owned Enterprise
SSA:	Sub-Saharan Africa
STEM:	Science, technology, engineering, and mathematics
TSX:	Toronto Stock Exchange
TSXV:	TSX Venture Exchange
UN:	United Nations
UNCTAD:	United Nations Conference on Trade and Development
UNDP:	United Nations Development Programme
UNESCO:	United Nations Educational, Scientific and Cultural Organization
U.S.A:	United States of America
USD:	United States Dollar
VAR:	Vector autoregression
VECM:	Vector Error Correction Model

WDI:	World Development Indicators
WEF:	World Economic Forum
WIPO:	World Intellectual Property Organization
WTO:	World Trade Organization
ZAR:	South African Rand

CHAPTER 1

INTRODUCTION AND BACKGROUND OF THE STUDY

1.1 INTRODUCTION

Globalisation has gradually altered the way individuals interact and how economies function (Buchanan, 2012:1). Generally, globalisation often describes the merging of economies, highlighted by the open exchange of trade and capital, along with simplified access to foreign resources and labour markets (Lutkevich, 2022). There are mainly three dimensions that can efficiently distinguish this globalisation phenomenon (Gygli, Haelg, Potrafke & Sturm, 2019:544); economic, social, and political globalisation dimensions. The economic dimension speaks more to the global integration of financial capital, the flow of investment, trade, specialisation, and labour division (Gygli *et al.* 2019:549). From a simplified perspective of economic globalisation where trade mostly dominates, a distinction between trade and financial integration is rarely made. Yet, financial flows also form an integral part of economic globalisation, particularly since it allows for the free movement of capital across international borders (Tily, 2017).

Trade and financial globalisation are profoundly linked: international trade initiates and depends on financial linkages, and they have jointly spread technology and intensified competition (BIS, 2017). As such, trade globalisation, which is primarily caused by reduced trade barriers, technology, and transportation, is often described as the interconnectedness of the global economies through international trade (More, 2019). Meanwhile, financial globalisation is the integration of financial markets across national borders (Tily, 2017). Making a distinction between the two is especially crucial for this study since they affect the global society and economy differently and impact policy implementation- policies that are beneficial for one may not be beneficial for the other. Furthermore, the second dimension which is social globalisation revolves around the spread and sharing of cultures, values, ideas, and information (Drew, 2022) while the third dimension, which is political globalisation, refers to the interaction between government systems, and intervention in democracy issues, human rights, and non-governmental organisations.

These dimensions of globalisation play a significant role in shaping the economic landscape of nations worldwide. Through these dimensions, globalisation influences macroeconomic features such as tax policies, public debt, inequalities, economic growth, and development, among others, in both developed and developing countries (Bataka, 2021:2). This study seeks to analyse the effect of economic globalisation and its main dimensions, trade, and financial globalisation, on public debt in South Africa. In relation to economic globalisation, the case of South Africa has proven to be a bit more complex and unique. Its controversial past and legacy of Apartheid has shown an idiosyncratic internally driven

economic integration, as opposed to other countries that experienced an externally driven type of integration through structural adjustment programmes (de Jongh, 2019:67). The 1994 democratic elections coincided with a significant change in the country's policies in achieving a more open trade regime guided by trade liberalisation programmes (Edwards, 2021:10). The South African government then implemented policies that reinforced integration with the global economy (Ijeoma, 2008:100). Here, globalisation portrayed growing interdependence caused by an increase in international trade of products and services, technologies, the flow of information, investment, and people (Salahuddin, Vink, Ralph & Gow, 2020:617). Naturally, trade and financial globalisation have left the small open economy of South Africa susceptible to external shocks which have been both beneficial and detrimental.

Economic globalisation benefits have come at a cost having created opportunities for harmful imported goods to enter the country, consequently affecting the environment and development of industries (More, 2019). This, along with unrestricted imports, cheaper availability, and foreign competition has prompted bailouts and compensation from the government (Bergh, 2021:141). Moreover, trade globalisation has also created a dependence on foreign goods which can be risky in times of economic difficulties or wars (More, 2019). The common belief that no economy can prosper without global trade makes these risks and effects inevitable. Like South Africa, most underdeveloped and developing countries whose exports are well dominated by commodities and imported intermediary and finished goods, inadvertently depend on developed countries for economic development which may result in economic exploitation and loss for the domestic economy (More, 2019). Unfortunately, due to the lack of industries and necessary equipment for domestic manufacturing, global inequality remains high, and the country misses out on opportunities for job creation. This creates a burden on the government's budget, as they are responsible for providing social welfare to citizens who are unable to secure employment.

Financially, integration means that there is free movement of capital across borders not only in terms of cash, but also bank credit, foreign direct investment, and investments (Arif-Ur-Rahman & Inaba, 2020:3). Financial integration, while supporting trade, can worsen fiscal imbalances. An incompetent government may accumulate debt, issue treasury bonds to raise revenue, and face higher interest payments. This can alarm foreign investors, leading to capital withdrawal (IvyPanda, 2021). Furthermore, financial integration is also generally considered a plausible channel through which shocks are transferred across countries (Tang & Yao, 2022:1). The financial crisis is a case in point, where stock market downturns caused significant spillover effects in other economies in the international financial realm. Therefore, while financial globalisation might simplify access to external revenue through debt, with conditions of course, governments might also have to resort to borrowing even more to service and repay the current debt should the revenue be utilised for unproductive purposes like current spending on wages and salaries and spending on social programmes.

Global integration impacts a country's socio-economic environment and government budget, particularly in developing economies where it exacerbates unemployment, poverty, and inequality, straining already narrow fiscal budgets and social policies (Awad, 2019:263; Broll, Kemnitz & Mukherjee, 2019:11). South Africa faces a challenging socio-economic landscape, with unemployment at 33.5 per cent in Q2 2024 (Stats SA, 2024) and a Gini index of 63 per cent, making it the world's most unequal country (World Bank, 2022). Weak economic growth, poor SOE performance, low tax revenue, and soaring debt, peaking at 72.3 per cent of GDP in 2023 (Statista, 2023), have placed public finances under strain, with social spending and debt servicing consuming the largest share of the budget (National Treasury, 2022). The compensation hypothesis suggests globalisation increases economic competition, heightening demand for social policies, while the efficiency hypothesis argues that production mobility pressures governments to lower corporate taxes and deregulate labour markets (de Jongh, 2020:70). Additionally, economic integration likely influences South Africa's fiscal operations, spending, and debt accumulation, with trade liberalisation removing international trade taxes and potentially widening the fiscal gap (CFI, 2024). However, FDI can provide crucial investment, fund development needs, and alleviate external debt pressures (Ostadi & Ashja, 2014:19).

The public debt of a country can be significantly influenced by economic globalisation which can be driven by intensified competition, increased trade, international financial crises, and exchange rate fluctuations among others. However, the impact of economic globalisation on public debt can vary depending on a country's level of integration into the global economy, its scale and degree of dependence on foreign investment and trade, and its ability to withstand economic downturns and manage fluctuating exchange rates. While economic globalisation can have both positive and negative effects on a country's public debt, its ultimate impact is largely determined by these factors, to which this study aims to investigate in the context of South Africa.

1.2 PROBLEM STATEMENT

Looking at this from the perspective of South Africa, the small open economy of the country has been distinguished by an increasing level of trade and financial globalisation since the rise of democracy, while statistics also show that public debt has subsequently also been on a rise (Edwards, 2021:10). Considered the most diversified and advanced country in Africa, South African imports are dominated by oil and manufactured goods, exports by commodities, with a trade openness ratio that amounts to 56.2 per cent of GDP since 2021 (World Bank, 2023). In 2023, the Current account showed a deficit of 1.6 per cent of the South Africa's GDP due to imports exceeding exports (SARB, 2024). This implied that the country made less money from exports than it spent on imports depicting a higher level of dependence on imports. That being said, the rules of economic accounting state that the government should find a way to make up for the shortfall, which is usually through the accumulation of more debt (Hayes, 2022).

Furthermore, SA is also a member of trade organisations and has made several trade agreements with other countries. While these memberships and agreements afford the country the necessary access to key commodities, foreign capital, and investment, it also affects the national business environment and policies implemented in the country. The established trade agreements and trade tax removal often mean several consequences, including less government revenue and higher prices for consumers (CFI, 2024). For example, a trade agreement amongst the EU and Southern African Development Community (SADC) permits the entry of multiple European commodities at low rates or duty-free into SA (International Trade Administration, 2021).

On the financial side of the discussion, integration has promoted access to international loans from international investors and financial institutions such as the World Bank and National Development Bank during economic downturns. However, countries with financial openness should also be well equipped to deal with exchange rate fluctuations as this could affect loan repayments from external borrowers and trigger defaults (Asonuma, 2016:8). Over the last five financial years, South Africa's national debt in relation to GDP has increased from 68.93 per cent in 2020 to almost 75 per cent in 2024, while debt service costs also continue increasing due to the fluctuating exchange rate (Statista, 2025). The South African government participates in foreign markets, which improve international competitiveness, and foster economic growth and development. The country's FDI has fluctuated over time, influenced by both international and local factors. The FDI decreased by almost 181 million USD in the fourth quarter of 2024, compared to the compared with an increase of 894 million USD in the previous quarter (CEIC, 2025).

Although this increasing FDI might offer a glimpse of hope for the country, it does not always guarantee job creation particularly if there is a shortage of required skills which could lead to the disappearance of medium and small businesses and an increase in unemployment (Bataka, 2021:8). In this instance, government debt may increase to ensure social protection. Corruption and political instability may also lead to capital flight which slows down growth and reduces investments. Furthermore, South Africa also boasts a handful of laws on foreign investment some of which includes The Protection of Investment Act 2015 which protects investors and their investments and The Competition Act which investigates, controls, and evaluates mergers, abuse of dominant position, and restrictive practices (CEIC, 2023). Although these policies may not affect public debt first-hand, they are the main guides of investment flows, thus making them an important aspect of the study as well.

The government acknowledges that it has failed to close the sizable fiscal gap between expenditure and revenue that surfaced during the 2008 financial crisis (National Treasury, 2022:23). Following that, there has been a mismatch between revenue growth and expenditure leading to primary deficits and a sevenfold increase in public debt (National Treasury, 2022:23). The statistical trends on the South African public debt show that in 1994, the country experienced a significant rise in public debt,

increasing from 32 percent of the GDP in 1990 to an average of 44.8 percent of the GDP (World Bank, 2022), which coincided with the end of apartheid sanctions and the start of the integration. From 2000 to 2019, South Africa's debt-to-GDP ratio averaged 41.45 percent, with a moderate 28 percent in 2008 and a high of 62 per cent in 2019 (National Treasury, 2021). According to the '*2020-21 Debt Management Report*', the gross debt stock of the country is expected to increase to R5.43 trillion in 2024/25, despite a large percentage of the budget being allocated to debt repayments. On average, it will require 20 cents of every rand acquired in revenue to service the public debt (National Treasury, 2022). These costs continue to consume a large share of revenue and GDP, while the interest payments continue to crowd out spending on important public services such as education and healthcare.

This proves that public debt is clearly a far-reaching and detrimental issue in South Africa where all internal and external causes thereof should be identified and dealt with adequately. Ultimately, solving the public debt crisis in the country could also be a way to free up revenue that could be utilised in other productive parts of the economy, towards social welfare and improve ratings to attract both national and foreign investment (National Treasury, 2022). The South African government has taken strides to lower the risks of external shocks, promoting fiscal sustainability and economic growth. Amongst those strategies, are the implementation of fiscal consolidation programs, debt management strategies, monetary policy, and international cooperation.

On that account, the level of integration and continuously rising debt levels of South Africa then prompts an inquiry into the dynamics between globalisation and public debt in the country. There is a shortage of literature that explains the dynamics between globalisation and a country's public debt extensively since existing studies have either focused on only one sub-dimension of globalisation (Bataka 2021:1) or used proxies such as FDI and trade openness as a measurement for globalisation (Pyeman, Noor, Mohamad, & Yahya, 2016:452; Kim, Suen, Lin, & Hsieh, 2018:2799; Çolak & Özkaya, 2020:896) which could not paint a holistic picture of globalisation processes. The KOF globalisation indices (KOF Swiss Economic Institute, 2022) which are regarded as the most comprehensive measures, offer a more holistic measurement of globalisation and assists in adequately distinguishing between trade and financial globalisation and their effects on public debt.

The KOF globalisation indices (KOF Swiss Economic Institute, 2022) allow scholars to achieve the above mentioned. The indices are regarded as the most comprehensive measures and offer a holistic measurement of globalisation. Different research studies have also reached different conclusions with some finding a positive effect (Combes & Sedik, 2006:1412; Zafar & Butt, 2008:13; Sinha *et al.*, 2011:15; Azzimonti *et al.*, 2014:2298; Kim *et al.*, 2018:2799; Çolak & Özkaya, 2020:896) some a negative one or no relationship at all (Kim, 2003:839; Swamy, 2015:10; Pyeman *et al.*, 2016:452), the contradictory results of which could be explained by the different samples, methodologies, and measurements for economic globalisation and public debt that were employed.

1.3 RESEARCH QUESTIONS

In light of the limitations mentioned above in the problem statement and the debt issue that South Africa is facing, this study aims to enhance the understanding of the link between economic globalisation, specifically trade and financial globalisation, and public debt in South Africa. This is an important area of research as there is a lack of comprehensive knowledge on this topic. South Africa has a mountainous amount of debt which will continue to be a cost to the economy, now and in the future. Therefore, this study will provide an econometric analysis of the relationship between economic globalisation and public debt in South Africa using the disaggregated KOF globalisation indexes, which combine different variables that represent different aspects of globalisation for more robust results and insight into the current problem at hand.

Against this backdrop, the main questions this study seeks to address are:

- How has South Africa's economic integration influenced its ability to manage public debt?
- What are the differences in the short-run and long-run effects of economic, trade, and financial globalisation on public debt in South Africa?
- How does economic globalisation contribute to changes in public debt levels in South Africa?
- What distinguishes the impact of *de facto* and *de jure* economic globalisation on public debt in South Africa?

These questions aim to critically examine the relationship between South Africa's economic integration and its ability to manage public debt by identifying key influencing factors. They seek to differentiate the short- and long-run effects of economic, trade, and financial globalisation on public debt, providing a nuanced understanding of their dynamic impact. Additionally, they explore the causal mechanisms through which economic globalisation influences debt accumulation, determining whether it drives or mitigates fiscal challenges. Furthermore, they assess whether *de facto* (outcome-based) or *de jure* (policy-driven) economic globalisation exerts a stronger influence on public debt, offering insights into the effectiveness of globalisation-related policies.

1.4 RESEARCH OBJECTIVES

1.3.1 Primary objective

The primary objective of the study was to examine the relationship between public debt and economic globalisation in South Africa.

1.3.2 Theoretical objectives

To facilitate the achievement of the primary objective, the following theoretical objectives have been formulated:

- To define and conceptualise the main components of economic globalisation and public debt.
- To provide a review on the components of economic globalisation and its links with public debt.
- To review the theories relating to public debt and its interlinkages with the financial and trade dimensions of economic globalisation.
- To empirically review the nature of economic globalisation and its sub-dimensions, and its link with public debt levels within various regions of the world including, developed, developing regions, sub-Saharan Africa, and South Africa.
- To review empirical studies and trends to conceptualise the nature of economic globalisation and public debt levels in South Africa.

1.3.3 Empirical objectives

To facilitate the achievement of the primary objective, the empirical portion of the study consists of the following objectives:

- To determine both the short-run and long-run effects of economic globalisation on public debt levels in South Africa.
- To compare the effects of financial globalisation and trade globalisation on public debt levels in South Africa and the possible differences between the *de jure* and *de facto* aspects of these processes.
- To determine and analyse any causal effects between economic globalisation, trade globalisation, financial globalisation and public debt levels in South Africa.
- Formulate recommendations to better manage public debt levels pertaining to the influence of South Africa's economic globalisation, trade globalisation, and financial globalisation.

1.4 RESEARCH DESIGN AND METHODOLOGY

This study will follow a functional paradigm using a quantitative design with time-series analysis. This is because research requires one to recognise the sort of evidence that is needed to answer the research question adequately and sensibly (Akhtar, 2016), hence the use of a quantitative design. Additionally, since the study will require the testing of different hypotheses and statistical analyses, a quantitative

design is indeed the best fit for this study. The study will also consist of a literature review and an empirical study to clarify the research design, and the methodology used.

1.4.1 Literature review

The literature review comprises both theoretical and empirical literature which focuses on economic globalisation, its sub-dimensions, and public debt and assists with explaining any relationships that exist. To ensure quality and reliability, the study will be anchored by secondary sources such as academic articles, books, journals, government reports, theses, and internet sources. This will build a steady foundation for the study and how it fits within a broader field of study regarding the economics of globalisation.

1.4.2 Empirical study

The empirical part of this research study comprises the following methodology aspects:

1.4.2.1 Model

The model employed in this study is based on the Hecksher-Ohlin (H-O) framework. This is a theory of competitive advantage in international trade where the international differences in land, physical capital, skills, and work endowments result in different comparative advantages (Britannica,2023). The H-O model explains the imbalance of resources across the world where some countries have specific resources in abundance, while other countries have other resources in abundance (Gordon, 2023). This shows that in an open economy, differences in factor endowments and various economic flows would ultimately cause differences in the impact of economic integration on a country's macroeconomic environment in terms of output, GDP, inflation, and debt (Ukpere, 2011:6081). For South Africa in this instance resource endowments are very important but there are other factors that influence the type of flows. For instance, if the country specialises in the export of labour-intensive goods, demand for labour might increase, leading to higher wages and an increase in the revenue collected in taxes, which could potentially help in lowering public debt if the government uses the revenue as such.

Based on the above-mentioned and to attain the stipulated empirical objectives of the study, the following models will be employed:

$$LDEBT = f(LECG, LCPI, LGEP).....(1.1)$$

$$LDEBT = f(LTRG, LFNG, LCPI, LGEP)..... (1.2)$$

Here, LDEBT represents the natural logarithm of public debt in total Rand value, LCPI for the natural logarithm of CPI inflation, and LGEP for the natural logarithm of real government expenditure. LECG

is the natural logarithm of economic globalisation, LTRG is that of trade globalisation and LFNG represents financial globalisation. LTRG and LFNG, make up the disaggregated economic globalisation dimensions and will be measured using both the *de jure* and *de facto* measures. Basically, these two models will help in distinguishing between the possible different effects on public debt. Although it is not the primary objective of the study to understand spending and inflation dynamics within this context, CPI Inflation and real government spending will be used as control variables to ensure that the results are robust and further improve the validity of the study. These variables were chosen based on their use in similar studies (Bataka, 2019:06; Çolak & Özkaya, 2020:890) as well as their established theoretical importance in affecting public debt (Zafar & Butt, 2008:4; Sener, *et al.* 2016:625).

1.4.2.2 Data sources

To fulfil the empirical objectives, this study analyses secondary time series data from 1980 to 2022 (43 observations). To justify the period used, the data chosen was based on data availability and allowed for more accurate results considering that the integration process in South Africa only began in the 1990s when the apartheid sanctions were being lifted, and the country's economy became more globalised. The variables under consideration include the South African government debt as a percentage of GDP (which offers information on the sustainability of the country's public finances), inflation (measured by using the consumer price index), government expenditure (measured by real spending in rand), and the key explanatory variables; economic globalisation with its two main dimensions, trade and financial globalisation, which will be measured utilising the KOF economic globalisation indexes that consist of the *de facto* and *de jure* sub-indices.

The KOF indexes include a big panel dataset for 203 territories and countries from 1970 to 2021 and include 43 individual variables aggregated to a *de jure* and *de facto* index including one total index, three dimensions (economic, social, and political), and five sub-dimensions (financial, trade interpersonal, cultural globalisation and informational) (Gygli *et al.* 2019). The *de facto* economic globalisation sub-index consists of financial indicators (such as asset and liabilities stock of FDIs, portfolio investment as a percentage of GDP, total capital income, cross-border labour, and primary income) and trade flows as a percentage of GDP (Bataka, 2019:141). Basically, *de facto* measures actual international activities and flows, while *de jure* refers to the measures and policies that enable and facilitate these flows and activities (Gygli *et al.* 2019). This provides a holistic analysis that will show not only how trade and financial volumes affect public debt, but also how the policies that foster these flows and activities also affect public debt. Inflation and government spending will only be used as control variables to ensure the robustness of the results. All the variables will be transformed into their logarithms. The data will be collected from South African Reserve Bank (SARB), World Bank Development Indicators (World Bank, 2022) and KOF Swiss Economic Institute (KOF Swiss

Economic Institute, 2022) and the econometric software, EViews, will also be employed for the econometric analysis.

1.4.2.3 Econometric methods of analysis

This study will be based on secondary time series data. The empirical objectives will be attained by using several statistical approaches and econometric models. These approaches will then be employed to determine the long and short-run relationships and causal relationships between economic globalisation and government debt in South Africa. In this study, different types of unit root tests, i.e. ADF, KPSS, Zivot, and Andrews will be utilised. These will be included to ensure that the model that is chosen in the end for analysis is accurate with the latter best used to provide robust results in the presence of structural breaks.

These unit root tests will also help in determining the order of integration and the stationarity level of variables. If there is evidence of stationarity in all the variables at the first difference, the Vector autoregressive (VAR) model will be used to express any linear interdependence among multiple time series. The Johansen co-integration test is required to determine the long-run relationship of variables. The Autoregressive-Distributed Lag (ARDL) model will be the appropriate model to use if the stationarity of variables consists of $I(0)$ and $I(1)$. The Granger-causality test will help when determining the causal relationship between variables in the short-run. Before the models will be specified, all variables will be transformed to their natural logarithm. This will be done to remove or reduce the skewness in our data and make it as “normal” as possible so that the statistical analysis results become more valid (Htoon, 2020).

1.5 ETHICAL CONSIDERATIONS

This study conformed to the ethical guidelines and principles of the North-West University (NWU, 2016:15). This is a quantitative-styled study which will conduct data analysis on secondary data that is credible and available to the public. Nonetheless, there shall be protection for any confidentiality of the information that is obtained by virtue of the study. To guarantee the integrity and objectivity of the study and adhere to the laws of society, professionalism, the environment and the specific field of the subject, there will be strict compliance with the ethical standards of academic research as required by North-West University. Although the data and information utilised are found in the public domain, ethical clearance will be sought from the North-West University ethics research committee.

1.6 SIGNIFICANCE OF THE STUDY

Generally, public debt in South Africa is high which also makes the debt-service cost high. The debt stock and debt-service costs are projected to keep increasing to over R5 trillion and almost R400 billion

in 2025/26, respectively (National Treasury, 2023). This diverts state resources that could have otherwise been invested in the country's future, be utilised to address the urgent social needs, or bridge the revenue gap created by progressive integration of the country into the global economy. This, together with South Africa's unique position as a developing country in the global economy where the degree of integration keeps escalating as the country depends more and more on imported commodities and foreign direct investment to boost economic growth and development (CEIC, 2023) provides an intricate case study. In this respect, on one hand integration into global economic environments has withhold with it a range of advantages for the country including increased trade volumes, improvement in infrastructure and a general improvement in income levels. Though on the other hand, considering that countries' aims to remain internationally competitive, integration does likewise withhold important implications for the public sector, which has played an increasingly important role in facilitating a democratic and inclusive South Africa.

On this basis and considering the drawbacks of previous studies and the ambiguities relating to public debt levels and economic globalisation in South Africa, the study aims to contribute to the scarce knowledge on the relations between economic globalisation in its entirety and public debt in the country. The study therefore seeks to examine the relationship between economic globalisation and public debt in South Africa. The first contribution in this regard is related to the investigation area, which is South Africa, since there is a need for more research and knowledge that focuses mainly on the country and its unique nuances. The second contribution is linked to the distinction made between *de jure* and *de facto* aspects of economic globalisation, by using the updated data on the KOF's globalisation index, especially since most studies have previously used proxies such as trade openness and FDIs to measure globalisation (Zafar & Butt, 2008:13; Sinha, Arora, & Bansal, 2011:15; Çolak & Özkaya, 2020:896) and have failed to make a clear distinction between trade and financial globalisation. Data on the KOF globalisation index is updated every year but lags with two years which allows the study to proceed using the most recently available and reliable data. Given this more comprehensive analysis, the study's importance lies in its ability to provide a more robust and holistic picture on South Africa's unique integration process and its respective influence on escalating debt levels. As such, this study can possibly act as an important reference source for policy makers in better managing debt levels when specifically considering the country's integration path into the global economy.

1.7 CHAPTER CLASSIFICATION

Chapter 1: Introduction and background to the study

Chapter 1 provides an introduction and background to the study. It establishes the scope of the study, the context of the research, and the gap in the current knowledge. The objectives of the study and the

methodology of the study are also explained in this chapter followed by the ethical considerations taken while conducting the study.

Chapter 2: The theoretical framework of economic globalisation and public debt

This chapter covers a comprehensive literature review and a conceptual analysis of economic globalisation and public debt. Therefore, it builds a theoretical foundation for economic globalisation and its complex relationship with public debt. Important theories, concepts, and measurements will also be discussed.

Chapter 3: A regional overview of the relationship between regional economic globalisation and public debt

Chapter 3 provides a regional analysis of the relationship between economic globalisation and public debt within developed, developing, and sub-Saharan African countries, with the main focus of this relationship in South Africa. This chapter will further provide an empirical literature analysis.

Chapter 4: Research design and methodology

This chapter first explains the sample period and data to be used in the study. Then it examines the econometric models and statistical approaches employed to determine the short-run, long-run relationships, and causality between the dependent and independent variables.

Chapter 5: Estimations, results and discussion

This chapter focuses more on the analysis of the secondary data collected. Also, it provides and interprets the empirical findings of the study.

Chapter 6: Conclusions and recommendations

The last chapter provides a summary of the study and a brief conclusion of the results. It includes recommendations, outlines the limitations, and provides suggestions for future studies.

CHAPTER 2

THE THEORETICAL FRAMEWORK OF ECONOMIC GLOBALISATION AND PUBLIC DEBT

2.1 INTRODUCTION

Public debt is one of the most essential and relevant macro-economic indicators of a nation, depicting the financial health of a nation and the government. There are many complexities to public debt that can only be understood through a deep thorough review of literature. To be sure, governments all over the world have a responsibility to serve, protect and provide for their citizens (Indeed, 2022). That is to provide goods and services for those who cannot provide for themselves, basic economic infrastructure, social welfare, and protect them against crime and unpredictability (WEF, 2017). This all requires spending from the government which realistically almost always leads to budget deficits and public debt (Ortiz-Ospina & Roser, 2023). From this perspective fiscal policy then becomes constrained when a considerable portion of current revenues is required to cover debt interest payments. As a result, governmental debt levels are essential to the economy's stability (Organization for Economic Cooperation and Development [OECD], 2017).

While there is abundant literature on public debt being influenced by a combination of macroeconomic, socio-economic, institutional, and structural factors (Mothibi & Mncayi, 2019; Nagou, Bayale & Kouass, 2021; Appiah-Kubi *et al.*, 2022), it is not always clear what the relationship is between economic globalisation as a whole and public debt (Bataka 2021:1). It is now widely known and acknowledged that globalisation is deep entrenched in systems and processes of countries, which makes it vital to know globalisation affects governmental operations, the effects of it so that policies are implemented that will make globalisation work for a country (Hashemi-Pour, 2023). Also essential to economic stability are globalisation processes and policies that are aimed toward reaping and enjoying the benefits of globalisation.

Therefore, as the study builds on to determine what sort of, if any, relationship exists between public debt and economic globalisation in South Africa, there needs to be a base in which the research can build. To achieve that, this section of the study first provides a strong theoretical foundation in support of any claims that will be made late in subsequent sections. In doing so, it first provides a full conceptualisation of public debt through the first subsection, from defining it, right to the way public debt should be professionally managed for the greater good of the economy. After this, the chapter provides a holistic conceptualisation of economic globalisation. This includes the different perspectives and misconceptions of globalisation, the different measures that have been used by scholars, as well as their limitations. Before finally reviewing the theories that support this relationship in the final

subsection, the study consults literature to understand the relationship between public debt and economic globalisation. This includes constructing different channels from literature to show how economic globalisation could affect the public debt levels of a country.

2.2 CONCEPTUALISING PUBLIC DEBT

In the perspective of modern governments, with global integration now also playing a role in government finances, the needs of society are constantly increasing; therefore, government expenditure is required to simultaneously be adjusted to cater to these needs (Aybarç, 2019:23). Governments thus bears the responsibility to fund the county's growth and development investments in their respective economies (IMF, 2023). Generally, these expenditures are achieved through enterprise and public revenues, penalties, taxes, and duties, to name a few. Additionally, the government may be subjected to fiscal deficits owing to idiosyncratic risks caused by globalisation, the required infrastructure investments, war, economic crises, financing development, unforeseen disasters, pandemics, *etc.* (Goodwin *et al.*, 2019:3; Aybarç, 2019:23). To subdue such situations, governments often turn to borrowing which is generally referred to in the literature as *public debt*, and interchangeably as *state debt*, *national debt*, *sovereign debt*, or *government debt* (Yared, 2019; Abbas *et al.*, 2019; Ellison, & Scott, 2020; Zhuravka *et al.*, 2021); henceforth referred to as public debt.

Furthermore, public debt serves as one of the most pertinent macro-economic indicators of countries, depicting the financial health of governments and economy. Some research has been devoted to examining the drivers of public debt and has continued to stress the importance of stable public debt dynamics in an economy as a fundamental condition to improve economic performance (Vera, 2009; Ghosh *et al.*, 2013; Cooray *et al.*, 2017, Dong, 2020). Academics have also sought to carefully define and classify public debt in a wholesome manner where every aspect of the phenomenon is dissected and examined. In doing so, public debt has been defined using the broad and narrow definition (Hakura, 2020:60).

Classifying public debt along these lines, while likewise considering aspects such as maturity, purpose, instrument, *etc.* accordingly provides policy makers with a clear direction of the causes of public debt and how to deal with them (PWC, 2022). A vital part of conceptualising public debt includes the different measures that are to determine the most comprehensive one to utilise when measuring public debt. These include debt-to-GDP, debt per capita ratios and gross debt amongst others (PGPF, 2023). The determinants of public debt have widely been examined which has emphasised the importance of stable public debt levels as a vital condition for better economic performance (Salmon, 2021). The economic factors that drive and motivate country leaders and policymakers to acquire more debt, along with the tools at disposal for them to cautiously manage their public debt also form an important part of the public debt discourse.

In the light of the abovementioned, the following subsection will broadly cover the factors mentioned above to provide a comprehensive overview of public debt as part of the greater aim of this study which is to determine the relationship between economic globalisation and public debt in the context of South Africa. The following sub-section will comprehensively discuss the public debt definition in its broad and narrow form.

2.2.1 Public debt definition

The term "public debt" represents the total outstanding debt, including bonds and other securities, held by a country's government, and it is often expressed as a percentage of GDP (Focus Economics, 2023). Public debt is universally defined as the stock of the fixed-term contractual responsibilities of the government to others outstanding on a specific date (World Bank, 2023). At the end of the fiscal year, the debt stock, comprising both foreign and domestic liabilities like loans, securities (excluding shares), and money deposits, is calculated by deducting the total financial derivatives and equity held by the government from its gross liabilities (World Bank, 2023). Considering that public debt should be settled with interest to whom it was borrowed, it constitutes a public expenditure rather than income (Muley, 2018). Additionally, while this might be the simplest way to sum up its definition, defining public debt has shown its complexities and has varied depending on its purpose (Hakura, 2020:61). Having said that, there is a narrow definition that is commonly used and a broad definition that is more comprehensive in nature; both of which are two different methods of understanding and measuring the debt incurred by the government. Figure 2.1 shows the broad and narrow definition of public debt with the aim of showing that the broad definition of public debt additionally includes the aspects of the narrow definition.

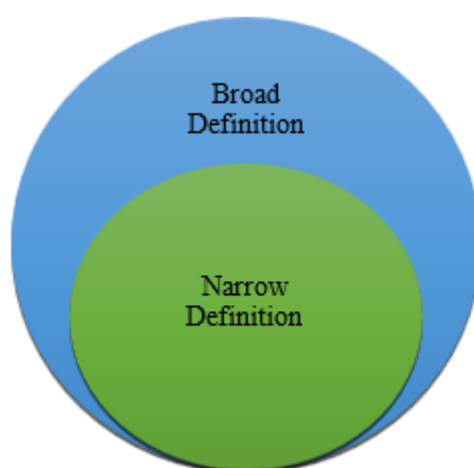


Figure 2.1: The broad and narrow definitions of public debt

Source: National Treasury (2018)

The narrow definition of public debt encompasses the budgetary central government and refers to the government's explicit financial liabilities, i.e., direct debt obligations (Figure 2.2.). This definition focuses on the government's explicit financial obligations that are backed by the issuing authority's full faith and credit; and includes the outstanding debt incurred through the government's borrowing by issuing treasury bonds, bills, and notes (World Bank, 2023). Furthermore, not only does the broader definition of public debt include direct obligations mentioned in the narrow definition, but includes other forms of public debt (as shown in Figure 2.2.). This definition of public debt comprises the budgetary central government, extrabudgetary units, local and national governments, and social security funds (Hakura, 2020:60). The broad definition of public debt covers a broader range of government obligations, including both explicit and implicit liabilities. It incorporates other forms of public debt and obligations shown in Figure 2.2 as contingent liabilities, pension liabilities, social security liabilities, and other unfunded liabilities (National Treasury, 2018).

Unfunded liabilities are not accounted for in the narrow definition and refer to debt obligations for which there are insufficient funds set aside to pay them, such as healthcare costs (Thune, 2022). Contingent liabilities are potential liabilities that might arise because of specific future events or circumstances. For example, government guarantees for loans or debts of state-owned enterprises, public-private partnerships, or independent power producers (National Treasury, 2018). A substantial amount of contingent liabilities can result in a higher risk premium (and thus higher costs) for sovereign debt. Pension liabilities encompass all the government's future obligations to pay pensions to retired civil servants and public employees (Law Insider, 2023). It considers the present value of these future pension payments. Moreover, social security liabilities include the government's future obligations to provide social security benefits such as retirement, disability, and healthcare benefits (Scott, 2010). The broad definition thus represents all types of debt that threaten a country's public finances, making it critical for determining the nation's debt sustainability (Hakura, 2018).

Furthermore, the terms “public debt” and “deficits” are sometimes used cooperatively in literature as there is a close association between the two (Folorunso, 2013; Brady & Magazzino, 2017; Van *et al.*, 2020), but they have distinct definitions which makes differentiating them even more important to avoid confusion and errors. To simply define it, a deficit is created when there is a difference between government receipts and what the government spends, specifically when expenditure exceeds the revenue collected yearly (CFI, 2023). Contrariwise, a surplus is when revenue exceeds expenditure. To look at it from another perspective, a deficit is a flow variable while debt is a stock variable, where the flow of deficits adds to the stock of debt of a country (Perry, 2020:3). Figure 2.2 below shows the components within the broad and narrow definition of public debt.

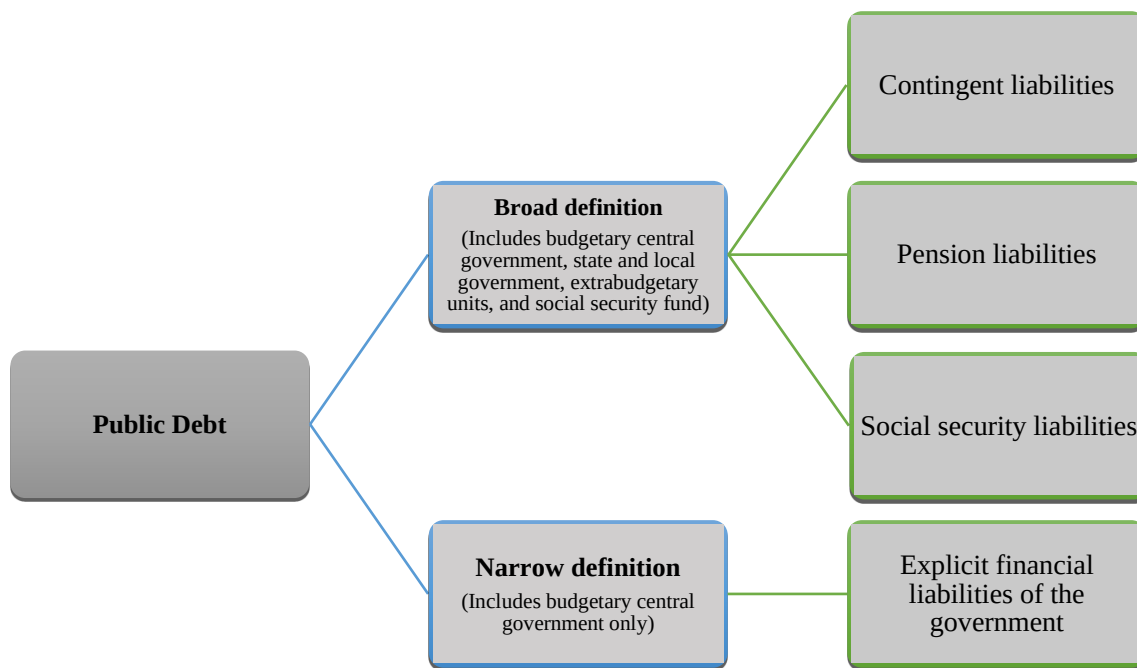


Figure 2.2: Components within the broad and narrow definition of public debt

Source: Author's own compilation

Governmental budget deficit and debt outcomes are inextricably linked; budget deficits increase public debt levels, which escalates future net deficits due to the requirement to service higher interest payments on the nation's debt (Folorunso, 2013). Depending on the form of debt, the nature of the link between deficits and debt varies (Driessen, 2022:3). Budget deficits are the principal contributor to debt held by the government and financed through selling debt instruments (Driessen, 2022:4). Funding a deficit also involves measures such as raising taxes, or selling assets; hence, while it is not debt, a deficit will contribute to the debt stock if it is financed by debt (CFI, 2023). Therefore, although they are not the same, debt and deficits both have similar consequences that lead to reduced economic growth and fiscal flexibility, high-interest rates, and disrupt the global financial market. This points to an important constituent regarding public debt and the way it is classified.

2.2.1.1 *The classification of public debt*

With the intricacies that accompany defining public debt, classifying it makes it easier for policymakers to better comprehend the causes of public debt and implement relevant policies. Although public debt is a public expense in the fiscal books of a country, it still serves as an essential source of income for a government that has exhausted all its other options to acquire income (Goodwin *et al.*, 2019:3). It is crucial to highlight the fact that the public debt structure is varied in every country and has also differed throughout the years due to factors such as the reasons for borrowing, interest rates on bonds, the stipulated conditions for repayment, and the category of the market where loans are floated (IMF, 2001).

Debt-related policies that seek to deal with high debt levels adequately require a clear classification of public debt. A deep dive into the literature shows that classifying public debt offers a systematic framework that aids with understanding, analysing, and controlling public debt to promote sustainable government finances even in the long-run (Hakura, 2020:60). Its vitality lies in the assistance it affords to analysts and policymakers with policy formation, risk assessment, financial planning and analysis, international comparisons, and analysis for debt sustainability (IMF, 2017).

In addition, when forming appropriate debt-related policies, debt classification provides useful information and assists policymakers in understanding the reasons for the debt, such as economic downturns, social factors, or globalisation-related factors (PWC,2022). Acquiring this knowledge assists with allocating borrowed funds efficiently and aligning policy objectives with borrowing strategies (Miller, 2021). Furthermore, classifying debt by purpose, holder, and maturity has helped governments easily assess the risks associated with their debt and susceptibility in their debt portfolio (Firm of the Future, 2017).

These classifications will make it easier to identify whether debt is concentrated in a certain category or if there is excessive reliance on external borrowing so that relevant risk mitigation measures can be implemented. Regarding financial planning and analysis, classifying debt provides insight into interest rates, the maturity profile, and debt repayment schedules, therefore improving financial planning (Miller, 2021). This often results in informed decision-making regarding refinancing options, borrowing strategies, and repayment priorities. Additionally, the classification of debt plays a vital role in assessing debt sustainability. Policy makers can assess the fiscal risks associated with debt servicing and repayment (PWC, 2022). This analysis aids development of appropriate debt management strategies, debt restructuring plans, and the solicitation of external assistance when necessary. Figure 2.3 below shows the way in which public debt is classified.

Accordingly, this figure shows the depth of the importance of classifying debt to ensure the long-term sustainability of government finances. That being the case, the unique circumstances and requirements of different countries and institutions mean they will all have tailored classifications and sub-categories that are fitting for their economies. Literature, however, provides common classifications of debt which speak to the maturity, holder, purpose, nature of the instrument, and debt sustainability that can further be explained as follows.

- *According to maturity*

According to Park (1999:1407) and Chen *et al.* (2018:3), public debt can be classified based on its maturity period, which refers to the time frame within which the debt must be repaid and is classified as short-term debt (due in one year or less), medium-term debt (due in one to ten years), or long-term

debt (due in more than ten years), as shown in Figure 2.3. Debt maturity is the date on which the total repayment of a debt instrument is payable. Maturity may be indicated as initial maturity when the debt/responsibility was incurred, or continuing maturity that is measured at a specific time after the liability was incurred (Eurostat, 2023).

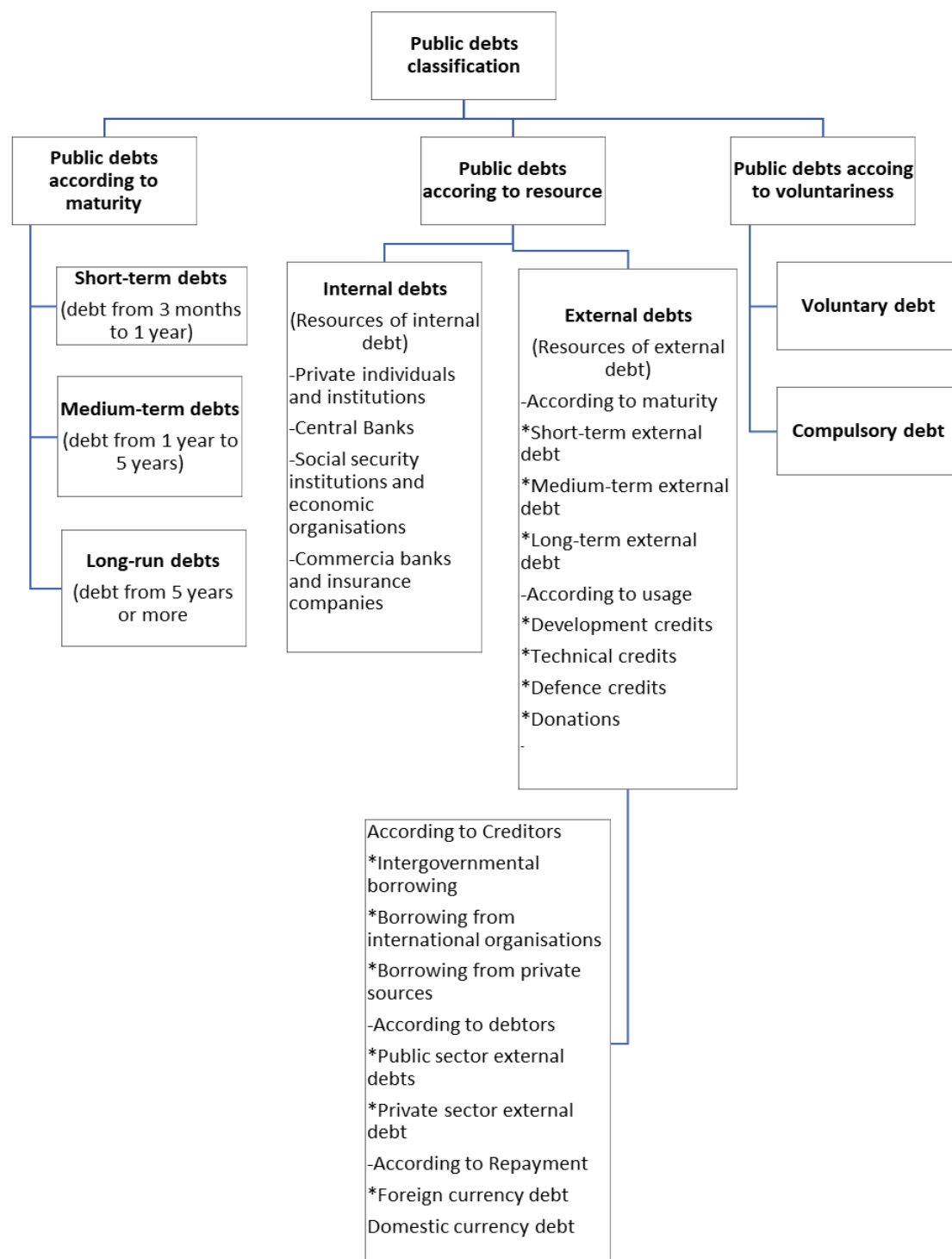


Figure 2.3: The classification of public debt

Source: Aybarç (2019)

The maturity structure of debt can have real and financial consequences for a government and differs across countries depending on governmental fiscal policies and economic conditions (Chen *et al.*, 2018:3). This refers to the distribution of outstanding marketable public debt in terms of its maturity date and the issuance structure across various types of securities and maturity points (Mitra & Sack, 2022). For example, Eurostat gathers information on the general government gross debt of EU member states, categorising it by debt holder sector, type of instrument, original and remaining maturity, and issuance currency to assess the debt structure across European countries (Eurostat, 2023).

Generally, the debt manager (such as the National Treasury) would want to enhance the debt maturity structure, considering various factors such as interest payments on the debt and refinancing risks, which increase or decrease with respect to the maturity structure (Soobyah & Viegi, 2022:3). Furthermore, governments issue debt securities such as bonds or treasury bills to regulate deficits or finance financial needs, and the maturity dates of these securities indicate when the government will repay the borrowed funds to bondholders or investors (Luthi, 2022). The structure of public debt maturity is critical to analyse to understand the financing needs of the government and the cost of servicing the debt over time.

Furthermore, the classification of public debt as redeemable or irredeemable is strongly associated with the maturity period. That is, redeemable debt has a specified maturity date by which the principal amount must be repaid, whereas irredeemable debt has no fixed maturity date and stays outstanding in perpetuity, where governments are not required to pay regular interest, and investors receive only periodic interest payments (Vaidya, 2023).

- *According to holder*

In addition to the maturity period, public debt can also be classified according to the creditor or holder of the debt and can be classified as external debt or internal debt (see Figure 2.3). Amid trying to understand and find the best fitting definition for the public debt phenomenon, individuals may confuse the terms “public debt,” “internal debt,” and “external debt.” While they are all a source of finance, Table 2.1 thoroughly compares the three concepts while displaying some of their distinct features. External debt refers to funds that are owed to foreign creditors or institutions, thereby being borrowed in foreign currency (Vaidya, 2023). In contrast, internal debt is the loan obtained in local currency from individuals, institutions, or businesses within the country (Vaidya, 2023). Ultimately, Table 2.1 shows that public debt is the country’s overall outstanding debt comprising both internal and external debt and sourced from both internal and external borrowers.

Table 2.1: Internal debt vs. external debt vs. public debt

Basis of Comparison	Internal debt	External debt	Public debt
Meaning	Internal debt encompasses borrowings owed to internal lenders by a country, company, or individual.	This relates to a country's debt, which is frequently borrowed from a foreign lender.	Public debt, also called government debt, represents the total debt a country has outstanding.
Source	The sources of internal debt are domestic financial institutions, like commercial banks.	External debt originates from foreign commercial banks, governments, and international financial institutions. The World Bank and IMF are two well-known entities.	Public debt is sourced from both domestic and foreign governments as well as financial organisations.
Components	Debt encompasses open-market loans, compensation and other bonds, special securities issued to the central government, and so on.	The most common components of foreign debt include private non-guaranteed credits, IMF debt, central bank deposits, and public or publicly guaranteed debt.	Made up of both internal and external debt

Source: Vaidya_(2023)

According to Aybarç (2019), internal borrowing has no effect on rising or falling national income, while external debt boosts national income when taken and reduces national income when paid. Not only does this affect national income, but both external and internal debt have their own advantages and disadvantages. Advantageously, with external debt, there is a large pool of funds (unlike with internal debt) that provides governments with capital to finance large-scale projects to boost economic development and improve the macroeconomic policy of the borrowing country (Vaidya, 2023). However, contradictory to internal debt, external debt can also be considered extremely risky since exchange rate volatility affects the debt stock, its service payments, and subsequently the country's economic growth, as shown by Ijoema (2013:185). Furthermore, this often results in a vicious cycle of debt, especially for the less developed countries, which should be most weary of uncontrollable debt levels. Internal debt can assist countries in developing domestic financial markets (IMF, 2001) and does not require approval from foreign lenders which makes it easier to access unlike external debt (Root, 2019). On the downside, it crowds out private investment, can be difficult to restructure, and can lead to inflation if the government resorts to printing money to finance the debt (Root, 2019; Zhang, Brookins & Huang, 2022:1).

- *According to purpose*

Whether it is internally, or externally sourced, public debt can also be categorised according to its purpose or rationale for issuing it. It may contain categories such as revenue and developmental debt that is usually used to fund long-term developmental projects; and government expenditure which

includes infrastructure development, operational costs, and public welfare programs (Vaidya, 2023). Basically, the purpose of public debt can be divided into productive and unproductive debt/deadweight debt (Oladokun, 2015:71).

If the funds acquired through debt are used in construction, such as railways, power plants, and irrigation projects, which boost the economy's productive potential, they are referred to as productive debts (Aybarç, 2019). In this approach, productive debts provide the government with an ongoing source of revenue. The government typically pays the interest and principal debt amount from the profits generated by these initiatives (Aybarç, 2019). This proves how critical it is for the government to use the funds for projects that will yield a desirable income even if it is in the long-run. Spending on factors such as education, research, and health leads to innovation and productivity in the long-run (Savvides, 2019:3). Even though productive debt makes for a profitable investment that generates income in the future, it is still risky if the investment does not yield the expected income due to unforeseen circumstances (Marquit, 2018). For public debt to be productive and professionally managed, the government should set a logical plan in place to show how funds will be used.

However, it is not always possible for debt to be productive since the government is also responsible for the social welfare of citizens, which means that sometimes debt is utilised for projects that are not profitable but are necessary for development (Seuppel, 2020). Unproductive debts are those funds that are allocated for war, famine relief, social services, and so on, that do not add to the productive capacity of the economy (Aybarç, 2019). This type of debt is not backed by any productive investment and carries a higher risk of default. Since the government typically repays the interest and principal on these debts through taxes, they impose a burden on society (Pettis, 2022). High levels of unproductive debt negatively affect the economic growth of both developed and developing countries (Seuppel, 2020).

In support of this, a study by Chu, Hölscher, and McCarthy (2020:2421) shows that non-productive spending (on social welfare) in high-income and low-to-middle-income economies has had a negative effect on economic growth since this has contributed more to the standard of living instead of economic growth. They further argue that low-to-middle-income economies have been following the trajectory of high-income economies in allocating spending in favour of productive spending to enhance economic growth in the hopes of decreasing their public debt (Chu *et al.*, 2020:2421). Although this is at the expense of improving living standards, focusing on productive spending allows governments to avoid high-interest rates and fees which would only cause them financial strain.

This is not to say that unproductive debt does not have any benefits. This sort of debt can be used to finance emergency expenses such as national security and disaster relief (Seuppel, 2020). Case in point, during the COVID-19 pandemic, governments were scrambling for funds to aid in mitigating the unpleasant economic and social impact the pandemic was proving to have on global economies (OECD,

2020:2). The sub-Saharan economies have lacked the fiscal space to tackle the pandemic and therefore had to source funds externally (Sallent, 2020). Amongst other actions, the IMF provided member countries with emergency funding and grants for debt relief, albeit with conditions (IMF, 2021). Along with other financial institutions such as the World Bank and other bilateral donors, recipients received fiscal support, debt relief, and restructuring, as well as economic stabilisation.

Therefore, there is always a purpose for public debt. Be it productive or unproductive debt, these are both essential when used in a relevant manner according to the current economic situation. Although productive debt may seem like the best option, it still poses some risks as does unproductive debt.

- *According to the nature of the instrument*

Public debt is also classified according to the nature of the financial instruments that are usually dominated in the country's own currency and used to raise funds for the government. These instruments are a written, legally binding agreement between two parties wherein one party lends money to another, and the repayment method is stipulated in the contract (Booth *et al.*, 2020:14). Some are collateralised, and the majority include interest, a payment plan, and a time frame to maturity if it has one (Chen, 2023). Table 2.2 below shows the different types of debt instruments utilised by the government ranging from different kinds of bonds, securities, and bills that are designed with either long-term or short-term maturities, and risks attached to each. Furthermore, the nature of the debt instrument also affects whether it is further classified as redeemable or irredeemable debt (Aybarç, 2019).

Redeemable debt instruments, such as bonds and treasury notes, have fixed maturity dates, and the issuer is required to repay the principal amount to bondholders at maturity (Chaluvadi, 2022). In contrast, irredeemable debt instruments, such as perpetual bonds and consols, are perpetual debt where the borrower need not return the principal amount (Chaluvadi, 2022). Instead, they can pay recurring dividends to bondholders continually or until specified conditions trigger their redemption or conversion. Therefore, redeemable debt is preferable and if the government would take irredeemable loans, the society would have to bear the consequential burden of the perpetual debt (Muley, 2019).

Bonds and treasury notes are both examples of redeemable debt as they both have a fixed maturity date, and the government must redeem them by paying them back the principal amount at maturity (as shown in Table 2.2.). Under irredeemable debt, there are perpetual bonds shown in Table 2.2. They have no maturity date and are designed to be outstanding permanently. Bondholders of perpetual bonds get periodic interest, but the principal amount is not obligated to be returned by the issuer. Instead, the issuer has the option of repurchasing the bonds at a predetermined call price or converting them into another type of debt under specific conditions (Erc *et al.*, 2020).

Each type of debt instrument serves a specific purpose in government finance, thus recognising their characteristics is critical for successful debt management and fiscal structuring (Jonasson *et al.*, 2019:3). Governments can customise their borrowing strategies to fulfil specific funding needs while maintaining budgetary sustainability in the long-run. This can be done by carefully balancing the issuance of redeemable and irredeemable debt. Additionally, there are also voluntary and compulsory type of debt (Aybarç, 2019:25).

Voluntary and compulsory public debt are the other two distinct ways in which the government acquires debt. Voluntary public debt, also known as discretionary public debt, is a type of public debt obtained voluntarily or on purpose (Aybarç, 2019:25). It occurs when a government freely borrows money by issuing bonds, loans, or other debt instruments to fund its different initiatives, programs, or budget deficits (Muley, 2023). With voluntary debt, the government enters into voluntary borrowing agreements with creditors or investors, the debt terms, and conditions, such as interest rates and repayment schedules, are negotiated, and the governments have some control over the borrowing process as well as the capacity to plan for debt servicing (Rahman, 2023). Debts that bind people to a mandatory contribution or require taxpayers to deposit a particular amount, on the other hand, are considered compulsory loans (Vaidya, 2023). Chand (2023) argues that because taxpayers are obligated to contribute to the government's borrowing needs, compulsory public debt might be viewed as a sort of forced savings.

Governments may be forced to incur this form of debt to meet existing obligations, such as pensions, social welfare payments, or other contractual obligation (Aybarç, 2019:25). They also have limited discretion and flexibility when dealing with forced public debt, which comes from external pressures or responsibilities. Moreover, economic downturns that need immediate government action, such as bailing out financial institutions or responding to natural disasters, can also result in involuntary debt (Seuppel, 2020). Voluntary public debt is thus, incurred willingly, giving the government some control over the borrowing process, whereas obligatory (involuntary) public debt is incurred due to external circumstances or responsibilities, leaving the government with little alternatives for controlling its debt burden. Both types of debt are acquired differently but can be used to finance public projects and services.

2.2.1.2 *Public debt instruments*

The classification of public debt is critical when organising and categorising different kinds of public debt. Public debt instruments, within the framework of public debt classification, are used as the tangible means by which the government raises capital through borrowing money from the public or institutional investors (Chen, 2022). These include different types of bonds, securities, and treasury bills (see Table 2.2) and are obtained to finance government expenditures, infrastructure projects, and other

public initiatives. Furthermore, to secure debt financing, the debtor must repay the creditor according to agreed-upon terms, which should outline the interest payment schedule, collateral, interest rate, maturity date, obligations, and whether the debt is convertible or not (CFI, 2023). According to Costa (2010:73), for a debt instrument to serve its purpose, debt holders have to believe that policies implemented will result in contract fulfilment. This necessitates a budgetary policy that is sustainable. Furthermore, debt instruments play an important role in the operation of a government's fiscal policies as well as the broader economy, especially during periods of great macroeconomic uncertainty.

Table 2.2. Public debt instruments: types, maturity, and risks associated

Instrument	Description	Maturity	Risks associated with instruments	Source
Government Bonds:	A debt-based investment in which funds are lent to the government in exchange for a specified interest rate.	The time to maturity of a bond is the period remaining until it expires and makes its final payment, essentially marking its active lifespan.	Government bonds are low-risk assets since they are backed by the government but also pay low-interest rates.	IG (2023)
Treasury Bills (T-Bills):	The central government only issues these bills when it needs money for a limited period. The interest on T-Bills is determined by market forces.	T-Bills have a maturity period of 364 days. As a result, they are classified as money market instruments (funds having maturities of less than one year).	T-Bills have an edge over the other market instruments due to their zero-risk weighting. T-Bills have a very active secondary market and a high degree of tradability.	Business Standard (2023)
Treasury notes:	Treasury notes, or T-notes, pay interest semi-annually until maturity. They offer lower interest rates due to their shorter maturities.	Treasury bonds are like bonds but matures in 2, 3, 5, 7, or 10 years	Low-risk investment since they are backed by the government	Lioudis (2023)
Treasury Inflation-Protected Securities (TIPS):	TIPS are electronically issued securities that are set up to protect investors against inflation. The principle thereof can go up or down over its term, sold for a term of 5, 10, or 30 years.	TIPS matures in 5, 10, or 30 years with interest paid every 6 six months until maturity.	Investors might incur higher taxes on rising coupon payments. If inflation remains low while holding TIPS, their usefulness diminishes.	O'Connel (2023)
Savings Bonds:	Savings bonds involve investors lending funds to the government in return for interest and the repayment of the principal by a set date.	Series I bond mature in 30 years, Series HH and EE bonds mature in 20 years	Savings bonds are a safe investment as they are government guaranteed. This reduces the risk in portfolios of investors.	Huffman (2023)
Municipal Bonds:	Municipal bonds are debt instrument issued by municipalities, counties,	There are various maturity dates depending on	Municipal bonds have a low default risk. However, the bond	Lioudis (2022)

Instrument	Description	Maturity	Risks associated with instruments	Source
	and states. They are exempted from tax and used to fund major expenditures such as the construction of roadways, bridges, or schools.	predetermined period when the investment was made	fluctuates with interest rates; higher int. rates equal low bond prices, and vice versa.	
International Sovereign Bonds:	A sovereign bond is issued in both international and domestic currency. Countries with turbulent economies and high inflation rates must pay higher interest rates on their bonds than countries with more stable economies.	Sovereign bonds, like other bonds, yield the full-face value at maturity and have a tenure of 8 years.	Just like other bonds, Sovereign Bonds also faces the risk of the issuer defaulting. The risk of default is higher in countries with lower credit ratings and lower in countries that have a high credit rating	The Economic Times (2023)
Consols ("consolidated annuities") AKA Perpetual Bonds	These are popular irredeemable debts that remain outstanding indefinitely with no obligation to pay back principal amount, but rather pay periodic interests.	No maturity period	Consols are a risky fixed-income investment as their prices are extremely sensitive to changes in interest rates.	Erc <i>et al.</i> (2020)

Source: Author's own compilation

Therefore, these instruments then play a significant role in financing government expenditure, controlling interest rates, providing safe investment options, monetary policy implementation, and most importantly national debt management. As mentioned before, governments are commonly subjected to tax revenue shortfalls and mitigate this through public debt instruments such as bonds and treasury bills (WEF, 2022). Through these, the government can raise funds for various economic sectors such as education, health, and infrastructure development. Public debt instruments also provide a means to bridge the financial gap created by budget deficits (Driessen, 2022:4). This contributes to the stability of government operations and the avoidance of disruptive budgetary crises.

Furthermore, the government's issuance and sale of public debt instruments can influence interest rates in the economy (Greenwood, 2016:3). When the government expands its borrowing through the issuing of debt instruments, the demand for loanable money will increase, potentially leading to an increase in interest rates. Reduced government borrowing, on the other hand, can assist interest rates cuts and encourage economic growth (Salmon, 2021). Upon highlighting the public debt instruments that can be used, part of this topic is to discuss what inclines governments around the world to sell these instruments and how they find themselves in that position. This will be covered in the next subsection by broadly discussing all the possible drivers of public debt.

2.2.2 Drivers and motivations of public debt

The classification of public debt plays a crucial role in understanding the various drivers of public debt, an intricate economic phenomenon that has extensive implications for government and the citizens of a country. While it has a couple of drivers and motivations, it is ultimately propelled by the failure of other sources of public income to meet the spending requirements of the government (Muley, 2018). Economic literature shows that both external and internal components made up of institutional, structural, macroeconomic, and political factors can influence public debt (Sadik-Zada & Gatto, 2019:7; Calderón & Zeufack, 2020:22; Atta-Mensah & Ibrahim, 2020:417). In African countries particularly, a host of factors such as socio-economic issues, political regimes, national credit, debt-service costs, trade openness, exchange rates, foreign aid, and military expenditure were found to be the robust and major drivers of public debt accumulation (Nagou, Bayale & Kouass, 2021:15; Appiah-Kubi *et al.*, 2022:12; Ekouala, 2023:318).

While the debt funds can be a useful tool for the purpose of the abovementioned, excessive borrowing by the government could be counterproductive and bring harm to stability and growth prospects (Jalles & Mader, 2022:14). As this affects the overall fiscal policy and future of the country, understanding the drivers of public debt then becomes critical for economists and policymakers to make well-informed decisions. The body of existing research demonstrates that a combination of macroeconomic, socioeconomic, institutional, and structural factors significantly affects public debt (Mothibi & Mncayi, 2019:19). Literature, however, seldom shows if public debt is increased or decreased by global integration processes. Having stated that, this subsequent section of the chapter explores the drivers and motivations of public debt, while keenly looking to literature to identify if there are any linkages between globalisation and the public debt levels of a nation.

2.2.2.1 Government spending and fiscal deficits

One of the leading motivations for public debt is to finance government spending on healthcare, education, and infrastructure when there is a shortage of revenue (Goodwin *et al.*, 2019:3). Economic growth and development are part of the ultimate goals of a government which results in the implementation of projects that support development, projects which private investors are sceptical to venture into, considering them unviable ventures (Appiah-Kubi *et al.*, 2022:1). Through public spending, governments can purchase and produce goods and services to achieve some of their objectives - which includes efficiently allocating resources and providing public goods (Ortiz-Ospina & Roser, 2023). Furthermore, there are other long-term and short-term factors that add to the expenditure of the government (see Figure 2.4).

Governments use public funds to manage cash flow and meet immediate financial obligations, such as paying employees or purchasing products and services. This can sometimes be managed by accumulating short-term debt (Chen *et al.*, 2018:6). Other causes that necessitate government spending or the issuance of debt instruments include maintaining national security and responding to emergencies. Natural catastrophes or pandemics are examples of those emergencies, as are sponsoring the emergency response operations or offering financial help to affected individuals or businesses (OECD, 2023). In addition to these elements, there are also long-term factors to consider. Governments can use public debt to solve long-term factors like climate change, aging infrastructure, and demographic transitions by investing in projects or programs that address these issues (Goodwin *et al.*, 2019:3).

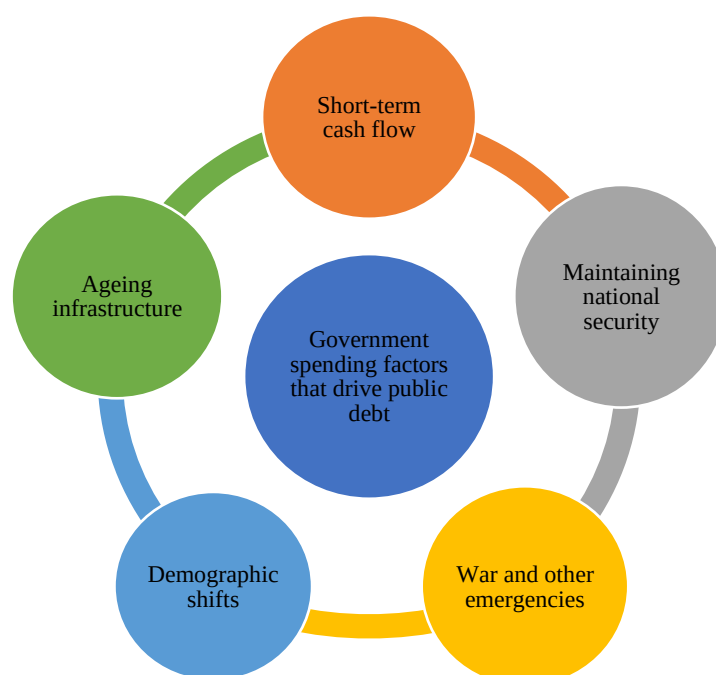


Figure 2.4: Long-term and short-term factors under government expenditure

Source: Author's compilation from literature

Additionally, government revenue can decline during periods of economic recession or poor growth, while expenditure on social programs such as unemployment payments or stimulus programs could increase (Kose *et al.*, 2021). This leads to an increase in public debt. In fact, global public debt has soared following every global recession over the past six decades (Kose *et al.*, 2021). Ultimately, the government can boost its revenue for spending by printing money, increasing taxes, using previous budget surplus, or borrowing (Meshach, 2012:1). However, when the spending starts exceeding what the government collects in tax revenue, the spending results in a budget deficit (Amadeo, 2023).

As mentioned before, this adds to public debt over time as the government will often borrow money to make up for the shortfall. Naime (2015:2) asserts that when fiscal deficits increase steadily, the

probability of debt becoming unsustainable would increase and make public debt management difficult for countries. The author further argues that should fiscal deficits continue to increase due to debt servicing, government expenditure, or insufficient tax revenues; the debt is rendered unsustainable through further increasing debt, negatively affecting the increase in real GDP, and increasing real interest rates (Naime, 2015:3). That proves how overspending can have a snowball effect and not only impact debt but also hinder debt management and payments.

Of course, this has been supported by research throughout the years where results have been consistent in the European Union, the UK, and most African countries (Arestis & Sawyer, 2014:29; Naime, 2015:17; Ncube & Brixiova, 2015:567). Furthermore, while it can boost and finance government spending, excessive government expenditure also crowds out private capital formation, consequently reducing private investments that are productive which has a cost that is higher than the public borrowing rate for larger debt-financed projects (Smetters & Dinerstein, 2021). Unsustainable and uncontrolled debt affects vital economic goals and hinders economic growth and development, especially in developing countries that are faced with fewer revenues and high social and economic responsibilities (Meshach, 2012:1). In the long-run, the government will spend more of its budget on debt servicing costs, reduce spending on other essential components of the budget, and reduce economic opportunities for the nation (PGPF, 2023).

Having said that, since it has been recognized that government spending is necessary for development, it can also trigger an infinite cycle of debt if not managed, changing tax policies and other sources of income which will have a detrimental effect on a government's capacity to generate more income and, as a result, worsen the public debt levels (National Bureau of Economic Research (NBER), 2000).

2.2.2.2 *Social and demographic factors*

Social and demographic factors are the characteristics of a population that can affect its size, composition, and distribution, such as age, gender, race, ethnicity, education, income, and migration (National Geographic Society (NGS), 2022). According to Manuela *et al.* (2016:164), when governments finance social expenditure, this contributes to the deficit and the creation of debt in the long-run. These factors can have an impact on the level and sustainability of public debt and affect public debt the following way:

- *Age structure*

The age structure of a population determines the ratio of working-age people to dependents (children and elderly). The age dependency ratio represents the ratio of dependents—individuals under 15 or over 64—to the working-age population, those aged 15-64. The data is expressed as the number of dependents per 100 people of working age (World Bank, 2023). In this case, a larger dependency ratio

necessitates the government spending more on social programs like pensions, health care, and education (Mester, 2017), which could increase the nation's debt load. On the other hand, a lower dependency ratio enables the government to levy more taxes on a larger labour force and pay down its debt (Mester, 2017).

Government spending consequently escalates as the population ages given that more people often utilise healthcare services and receive public pensions, which raises government spending and therefore, public debt (Clements *et al.*, 2016:13). Research has discovered that higher public debt and slower economic development are both correlated with an increase in the old-age dependency ratio (Busemeyer, 2009). Contrary to this, a surge in the population of younger people is associated with more spending and, ultimately, more debt financing, when government has restricted fiscal receipts, significant unemployment, and many people on social assistance (Kalaja & Vokshi, 2015:62).

- *Migration*

In addition to the age structure of a country, migration also serves as social factor that affects the debt levels of a country due to there being more people that the government is responsible for. Migration is the cross-border movement of people to a new country with the intention living there, which could be due to a variety of variables, including political stability, economic prospects, or environmental concerns (United Nations, 2023). Furthermore, it can also affect the size and composition of a population and its labour market. Having said that, migration can either have a beneficial impact or a negative effect on public debt, depending on the characteristics of the migrants and how well they integrate into the host country. In this case, skill levels also play an important role. Immigrants that are highly educated, skilled, or talented can make a positive fiscal contribution if they find acceptable jobs and do not displace native labour (Rowthorn, 2008:568).

Furthermore, the immigrants pay excess taxes than they consume in government spending. Even unskilled immigrants can make a positive fiscal contribution if they do not replace local workers significantly depend on transfer payments (Rowthorn, 2008:568). Then again, there are migrants who acquire government support without paying taxes. Essentially, the fiscal contribution of migrants depends on their age and degree of integration into the labour (Rowthorn, 2008:577). In light of this, some studies claim that immigration can lower public debt by boosting the work force, tax collections, and economic development (Cecchetti, Mohanty & Zampolli, 2011:21). However, migration can also raise public debt because it increases the expense of infrastructure, security, and social services and a potential free rider problem for the government (Schultz & Sjostrom, 2001:313).

- *Education and income*

Education has an impact on a nation's overall economic success as well as the productivity, income, and employability of its citizens (Grant, 2017:3). The demand for and supply of government services and goods can both be impacted by education because the productivity of the economy improves as the number of educated people rises mainly due to competence workers display and their ability to complete jobs more quickly (Radcliffe, 2023). This is also because individuals who receive education and training are more likely to be employed and need less assistance from the government. Furthermore, when there is increased human capital, innovation, and economic potential can all help lower public debt levels (Greiner, 2008).

However, stronger levels of education might also result in stronger expectations and preferences for government investment on social programs and further education. Additionally, the consumption and saving habits of individuals and households, as well as their contribution to tax receipts, are all likely influenced by income (Gasper *et al.*, 2017). Increased tax revenue due to more people being employed and receiving income and a decreased demand for social payments are two ways that higher income levels can lower the national debt. Higher income levels can, however, also lead to higher levels of public debt since they can spur demand for public goods and services that may exceed supply.

2.2.2.3 *Monetary and fiscal policy credibility*

According to economic theory, highly credible monetary and fiscal policy aids in lowering the level of uncertainty concerning the policy's goals. Therefore, shock-induced variations in inflation, interest rates, production, and employment ought to be less pronounced than they would be without the presence of a credible monetary policy that the central bank is pursuing (Perrier *et al.*, 2000:11). Monetary policy credibility refers to the central bank's capacity to maintain price stability and anchor inflation expectations (Park, 2023:146). A credible monetary policy can reduce the government's borrowing costs and risk premium while also supporting economic development and fiscal revenues by providing a stable and predictable macroeconomic environment (Masson & Drazen, 1994). On the other hand, fiscal credibility refers to the ability of a government to control its finances and meet its fiscal goals (Segal, 2023). A credible fiscal policy, in this case, can boost consumer and investor confidence while lowering borrowing costs and the risk premium for the government.

Furthermore, monetary policy credibility is supported by communication, transparency and central bank independence while fiscal policy credibility is supported by institutions, fiscal rule, and fiscal reforms that enhance transparency and accountability (Posta & Morroni, 2022:82). If governments and central banks can achieve this, there is a potential to reduce their borrowing costs and the risk premiums that they face in the debt market. However, if the credibility of the monetary and fiscal policy is questionable, when debt securities are sold, this will heighten interest rate, and in due time increase the

cost of public debt (Mothibi & Mncayi, 2019:20). Because interest payments increase, public debt will react the same (Peralta-Alva & Mishra, 2023).

2.2.2.4 *Inflation*

Moreover, inflation is an additional variable that influences public debt through elevated nominal interest payments (Darvas, 2022). At its core, inflation is the rate at which the overall price level of goods and services increases over time, resulting in a decline in the currency's purchasing power (Oner, 2023). The risk of high inflation leads to the erosion of confidence in currency and economic stability of a country's economy (Lowry, 2022). Amongst the cause of inflation there are monetary, fiscal, and external factors. The external causes of inflation include the changes in imported commodities, exchange rates, global economic conditions, and commodity prices such as oil and food prices (Ferroni & Mojo, 2017:73; Binici, *et al.*, 2022:5-6). Furthermore, the fluctuations of exchange rate are a critical driver of inflation and could consequently have considerable implications for how the monetary policy is formulated (Forbes *et al.*, 2018:225; Ha *et al.*, 2019:271). Monetary authorities may look beyond the price level effect of an exchange rate fluctuation but may opt to respond if the effect on inflation is persistent (Ha *et al.*, 2019:271).

In addition, interest rates are the tools utilised by the central banks to manage the macroeconomy. That said, lowering interest rates is a means of stimulating economic activity and increasing demand, which potentially leads to inflation as businesses raise prices to meet growing demand (Federal Reserve Bank of St Louis, 2023; Mathai, 2023). The opposite is also believed to be true where raising interest rates helps fight inflation (Cochrane, 2016:65; Popli, 2022). Indeed, an increase in the money supply by central banks through open market operations, lowering the reserve requirement for banks, or implementing quantitative easing can lead to inflation (Doan Van, 2020:21; Driscoll, 2022:23). On the other hand, fiscal causes of inflation are related to the taxation policies implemented and government spending.

Since fiscal policies alters the overall level of demand in the economy, they potentially lead to inflation (Bankowski, 2023). These include excessive government spending (results in demand pull inflation, especially during times of full employment and economic growth), deficit spending (when money supply increase as a means to finance this deficit), unsustainable public debt, and the monetisation of debt ("printing money" instead of raising revenue to pay debt), amongst others (Surjaningsih *et al.*, 2012:374; Mehrara *et al.*, 2016:157, Matres & Le, 2021:52). Consequently, when inflation occurs, the real value of the debt decreases since the debt is fixed in nominal terms and can result in lower real interest rates on government debt, thereby decreasing the government's debt-servicing costs (Neely, 2022).

In fact, upon surveying literature on the very topic, Aimola and Odhiambo (2020:21) reports that the relationship between public debt and inflation varies per country, with either a positive or negative relationship. However, the authors add that much of the literature suggests that the relationship between public debt and inflation is positive and especially apparent in countries with larger levels of public debt and a less developed financial market. In advanced economies, it has been hinted that higher inflation could help reduce the public debt-to-GDP ratio after a study by Akitoby, Komatsuzaki, and Binder (2014) shows that raising inflation to six per cent for the next five years would reduce the average net debt-to-GDP ratio by about eleven per cent. It should thus be noted that inflation can be beneficial to governments in the short-term since they can effectively reduce the real burden of their debt.

It should be noted that there are times when there could be a trade-off between fiscal and monetary credibility. For instance, if the central bank provides excessive monetary accommodation to meet the government's funding needs, it risks losing credibility and raising inflation expectations. This has the potential to boost nominal interest rates and aggravate the debt dynamics. On the other side, if the central bank tightens monetary policy too much to maintain credibility and manage inflation, economic growth and fiscal revenues may suffer. This may also exacerbate the debt dynamics.

2.2.2.5 *Trade openness and foreign direct investment (FDI)*

In addition to government expenditure, trade openness and FDI are double-edged swords that can either aid a country in addressing its debt issues or can also be a driver of public debt (Edo, 2023:3). There is a complex relationship between the trade openness and public debt that varies according to external shocks, fiscal policy, and the structure of the economy. Trade openness refers to the degree of a country's participation in global trade, usually depicted by a ratio of the sum of imports and exports normalised by GDP while FDI is a category of cross-border investment (OECD, 2023). These two factors of globalisation affect a country's ability to borrow as it increases its access to foreign capital, making it faster and easier to acquire loans from international lenders such as the World Bank, IMF, etc. (Alwaf, 2017:8). Not only that, but it also promotes domestic capital formation (Mohammed & Ruslee, 2015:78), which eliminates the need for government to acquire more debt to finance capital formation in an economy (Kassu, 2014:223). Throughout literature, trade openness has been shown to have a consequential effect on both the effectiveness of fiscal spending and government size (Liberati, 2007, de Jongh, 2020).

In support of this, it follows that fiscal expenditure is less effective in nations with high levels of public debt because further fiscal expansion may raise risk premiums and weaken confidence in the private sector, which would discourage investment and consumption (Batini, 2014:24). Furthermore, the impact of trade openness on public debt has mostly yielded a positive relationship for most developing countries. For instance, a study by Zakaria (2012:169) and Ibhagui (2018:31) shows that trade openness

acts as a stimulator of public debt, showing a statistically significant positive relationship with foreign debt in Pakistan and sub-Saharan African countries, respectively.

With FDI, research finds a long term and unidirectional causal relationship between public debt and FDI (Oche *et al.*, 2016:448; Ouhibi *et al.*, 2017:11; Onafowora & Owoye, 2019:787). Financial openness can indeed have a positive effect on an economy. On the one hand, it could increase economic growth for a country which makes accessing foreign capital simpler and aids with debt repayments (Dong, 2021:2263). Ouhibi *et al.* (2017:11) shows that growth and stabilisation of the debt ratio leads to investment growth. Additionally, trade openness and FDI can also have a significant effect on a country's ability to borrow through its impact on economic growth, foreign debt, bank risk-taking behaviour, and increased access to foreign capital (Hossain *et al.*, 2020:3). Trade and financial openness provide diversification opportunities for banks which affects access to borrowing and leads to lower risk-taking behaviour and efficient economic growth (Rahman *et al.*, 2020:3; Hossain *et al.*, 2020:3).

For example, greater trade openness can reduce bank risk-taking by presenting opportunities for diversification and enhancing the borrower selection (Hossain *et al.*, 2020:3). On the other hand, trade openness unfortunately exposes countries to external shocks and higher income inequalities. Exposure to external shocks becomes heightened and reinforces the negative impact of terms of trade instability on the budget, while magnified inequalities lead to an increase in public debt as the government increases expenditure on social programmes to address inequalities (Combes & Sedik, 2006:4).

Moreover, trade openness, FDI, and public debt are known to also have a significant impact on the financial development and stability of a country (Akbar *et al.*, 2021:97). Akbar *et al.* (2021:98) postulates that when trade openness is accompanied by investment, this yields a positive relationship between openness and financial development. However, a higher degree of openness to international markets aggravates domestic economic shocks, eradicates capital market imperfections and thus, restrains financial development (Wajda-Lichy *et al.*, 2020:257). However, the function of public debt in financial development has been linked to the "safe asset" concept (Hauner, 2009:171). This perspective highlights the positive effect of public debt in providing a safe asset for investors, which can aid in the development of financial markets.

Overall, public debt can be driven by a variety of factors, including government spending, economic conditions, demographic factors, emergencies, interest rates, and revenue policies. The motivations for public debt can vary depending on the specific circumstances and priorities of a government. While there can be benefits to taking on public debt, such as financing important investments or responding to emergencies, governments must also be mindful of the risks and costs associated with high levels of debt.

2.2.3 Quantifying and measuring public debt

A deep dive into the literature shows that public debt is indeed an intricate concept with several drivers, classifications, and definitions that affect each country differently. One issue that is rarely discussed thoroughly by scholars is the right measure of public debt when conducting research. In fact, Panizza and Presbitero (2013) query whether researchers should focus on gross debt or net debt; or if they should consider all government liabilities or just focus explicitly on debt. Regardless, there are different ways in which public debt can be quantified and measured that will be discussed in this subsection.

2.2.3.1 *Gross public debt and net public debt*

The aggregate amount of debt owed by a government to its creditors, including both domestic and foreign debt, is measured as gross public debt. This is the most frequently utilised metric for measuring national debt (Panizza & Presbitero, 2013:193). Net debt is then described as the gap between gross public debt and the government's financial assets is known as net public debt (Panizza & Presbitero, 2013:193). Net debt takes into consideration the cash and cash equivalents of the government and subtracts it from the gross debt (Murphy, 2022). The net public debt indicates the government's ability to repay its debt along with its influence of financial assets on the overall financial situation of the government.

Furthermore, while gross debt and net debt offer various perspectives on a country's debt condition, they both have benefits and limitations attached to each. Gross debt is considered a comprehensive measure of public debt but does in no way reflect the financial strength of an economy (Kenton, 2023). Unlike net debt, which reflects financial strength, gross debt does not consider the cash and cash equivalents which are required to show stability and the ability to service debt (Murphy, 2023). Additionally, net debt is also known to paint a more accurate picture of a country's debt burden, while gross debt is known to at times exaggerate the actual debt load if the government has substantial cash reserves that can be used to repay the debt (Murphy, 2023). Cash management also plays a significant role, i.e., decisions to hold large cash reserves, and influences net debt. Be that as it may, the decision to utilise either gross debt or net debt as a measure depends on the context and the information that is relevant to make an analysis.

2.2.3.2 *Debt-to-GDP ratio*

While the gross and net debt provides different perspectives regarding debt position, the debt-to-GDP ratio measures a country's public debt in relation to its GDP, providing an accurate indication of the country's ability to repay its debts by comparing what it owes to its economic output (Kenton, 2023). This ratio is a key metric used to assess a nation's financial leverage, reflecting its capacity to meet debt obligations (Srivastav, 2023).

This ratio can also be an indication of the number of years it takes to repay debt if GDP is totally allocated to debt service (Amadeo, 2022). A high ratio would show that a country has a greater national debt with respect to its GDP, while a lower one would indicate a healthy economy with minimal debt. For instance, in 2020, Japan had a debt-to-GDP ratio of 259 percent, indicating that its total debt exceeded its total output, while Russia's ratio stood at 18 percent, implying that its output surpassed its international debts (Statista, 2023). This indicates that Russia has been producing and selling products and services well without accumulating a lot of debt, which is always a positive indication.

This ratio is also regarded as an adequate indicator of economic health that assists investors in determining whether to accept government issued bonds or not (Navi, 2022). It can also be utilised to compare public debt levels across countries and provide predictive power as to which nations are at risk for a debt default (Kenton, 2023). The latter is most vital in domestic and international markets as it could cause a financial panic. According to Hennerich (2020), the ratio however, does not account for the future growth of the economy which could affect the repayment of debt in future. This makes the debt-to-GDP ratio a good indicator with some limitations. On the other hand, literature (e.g., Ulfah, 2015:9; Amadeo, 2022; Knyazev, 2023:61) shows GDP as an imperfect measure of economic health since it does not account for factors such as environmental degradation, income inequality, activities conducted outside of the markets, and so forth.

2.2.3.3 *Debt per capita*

Another measure of debt is referred to as the net debt per capita measure that indicates how much debt per citizen is held by a country's government (Corporate Finance Institute [CFI], 2022). In Kenton's description from 2023, debt per capita is presented as a technique for measuring a government's debt value relative to the per capita allocation within its jurisdiction. This measure can also show whether the government is under-levered or over-levered, the government being the national, provincial, or the municipal government (CFI, 2022).

This measure goes hand in hand with the quality of government bonds. Should the net debt per capita be lower, the risk of default will also be lower, and the quality of bonds will be higher (CFI, 2022). Therefore, a lower value is favourable. Indeed, public debt obligations impose an unfortunate burden on taxpayers of a country; thus, the lawful borrowing capacity can be evaluated by comparing existing debt levels with present demographic and economic data (CFI, 2022). This stands to reason why debt per capita is employed to estimate borrowing limits of the government, even though not every citizen is liable for the outstanding debt in practice.

Since capital requirements are more likely to simultaneously increase along with population increase, academics believe that this justifies the use of net debt per capita as a measure of debt burden (Vaidya,

2023). On that account, there is no substantial shift in net debt per capita if long-term debt increases simultaneously to the growth in demands of the growing population (CFI, 2022). Although the tax burden is equally distributed among the populace, if the increase in long-term debts is greater than the rate of population growth, the level of debt may be beyond the capacity of the citizens to pay (CFI, 2022). The downside of the debt per capita is that it excludes qualitative aspects of debt such as maturity profiles and interest rates which critically affect sustainability and affordability of debt (Vaidya, 2023).

Furthermore, it does not reflect the size of the economy (Navi, 2022) and is considered an inaccurate economic indicator. Even so, Vaidya (2023) insists that by examining the default risk attached to the relevant government bonds, it reflects a government's leverage position and the state of its overall finances. To yield the best results, this metric can be used in conjunction with other measure to show a well-rounded assessment of debt levels.

2.2.3.4 *Debt Service Ratio (DSR)*

Like debt per capita, the debt service ratio, also known as debt service coverage ratio (DSCR), is a primary indicator of debt burden. The DSR, which is defined as interest payments and debt repayments divided by income, more properly determines the burden of debt than conventional leverage measurements like the debt-to-GDP ratio (Drehman & Juselius, 2012:21). Based on export revenues, this metric provides an indication of the country's ability to service its debt. DSRs, according to Drehman *et al.* (2015:89), offer crucial information on the interactions between debt and the real economy because they assess the amount of revenue used for interest payments and amortisations. This ratio also provides useful information for central bank's decision making on financial stability measures (Ponomarenko & Donets, 2015:12). However, due to the insufficiency of balance sheet data, it is difficult to calculate the DSR using data on actual payments; therefore, an estimated ratio can instead be calculated by adding up an even distribution of debt service payments over the course of an annuity payment (Ponomarenko & Donets, 2015:10-11).

The higher the percentage, the more likely the country will have challenges servicing its foreign debts (Oxford, 2023). For most countries, the ratio lies between 0 and 20 percent. Developed countries tend to have lower percentages of DSR since they own most of the world's wealth (United Nations, 2022). Meanwhile, developing countries tend to have higher percentages due to the financial instability that is constantly experienced in the developing world. Increasing ratios is often indicative of an emerging imminent economic crisis (Spiegel & Schwank, 2022). The DSR may increase due to factors such as a decrease in exports, increased borrowing, when higher interest rates and currency devaluation increase the cost of debt repayments.

At the positive end, DSR proves to be an early warning indicator for potential debt distress, allowing policymakers to take efficient measures to manage debt. Also, the DSR assists in evaluating default risk and gauges the ability of a country to service their debt (Tuovila, 2022). Due to the keen eye that credit rating agencies, lenders, and investors have on economies, the DSR of a country plays a significant role.

On the negative end, the DSR is unable to take into consideration the size of debt and any future obligations that are not reflected in current debt service (Federal Reserve Board, 2013). It has also been found problematic that this metric does not reflect the true cost of debt which includes commissions, fees, and other expenses since it only considers interests and the principal amount of public debt (Drehmann & Juselius, 2012:23).

Therefore, when assessing a country's public debt, it becomes clear that no one metric offers an accurate picture of its fiscal health. Various debt-to-GDP ratios, net debt per capita, debt service ratios, and other indicators provide diverse perspectives on various aspects of the debt burden. While the debt-to-GDP ratio displays the proportion of the debt in relation to the economy, net debt per capita examines the individual's share of the debt. Furthermore, the debt service ratio reveals a nation's capacity to service its external debt. However, depending on a single metric could mask the intricacies and threats involved with a country's debt portfolio. As a result, policymakers and analysts must conduct a comprehensive review that includes many measurements in addition to economic and financial indicators to make informed decisions regarding debt sustainability and management.

2.2.4 The various debt redemption and debt management methods

2.2.4.1 Public debt redemption

Public debt measures are important instruments for measuring a country's financial health because they provide policymakers with the information they need to develop effective plans for public debt redemption, ultimately steering the route to fiscal sustainability. A critical aspect of financial management is debt redemption, which entails repaying any outstanding debts to creditors or lenders within the stipulated time frame (Muley, 2023). This strategic move is critical for individuals, corporations, and governments to achieve financial stability and reduce financial liabilities (Chen, 2022). Understanding the complexities of debt redemption becomes increasingly important as economies and financial landscapes evolve (Taylor, 2018).

The management of public debt is a key component of fiscal policy for governments all over the world. There are various advantages to redeeming public debt. It contributes to reducing the burden of interest payments, freeing up budgetary resources for other critical public services and expenditures (Ostry *et al.*, 2015:5). Lowering a country's debt levels can improve its creditworthiness, potentially leading to lower borrowing costs in the future (CFI, 2023). The creditworthiness of countries is measured through

credit ratings based on various financial, macroeconomic, and political factors, including the nation's economic growth, external debt, debt-service payments, historical defaults amongst others (CFI, 2023). Furthermore, debt redemption also encourages confidence in financial markets and investors, thereby encouraging and supporting economic stability (Ostry *et al.*, 2015:5). However, there are several limitations to public debt redemption, such as the requirement to generate enough revenue or cut expenses to support the repayments. Premature or excessive debt redemption affects a country's liquidity and capability to react promptly to economic crises (Pettis, 2022). As a result, governments must find a balance between managing their debt levels and maintaining key services and economic stability. There are multiple ways to redeem debt, and they are shown in Figure 2.4 below.

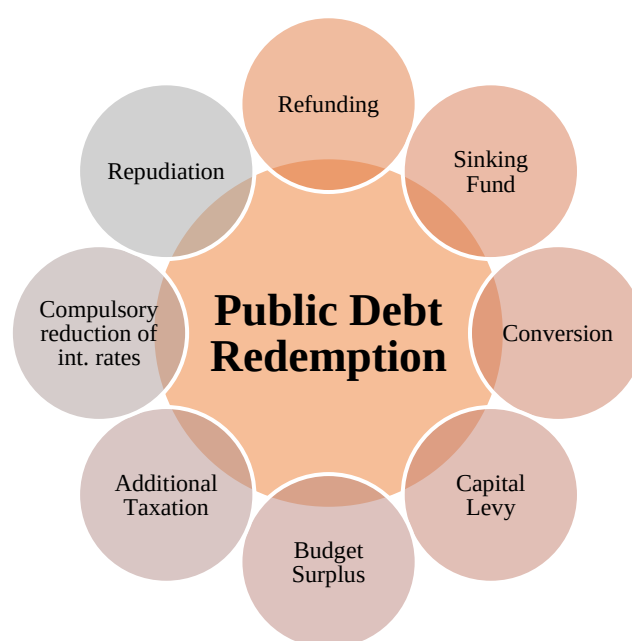


Figure 2.5: The different methods of public debt redemption

Source: Nadu (2023)

Among the more controversial methods, repudiation refers to the act of a government or public entity disputing the validity of its outstanding debt or refusing to honour its terms (Makasi, 2021). This method was practised by the Soviet Government in 1971 which repudiated Czarist debts and several states in the U.S.A. before the civil war (1961-65), which repudiated the debts owed to the English Citizens (Touissant, 2022, 2016). While it would help a government reduce its debt burden and free up funds for other purposes (Rothbard, 2012), repudiation damages people's and banks' faith in the government and its ability to manage their finances, making it difficult to raise additional loans in the near future. Furthermore, whenever external debt is repudiated, the repudiating country may face a series of challenges including economic blockade, military intervention, and other measures used by foreign

governments to recover the debt (Oosterlinck, 2016:94). Therefore, defaulting on public debt is national suicide and will harm a government's reputation and credibility in the international community.

Moving on to the method of refunding which involves the issuing of new bonds and securities by the government to repay the matured loans (Chand, 2023). When the government employs the technique of refunding, the financial burden of the public debt is not liquidated. Instead, the debt-servicing (i.e., repayment of interest as well as principle) burden accumulates because of the debt repayment being postponed to a later date (Nipun, 2023). Refunding can assist a government in lowering its interest payments by issuing fresh bonds with more favourable conditions, but it requires a large amount of money upfront and may result in a loss if old bonds are redeemed before maturity (MSRB, 2016, Chand, 2023).

Next is the method of conversion. Debt conversion entails converting current loans before they mature into new loans with lower servicing expenses (Moye, 2001:3). In fact, the process of conversion often consists of converting or changing a public debt from a higher to a lower interest rate. This method can take the form of debt-for-nature swaps, debt-for-development swaps, and debt-equity swaps (UNESCO, 2011) which assist with the debt burden and interest payments. Unfortunately, though, unlike repudiation, conversions do not necessarily eliminate debt but only change its terms. Next on the list of redemption methods is the sinking fund method.

Sinking funds are the best public debt redemption method yet and require a responsible government to carry out. The sinking fund technique of public debt redemption is a systematic and frequently utilised method in which the government sets aside a specific amount of current public earnings each year to form a fund (Sylla & Wilson, 1999:200; Britannica, 2023). The fund accumulates over time and is used to repay the financed debt at maturity (Britannica, 2023). This method reduces the burden of repayment by spreading it evenly throughout the accumulation of the fund and is one of the best ways to ensure that they increase creditworthiness and inspire confidence for future investments (Chand, 2023). Like refunding, sinking funds also require some money upfront and could result in a longer repayment period, raising the final cost of the debt (Murphy, 2023).

Like the refunding method, the sinking fund is the easiest way to pay debt - terminal annuity where the government pays off its debt based on terminal annuity into equal annual instalments (Nadu, 2023). The terminal annuity technique is a systematic approach of public debt redemption that distributes the burden of debt repayment evenly across the annuity duration. Moreover, there are also capital levies. The terminal annuity technique is a systematic approach of public debt redemption that distributes the burden of debt repayment evenly across the annuity duration (Chand, 2023; Nipun, 2023). According to Eichengreen (2011), capital levies is a way of repaying public debt that includes implementing a one-time tax on capital assets.

To begin with, a capital levy allows a government to pay for some non-current major emergency by collecting higher tax revenues from the wealthy (Britannica, 2023). As a result, consumer spending decreases, and the intensity of inflation is reduced. Second, a progressive capital levy serves to diminish income and wealth disparities. However, a capital levy is a form of wealth tax that impedes capital formation (Keen, 2013), that is best used in times of war and emergency and should be avoided in “normal times”.

Sometimes a government imposes additional taxation on the public to assist with interest on the repayment of the debt (Burriel *et al.*, 2020:7). This is by far the simplest, yet most unpopular form of debt redemption as it imposes the debt burden on future generations (taxes levied on long-term debt) and redistributes income from taxpayers to bondholders (Akrani, 2011; Otaki, 2015:3). While this method might be a way to avoid resorting to extreme measures such as repudiation, it could result in social unrest and political instability and further discourage spending (Chand, 2023).

The final option involves utilising the budget surplus to redeem public debt. This method involves employing the excess funds that are generated through the government revenue collection to pay off debt (Ansari, 2023). Considering the relationship between public debt and deficits, the budget surplus method of debt redemption is of little use since modern governments are more likely to incur budget deficits. A budget surplus is exceedingly rare. On the off chance that it does have a budget surplus though, the government can pay off old debt (or reduce taxation) and free up funds for other purposes (Kagan, 2020; Chand, 2023). Unfortunately, this is not a sustainable method since it relies on the availability of extra funds.

An essential component of efficient public debt management is public debt redemption. It is the result of a government's attempts to manage its financial commitments appropriately to achieve financial stability and sustainable fiscal policy (Collaborative Africa Budget Reform Initiative (CABRI), 2023).

2.2.4.2 *Public debt management*

A public debt manager's main priorities include meeting the government's medium- to long-term financing needs and financial obligations at the lowest possible cost while maintaining an acceptable risk level; creating a sustainable debt service profile aligned with the government's medium-term repayment capacity; identifying, assessing, and managing risks within the debt portfolio; managing cash balances efficiently to reduce default risk; supporting the growth and efficiency of domestic primary and secondary markets for government securities; and expanding the investor base while diversifying funding sources (IMF & World Bank, 2014).

Strategies for managing public debt involve a variety of activities, such as issuing bonds, keeping a close watch on interest rates, and refinancing current debt (IMF, 2001:6). Public debt management

involves creating and executing a strategy to handle government debt, aiming to secure required funding, monitor cost-risk objectives, and achieve additional goals the government may set, such as fostering an efficient and liquid market for government securities (IMF, 2014:5).

Moreover, public debt management is a critical aspect that underpins the reputation and credibility of a government and determines the stability of debt capital markets and financial institutions that hold public debt (Das *et al.*, 2010:3). This speaks to the importance of transparency and accountability in managing public debt, to maintain investor confidence (IMF, 2001:14). The main objective of public debt management is to ensure that the government can meet its funding requirements and payment obligations at the lowest possible cost over the medium to long term, while also managing an acceptable level of risk (IMF, 2001:5). Factors such as rising debt service costs, turbulent economic conditions, and restoring market access are some of the challenges presented by public debt management. During the challenging times of economic disruptions such as financial instability, economic recessions, and high inflation, public debt managers find it more difficult to manage debt as these factors affect the decision-making processes related to public policy (Lim, 2005:42).

Additionally, a high level of debt can be harmful to an economy if it grows faster than the country's actual debt-servicing capacity (OECD, 2023). This may affect the debt managers' sustainability and portfolio optimisation efforts. Regaining market access is difficult for nations that are already in debt crises. Therefore, when determining the best course of action for nations looking to regain market access during a crisis, debt managers must consider past debt experience and strategies utilised to curb high public debt levels (Lim, 2005:41). Public debt management also presents opportunities for risk management, and portfolio optimisation, and allows public debt managers to use the yield curve as a benchmark for issuers and developing a liquid yield curve (Lim, 2005:41; Silva *et al.*, 2006:15).

Furthermore, public debt management measures should be linked to a clearly defined macroeconomic framework and integrated with effective macroeconomic management. Governments should strive for a portfolio that represents their cost and risk preferences while satisfying financing needs and keeping sustainable levels of debt. Figure 2.6 depicts public debt management strategies.

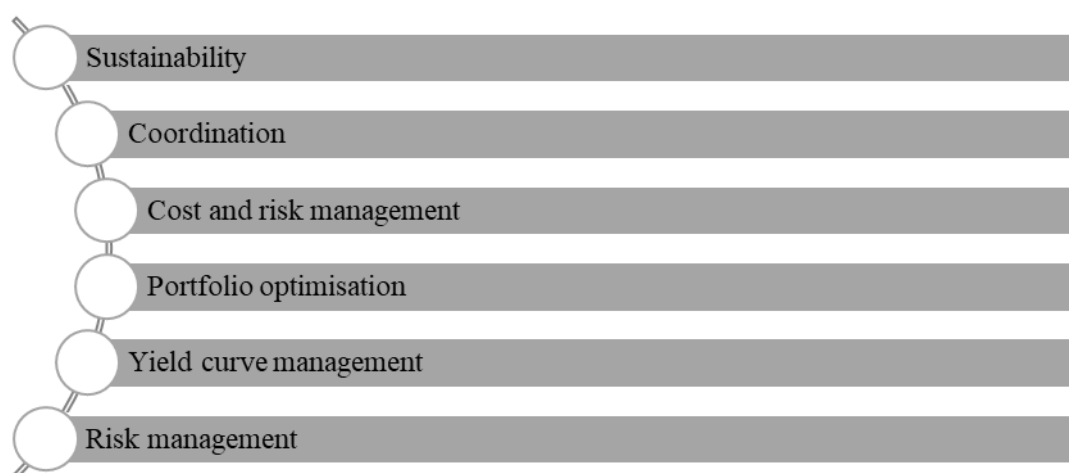


Figure 2.6: Public debt management strategies

Source: Author's own compilation

Public debt sustainability is a vital element and strategy of public debt management. Hakura (2020:60) asserts that a country's public debt is deemed sustainable if all the present and future payment commitments of the government are met without requiring extraordinary financial help or going into default. It bears keeping in mind that maintaining a sustainable public debt level relative to GDP impacts economic stability (Soyres *et al.*, 2022:4). In practice, debt is considered sustainable if the increase in the debt-to-GDP is reverted in the medium and long term (Lukkezen & Rojas-Romagosa, 2013:100). Additionally, in the global context, global economic conditions, and international markets (e.g. the economic conditions during the 2008-09 global financial crises) can affect the debt management decisions of a country that can lead to the success or failure of fiscal consolidation and any debt reducing efforts (Yartey & Okwuokei, 2014:93).

In such a case, though, effective public debt management has proven to be a key tool in minimising the consequences of external shocks and leads to the achievement and maintenance of sustainable debt levels (United Nations, 2001:15). In 2005, the IMF introduced The *Debt Sustainability Framework* (DSF) to "direct low-income nations' borrowing decisions in a manner that balances their need for funding with their capacity to repay debt both now and in the future" (IMF, 2023). The framework's effectiveness in reducing excessive debt accumulation is dependent on borrowers and creditors using it widely. Governments should strive to keep public debt sustainable over time, ensuring it can be managed under various conditions while achieving both cost and risk management objectives.

Debt management ought to be linked to a logical macroeconomic framework as a way for governments to ensure that the level and rate of increase in public debt are sustainable (IMF, 2017:2). Problems with public debt management are frequently caused by policymakers' failure to identify the benefits of appropriate debt management and the consequences of poor macro-economic management. This

highlights the importance of coordination between the macro-economic framework of a country and its public debt management strategies. In support of this, the World Bank and IMF have drafted *The Medium-Term Debt Management Strategy* (MTDS) framework to guide the debt management decisions and operations of government authorities (World Bank, 2023). The MTDS connects borrowing to macro-economic policy, assists countries in maintaining sustainable debt levels, and promotes domestic debt market development (World Bank, 2023). Adopting a Medium-Term Debt Strategy (MTDS) helps governments manage risks associated with their debt portfolio, minimise macro-financial risks, support fiscal policy, and encourage the development of an active government securities market (World Bank, 2023)

Moreover, debt managers bear the responsibility of acquiring the funds that a government needs at the lowest possible cost throughout the medium to long term while maintaining a sensible level of risk (De Leon, 2015:13). Governments are, therefore, advised to strive to minimise costs and reduce portfolio risks by utilising an appropriate mix of currencies, debt instruments, and maturities. Governments should define risk priorities and evaluate the potential cost and risk trade-offs associated with various debt management techniques (World Bank, 2023). The MTDS framework would be functional in this case as it addresses the debt management objectives and scope, the characteristics of the existing debt portfolio, and the determination of risk priorities (World Bank, 2023).

Additionally, to promote public debt management, governments can encourage the development of domestic and international debt markets by using the yield curve as a benchmark for other issuers and building a liquid yield curve (De Leon, 2015:13). This can aid in the development of short and long-term instruments along with providing permanent access to a variety of financing sources. It is also wise for a government to aim to achieve a portfolio that reflects their cost and risk preferences while meeting financing needs considering that a government's debt portfolio is usually the largest financial portfolio in the country (Jonasson *et al.*, 2019:195). Effective public debt management is critical for preserving fiscal discipline and preventing debt from becoming an unsustainable burden and requires financial competence, meticulous planning, and commitment to sensible economic principles.

2.3 CONCEPTUALISING AND UNDERSTANDING ECONOMIC GLOBALISATION

The process of understanding public debt is intricately connected with the broader concept of economic globalisation, as it necessitates knowing how domestic and international financial factors interact, contributing to the complexities of modern fiscal policy and global economic interdependence. From the spread of cultural influences to the flow of goods and information, globalisation touches every aspect of our modern existence. It has blurred the boundaries between nations, creating a complex web of relationships that has made the world an interesting place. Since the inception of the term

“globalisation” in the early 1970s, the scientific and public debate on the subject has risen steadily in both volume and complexity (Huwart & Verdier, 2013:38). There is not much alignment on what it does or should include, its measurement, or even on the definition of the term. In the quest to define it, literature has shown that there is no uniform define globalisation as it means different things to different people (Subaşat, 2015:2).

In its simplest form, globalisation is a process that gradually increases exchanges and flows among various regions of the world (Petras, 1999:3). It refers to the accelerated global movement and interchange of people, products, services, money, technology, and cultural practices (Hosen, 2020:90). Globalisation intensifies the relationships between various groups and locations worldwide (Hosen, 2020:90). According to the Cambridge Dictionary (2023), globalisation is defined as “*the increase of trade around the world, especially by large companies producing and trading goods in many different countries*”. While this is not untrue, it is quite a limiting definition as it only focuses on one dimension of globalisation.

Other have tried providing an all-encompassing definition of the phenomenon. Al-Rodhan and Stoudmann (2006:3) define it as a complex and multifaceted phenomenon that involves the integration of economic, social, cultural, and political systems across national borders. They further argue that it is characterised by the increasing flow of goods, services, capital, and people across borders, as well as the spread of ideas, information, and culture. Globalisation has been driven by a range of factors, including technological innovation, economic liberalisation, and political change, and has had both positive and negative effects on different parts of the world (Al-Rodhan & Stoudmann, 2006:3). On that note, globalisation has been seen as only a synonym for liberalisation. It is argued that factors such as capital mobility, technological progress, and rising market competition have significantly weakened the role of the nation-state, with liberalisation being seen as the most effective way to drive globalisation (Subaşat, 2015:4).

Globalisation is typically divided into three broad categories in academic literature: *economic globalisation*, characterised by long-distance movements of products, capital, and services, as well as the information and views that accompany market exchanges, *social globalisation*, expressed as the spread of ideas, information, images and people, and *political globalisation*, characterised by the diffusion of government policies (Dreher *et al.*, 2008:43). Broadly speaking, social globalisation is a process characterised by interrelated changes in society's social and cultural dimensions (ILO, 2003). It is concerned with human interaction within and across cultural communities, as well as how globalisation affects it. Social globalisation may have an influence on people's lives and work, as well as their families' and societies' lives and work, such as employment, working conditions, income, and social protection (Cole, 2019).

To separate it from the other dimensions, social globalisation has specific features (Figure 2.7). There is a sense of similarity between cultures globally. For example, the worldwide popularity of chain restaurants like McDonald's or a specific fashion trend that people all over the world follow (Datko, 2018). Additionally, so much knowledge is being shared worldwide through the internet where people are also able to communicate via social media (Cole, 2019). Increased mobility has powered the phenomenon of outsourcing, where businesses hire workers from other countries to perform certain tasks or services (Cole, 2019). Unfortunately, social globalisation has also challenged the diversity and identity of national cultures, as they are exposed to homogenisation or domination by foreign cultures or values. For example, the loss of local languages, traditions, or customs due to the influence of global media or education (Datko, 2018).

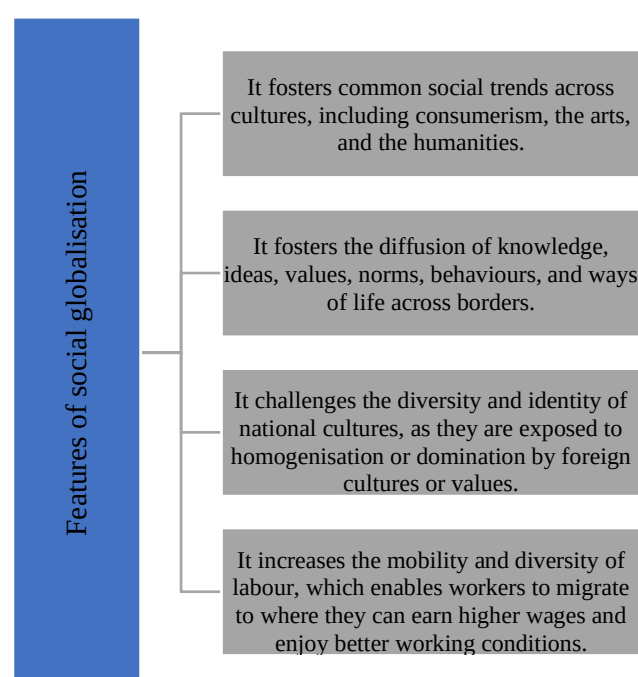


Figure 2.7: The special features of social globalisation

Source: Lisa (2019) and Datko (2018)

The other highly popular dimension of globalisation is the political dimension. Political globalisation refers to the lack of a government's total sovereignty over a specific territory, as well as increasing contact across government systems and more foreign involvement and engagement based on democracy (Yilmaztürk, 2019). It involves the growth of a global political system that includes national governments, intergovernmental organizations, non-governmental organizations, and civil society groups (Guzel *et al.*, 2021:13512). In the global world the emergence and growth of global governance institutions that establish guidelines and standards for international cooperation and coordination on a range of issues, including security, trade, finance, development, human rights, and the environment is deeply rooted in the economic systems of government around the world (Yilmaztürk, 2019). These

institutions include the United Nations (UN), the World Bank, the IMF, and the World Trade Organization (WTO) which have been major players in political globalisation (Johnson, 2024).

Over the years, there has been growth and expansion of regional integration initiatives that promote political and economic cooperation and integration among adjacent nations, such as the European Union (EU), the African Union, the Association of Southeast Asian Nations, and the NATO (Drew, 2023). These were purposefully designed to accelerate the process of integration amongst countries in the same continent and simplify trade. To be sure, the emergence and power of transnational players, like multinational businesses, international NGOs, social movements, and advocacy networks, who operate beyond boundaries play a vital role in determining global politics (Warkentin & Mingst, 2000:237). Although from the onset political globalisation might seem like a great concept, there are some disadvantages to it. Table 2.3 shows the costs and benefits of political globalisation.

Table 2.3: The costs and benefits of political globalisation

Benefits of political globalisation	Costs of political globalisation
It promotes growth and prosperity by enabling the exchange of money, technology, aid, and investment between nations, as well as by offering technical support and policy advice to strengthen governance and public services.	It creates conflict and resistance by inciting nationalist, religious, ethnic, or ideological responses to globalisation or its perceived dangers or repercussions on local cultures or identities.
Through discourse, negotiation, arbitration, and mediation, it fosters peace and stability by minimizing the possibility of war and conflict among governments.	It weakens national sovereignty and autonomy by restricting governments' capacity to pursue their own interests and policies independently from external forces or restrictions.
It strengthens democracy and human rights by disseminating universal ideals and principles, encouraging civil society engagement, and holding governments responsible to international norms and commitments.	It causes inequity and unfairness by favouring certain nations or groups over others based on their degree of development, resources, power, or influence in the global system.

Source: Drew (2022)

Although the study explicitly focuses on the economic dimension of globalisation, in some way all the dimensions are connected and still has an essential role to play when discussed in the context of public debt. Earlier on in the chapter when conceptualising public debt, it was highlighted how the migration of people from one country to another affects the public debt levels of a country. It is also highlighted how the involvement of global institutions such as the IMF affects policy making in a country and how that could affect the public debt levels of a country. This is why, although it is not the aim of the study, it is important to acknowledge social and political globalisation as part of the bigger discourse on economic globalisation and public debt. The next subsequent section is dedicated entirely to discussing and breaking down the economic dimension of globalisation.

2.3.1 Economic globalisation

Economic globalisation, often considered the primary aspect of globalisation, refers to the growing integration of national economies worldwide, especially through trade and financial exchanges (WITA, 2023:12). It is otherwise described as is the process of increasing the interconnectedness and economic integration of local, regional, and national economies through the cross-border movement of people, capital, technology, and products (PIIE, 2022). The differences between globalisation and internationalisation are noteworthy: whereas the nation's government becomes the point of investigation in the context of internationalisation (Scholte, 2008:1474) while globalisation is an intense form of internationalisation that emphasises the integration of economies resulting in deeper trade and financial relations (Palan *et al.*, 2020:1859) This may include trade, money, markets, organizations, businesses, and labour. Economic globalisation has two sub dimensions that make up the economics dimension: trade and financial globalisation.

From a simplified perspective of economic globalisation where trade mostly dominates, a distinction between trade and financial integration is rarely made. Yet, financial flows also form an integral part of economic globalisation, particularly since it allows for the free movement of capital across international borders (Tily, 2017). Trade and financial globalisation are profoundly linked: international trade initiates and depends on financial linkages, and they have jointly spread technology and intensified competition (Bank for International Settlements (BIS), 2017). Trade globalisation, which is primarily caused by the reduced trade barriers, technology, and transportation which guides the movement of goods and services, is often described as the interconnectedness of the global economies through international trade (More, 2019).

Meanwhile, financial globalisation is the integration of financial markets across national borders (Tily, 2017). So, although they are linked, it is still crucial that a distinction is made between the two of them as they both affect the global society and economy differently and impact policy implementation-policies that are beneficial for one may not be beneficial for the other. For example, implementing policies that facilitate international trade may not be prudent for a country that is experiencing financial instability. This highlights the importance of making a distinction between trade and financial globalisation as the failure to do so may result in a flawed and limited understanding of economic globalisation.

The KOF globalisation index, in this case, accounts for all the economic globalisation aspects and dimensions which offer the opportunity to make a distinction between trade and financial globalisation (Gygli *et al.*, 2019:549). *De facto* economic globalisation comprises international economic movements and activities, whereas *de jure* economic globalisation refers to the set of rules and conditions that direct economic movements and activities (Bataka, 2021:3). Fortunately, this distinction enables scholars and

policymakers to assess the effectiveness of policies promoting economic globalisation and their real-world implementation. This consideration arises from the fact that certain regulations may appear rigid on paper but are more flexible in practice, which could account for the consistent differences in the effects of the *de facto* and *de jure* aspects of economic globalisation (Bataka, 2021:3).

By separating and analysing the trade and financial aspects of globalisation and considering both actual and policy-driven measures individually, this study aims to offer fresh perspectives. It provides a clearer depiction of how real trade and financial flows, along with policy-induced globalisation, impact public debt.

- *Trade globalisation*

As the main sub-component of economic globalisation, trade globalisation considers the share of production that crosses national borders via external or foreign trade (Adjei & Grega, 2023:2). It describes the level to which global commodities trading has increased relative to domestic commodities exchange and is driven by the reduction in the cost of communication and transportation, along with the stability of hegemony (Chase-Dunn *et al.*, 2000:80). The sub-dimension *de facto* trade globalisation speaks to the interchange of goods and services over extensive distances (Gygli *et al.*, 2019:553). This is calculated using the variables exports and imports of products and the exports and imports of services, both expressed as a percentage of GDP (Gygli *et al.*, 2019:553).

Global trade takes the form of imports, exports and entrepot. Export trade occurs when a country produces goods and another purchases them where the seller of the goods and services is considered the exporter (Thakur, 2023). Products such as crude oil, medication, gold, and cars are among the most exported products. Imports are goods and services that were produced in a foreign country for use (Thakur, 2023). Due to the different capabilities of countries, a country will typically import products when it cannot manufacture them or when the other country lacks demand (Vijayasri, 2013:112). Additionally, entrepot is a combination of both exports and imports with no custom duties (Kenton, 2022). This type of trade is the practice of importing goods into one country and exporting them abroad without first distributing them in the country of importation (Thakur, 2023). For instance, if a South African firm were to purchase wool from Australia and immediately export it to Zimbabwe, this would be considered entrepot trade for South Africa.

Foreign trade has a significant influence on a country's balance of payments (BOP), which is a record of all economic transactions between a country's citizens and the rest of the world (CFI, 2023). The current account comprises the trade of both goods and services, the primary income balance (income of residents from the rest of the world i.e. wages and dividends from financial investments), and the secondary income balance (tax payments and refunds), where the trade balance is, however, given the

most attention (Reserve Bank of Australia (RBA), 2023:2). The primary objective is to create a trade surplus by exporting more goods and services than are imported for the benefit of economic stability. When a country's citizens (individuals/families, enterprises, and the government) can produce for their own needs, the current account is likely to be in balance (CFI, 2023).

Furthermore, both the international trade in goods and trade in services share the common benefit that they both contribute to global efficiency in a sense that countries can manufacture goods and services in which they have comparative advantage (Mc Donald, 2023). This leads to lower production costs and greater economies of scale (World Trade Organisation [WTO], 2019:8). Additionally, even though international trade could result in additional job opportunities, start-up firms with limited skills and resource struggle to contend with global companies (Thakur, 2023). There are, however, differences in the benefits obtained from the trade in goods and the trade in services. The key difference between global trade in goods and global trade in services is the mobility of production inputs, primarily capital and labour. The factors of production are normally set in a specific location for trade in goods, and the final product is transported to the foreign market (McGuire, 2002:3).

For trade in services, the factors of production move in such a way that services can be delivered in four ways: cross-border, consumption abroad, commercial presence, and people migration (McGuire, 2002:3). In most countries, especially developing ones, the service sector is the largest contributor to GDP, production and employment (UNCTAD, 2017:2). Trade in service presents the added benefit of assisting global economies achieve accelerated growth, increase local business competitiveness, and promote inclusion in terms of skills, gender, and economic activity location (WTO, 2019:8). Women and micro, small, and medium-sized enterprises (MSMEs) can participate in the global economy through their access to new technologies and knowledge (OECD, 2023). Trade in goods, on the other hand, can lead to increased product variety for customers and access to resources (raw material) that may not available domestically (McDonald, 2023).

Moreover, *de facto* trade globalisation also includes the component of trade partner diversity. This is shown as the inverse of the average over the Herfindahl-Hirschmann trade partner concentration index (*HHI*) for exports and imports of goods (Gygli *et al.*, 2019:554). The more scattered the exports and imports of a country are over different trade partners, the lower the *HHI*, where countries with a globally oriented export and import structure benefit from the variable trading partner diversity more than those with a regional trade structure (Gygli *et al.*, 2019:554). The differences between having one or multiple trade partners are shown in Figure 2.8.

One trade partner	Multiple trade partners
• Dependence on a single trading partner can be dangerous since it can have a big effect on the domestic economy if the trade partner experiences economic problems like a recession or political unrest. • Focusing on one trade partner may provide deeper market access and closer trade relationships. This can be advantageous for businesses that specialize in serving that particular market. • Political disagreements or conflicts with a single trade partner can significantly impact trade relations and economic stability.	• Diversifying trade partners increases risk aversion. The domestic economy has other partners to rely on in case one partner's economy faces difficulties, thus minimising the possible impact on the domestic economy. • Engaging with multiple trade partners can open up a wider range of markets, potentially increasing opportunities for trade and economic growth. • By having multiple trade partners, the impact of political issues with one partner may be mitigated by positive relationships with others.

Figure 2.8: The contrasts of having one trade partner vs. multiple trade partners

Source: Author's own compilation

Overall, having one trade partner and multiple trade partners can differ in terms of dependence, access to goods and services in the market, and negotiating power. Unlike with having one trade partner, multiple trade partners increase a country's negotiating power in trade agreements (Seiermann, 2018:8). This boosts a company's profile, enhances trust and credibility and boost brand reputation. Moreover, the licensed exchange of goods and services across borders, known as international trade, has led to the establishment of trade agreements and trade policies to encourage peaceful relationships between countries that rely on each other for growth and development (Diaz, 2022).

On the surface, trade appears straightforward, with two sides benefiting from the exchange: one acquiring essential commodities or services and the other receiving payment. However, there is a plethora of theory, policy, and business strategy that comprise international trade - including trade restrictions (Brooks, 2022). The sub-dimension of *de jure* trade globalisation refers to policies that encourage and facilitate trade between countries. It is measured using indicators such as trade regulations, trade taxes, tariff rates, and free trade agreements (Gygli *et al.*, 2019:556). These are imposed to protect local industries, safeguard domestic job, generating revenue, and prevent the dumping of goods which can severely affect a country's economy (Choudhary, 2023; Shewaye, 2021:9). According to Gygli *et al.* (2019:556), trade regulation is comprised of two sub-components: the prevalence of non-tariff trade barriers and the compliance costs of exporting.

The authors further show that variable trade taxes estimate the income from international trade taxes as a percentage of overall income in a country, and that the unweighted mean of tariff rates is referred to as variable tariff rates. The variables trade regulation, trade taxes, and tariff rates are shown as the

inverse of the normalised values, with greater values corresponding to a higher level of *de jure* trade globalisation (Gygli *et al.*, 2019:556). Trade barriers are governmental restriction to the flow of foreign goods or services. These include a range of tariff barriers, non-tariff barriers, and natural barriers. Natural barriers are numerous barriers to global trade that are not the result of individuals or governments (Choudhary, 2023). These may occur due to differences in language and cultures, challenging transport routes, trade compatibility of items, *etc.* Below, Table 2.4 defines a mixture of tariff and non-tariff barriers to international trade.

Table 2.4: Tariff and non-tariff barriers of international trade

Type of tariff	Description
Anti-dumping duties	Dumping is a serious problem that has a significant influence on domestic economies all over the world. Firms sell their goods at reduced prices in other nations to increase profits. This is referred to as Dumping. Governments apply anti-dumping levies on imports that they consider damaging to their domestic markets and manufacturers to prevent this process.
Technical barriers	These barriers might be classified as regulatory non-tariff barriers. Technical barriers necessitate the passage of imports through technical laws, standards, and conformity assessment procedures. The goal of these barriers is to help guarantee that the concerned imports are safe for general health, safety, and environmental and citizen protection.
Regulatory barriers	These are legal barriers erected by governments to regulate imports crossing the country's borders. Typically, the government attempts to accomplish this by establishing standards for product safety, pollution, and so on, and requiring imports to satisfy such requirements.
Currency devaluation	Based on the idea of foreign exchange rates, this type of trade barrier is designed strategically. Countries try to encourage exporting by making it more feasible and decrease importing by cutting profits through currency devaluation. Currency devaluation aids governments in managing payment balances and reining in inflation.
Embargoes	These trade restrictions are extremely stringent. Embargoes prohibit a range of trade operations between two countries, either entirely or partially. Governments typically launch trade wars or put embargoes on countries with whom they have tense relations. Embargoes are designed to harm the target nations' economies.
Subsidies	Governments subsidise manufacturers of goods by covering a predetermined portion of all manufacturing costs, regardless of the mode of production. The goal of subsidies is to assist home producers by lowering costs of production, increasing profitability, and enhancing competitiveness.
Local content requirement	This trade barrier is designed to safeguard the respective nations' economic interests. In this instance, governments place restrictions on the imported goods, stating that either a predetermined percentage of the imports in question OR a predetermined percentage of the imports' overall value are produced domestically.
Voluntary export restraints	This trade barrier is designed to safeguard the respective nations' economic interests. In this instance, governments place restrictions on the imported goods, stating that either a predetermined percentage of the imports in question OR a predetermined percentage of the imports' overall value is produced domestically.

Type of tariff	Description
Quotas	These are designed to limit the total quantity or total value of specific imports that are permitted to enter a particular country during a given length of time. Quotas are designed to increase demand for less expensive local alternatives by reducing the flow of competitive imported goods into local marketplaces.
Licenses	Governments allow companies to import items into the nation by granting them licenses or permits. These permits are typically granted to specific businesses or people to import goods that would otherwise be prohibited. Since licenses limit the competition among importers, the price of licensed imported goods is typically higher for end users.
Non-tariff barriers	These could be viewed as covert ways to obstruct global trade to restrict foreign goods into their borders while simultaneously optimising advantages for the regional market and industry. Non-tariff obstacles come in a variety of forms, such as unique requirements, procedures, guidelines, regulations, and legislation.
Retaliatory tariffs	Retaliatory tariffs can be applied by one nation against another when the other is the target of its levies. Countries use retaliatory tariffs to punish other nations that suffer from comparable economic hardships or to offset their own economic disadvantages.
Peril point tariffs	Peril point tariffs are imposed to restrict imports from foreign competitors that pose a threat to domestic industries. These tariffs are primarily intended to protect products or industries that struggle to compete with their foreign counterparts.
Ad valorem	<i>Ad valorem</i> is a Latin term that implies <i>according to value</i> . <i>Ad valorem</i> tariffs are levied on products according to a specific percentage of their value. <i>Ad valorem</i> tariffs are typically used to protect domestic manufacturers' interests by raising the cost of imports.
Specific tariffs	These are fixed tariffs or charges applied to a specific import unit. These specially imposed tariffs are known by the term since they differ based on the kind of imports.
Tariff barriers	Tariffs are explicit monetary charges imposed by the government on various types of imports, such as taxes, levies, or fees. Tariffs are the most prevalent types of trade obstacles that can be imposed on both commodities and countries. Tariffs are levies put on imported commodities that are borne by the customers who purchase those goods. These taxes are retained by the ensuing country's customs office.

Source: Ma and Lu (2011:72) and Choudhary (2023)

Fundamentally, trade barriers are designed to regulate and manage the flow of goods and services between countries to protect home industries, national security, and a range of economic and social interests. These barriers can be used for a variety of purposes, including protecting domestic industries from foreign competition in order to promote economic growth, protecting strategic industries critical to national security, generating revenue for the government, and ensuring that imported products meet certain quality and safety standards (Ma & Lu, 2011:72; Lashkaripour, 2020:33). While trade barriers can achieve these goals, they can also cause trade tensions and inefficiencies in the global market, thus policymakers must find a balance between protectionism and open trade for the benefit of their economies and populations.

- *Financial globalisation*

Trade and financial globalisation are interconnected phenomena that have altered the way products, services, and capital flow across borders, transforming the global economic landscape. Financial globalisation, particularly, is a situation where there is an integration of global financial markets (Akadiri & Adebayo, 2022:16312). *De facto* financial globalisation refers to the real-world, practical integration of financial markets and institutions across the globe. It is measured by capital flows and stocks of foreign assets and liabilities and includes components such as FDI, portfolio investment, international income payments and international debt (Gygli *et al.*, 2019:553). This *de facto* financial globalisation phrase encapsulates the real effects of financial globalisation on markets, economies, and financial institutions as they grow progressively interconnected and reliant on one another.

Financial integration improves emerging countries' financial resources and establishes a worldwide market (Ocampo *et al.*, 2000:230). It further encourages an acceleration of economic growth in emerging nations by lowering capital costs, raising productivity, transferring technology from developed to developing nations, and strengthening local banking sectors, among other strategies (Quinn & Toyoda, 2008; Bekaert & Harvey, 2011:7; Han & Zhu, 2013; BIS, 2017; Zahra & Hussain, 2022:51). On the downside, financial globalisation, like domestic financial liberalisation, can increase the risk of financial instability if not effectively managed (BIS, 2017). These risks include banking and currency crises, contagion, volatility, in addition to the significant macroeconomic and social costs these will cause (Sabirovna, 2022:2162; Dithurbide, 2022).

To broadly assess the components of *de facto* financial integration, the FDI component is, in fact, one of the essential aspects of financial globalisation. Previously used as a proxy for financial openness, FDI plays a core role in this process because it includes the investment of capital in a foreign country with the goal of establishing a long-term interest in a business enterprise (CFI, 2023). It also promotes deeper market integration by permitting investors to enter and participate in global markets which has been made possible by technological advancement and easier communication, making it simple for investors to discover opportunities and manage their investments across borders (UNCTAD, 2007:245). Economically, FDI has a substantial impact on both the investing and host countries' economic growth and development. It offers competition to improve productivity, capital, skills/experience transfers, and transfer of technology to the host country, which can enhance production and create employment opportunities (Onuorah & Nnenna, 2013:163). This often results in economic growth and can strengthen economic relations between countries.

Furthermore, FDI can impact a country's BOP and exchange rates (RBA, 2023:2). Although a reasonable inflow of FDI is preferred due to the benefits it offers (such as more capital to support economic growth, development, eliminate public debt etc.), there is still a need for a country to mitigate

the risks associated with fluctuations in international capital flows (Kose & Prasad, 2023:46). This can be done in the form of a fixed exchange rate regime. Additionally, the BOP also accounts for portfolio investments, which accounts for the purchase of various financial instruments such as mutual funds, stocks, bonds, exchange traded funds (ETFs), or other types of securities to earn a return based on the risk profile and return expectations (Srivastav, 2023). However, in contrast to direct investment, portfolio investment occurs such that the investor does not have an influence in the operation of the business (RBA, 2023:3).

Portfolio investments have become increasingly global as investors seek opportunities across international markets (Shabbir & Muhammad, 2019:167). The primary purpose of portfolio investing is to diversify risk. Investors in this case disperse their risk by investing in a diverse range of assets across businesses, regions, and asset classes (CFI, 2023). A portfolio's risk and return profile is determined by the types of assets it contains in which equities have more potential for rewards, but they also carry a higher level of risk and market volatility (Silva, 2023). Bonds, on the other hand, are thought to be less risky but tend to have lower potential returns (CFI, 2023). Portfolio investments are subject to regulatory and tax considerations, which differ depending on the country and asset type; and are also sensitive to economic factors, market conditions, and geopolitical events can all have an immense effect on portfolio investment success (Grauer & Shen, 2000; Franken & Cook, 2019).

Together, FDI and portfolio investments contribute significantly to a country's international income payments (Joyce, 2021:607). When a country's firms invest abroad (via FDI or portfolio investments), they may receive the income in the form of earnings, dividends, or interest. Foreign enterprises that invest in a country, on the other hand, will produce income there. International income payments are the transfers of funds between countries because of various sources of revenue received by individuals, businesses, or governments globally (RBA, 2023:3). Figure 2.9 depicts the various types of international income payments. These payments are a critical component of a country's BOP (recorded in the current account) and involve a wide range of financial exchanges and are critical to understanding the global economy (RBA, 2023:3). A continuous deficit in international income payments may imply economic imbalances, potentially necessitating the use of foreign borrowing or the implementation of economic reforms. A surplus, on the other hand, can indicate a good economic situation.

Moreover, exchange rate fluctuations can impact the value of international income payments (Shaikh & Roushanara, 2022:10; Mallik *et al.*, 2023:7). If a corporation produces profits in a foreign currency, for example, changes in exchange rates might alter the value of those profits when converted into the company's national currency. International income payments also include remittances, which are international income payments sent by migrant workers to their home nations, are a crucial source of income for various developing countries (Song *et al.*, 2021:265; Ratha, 2023), as they can have a substantial impact on the economic well-being of recipient countries.

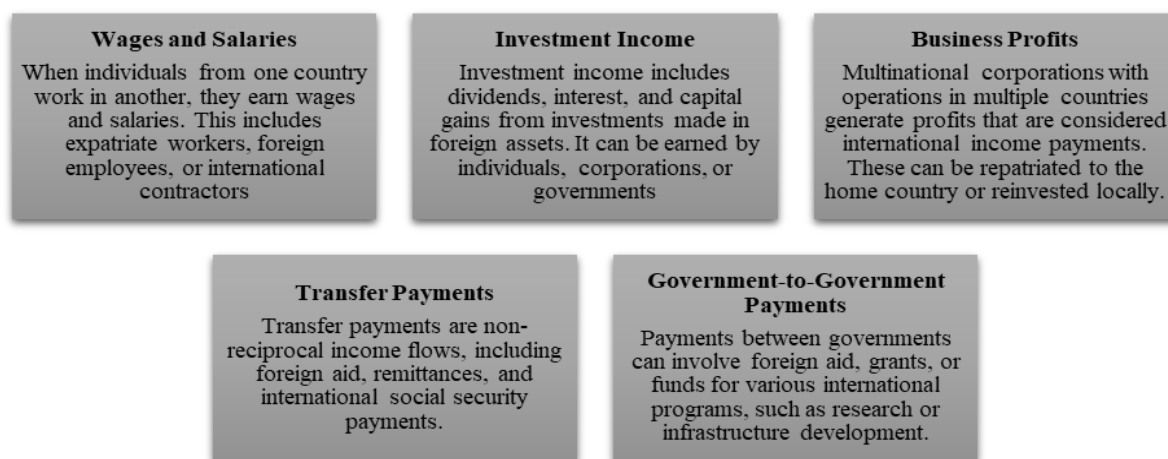


Figure 2.9: Types of income payments

Source: RBA (2023:3)

International debt frequently requires large amounts of international income in the form of interest and principal repayments. International debt, sometimes known as external debt, encompasses the total amount of money owed by a country to international financial institutions, commercial banks, or foreign governments; and can take numerous forms, such as loans, bonds, or other financial instruments (Vaidya, 2023). The formation of public debt is a natural repercussion of economic activity to achieve economic development, currency stabilisation, and avoiding budget deficits (IMF, 2003:171). Typically, national governments borrow from foreign financial institutions to fund infrastructure projects, upgrade education and healthcare systems, and boost economic growth (Abdelaziz, 2019:760; Mijiyawa, 2022:1692). In addition, studies show that whenever government expenses start exceeding receipts, countries may borrow abroad to address budget deficits (Adamu, 2019:51; Mijiyawa, 2022:1692). In countries that are highly euroized(dollarized), they tend to benefit from borrowing in foreign currencies to maintain or increase their foreign exchange reserves and maintain financial stability (Brkić, 2021:73).

Furthermore, in a globalised world, a debt crisis on a global scale can have far-reaching implications on financial markets, cause economic downturns, and require international cooperation to find solutions (World Bank, 2023). However, debt relief initiatives have been launched by some international organisations such as the IMF, World Bank, and African Development Bank to assist heavily indebted poor countries (HIPC) in reducing their debt burdens (IMF, 2023). The key objective of these initiatives is to free up resources to eliminate poverty and encourage development by assisting these countries reduce their debt burden (African Development Bank, 2023). The initiative advocated for voluntary debt relief from all creditors and provided qualifying countries with a fresh start on foreign debt that had imposed an undue burden on debt service resources (World Bank, 2023).

The above-mentioned international organisations play an important role in *de jure* financial globalisation as they create frameworks, regulations, and lending programs that promote financial stability and cooperation among countries (Chen, 2003:7). The sub-dimension *de jure* financial globalisation measures the openness of a country to international financial flows and investments (Gygli *et al.*, 2019:556). It refers to the formal and legal aspects of the globalisation of financial markets and transactions, the structure of which is driven by international organisations, governments, and the legal systems (Peters, 2021). In an increasingly interconnected world, the key elements of *de jure* financial globalisation (*see* Table 2.5 below) are critical for fostering economic growth, facilitating international trade and investment, and ensuring financial stability in the capital markets.

Table 2.5: Key element of *de jure* financial globalisation

Element	Description	Source
International agreements and treaties	<i>De jure</i> financial globalisation often includes international agreements and treaties such as trade agreements, investment treaties, and financial cooperation agreements that establish rules and standards for financial transactions that govern cross-border financial transactions.	United Nations (2023)
Financial regulation and supervision	Countries pass legislation to control and oversee financial markets and institutions. <i>De jure</i> financial globalisation could include consolidating these regulations, developing worldwide standards, and establishing systems for regulatory collaboration and information sharing.	Dordevic <i>et al.</i> (2021)
Currency and exchange rate arrangements	<i>De jure</i> financial globalisation might involve currency exchange rate agreements and arrangements, such as currency pegs, currency boards, or membership in currency unions, which can have substantial ramifications for international financial activities.	RBA (2023)
Bilateral and multilateral treaties	Countries often engage in bilateral or multilateral treaties and agreements to facilitate cross-border financial activities, including trade finance, investment protection, and double taxation avoidance.	United Nations (2023)
Financial market infrastructure	Legal frameworks are required for the global financial market infrastructure to function. This covers stock exchange laws, clearing and settlement systems, and payment and settlement systems such as SWIFT (the dominant global system for cross-border payments).	RBA (2023); Guo <i>et al.</i> (2015)
Banking and financial services	Legal and regulatory frameworks governing international banking and financial services are central to <i>de jure</i> financial globalisation. They include banking licenses, prudential regulations, and cross-border banking operations.	BIS (2003)

Element	Description	Source
Intellectual property rights	This involves the protection of intellectual property rights, such as patents, copyrights, and trademarks, since these rights influence cross-border trade and investments in industries like technology, media, and pharmaceuticals.	Saha and Bhattacharya (2011)
Dispute resolution mechanisms	To handle issues that may emerge in cross-border financial transactions, international financial agreements frequently include procedures for dispute resolution, such as arbitration or international courts.	Caichiolo (2016)
Legal barriers and restrictions	<i>De jure</i> financial globalisation might entail removing legislative barriers and prohibitions on foreign investment, money flows, and the development of financial institutions, hence enabling more market access and competition amongst countries.	Kose <i>et al.</i> (2006)
Securities and capital markets	Legal frameworks governing securities issuance, trading, and disclosure requirements impact the operation of international capital markets and cross-border investments.	Spendelow (2023)
Taxation agreements	Bilateral and multilateral tax treaties and agreements can facilitate cross-border financial activity and investment by clarifying tax requirements and reducing double taxation.	United Nations (2023)

Source: Author's own compilation from literature

2.3.1.1 *Economic globalisation perspectives*

Within the context of globalisation perspectives, the interaction between *de facto* and *de jure* economic globalisation is revealed in the theories and perspectives of scholars on the multifaceted nature of an integrated world. With its various definitions from different authors and scholars, it has typically been claimed that globalisation is a continuation of internationalisation and that it represents the inevitable demise of national governments as the countries became more integrated (Donatelli & Mangin, 2023). For decades, globalisation has been a continuous hot debate amongst which has had profound implications for economic processes globally (Rashid, 2022). However, as the phenomenon advanced over the years, the debate has focused on the consequences of globalisation and whether they were worth it (Giddens, 2000). Academics are divided by their views on the gradual progress of globalisation. As Held, McGrew, Goldblatt, and Perrato (1999) outlines, these academics are known as the *hyperglobalists* (or *hyper-globalisers*), the *sceptics*, and the *transformationalists*. Figure 2.10 provides the key points of each perspective, which are useful for comprehending different academics' claims, ideas, and narratives.



Figure 2.10: The main arguments of the *hyperglobalist*, *sceptics*, and *transformationalists* perspective on globalisation

Source: Song, Li and Cao (2018:6)

According to Held *et al.* (1999:1) globalisation demonstrates growing integration and interconnectedness in economic, political, and social challenges around the world. To contextualise globalisation, they construct an analytical framework using three ideas known as *hyperglobalists*, *transformationalists*, and *sceptics*. *Hyperglobalists* maintain that globalisation is an economic driven and perpetually beneficial phenomena because it strengthens the economy and promotes high prosperity and democracy throughout society (Kelly, 2018). Globalisation is seen as "bringing about a denationalisation of economies through the establishment of transnational networks of production, trade, and finance" by proponents (Held *et al.*, 1991:3). The phenomenon is viewed as a unique condition of human society (Munar 2007), characterised in its ideal form by an interconnected global economy (Song *et al.*, 2018). The hyper-globalists believe that present-day globalisation is inherently linked to the decline in the government's power and authority (Dreher *et al.*, 2008:5). They support globalisation because it allows for more government spending through quick and easy external borrowing. They may also view public debt to be hazardous since it limits a country's ability to engage in the global market, and they may recommend that these countries lower their public debt to remain competitive in the global economy.

The *sceptics*, however, do not accept the idea of global governance and argue that there is nothing fundamentally new about globalisation, but it is just a continuing form of internationalisation from the

19th century (Solakoglu, 2016). Although they also consider globalisation to be economic driven, they insist that globalisation is unnecessarily overhyped. The *sceptics* do not embrace the idea of globalisation as much as *hyperglobalists* and question the benefits thereof by focusing on and expecting the costs to outweigh the benefits and cause global inequality (Dreher *et al.* 2008:25). Their stance on globalisation remains that governments are institutions with varying power and control over their economies so that the impact of globalisation is different in all countries and different across the world, hence the global inequality (Axford, 2013:13).

Furthermore, they also argue that globalisation poses a grave threat to social cohesion owing to the increased and intense competition and individualism (Axford, 2013:13). Sceptics hold a more traditional perspective that people are indeed constrained within country governments due to barriers to mobility (Cohen 2012:3) and that civilizations are fragmented into several blocs rather than a homogenized global culture (Held *et al.* 1999:2). Although they might view public debt as an issue, they may not see it as an urgent matter like the *hyper-globalists* do, in fact they might argue that extreme concern over debt levels in a country can result in austerity measures that will dismally affect economic growth and social programmes.

Finally, transformationalists postulate that globalisation follows a non-linear development trajectory and an ongoing process that has a real impact on governments and the way they operate and implement policies (Solakoglu, 2016). In a sense, transformationalists embody a compromise between the previously mentioned perspectives. Technological, economic, social, and political factors are driven by globalisation which is currently reshaping world order and modern society. Albeit transformed, the government still has a vital role (Dreher *et al.*, 2008:5). Held *et al.* (1991) have a rather complex explanation of globalisation based on its impact, speed, depth, and spread and how it affects uneven development, institutions, infrastructure, and public debt. In this case, public debt would be shaped by social values, domestic politics, and global economic trends. Moreover, external forces regarding education, immigration, labour, and policies would also change the way that the national government operates and spends (Solakoglu, 2016).

Unlike the *hyper-globalist* and *sceptic's* view which places more emphasis on either the good or bad presented by globalisation, the transformationalist position allows them to view globalisation as a double-edged sword that can present countries with both opportunities and problems (Martell, 2007:186). Therefore, transformationalists may assert that countries can incur debt on condition that it is strategically invested in public goods that will yield long-term development and economic growth. The globalisation theories and perspectives offer important insight into how globalisation affects governments, how they view globalisation and their stance on public debt.

2.3.1.2 *Economic globalisation measurements*

The conflicting perspectives of globalisation has also raised questions as to the appropriate way that the phenomenon should be measured. As the world continues to be altered by the rapid globalisation of economic activity, the process also continues to raise concerns in many nations, thereby prompting an urgency to provide solutions, manage, and widely distribute the benefits thereof (OECD, 2010). Throughout the years, various measures and indices have been established by scholars to understand the degree and impact of globalisation. Both researchers and social commentators have failed to have a unanimous opinion on the degree of globalisation as some have highlighted the positive and negative connotations, and some arguing that globalisation is entirely overstated (Fiss & Hirsch, 2005:33-34; Ghemawat, 2007, Dreher *et al.*, 2008:3).

While some use data on aspects such as labour markets or financial mobility to support their argument that globalisation is becoming more important, others point to trade volumes comparable to the pre-World War I era (Lutkevick, 2023). Objective indicators are required if the consequences of globalisation are to be evaluated in a scientific and rational way. Dreher *et al.* (2008:3) asserts that data on trade, immigration, and foreign direct investment (FDI) flows alone are insufficient to determine how much (or how little) a country is becoming more (or less) globalised at any point in time. Additional information is needed. Instead of selecting certain factors that best fit a given author's ideology, the authors believe that a measure of globalisation must be constructed independent of any specific study aim. Indeed, there have been numerous attempts by scholars to provide reliable tools for measuring globalisation (AT Kearney, 2001; Dreher *et al.*, 2008; Vujakovic, 2010; Gygli *et al.*, 2019).

Notwithstanding the different methods and beliefs, these measurements are important as they provide essential knowledge on the global interconnectedness of countries, the flow of products and services, the spread of information and ideas, and the overall integration of economies and societies. To assess the benefits, costs, and causes of globalisation in detail, it needs to be measured, which will provide direction on how globalisation is to be managed (Dreher *et al.*, 2008:5; Gygli *et al.*, 2019:544). For policymakers, being able to measure globalisation would assist them to make informed decisions and execute policies that will be effective (Yester, 2009). The information obtained is valuable when identifying investment opportunities and trade partners; designing policies that alleviate side effects and extend benefits of globalisation; and spotting incipient opportunities or challenges to adjust policies accordingly (Vujakovic, 2010:14; Houseman, 2015:170; Lagarde, 2016; Haelg, 2020:619).

In this coming section, several methodologies used to gauge globalisation are highlighted, each of which provides a distinct perspective on this intricate and ever-changing global phenomenon. These data, which range from economic indicators to cultural exchange markers, allows scholars, commentators,

and policymakers to comprehend the breadth and depth of globalisation's impact on our interconnected globe.

- *Single indicators*

Scholars have long relied on specific proxies, such as trade and FDI, as measurements of globalisation to analyse the causes and effects of this phenomenon (Zafar & Butt, 2008:13; Sinha, Arora, & Bansal, 2011:15; Çolak & Özkaya, 2020:896;). When trade openness is utilised as a proxy, it is measured as the sum of a country's exports and imports as a share of that country's GDP (Our World Data, 2023). FDI on the other hand is defined as an investment made by a firm or individual in one country into a business in another (OECD, 2023). Both proxies capture the international trade and investment aspect of globalisation and provides knowledge into the extent to which a country is integrated into the global economy (Ortiz-Ospina & Roser, 2023). They may, however, not be appropriate for all research questions.

While Dreher *et al.* (2008:25) do acknowledge that these single indicators are frequently used in empirical literature because they shed light on the fundamental elements of globalisation processes, others argue that they do not provide a comprehensive picture of these processes (Mikalauskiene *et al.*, 2016:85). Because they cannot capture the complexities of the phenomenon, single indicators may lead to oversimplification and may fail to accurately show the interaction and nuances of various components of globalisation (Heimberger, 2020). Therefore, findings may not be accurate or dependable, leading to an implementation of policies that are ineffective or counterproductive.

Furthermore, using a single indicator could magnify one component of globalisation while downplaying or disregarding other equally essential aspects (Heimberger, 2020). In fact, they emphasise the economic realm the most (trade and investment), which reflects the predominance of these activities in the discourse on the topic (Gygli *et al.*, 2018:4). Focusing simply on economic statistics, overlooks social or environmental consequences. However, despite these shortcomings, there are advantages to using single indicators. To be sure, the use of single indicators has offered the framework for most of the discussions and empirical literature around globalisation (Lombaerde & Iapadre, 2008:7). Their simplicity makes them easy to understand and communicate, which also makes them accessible to the public and policy makers (Gygli *et al.*, 2019:547).

- *AT Kearney/Foreign policy (KFP) globalisation index*

The shortcoming of single indicators as mentioned above indicate that measuring globalisation requires comprehensive measures to properly analyse the consequences of globalisation (Dreher *et al.* 2008:25). Sure enough, scholars have constructed more inclusive composite indicators to measure the multifaceted phenomenon. Serving as a model for several subsequent indexes, is the A.T.

Kearney/Foreign Policy Globalisation Index (ATK/FP) which was launched in 2001 continuing until 2006, making it one of the first globalisation index (Gygli *et al.*, 2018:8). The KFP was developed by the A.T. Kearney company in collaboration with the Foreign Policy magazine. Simply put, it ranks 62 countries in four categories: economic integration, social interaction, technical connectedness, and political participation to form an index (Amburn, 2009). The countries account for 85 percent of the global population and more than 95 percent of global economic output. The index was created in four stages, like the UNDP's Human Development Index (Lockwood, 2001:1) as shown in Figure 2.11 below:

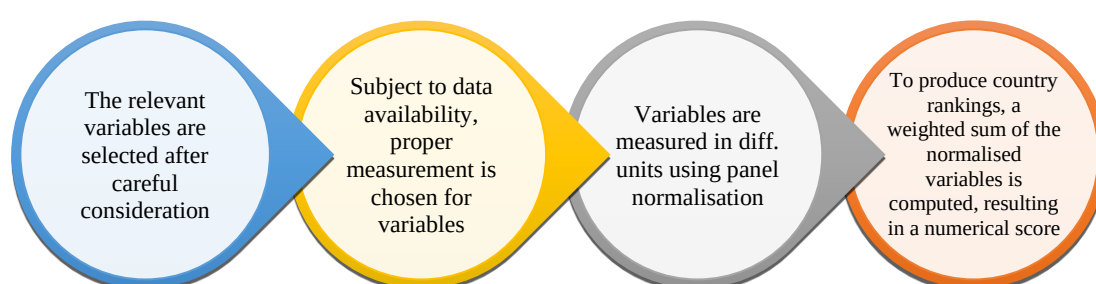


Figure 2.11: Stages towards creating the KFP index

Source: Samimi, Lim and Buang (2011:8)

Furthermore, the KFP index uses 12 indicators divided into four categories: Economic integration (trade and FDI flows), Technological connectivity (number of internet users, internet hosts, and secure servers), Political engagement (membership in international organizations and treaties, contributions to UN peacekeeping, government transfers), and Personal contact (international travel and tourism, international telephone traffic, personal cross-border financial transfers) (AT Kearney, 2001). By comparing their index to various metrics of well-being and economic progress, they further attempt to examine the consequences of globalisation on the so-called "race to the bottom," at least in terms of social and environmental standards (Dreher *et al.* 2008:27). The weighting is assigned according to construction belief and the variables are weighted double or single in relation to others (Samimi *et al.*, 2011:9). The justification for a priori weights is that they have some normative significance and authors have found that this is not a reasonable approach (Lockwood, 2001:2).

- *KOF globalisation index (KOFGI)*

The KOF Globalisation Index, which was influenced by the KFP, was launched in 2002, and was updated in 2007 (Dreher, 2006; Dreher *et al.*, 2008:27). Introduced first by Dreher (2006) the KOF (*konjunkturforschungsstelle*) globalisation index is a multidimensional approach to globalisation. It is a composite index that ranks globalisation along economic, social, and political dimensions for every country on a scale of 1 (least globalised) to 100 (most globalised) (Haelg, 2020:691). Furthermore, the KOFGI include a large panel dataset for 203 territories and countries from 1970 to 2021, with 43 individual variables aggregated to a *de jure* and *de facto* index that includes one overall index, three dimensions (economic, social, and political), and five sub-dimensions (financial, trade interpersonal, cultural globalisation, and informational) (Gygli *et al.*, 2019).

Trade and financial globalisation are subcategories of economic globalisation while interpersonal, information, and cultural globalisation are the three subcategories of social globalisation. Financial indicators (such as FDI asset and liability stock, portfolio investment as a proportion of GDP, total capital income, cross-border labour, and primary income) and trade flows as a percentage of GDP comprise the *de facto* economic globalisation sub-index (Bataka, 2019:141). Martens *et al.* (2015:220) advise against incorporating both *de facto* and *de jure* indicators of economic globalisation into a single index due to potential distortions in later applications. In fact, Quinn *et al.* (2011) demonstrates that when the influence of financial globalisation on GDP growth is examined, *de jure* and *de facto* indicators provide systematically different outcomes. This is because *de jure* indices of financial globalisation do not reflect the amount to which actual capital flows change in response to statutory constraints.

While the KOFGI covers all the three main globalisation areas, therefore covering a wide range of data, not all data are available for all countries and years (Gupta & Muther, 2022:5). Also, with KOFGI it is so much simpler to make comparisons between countries, but the index does not capture the effect that globalisation may have on other groups or sectors in a country (Heath, 2014).

- *New globalisation index (NGI)*

The next index to be introduced in 2010 was the NGI, developed by Vujakovic (2010:3). The New Globalisation Index (NGI) adopted distance weighting of various variables to differentiate globalisation from regionalisation (Vujakovic, 2010). Instead of depending solely on economic data, it compensates for the multidimensionality of this phenomenon with its 21 variables. The principal component analysis is used to create the globalisation dimensions and variable weights. Dimensions and weights produced in this manner reflect the statistical properties of the dataset (Samimi *et al.*, 2011:10). Furthermore, in the economic field, the additional variables included attempt to differentiate between services and items traded, including stock variables in portfolio investments and the volume of trademarks and intellectual property (Mikaklauskienė *et al.*, 2016:89). Globalisation, according to this index, is defined as a process

that enhances interaction and interdependence between economies, communities, and nations across great distances (Samimi *et al.*, 2011:10). The developer used a parameter to control geographical distances between countries.

- *DHL connectedness index*

Ghemawat and Altman (2016) proposed the DHL connectivity index, which rather than measuring globalisation *per se*, the index measures connectivity. This is accomplished by concentrating on four key dimensions, which are primarily economic in nature. These reflect a nation's involvement in transactions involving international flows of capital, information, people, and goods and services (Ghemawat and Altman, 2016:14). Furthermore, the DHL index distinguish between the breadth and depth of globalisation and the many characteristics of global integration. Breadth refers to how similar the flow distribution is between a country and its partner countries with respect to the various geographical locations they can infiltrate (Draper *et al.*, 2014:30). Depth, on the other hand, speaks to the comparison made between international activity and size of a local economy, if only to reflect the essence of these flows within the domestic context (Saville & White, 2016:84).

The Global Connectedness Index rates 125 countries in accordance with their integration into the global economy. It offers an in-depth review of the flows that connect the world (Global Edge, 2023). According to the 2022 report, globalisation is still not as advanced as most people believe, and that sustained economic integration might promote considerable global GDP increases since global connection has a vast capacity to grow, even among the most connected countries (Altman & Bastian, 2022). The index measures globalisation at the national level, which has limitations. It does not account for the complexities of globalisation at the subnational or regional levels.

2.4 UNDERSTANDING THE RELATIONSHIP BETWEEN PUBLIC DEBT AND ECONOMIC GLOBALISATION

Understanding the nuances of economic globalisation is critical for comprehending the intricate relationship between public debt and economic globalisation, as it sheds light on how global economic forces and international financial institutions influence a country's debt dynamics and ability to navigate the challenges of an interconnected world. Previous studies (Ying, Chang & Lee, 2014:33; Olimpia & Stela, 2017:38; Heinze, 2020:4; Verico & Pangestu, 2021:89) have often provided in-depth analyses of how economic globalisation affects different elements of the economy in terms of its economic growth, development, poverty, and inequality, among others. While this to some extent affects how the government operates and spends, there is a proven need for permanent and diligent research on elements that affect governments' debt in this study area to assist policymakers to sustain debt levels and avoid a spiral effect (Bataka, 2021:2).

This study forms part of this dynamic. This connection is intricate and multifaceted, often not following a straightforward path and sometimes manifesting as a secondary consequence through various channels. This complexity arises due to its dependence on factors such as the global economic context of the country, its fiscal policy framework, and its stage of economic development (Panizza & Presbitero, 2013:198). Globalisation could either raise a country's public debt by causing financial instability, decreasing tax collections, and raising borrowing costs (de Jongh, 2023). Then again, public debt can in turn have an impact on economic globalisation by restricting a nation's access to foreign investment and trade (Bataka, 2021:2).

This speaks to the aim of this section of the chapter, which is to emphasise the ways in which public debt and economic globalisation can be interconnected. In doing so, it is essential to first determine what the cost and benefits of economic globalisation are in relation to public debt. Although the cost and benefits of globalisation generate an extensive list in literature, this study focuses on those that are most relevant to the study (Table 2.3 depicts this).

As shown in Table 2.3, looking at research on the element of foreign competition, globalisation offers opportunities to firms, but also poses some threats too (Greenaway, Gullstrand & Kneller, 2008:264). Venâncio and Chowdhury (2020:265) refer to foreign competition as a “double-edged sword” (see summary in Table 2.6) which unveils new business ventures and encourages the use of new technology but can also force existing firms to go out of business and lower demand for unskilled workers because of the fierce competition. The presence of competition, however, encourages innovation, ameliorate productivity, and boost income (World bank, 2018). Economies are therefore able to benefit from comparative advantage and specialisation brought about by international trade policies to increase efficiency, boost productivity, and improve resource allocation.

Furthermore, the ‘borrowing costs’ factor could also pose as a predicament for countries with weak credit ratings and high interest rates but also reduce costs due to there being a bigger pool of potential lenders for a country. Azzimonti *et al.* (2014:2278) assert that when a government borrows more, interest rates spike, taking along the cost of borrowing. In a globalised world weak credit ratings play a crucial role. Studies have reported a negative relationship between debt and ratings, suggesting that when a country has high debt levels, the probability of being placed in a higher rating category is lower (Hadzi-Vaskov & Ricci, 2019:33). When this is the case, borrowers are more likely to demand higher interest rates to compensate for the perceived risk. Fortunately, for countries that are not at risk, economic globalisation can make it easier and cheaper for governments to easily access capital and finance their operations, potentially reducing public debt (Hashemi-Pour, 2023).

This easy access to capital requires a capable and responsible government that will ensure that that capital is utilised productively to augment economic growth and reduce the need for constant

government borrowing. A study by Butkus and Seputiene (2018:2) confirms that there exists an inverted U-shaped debt-growth relationship with clear debt turning point dependence on government effectiveness. Between the increased trade and economic growth resulting from economic globalisation (as shown in Table 2.3), there is also a close relationship between the two factors where intensified international trade can accelerate economic growth and consequently an increase in revenues.

This has been supported my research where studies have found a positive correlation between international trade and economic growth, showing that countries that engage in more trade are more likely to enjoy economic growth (Ortiz-Ospina, 2018; Czyżewski, 2021:22; Market Insights, 2022). Caleb, Mazanai and Dhoru (2014) have also utilised co-integration to prove that trade and economic growth will move in the same direction in the long-run. While this might be the case, there could also be distributional repercussions where job opportunities and wages will be affected (World Bank, 2018). This further proves the intricacies that exist on the topic of globalisation and public debt. Trade balance also plays a role in the level of indebtedness of a country.

Governments borrow to cover budget deficits, which raises the country's debt. As a result, the link between the budget balance and the trade balance can also be seen as a relationship between debt and trade balance (Butkus & Seputiene, 2018:5). The Keynesian "twin deficit hypothesis" proposes a close relationship between the fiscal and trade deficits. The twin deficit hypothesis, or double deficit, occurs when a country is simultaneously experiencing a current account deficit and a fiscal deficit (Strategic CFO, 2013). In that case, the country consequently becomes a debtor to the rest of world, with a devalued currency in the long-run (Strategic CFO, 2013). In the working paper titled "*The twin deficits hypothesis in developing countries: Empirical evidence for Ghana*" by Sakyi and Opoku (2016), the authors provide evidence of the "twin deficit hypothesis" and show that fiscal deficit improves the current account deficit.

Additionally, while financial integration is a mechanism for enforcing fiscal discipline there can also be some regulatory challenges. In a globalised world, governments become subject to intense scrutiny from credit rating agencies and international investors which increases transparency and accountability on their end. This encourages the adoption of fiscal rules that legally bind constraints on governments expenditure or borrowing to ensure that it is sustainable over the long-run and makes it more challenging for the government to circumvent these rules (Botta *et al.*, 2023:187). Fiscal integration, for example, has been proposed in the eurozone as a mechanism to ensure that member countries adhere to shared fiscal standards and avoid unsustainable deficits (Allard *et al.*, 2013:5). This can aid in the prevention of budgetary imbalances and the promotion of macroeconomic stability. There are, alas, some regulatory challenges accompanying globalisation as it poses a hurdle for governments that want to regulate multinational corporations and enforce environmental, labour, and other regulations (Lodhi, 2021:522). This can have significant social and environmental consequences, as well as increasing

government spending and debt in future (to be discussed further in the *efficiency* and *compensation* hypothesis).

Furthermore, financial integration is a plausible channel through which shocks are transferred across countries (Tang & Yao, 2022:1). The financial crisis, case in point, where stock market downturns caused significant spillover effects in other economies in the international financial realm. Countries that heavily relied on exports and had high levels of foreign debt were adversely affected by the predicament. This led to a decrease in government revenue and an increase in public debt. Globalisation intensifies the risk of financial crises, economic instability, and the necessity for government bailouts which can increase debt in the short-run. A country is in this case exposed to global economic conditions and fluctuations in international markets. This has a significant on the country's ability to survive its debt. For example, if a country's currency depreciates significantly, its debt burden may increase if it has borrowed in foreign currency.

Table 2.6: A summary of costs and benefits of economic globalisation in relation to a country's public debt

Benefits	Costs
Increased economic growth	Increased volatility and risk
Low borrowing costs	Higher borrowing costs
Access to capital	Reduced fiscal flexibility
Improved fiscal discipline	Revenue loses
Lower inflation	Increased competition
Improved allocation of resources	
New technology and business opportunities	

Source: Author's own compilation from literature

2.4.1 Possible channels through which trade globalisation may affect public debt

2.4.1.1 Increased dependency on imports and trade deficits

As already established, an economy that is open to trade engages in the global trade and import of goods and services with other countries (OECD, 2023). However, if a country becomes more reliant on imported vital resources, this leads to trade imbalances and continuous trade deficits (WEF, 2022). In literature, this is referred to as a current account deficit which implies that the country is spending more on its imports than it earns on exports, consequently creating a negative balance of trade (IMF, 2023). This may very well lead to changes to in employment for the country suffering the deficit, potentially deflation, and decrease in economic growth seeing that trade deficit is one of the factors of GDP

(Sharma, 2022). However, to finance the deficit, the government might resort to borrowed funds or accumulate more debt from external lenders, which leads to an increase in the debt stock. This process is depicted in Figure 2.12.



Figure 2.12: Export dependency channel

Source: Author's own compilation from literature

2.4.1.2 *Export earnings volatilities*

Open trade comes with exposure to international market fluctuations (United Nations, 2016:21). The uncertainty in export revenues and economic growth caused by economic shocks makes countries that depend heavily on exports particularly vulnerable. Furthermore, a country's export earnings can significantly be affected by a shift in global demand, exchange rates, and commodity prices (European Central Bank, 2016). Decreasing export revenues create a fiscal gap, reduces trade tax revenue, and creates a strain on the government budget as this will require some compensation for the shortfall (see process in Figure 2.13). This could be done through increasing public expenditure or borrowing, consequently contributing to an increase in public levels (Isiaka *et al*, 2022:110).

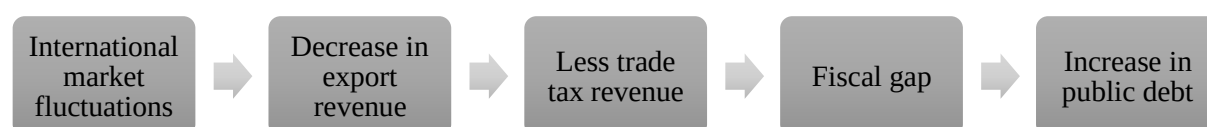


Figure 2.13: Export earnings channel

Source: Author's own compilation from literature

2.4.1.3 *Vulnerability to external shock*

In the global trade realm, participating countries are vulnerable to economic downturns and external shocks (United Nations, 2016:21). This shows that a global economic recession or decrease in international demand can gravely harm economies that have a high dependence on exports or imports, like developing and least-developed economies (Kose *et al.*, 2021). The decrease in export revenue reduces government revenues and this leads to a budget deficit that the government may finance through borrowing, resulting in a higher debt stock (illustrated in Figure 2.14).



Figure 2.14: External shock channel

Source: Author's own compilation from literature

2.4.1.4 Structural adjustments and economic globalisation

Global economies are currently more integrated with the global economy than ever before. Since then, there have also been fundamental shifts in economic policies that comes with integration processes (Heintz, 2006:1). These policies have stressed maintaining low levels of inflation, opening markets, limiting the size of the public sector, and facilitating cross-border flows of products, services, and financial markets, but not labour (Heintz, 2006:1). Economic liberalisation policies guide trade openness, which includes removing some of the trade barriers, stimulating foreign investment, and deregulating markets (Smith, 2013), also shown in Figure 2.15. Although these policies are economically beneficial in the long-run, they require the support of the government through social programmes, education, infrastructure, etc (Mester, 2017). This sort of expenditure may also increase public debt levels.



Figure 2.15: Structural adjustments and economic globalisation channel

Source: Author's own compilation from literature

- *Currency depreciation and debt servicing*

Countries in the global world where capital and goods move freely are exposed to currency exchange rate fluctuations (Park *et al.*, 2020:11). Foreign debt repayments are highly influenced by exchange rates which means that if a country's exchange rate were to decrease significantly, the cost of servicing currency-denominated debt, such as the US dollar, increases (Augustine, 2019:17). The situation becomes even more problematic when a country carries a large amount of debt denominated in foreign currencies, as the debt burden worsens when their domestic currency becomes weaker, a sad reality for most undeveloped countries (Park *et al.*, 2020:11). According to Augustine (2019:17) the basic trend analysis of the variables in her study shows that; for countries with a high initial sum, a depreciation in

currency leads to rising external indebtedness and/or high debt servicing costs. This process is depicted in Figure 2.16.



Figure 2.16: Currency depreciation and debt servicing channel

Source: Author's own compilation from literature

It should be noted that the relationship between trade openness and public debt is complex and impacted upon by a variety of other factors, including fiscal policy, domestic economic conditions, and government borrowing habits. While trade openness has the potential to increase public debt, it also could increase economic growth, job creation, and government revenue through exports. Effective fiscal management and sensible borrowing practices are critical to ensuring that a country's trade openness benefits it without causing unsustainable levels of public debt.

2.4.2 Channels through which financial globalisation affects public debt

Financial globalisation, which is the increasing level of integration of cross-border capital flows and overall financial markets, may influence the public debt dynamics of a country through the following channels:

- *Access to foreign capital*

To be sure, the exposure to capital markets and financial liberalisation policies have certainly made access to foreign capital easier and timely (Hashemi-Pour, 2023). While this can be advantageous for financing productive investments and economic progress, it also exposes countries to the risk of increasing their external debt (Yeboua, 2022). Financial globalisation broadens the pool of investors who can purchase and sell government bonds, influencing interest rates and the government's borrowing costs. Azzimonti *et al.* (2014), for example, show that when financial markets grow more internationalised, governments may pick larger levels of debt because the interest rate is less responsive to the supply of their own debt. Furthermore, with portfolio investments, there is no direct influence on a country's debt level, but they do have an impact on the country's overall financial stability. Large-scale foreign portfolio outflows during times of economic uncertainty can wreak havoc on financial markets and undermine a country's capacity to access capital markets, potentially leading to increasing reliance on debt (Rodini, 2023).

- *Foreign currency denominated debt*

When countries are integrated financially into the global world, they may be able to obtain foreign currency-denominated debt instruments (The Economic Times, 2023). On the upside, governments and corporations may issue bonds or take loans in other currencies to take advantage of lower interest rates or to reach a larger investor base. Foreign currency debt, on the other hand, might subject governments to exchange rate risk (Ijoema, 2013:185). If the country's currency falls significantly in value relative to the foreign currency, the cost of servicing the debt may rise, potentially leading to debt repayment difficulties.

- *Capital inflows and current account imbalances*

The effects of financial globalisation can result in large capital inflows into a nation. These inflows could take the shape of short-term speculative capital, portfolio investments, or foreign direct investment (CFI, 2022). When capital inflows are mostly speculative and short-term, they can intensify current account imbalances, which develop when imports outpace exports. Countries may source funds internationally to finance these imbalances, which would raise their external debt.

- *Movement in interest rates and exposure to shocks*

Domestic interest rates can be affected by global financial developments, including adjustments to international interest rates and monetary policies. Rising global interest rates could result in greater borrowing costs for countries with large external debt (IMF, 2022), making debt servicing more difficult. This is like when countries are exposed to external shocks. Indeed, financial globalisation also increases a country's susceptibility to foreign shocks and crises, including contagion effects, banking crises, sovereign debt crises, and currency and banking crises. Agénor, Alper, and da Silva (2015:4) assert that these shocks can have adverse impacts on the economic activity, the financial system, and the public finances of the affected countries. For instance, research by Gasper, Medas and Perelli (2021) indicates that debt ratios in developing markets and low-income countries are high due to the significant decline in nominal GDP in 2020 because of the COVID-19 pandemic. Additionally, during times of crisis or economic insecurity, investors may withdraw funds from numerous countries (Rodini, 2023), resulting in a sharp drop in capital flows to heavily indebted countries and increasing the likelihood of debt default.

- *Sovereign credit ratings*

With financial globalisation comes extreme scrutiny by credit rating agencies and foreign investors a country (CFI, 2023). These sovereign credit ratings intensely influence borrowing costs and access to global capital markets. The probability of being able to successfully participate in the global financial market with a low or risky credit rating are close to impossible (Hadzi-Vaskov & Ricci, 2019:33). Also,

a country's debt levels may increase because of a fall in its credit rating since higher interest rates on new debt issuances will make it more expensive for the country to service its existing debt.

In conclusion, financial globalisation can have an impact on a country's debt through a variety of channels, including but not limited to increased access to foreign capital, exposure to foreign currency-denominated debt, changes in sovereign credit ratings, *etc.* For countries to enjoy the benefit from capital flows while ensuring debt sustainability, governments must implement appropriate policies that will manage the risks associated with financial globalisation and implement sound debt management policies.

2.4.3 The efficiency and compensation hypotheses in relation to public debt

While the above-mentioned channels seek to provide the different dynamics of globalisation and public debt, the following hypotheses offer a framework on how governments are most likely to react in the face of the effects of globalisation. Trade and financial openness are known to have a positive association with government size as explained by the *efficiency* and *compensation hypotheses* (Rodrick, 1998:1011). Government size has a direct association with government spending (Olawole *et al.*, 2017:3). Theoretically, existing research that is investigating the impact of globalisation on government spending revolves around the 'efficiency' and 'compensation' hypotheses, and whether either one holds (Heimberger, 2020:350). According to the “efficiency hypothesis,” globalisation can advance government efficiency by increasing competition among countries (Kadir & Tsen, 2021:2). The free flow that comes with globalisation allows businesses and organisations to move production to another country where employment regulations are flexible and corporate taxes are moderate (de Jongh, 2020:70). This theory insists that as government efficiency increases, government spending and debt will decline (see Dong, 2021). As a result, openness is another element that can lead to a reduction in the public debt ratio.

Furthermore, the *efficiency hypothesis* also suggests that local governments might be pressured into decreasing corporate taxes and allow labour markets to be more deregulated. Economists believe that the way corporations are taxed is important for two reasons. Firstly, corporate taxes alter incentives and can skew domestic economic activity in ways that damage growth, such as discouraging company investment (Siripurapu, 2021). Second, the allocation of international investment is influenced by distinct tax systems around the world (Siripurapu, 2021). Kumar and Quinn (2012:4) find that the higher the degree of trade integration of an economy, other things given, the lower its statutory corporate tax rate. Research studies on developing countries have mostly supported the efficiency hypothesis (Gözüör *et al.*, 2019:3, de Jongh, 2020:80). Consequently, governments have been left with less income to spend on social policy, thus increasing its debt stock to bridge the gap of the lost income initially used for social spending (Lammers, Gerven-Haanpää & Treib, 2018:307).

Contrastingly, the *compensation* theory, also known as the *race-to-the-bottom* theory, holds that globalisation intensifies economic competition. This means that demand for a social policy will increase to compensate those who are losing because of globalisation (Rodrick, 1998:1011). Figure 2.17 below indicate a step-by-step casual chain of the *compensation hypothesis*. This provides insight into the mechanisms by which economic globalisation may lead governments to increase public spending and, subsequently, public debt, as they seek to compensate citizens for potential financial vulnerabilities brought about by global economic integration.

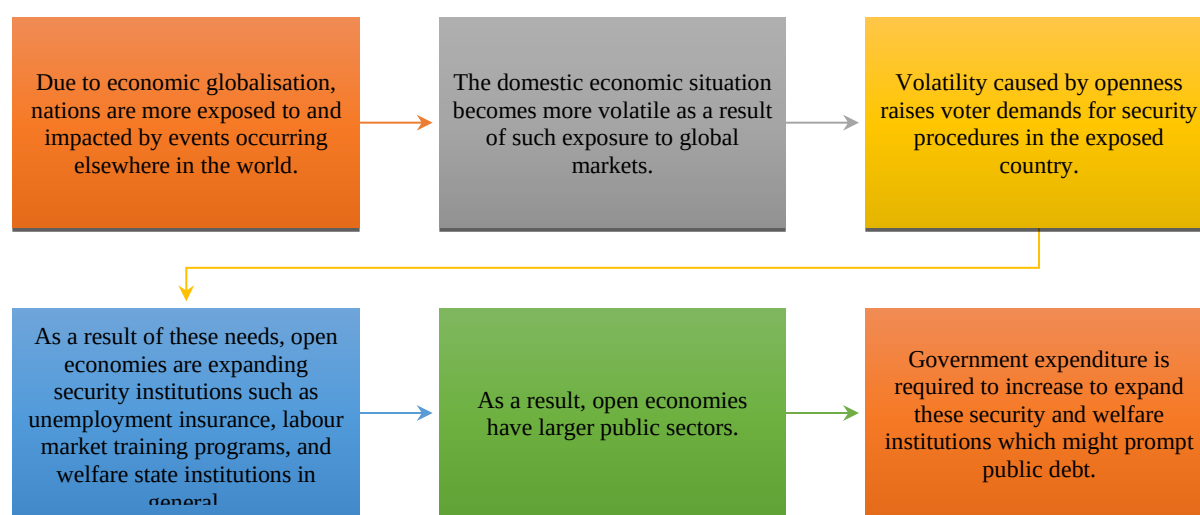


Figure 2.17: The causal chain of the compensation hypothesis

Source: Bergh (2019:2)

Furthermore, economic competition is increasing creating volatility, which means that competitive sectors will win economically while less competitive sectors would lose (Lammers *et al.* 2018:307). Those who have been harmed by globalisation require restitution for their economic losses, pressuring governments to increase the welfare state by instituting protective labour market policies, investing in (early) human development and education, instituting early retirement schemes, and expanding unemployment benefits (Bergh, 2019:1).

Dallinger (2013:601, 2014) presented evidence against the *compensation hypothesis*, demonstrating that the more open a country's economy is, the lower its residents' social security expectations. According to the compensation concept, such pattern should be reversed since sensitivity to volatilities is likely to increase demand for security. Consequently, this pressures the government to increase its spending on education, human development, and employment benefits, to name a few (Lammers *et al.*, 2018:307). The government cannot solely depend on increasing taxes in this case; hence, it would resort

to borrowed funds which end up increasing its debt stock. The *compensation hypothesis* has been tested empirically, and some studies have found evidence to support it (Walter, 2010:422; Bergh, 2020).

On the one hand, the *efficiency hypothesis* suggests that there is an inverse relationship between globalisation and public expenditure, and that as globalisation accelerates, governments would likely become more efficient and minimize spending to attract foreign investment and remain competitive (Bayat *et al.*, 2017:2). Lammers *et al.* assume that globalisation increases economic growth and stability, which reduces demand for social policy (Lammers *et al.*, 2018:307). On the other hand, the *compensation hypothesis* argues that as globalisation evolves, a country's economy becomes more fragile, increasing the need for social policy to make up for those who lose out because of growing economic openness (Gowaty *et al.*, 2007:15023). Although contradictory, these theories both have the common aim to show that globalisation alters the way in which governments spend and operates and how they are likely to incur debt due to the phenomenon.

2.5 A REVIEW OF THEORIES EXPLORING THE RELATIONSHIP BETWEEN ECONOMIC GLOBALISATION AND PUBLIC DEBT

Examining theories that investigate the relationship between economic globalisation and public debt is critical because it allows for a more in-depth understanding of how the conceptualisation of public debt within the context of economic globalisation is both informed by and informs the evolving dynamics of international finance and economic interdependence. Therefore, this last sub-section provides a clear review of the theories that underpin the relationship between economic globalisation and public debt.

2.5.1 The Keynesian theory of debt

Unlike the Marxist-influenced dependency approach, the Keynesian theory of debt rather concentrates on the role of public debt in boosting economic growth and managing economic fluctuations. Keynes (1883-1946) advocated for government intervention in the economy. Since Keynes' foundational paper in 1936, there has been widespread agreement that fiscal stimulus should be utilised to avert recessions (Jalles & Medas, 2022:4). He argued that during times of recession, firms will lower their investment and consumers will spend less, therefore, higher government borrowing is an investment by the government that is essential to foster demand and reduce unemployment, especially during recessions (Yueh, 2019). Studies show that in the last six decades, global public debt has soared after every global recession (Kose *et al.*, 2021). After the 2007 economic crisis, fiscal deficits in Sub-Saharan African countries reflected growth in public spending that was used to boost spiralling government revenues and social safety nets, however, this resulted in central governments increasing their borrowing to fund the fiscal deficits (Arieff, Weiss & Jones, 2010:20). In this instance, this would then lead to improved output levels and unemployment, which will then generate revenue for the government through the tax

revenue collected (Phelps, 2022:1). They do, however, caution governments against wasteful expenditure and encourage them to carefully manage their debt lest it leads to inflation or crowds out private investment (Phelps, 2022:3).

2.5.2 Classical theories of debt

In contradiction to the belief of Keynesians on public debt as mentioned above, the classical outlook on public debt is predominantly opposed to public borrowing whether it is owed to international or domestic investors. Dedicated to their *laissez-faire* principle and playing the role of ensuring that there is even economic interaction without interference from public authorities, classical economists believed public debt would negatively affect the economy, therefore considering such spending as wasteful and unproductive (Tsoulfidis, 2007:4). This is because debt will cause taxation increases when the time to redeem it arises, this will lead to domestic capital flight and currency devaluation and leave the domestic producers dealing with the negative effects thereof (Smith, 1937:927).

While the supporters of the classical theory of debt argue that fiscal policy decisions relating to spending habits and government size are the main determinants of public debt, particularly when spending exceeds revenue, whether the economy is globally integrated or not (Bilan, 2016:357), it is important to acknowledge that globalisation has also had a significant effect on how the government spend and operates. Their tax regulations affect foreign direct investment and portfolio investments and conducting business within the country (OECD, 2023), currency devaluation which affects debt repayment to international institutions, and social spending to protect the population from risks associated with globalisation. For instance, governments could be motivated to adopt an expansionary fiscal policy to promote economic growth and compete for foreign investment which in turn might result in increased public debt over time.

2.5.3 *Laissez faire* and international trade theory

Laissez faire is an economic theory that argues for minimal or no government intervention in individuals' and society's economic affairs (CFI, 2022). The theory is founded on the notion that free markets and competition are the most effective means of achieving economic development and social wellbeing. *Laissez faire* is commonly connected with classical economics, particularly Adam Smith's argument that the invisible hand of the market will guide resource allocation and serve the public interest (Britannica, 2023). The international trade theory, on the other hand, is a discipline of economics that investigates trends, causes, and consequences of global trade. It clarifies why countries trade, what they trade, and how trade affects their economic well-being (*Finance Management*, 2020). International trade theory also examines the effects of trade policies on home and foreign economies, such as tariffs, quotas, subsidies, and trade agreements (Suranovic, 2018:8).

These theories can influence public debt in various ways. Firstly, the Laissez-faire theory advocates for a small government that spends less on social security, infrastructure, and other public goods and services (CFI, 2022). Fortunately, borrowing will be less necessary, and the national debt will decline. However, the theory also precludes the existence of taxes (Martínez & Moreno-Ternero, 2022:217) which means that tax collections (low or non-existent) that might not be enough to pay for the government's basic expenses. This could result in a budget deficit and increase public debt.

Also, international trade can have an impact on public debt by influencing trade policies amongst participating countries. There are two categories of trade policies: protectionism and free trade. Free trade entails removing all barriers and restrictions from the movement of goods and services across international borders (Acocella, 2010). To impose trade obstacles or limitations in order to shield domestic businesses and employees from foreign competition is known as protectionism (Acocella, 2010; Longley, 2018). By boosting economic productivity, creativity, and consumer choice, free trade can lower the country's debt (Holroyd, 2002:116). It also, however, has the potential to worsen national security, sovereignty, culture, and the environment while also generating winners and losers thereby, increasing public debt. With protectionism, domestic industries and workers are protected against global competition (Longley, 2018), therefore there could be a reduction in public debt since the government would not have to compensate the *losers* of globalisation.

2.5.4 Dependency theory (world systems theory)

While the *laissez faire* and trade theory framework reiterate the role of government and trade dynamics in literature concerning globalisation, the dependency theory offers insight based on how the uneven distribution of power around the world results in an unhealthy dependence of developing countries on the industrialised ones, leaving them with high public debt levels. Both the world systems theory and dependency theory have different approaches to their analysis of elements that shape the global economy, both theories try to explain how uneven power and wealth are distributed across the world. The dependency theory generally refers to situations where the economies of certain countries are “conditioned by the development and expansion of another economy to which the former is subjected” (Dos Santos, 1970:231). In essence, this theory suggests that the global economy is distinguished by a “core-periphery” composition in which industrialised countries exploit the resources of the less developed economies which then preserves inequality and underdevelopment in the periphery while the core gets richer.

Similarly, *World systems* developed out of the earlier dependency theory which became popular in the 1960s and 1970s (Mehta, 2018). The highly political world system theory also asserts that the world is structured in a way that is more beneficial to developed countries, where there is a high concentration of political and economic power, at the expense of the least developed countries (Van Rossem,

1996:509). Scholars who subscribe to this view oppose the notion that globalisation produces a level playing field for all. Instead, they contend that globalisation empowers those who have already risen to power via historical and sociopolitical manoeuvring (Mehta, 2018). Furthermore, according to the world system theorists, there are inevitable winners and losers in the global economy. The core countries have enormous power, controlling an unfair trade and investment system and frequently dictating the terms of economic ties.

In relation to public debt, unsustainable debt levels can be triggered when these developing countries become economically dependent on wealthier countries. For instance, the least developed countries may for some reason be compelled to acquire loans and assistance from other countries and international financial institutions such as the International Monetary Fund (IMF) to finance development goals which creates never-ending dependency and a cycle of debt (OECD, 2020). These loans are often attached to some conditions which may at times compel these countries to structure and implement their economic policies in a way that prioritises loan repayments over social spending or development goals (IMF, 2023). At other times, developing countries may also borrow money internationally to pay off their previous debt to avoid debt defaults, bearing in mind how fluctuating exchange rates affect these debt repayments.

2.5.5 Global capitalism theory

Global capitalism theory is a sociological viewpoint that examines the creation and emergence of a new global system of production, finance, trade, and administration that surpasses national boundaries and is heavily influenced by a transnational capitalist class (Robinson & Smith, 2005:157). In accordance with this theory, the globalisation of capitalism since the late 20th century has led to the integration of national economies into one global market, the creation of a world elite that rules the global system and reaps its benefits, and the development of new transnational institutions and networks that facilitate and control the international flows of capital, goods, services, information, and people (Robinson & Smith, 2005:169).

One of the main features defining this theory is the waning influence of the country's government as the main pillar of political and economic structure. Indeed, under global capitalism, transnational forces that determine the terms and conditions of a country's involvement in the global market infringe on the autonomy and sovereignty of the national governments (Robinson, 2007:7). Regional blocs, municipal governments, social movements, and organizations of civil society that call for increased democracy and accountability in the international system are a handful of the subnational and supranational entities that pose a threat to national governments (Moskens, 2012).

In relation to public debt, global capitalism can encourage international fiscal cooperation and coordination, thereby reducing debt. Governments can participate in numerous transnational organizations such as the World Bank, IMF, WTO, *etc.* and networks that facilitate and manage worldwide movements of capital, products, services, information, and people under global capitalism (Salmon, 2021). However, in the same light, global capitalism can also increase public debt through undermining the autonomy of national governments and fiscal sovereignty. Transnational capitalists and the abovementioned institutions put pressure on governments to adopt neoliberal policies that favour market forces over government involvement under global capitalism (Berry, 2022:247). These policies include lowering taxes, particularly on companies and the wealthy, reducing government spending on social services and infrastructure, privatization public assets and utilities, deregulating labour, and environmental standards, and opening local markets to international competition.

2.6 CONCLUSION

Globalisation on its own is a multifaceted and controversial phenomenon that has been debated and has advanced over the years. Studying the relationship between globalisation and other macroeconomic indicators requires thorough data analysis and research to understand how they influence each other. The research provides useful insights to policy makers on how best to take advantage of the benefits and mitigate the costs of globalisation. In the case of this study, the key objective is to examine the relationship between public debt and economic globalisation in South Africa. To do so, theoretical objectives were established to support the study. The purpose of Chapter 2 was to provide a foundation of literature on both economic globalisation and public debt, which was done specifically to address the first three theoretical objectives of the study.

In addressing the first theoretical objective, a full conceptualisation of public debt was provided. As governments continue to bear the responsibility to fund the country's growth and development, they will usually turn to public borrowing when the available public revenue is insufficient to cover all these expenses. Public debt is a crucial macroeconomic indicator that has been widely researched by scholars and has since highlighted the importance of classifying debt. Having said that, public debt is, according to the World Bank, generally defined as the stock of the fixed-term contractual responsibilities of the government to others outstanding on a specific date. Literature shows the importance of classifying debt according to maturity, holder, purpose, and the nature of debt instrument to provide a systematic framework that aids with understanding, analysing, and controlling public debt to promote sustainable government finances even in the long-run.

Ultimately, public debt can be driven by a variety of factors, including government spending, economic conditions, demographic factors, emergencies, interest rates, and revenue policies. The motivations for public debt can, therefore, vary depending on the specific circumstances and priorities of a government.

Additionally, when evaluating a country's public debt, it is evident that no single measurement provides a true picture of its fiscal health. Different debt-to-GDP ratios, net debt per capita, debt service ratios, and other statistics provide different viewpoints on the debt burden which means relying on a single statistic may obscure the complexities and risks associated with a country's debt portfolio.

Moreover, effective public debt management and redemption procedures are essential components of government fiscal policy. Governments may assure the sustainability of their financial position as well as the confidence of investors and the public by carefully planning, issuing, and servicing debt in a manner that corresponds with financial capacity and risk tolerance. Structured amortization, callable bonds, sinking funds, and other mechanisms should be used to adjust to market conditions and budgetary objectives. This comprehensive approach to debt management not only assists governments in meeting their obligations, but it also fosters economic stability and growth while ensuring the country's long-term fiscal health.

Also, as part of addressing the first theoretical objective of the study, economic globalisation was fully inspected. Understanding the various aspects of global economic integration requires distinguishing between the two components of economic globalisation: trade and financial globalisation. The interchange of commodities and services across international borders known as trade globalisation promotes economic growth, access to various products, and possible economies of scale. Financial globalisation, on the other hand, refers to the cross-border movement of funds and investments that allows access to funding sources and diversification of financial assets. It can also carry threats like financial volatility and contagion.

Recognising the significance of both *de jure* (legal) and *de facto* (real) economic globalisation is critical for a thorough examination of global economic connections. The formal laws, agreements, and regulations that control international trade and finance are referred to as *de jure* globalisation. International treaties, financial rules, and institutions like the World Trade Organization and the International Monetary Fund all play a part in shaping *de jure* globalisation. *De facto* globalisation, on the other hand, refers to the actual, on-the-ground application and practice of economic globalisation.

Furthermore, the debate between scholars has provided theories and perspectives of the multifaceted nature of globalisation which are divided into the hyperglobalists, sceptics, and the transformationalists. The perspectives of hyperglobalists, sceptics, and transformationalists regarding economic globalisation collectively enrich the comprehension of this intricate global force, urging countries to navigate its challenges and opportunities with a nuanced, adaptive, and evidence-based approach.

In the field of evaluating economic globalisation, the breadth of measurement techniques, ranging from simple indicators to sophisticated indices, serves as a critical compass for navigating the complexities

of a globalised world. Single indicators provide simplicity and clarity, yet they may oversimplify global reality. Comprehensive indexes, on the other hand, such as the KOF Globalization Index and the NGI, present a holistic view of globalisation, incorporating economic, social, and political components. Policymakers, academics, and businesses can get a more nuanced picture of global economic integration by embracing this diversity of assessment. These measurements, however, should be considered as dynamic tools that adapt to the ever-changing dynamics of economic globalisation while remaining critical in charting a path toward a more linked, sustainable, and equitable global economy.

Moreover, a review of the dimensions of economic globalisation and its links with public debt was also done to address the second theoretical objective of the study. Indeed, both trade and financial globalisation affects public debt in different channels. The former affects it through increased dependence on exports, export earnings, being exposed to external shocks, and currency depreciation and debt service channel while the latter affects it due to the access to foreign capital, foreign currency denominated debt, interest rates, sovereign credit ratings, amongst others. The efficiency and compensation hypothesis also shows that public debt can be induced due to increased competition from global markets or the requirement for the government to compensate those are dismally affected by the repercussions of economic globalisation. For countries to enjoy the benefit from economic globalisation while ensuring debt sustainability, governments must implement appropriate policies that will manage the risks associated with financial globalisation and implement sound debt management policies.

To satisfy the third theoretical objective, the final subsection of Chapter two provided a review of the theories underpinning public debt and economic globalisation *de jure* and *de facto* aspects. The theories that explain public debt and economic globalisation are crucial to the understanding of the present economic landscape. The Keynesian and Classical views of public debt represent an ongoing discussion about the role of government borrowing in ensuring economic stability, with Keynesianism emphasising countercyclical actions and the Classical perspective emphasising fiscal prudence. In the realm of international trade, Dependency Theory and *Laissez faire* Theories offer contrasting perspectives, with Dependency Theory drawing attention to the potential for power imbalances and exploitation in global trade relationships, while *Laissez-Faire* Theory favours minimal government intervention to allow markets to determine international trade outcomes. These ideas serve as important frameworks for policymakers, economists, and corporations as they navigate the complexity of public finance and global economic integration. As the world becomes more interconnected, understanding and responding to these theories becomes increasingly important, emphasising the necessity for informed, flexible, and nuanced decision-making in the globalisation era.

While this chapter provided a theoretical basis for the dynamics between economic globalisation and public debt, the next chapter of this study, Chapter 3, will provide an empirical review of literature and

a regional overview of the relationship between economic globalisation and public debt, including South Africa.

CHAPTER 3

A REGIONAL OVERVIEW OF THE RELATIONSHIP BETWEEN ECONOMIC GLOBALISATION AND PUBLIC DEBT

3.1 INTRODUCTION

Global public debt and economic globalisation are two intertwined phenomena that have come to define the international economy's present landscape. As countries progressively engage in the process of economic globalisation, marked by the cross-border movement of commodities, services, capital, and information, they face an intricate series of financial issues that affects their fiscal environment (PIIE, 2022; IMF, 2008; Mussa, 2000). The growth of public debt is one of the most serious economic concerns, as governments battle with the necessity of financing national goals while also ensuring stability in an interlinked global marketplace (BIS, 2023). The complex connection between global public debt and economic globalisation emphasises the necessity of understanding how these forces interact and determine the worldwide economic success of countries. In this context, it is critical to investigate the dynamics of public debt management, the ramifications of global economic interconnectedness, and the implications for national stability and prosperity in an ever-changing international scene.

Economic globalisation has affected the dynamics of international trade and investment in economies worldwide (Ortiz-Ospina, 2018). It has facilitated the movement of capital and the integration of financial markets, allowing governments to access external sources of funding and investment (Mussa, 2000). However, greater interconnection has made countries more vulnerable to global economic shocks such as financial crises and economic downturns. As a result, governments are frequently forced to acquire public debt to encourage economic growth, fund social welfare programs, or sustain their financial systems during times of crisis (Bataka, 2021:1757). The management of this debt is a global matter, as the detrimental effects of one country's fiscal policies reaches across borders, affecting the stability and economy of countries globally (Hakura, 2020).

Furthermore, economic globalisation affects public debt in contrasting ways in developing and developed countries. With increased access to international capital markets, developing countries have the potential to increase public debt if the borrowed funds are mismanaged (UNCTAD, 2024). These countries are also more susceptible to external economic shocks, such as shifts in commodity prices and interest rates, which may potentially elevate debt repayment costs (UNCTAD, 2024). The heavy dependence on foreign aid and loans worsens debt levels, especially when combined with institutional flaws that prevent effective debt management (Raesetja, 2020:12).

In contrast, developed countries benefit from less costly borrowing costs because of stronger credit ratings and more robust economies, allowing them to accrue debt more sustainably. Unlike with developing countries, public debt in developed countries is more likely to be generated by domestic fiscal policies rather than external causes (Pologeorgis, 2023). High public debt can still have a detrimental impact on growth and inequality in developed economies, but the reasons are different from those of developing countries. High debt levels may crowd out private investment and redirect funds away from critical public projects, exacerbating the wealth disparity (Attah-Mensah & Ibrahim, 2024). Furthermore, the extra taxes would be required to service debt can disproportionately affect low-income households (Attah-Mensah & Ibrahim, 2024). Despite their differences, all groups face the same challenge: using borrowed funds productively to boost economic growth.

As a result, the relationship between public debt and economic globalisation globally is complicated and diverse, necessitating a detailed knowledge of how these elements interact in a constantly changing global economy. This chapter aims to empirically review the nature of economic globalisation and its sub-dimensions and its link with public debt levels within various regions of the world including developed, developing regions and sub-Saharan Africa. It also provides a review of the relationship between public debt and economic globalisation in South Africa. In doing so, it hopes to achieve the fourth and fifth objectives of this study, as outlined in Chapter 1. Section 3.2 of the section will focus on developed countries, section 3.3 on developing countries, section 3.4 on SSA, and section 3.5 on the relationship between economic globalisation and public debt in South Africa. Finally, there will be an empirical review of studies on the similar subject in section 3.6 and the conclusion in section 3.7.

3.2 DEVELOPED REGIONS

3.2.1 Brief economic background

3.2.1.1 North America

To differentiate between developed and developing countries, the UN, and other international organisations such as the World Bank and OECD use metrics like GDP, GNP, and the human development index (HDI), among others. GDP quantifies the overall value of goods and services produced within a country's borders over a specific period, with higher values typically signifying a more developed economy (World Bank, 2024). In contrast, HDI is a composite measure that evaluates a country's development based on three key dimensions: life expectancy, education, and income. Higher HDI scores (above 0.8) reflect better levels of human development (UNDP, 2024). Developing countries in this case will tend to have lower levels of GDP, an HDI score below 0.8 and lower education and income levels (Herre & Pablo, 2023).

The economic landscape of developed countries such as the United States (U.S.) and Canada is defined by numerous sectors, from robust service industries to advanced manufacturing capabilities, as well as high standards of living and well-established social welfare systems (Agarwal, 2022). The U.S. and Canada are placed in this category for several reasons, including their varied sector, higher per capita incomes, lower rates of unemployment and (as shown in Table 3.1). Furthermore, Table 3.1 also shows how these countries have managed to maintain their high HDI levels (over 0.9) over the years. The growth in consumer spending, exports, state and local government spending, non-residential fixed investment, and private inventories were the main drivers of the real GDP gain. The economies of the U.S and Canada are similar in many ways, but the U.S. economy is much larger with a higher GDP per capita growth rate (Table 3.1).

Table 3.1: Key economic indicators for the USA and Canadian economies (2012 and 2022)

Indicator	2012		2022	
	USA	Canada	USA	Canada
GDP per capita, PPP (current international \$)	51784.42	42290.97	76329.58	58347.67
GDP per capita growth rate (%)	1.53	0.66	1.55	1.57
Unemployment rate (%)	8.07	7.29	3.611	5.209
Inflation rate (%)	2.07	1.56	8.00	6.80
HDI levels	0.916	0.921	0.921	0.936

Source: World Bank (2024); UN (2024)

Furthermore, Canada's biggest export partners are the United States, China, Japan, the United Kingdom, and Mexico (The Observatory of Economic Complexity (OEC), 2023). The main exports include automobiles, crude petroleum, petroleum gas, gold, and sawn wood (OEC, 2023). In contrast, despite being a substantial producer of oil, the U.S is a huge importer of resources from Canada and the world's largest trade nation and second-largest exporter (Energy Information Administration (EIA), 2024). In 2023, key American exports included oil, civilian aviation components, petrol, and other fuels, liquefied natural gas (LNG) and other petroleum gases, and passenger vehicles (EIA, 2024).

Moreover, Canada is known for its stability, robust workforce, and favourable economic environment. U.S. investors control just over half of its stocks and The TSX Venture Exchange (TSXV) and the Toronto Stock Exchange (TSX) are two major stock exchanges (U.S. Department of State, 2024). Net foreign direct investment (FDI) inflows surged by over 150 per cent between 2020 and 2021 (UN, 2022). Canadian-owned enterprises in the U.S employ 900,000 people (UN, 2022). The U.S boasts the

world's largest stock market, with a market cap of over \$25 trillion (McFarlane, 2023) and the country provides access to multinational enterprises that generate much of their income outside of the U.S (McFarlane, 2023). Additionally, the U.S has a free-market system and a competitive banking system with many market participants and FDI, cross-border trade, and linked economies help support millions of employment opportunities (Invest Canada, 2024).

With regards to the fiscal environment, years of high budget deficits in the U.S, worsened by significant federal spending during the COVID-19 pandemic, have raised the country's debt to record proportions as with various developed countries, as shown in Figure 3.1 (McBride *et al.*, 2023). A significant portion of its public debt is held by domestic investors, including the Federal Reserve, other government entities, pension funds, mutual funds, and individual investors (PPF, 2023). According to McBride *et al.* (2023:1), the public debt has reached its greatest percentage of GDP since World War II and may continue to outpace government revenue. In both the pre-COVID and post-COVID periods, a combination of increased government spending on special security; reduced revenue through tax cuts and less economic activity during the pandemic; and borrowing to finance budget deficits were the main drivers of the rising public debt levels in the United States (Lubik & Schwartzman, 2020:3-4). The COVID-19 pandemic exacerbated these trends, leading to a dramatic surge in public debt as the government responded with unprecedented fiscal stimulus (Kose *et al.*, 2021:4).

In Canada, public debt is quite lower than that of some developed countries (IMF, 2023). Pre-COVID-19, Canada's public debt was primarily driven by healthcare spending, infrastructure investments, and social programs (Zhang *et al.*, 2021:11). Post-COVID-19, significant contributors included pandemic response spending, economic stimulus packages, and revenue losses due to the economic slowdown, which necessitated massive financial support measures and investments, sharply increasing public debt (Fuss & Munro, 2024:2). The combined effect of increased spending and reduced revenues due to the pandemic significantly impacted on Canada's fiscal situation.

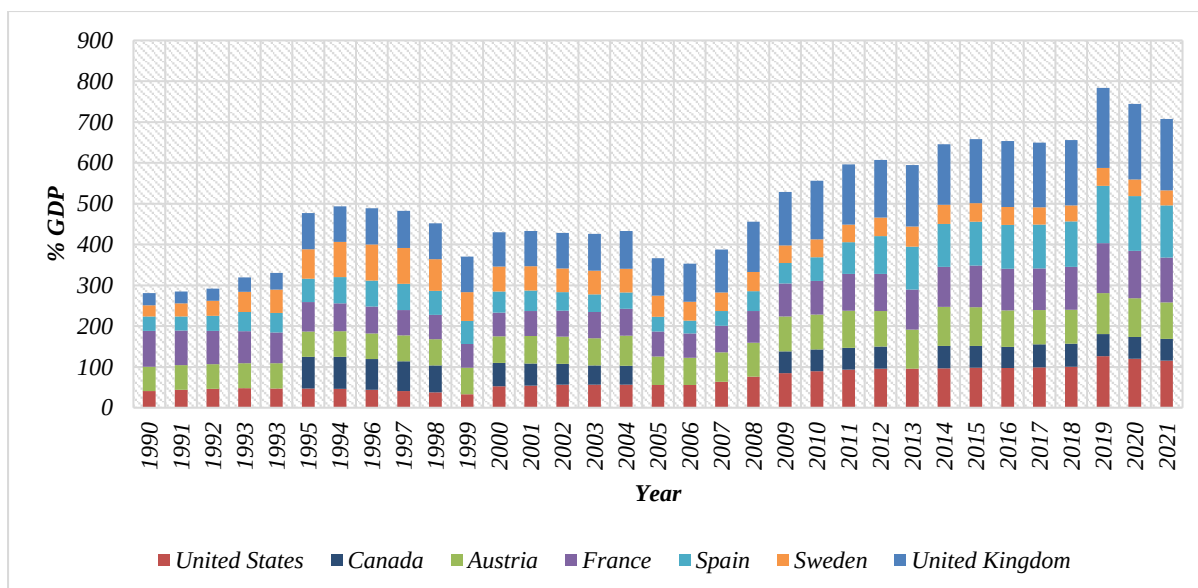


Figure 3.1: Public debt to GDP ratio in selected countries (1990-2021)

Source: World Bank (2024)

While the U.S and Canada have significant debt levels, the differences in measures, composition, and economic conditions contribute to the variations in debt levels between the US and Canada (Fraser Institute Organisation (FIO), 2023). The US has a higher government debt-to-GDP ratio and a larger GDP, while Canada has higher household debt and a more comprehensive measure of debt that includes pension plan assets (FIO, 2023). Furthermore, Canada's lower net debt-to-GDP ratio and more diverse investor base contribute to improved debt management while the U.S has a larger economy and more complex fiscal difficulties, which affect its debt management (Yousif, 2023). From the standpoint of the entire general government sector—comprising federal and subnational governments along with public pension plans—Canada's current fiscal policy is considered sustainable in the long-run (Parliamentary Budget Officer, 2023:1). The next subsection discusses the dynamics between public debt and economic globalisation in these developed economies

3.2.2 The relationship between public debt levels and economic globalisation in developed regions

It has often been debated whether globalisation benefits developed economies more than developing countries, however economic globalisation has a complex and multidimensional impact on developed economies, benefiting these economies in several ways while posing challenges in others. The essence of the subject, however, is not whether developed countries benefit more from globalisation (as it would not be accurate to say that one benefits more than the other universally), but to acknowledge that globalisation affects countries disproportionately, mainly because of their differences in various factors, including trade, capital flows, GDP per capita, and foreign direct investment (Stobierski, 2021).

Case in point, Baek and Shi (2016:49) argue that increased trade intensity will exacerbate income inequality in advanced countries while decreasing inequality in developing countries. On the other hand, a deepening of financial integration would lower income disparity in advanced countries while increasing inequality in developing countries (Baek & Shi, 2016:49). Developed countries play a significant role in economic globalisation, with countries such as the USA and Canada as major players in the global economy (Pologeorgis, 2023).

Furthermore, economic globalisation has had a tremendous impact on advanced economies such as the United States and Canada, Japan *etc.* which includes increasing international trade, FDI, financial integration, and participation in global value chains (Pologeorgis, 2023). This, however, also presents challenges that speaks to job displacement, income inequality, financial market instability, to name a few, which may affect the fiscal environment of the country (Fernández, 2016).

Globalisation in Canada has coincided with growing international integration, resulting in benefits such as improved terms of trade and higher real disposable income per capita (Carney, 2008). The country has adapted successfully to globalisation by concentrating its economy towards high-end services and specialising in areas of comparative advantage (Carney, 2008). However, globalisation has also created issues such as sectoral reallocations that influence productivity development and potential job outsourcing owing to the free trade dynamic (Carney, 2008). In the U.S, globalisation has facilitated economic expansion through trade and foreign direct investment, contributing to higher growth rates and improved economic performance (Hamdi, 2015). The country's businesses have prospered in a global market by harnessing global networks and resources to increase competitiveness and cut operating costs (Hamdi, 2015). Nonetheless, globalisation has created fears over income inequality and employment losses in specific sectors owing to outsourcing.

Furthermore, FDI is critical to financing economic development and infrastructure developments for both U.S and Canada (Calimanu, 2021). Nonetheless, it contributes to technology spillovers, human capital generation, international trade integration, a competitive business climate, and company expansion (OECD, 2020). Additionally, GDP, trade, and fixed assets are boosted, while infrastructure and trade openness remain beneficial variables that influence FDI inflows in developed countries (Sabir, 2019:11). However, factors such as agriculture's value-added share in the GDP, GDP per capita, and inflation would have a detrimental impact on FDI (Sabir, 2019:11).

Both Canada and the US experienced significant declines in FDI flows during the COVID-19 pandemic (U.S Department of State, 2021). For the former, FDI suffered a 49 per cent decrease in 2020 when compared to 2019, a decline less severe than the one the country suffered during the Global Financial Crisis (GFC), with slow recovery (Government of Canada, 2023). Both countries implemented several measures such as the American Rescue Plan and COVID-19 Economic Response Plan in Canada to

support businesses, workers, and employees, but this also increased the national debt as mentioned in section 3.2.1. In 2023, FDI again fell by 37 per cent in developed economies, while flows to developing countries increased by four per cent (UNCTAD, 2024).

FDI increases in this case may contribute to public debt reduction by providing alternative sources of financing for Canada and the U.S and foster economic development and infrastructure projects without adding to the burden of public debt, thereby reducing the dependence on traditional debt instruments (U.S Department of State, 2021). Moreover, the greater capital mobility in these countries may assist governments in reducing borrowing costs by raising competition for government bonds and providing alternative financing options (BIS, 2023). Notably, increased capital mobility exposes governments to volatile capital flows and possible financial catastrophes (BIS, 2023). Access to capital raises concerns about debt sustainability since countries may grow increasingly dependent on external finance, rendering them vulnerable to external shocks and financial crises (Sundararajan, 2002). It also limits the autonomy of fiscal policy in developed countries, as governments need to consider the preferences of international investors and rating agencies to maintain market confidence (BIS, 2023; Sundararajan, 2002).

On the trade side of the discourse, as with other countries, limiting trade barriers can have a good and negative impact on government debt. While it can enhance economic growth and generate more money for the government, it can also cut tax collection in the short term and raise government debt levels as a substitute for revenue (Hossain *et al.*, 2020:3). For one, the US-Canada Free Trade Agreement sought to eliminate all barriers on trade between the two countries. It went into effect in January 1989, with the purpose of encouraging free trade and lowering obstacles between the United States and Canada (Geography Law, 2024). However, things changed in response to the decision to reimpose 10 per cent aluminium tariffs on Canada, Canada levied retaliatory tariffs on over 2 billion USD in U.S. goods (Reuninger, 2020). The tariffs imposed by the United States, have had an economic impact on jobs, GDP, salaries, and employment in general which would propel the accumulation of debt (York, 2023). Additionally, trade deficits, defined as a country importing more than it exports, results in a net movement of funds out of the country, which can contribute to increases in public debt if the government borrows to offset the difference (Fergusson, 2015).

For example, in 2018, the U.S.A. exported 2.5 trillion USD in goods and services while importing over \$3 trillion, resulting in a trade imbalance of more than (McBride, 2019). Post-pandemic in 2023, the U.S.A. trade deficit was over 700 billion USD, a 19 per cent reduction from the 951.2 billion USD deficit in 2022 (Trading Economics, 2024). Compared to the U.S.A., the trade deficit in Canada was lower at 1 billion USD in 2023, down from a 20 billion USD surplus in 2022 (Statistics Canada, 2024). This is due to higher imports of 1.4 per cent and a similar decrease in exports of 1.4 per cent (Statistics Canada, 2024). A country's currency may decline due to a trade deficit, encouraging exports and raising

the cost of imports. Therefore, a weak currency will also make imports more expensive, which would raise inflation and make it more difficult for the government to reduce public debt.

While developed countries can leverage stable economies and sophisticated financial markets to manage their debt more effectively, developing countries often struggle with higher vulnerability to economic fluctuations and weaker institutional capacities, exacerbating their public debt challenges. The next section in the study will look at the dynamics of economic globalisation and public debt in developing countries, particularly Southeast Asian economies, to highlight the differences to developed countries.

3.3 DEVELOPING REGIONS

3.3.1 Brief economic background

3.3.1.1 Southeast Asia

Southeast Asian countries are developing countries. These include Thailand, Malaysia Indonesia, Singapore, Vietnam amongst others, located in the southeast portion of Asia and comprise a diversified region distinguished by a rich cultural legacy, varying levels of economic development, and abundant biodiversity (Maude, 2021). Southeast Asian countries have open economies that actively engage in international trade and investment. They are also members of regional organisations such as the Association of Southeast Asian Nations (ASEAN), and ASEAN Economic Community (AEC) which encourages collaboration and integration among its member countries; and create a single market and production base, enhance connectivity, and promote regional economic development (ASEAN, 2024). The ASEAN countries have a total population of 662 million people and a combined GDP of about \$3 trillion in 2022 (Council on Foreign Relations, 2023).

Southeast Asia's economic growth has been dynamic through the years, with the region rapidly industrialising and developing (Britannica, 2024). After initially lagging Western economies, Southeast Asia began to make significant development beginning in the 1980s, the incredible growth being brought about by changes to increased global and regional integration through financial flows, trade and FDI (Bong & Premaratne, 2018:1). However, several reasons, such as ongoing inflationary pressures, decreased commodity prices, and worldwide tightening of monetary policy, have recently caused a slowdown in growth (Bugrov *et al.*, 2023). Despite this, the area is still resilient; in 2023 and 2024, respectively, ASEAN's average real GDP growth was expected to be over four per cent (OECD, 2023:1). Historically, the expansion of production and manufacturing exports in the newly industrialised countries of East Asia has been predominantly caused by input growth, such as labour and capital, rather than gains in efficiency (Sarel, 1996:3). Initial factors, including excellent primary education systems and less inequality, contributed to the region's rapid expansion (Sarel, 1996:20).

Despite significant economic progress, income disparities remain prevalent in many Southeast Asian countries. Income distribution has deteriorated, with the government viewing the income disparity as a major source of concern and policymakers developing strategies to reduce these discrepancies through targeted social programmes, education reforms, and measures that promote fair growth (Huang *et al.*, 2019:150). The area's inequality patterns, however, vary significantly, with some countries like Thailand and the Philippines characterised by high levels of inequality, while others like Malaysia and Vietnam have witnessed dropping or very low levels of inequality (Kuroda, 2013). One of the reasons for this difference lie in political institutions where institutionalised parties and cohesive governmental structures are present, such as in Malaysia and Vietnam, a country has a better capacity to improve wealth distribution (Jain-Chandra, 2016:6). Some of the economic causes of the rise in inequality include advances in technology, globalisation, and market-oriented reform, which have led to increasing skill premiums and returns to human capital, a decreasing proportion of labour income, and increasing spatial inequality (Yap, 2014:10).

Furthermore, many Southeast Asian countries prioritise infrastructure development as a means of promoting economic growth and further integration. Some of these infrastructure developments include improvements in road, rail, and airport infrastructure, telecommunications, and power generations are ongoing throughout the region (South-East Asia Iron and Steel Institute (SEAISI), 2023; Asian Development Bank (ADB), 2017). Capital sought from multilateral development banks like the ADB, bilateral donors and providers of private foreign capital have a key role to play in public and private sector infrastructure financing (ADB, 2017). While infrastructure investment can spur economic growth, it also increases public debt levels, especially if projects are not economically viable or fail to generate sufficient returns (Chew, 2023).

The industrial shift to ASEAN has intensified in recent years as a result of trade tensions between China and several major economies, which have emphasised the need to strengthen supply chains against disruption (Lim *et al.*, 2023). As a result, Southeast Asia is increasingly viewed as a complement to China in global supply chains, with the region's rich resources and cheaper labour costs making it an appealing destination for manufacturing and production (Lim *et al.*, 2023). Moreover, many Southeast Asian governments have promoted open trade policies, reducing tariffs and trade obstacles through various initiatives. While trade in Southeast Asia is overwhelmingly conducted within the ASEAN community, there are other trading partners outside of the ASEAN often referred to as extra-Asian trade/trade partners (see Table 3.2).

Table 3.2: Share of ASEAN's trade by largest trading partner

Country / region	2022	2012	2002
United States	19,5%	12.3%	22,9%

Country / region	2022	2012	2002
China	18.7%	15.7%	7.29%
Europe (reflects most of the countries)	13.06%	13.89%	19.81%
United Kingdom	1.74%	2.02%	3.99%

Source: OEC (2024)

Trade linkages between South Asia and Southeast Asia have also grown significantly during the last two decades, expanding ninefold (*World Bank*, 2022). However, high tariffs, non-tariff barriers, and restricted trade processes impede economic cooperation between these regions (*World Bank*, 2022). Addressing these barriers through trade facilitation measures and regional integration efforts may result in large GDP benefits for both South Asia and Southeast Asia. Furthermore, the USA is an important trading partner for Southeast Asian countries, with U.S.A.-ASEAN trade relations being critical for both parties (Medina, 2023). As of 2020, ASEAN's total trade with the U.S. amounted to 441 billion USD, although this was significantly smaller than China's total trade with the Southeast Asian bloc (Medina, 2023). Key aspects of U.S.A.-ASEAN trade include complementarity where both economies are highly complementary, creating significant benefits for both sides; the imports and exports; strategic challenges and benefits such as job creation (Tran, 2019).

Southeast Asian countries also rely heavily on the European Union (EU) as commercial partners. The European Commission has designated ASEAN as a key partner for strengthening economic engagement, with the goal of establishing a comprehensive and balanced partnership founded on mutual respect and shared values (Medina, 2023). The EU and ASEAN are negotiating a comprehensive free trade agreement known as the EU-ASEAN Comprehensive Air Services Agreement (CAASA). CAASA, whenever adopted, would improve air transport services between the EU and ASEAN countries (Medina, 2023). Furthermore, the EU remains ASEAN's third-largest foreign direct investor, providing over \$26 billion in investments in 2018 (Medina, 2023). Despite the importance of US-ASEAN and EU-ASEAN trade, Southeast Asian countries are seeking to diversify their trading relationships, particularly with China and other Asian neighbours. Considering this, the next subsection basically discusses the possible dynamics between economic globalisation and public debt in Southeast Asia as part of the developing world.

3.3.2 The relationship between public debt levels and economic globalisation in the developing world

3.3.2.1 Southeast Asia

Southeast Asian countries have strong capital markets and favourable debt ratings compared to global peers (Bugrov *et al.*, 2024). Since the 1997 Asian financial crisis, the region's financial and economic stability has progressively recovered, with large foreign currency reserves relative to GDP and low sovereign debt default rates (Ormiston, 2022). Southeast Asian countries have access to international capital markets, allowing them to borrow funds for development and economic growth, however, this exposes them to dangers such as currency fluctuations and changes in global interest rates, which can affect national debt levels (Ormiston, 2022).

Furthermore, the region's financial markets are bustling, luring global investors with multiple initial public offers (IPOs) and headline deals, especially from countries like Indonesia (Kumar, 2023). In 2023, the number of IPOs in Southeast Asia had increased by 26 per cent over the previous year, with Indonesia playing a prominent role in the region's corporate activity (Kumar, 2023). The region ratified the Regional Comprehensive Economic Partnership (RCEP) in 2022, becoming the world's largest free-trade area that covers Australia, China, Japan, New Zealand and South Korea, about 30 per cent of the global population (*J.P. Morgan*, 2024) with significant fiscal implications.

Additionally, Southeast Asian countries have embarked on a trajectory of tariff reduction to stimulate commerce and foster economic growth. This strategic approach towards decreasing tariffs not only serves to lower consumer costs but also fosters heightened competition within markets, thereby strengthening overall economic activity (Maude, 2021). Consequently, governments reap the benefits of enhanced revenue streams derived from import levies, maintained by the increased trade momentum facilitated by reduced trade barriers activity (Maude, 2021). The consequent surge in trade activity amplifies corporate profits and individual incomes, consequently augmenting the tax base and contributing to government funds (Maude, 2021). Additionally, governments stand to gain from customs fees levied on goods crossing their borders, thereby boosting fiscal reserves and reinforcing fiscal sustainability (World Bank, 2022).

On the financial side, FDI has been a crucial source of capital injections for Southeast Asian economies, particularly in export sectors, resulting in export-led growth in the area. Foreign enterprises have taken the lead in sectors with rapid export growth, such as electronics, transforming host countries into significant manufacturers and exporters of manufactured goods (Lall, 2000). In 2021, FDI inflows into Southeast Asia reached a record high of over \$170 billion, matching pre-pandemic levels (Biswas, 2022). This was driven by the diversification of manufacturing supply chains and investments in rapidly

rising consumer markets (Biswas, 2022). Inflows were concentrated in significant economies such as China, Singapore, Hong Kong (China), India, and the United Arab Emirates, accounting for about 80 per cent of FDI in the area (United Nations, 2023). While FDI inflows into Southeast Asia have been instrumental in driving economic growth and development, careful management is essential to ensure that these investments contribute positively to sustainable development without leading to increased public debt through subsidies or tax incentives.

Moreover, financial conditions in emerging market and developing countries, such as Indonesia and Thailand, have remained accommodating, with real policy rates close to neutral levels (Carrière-Swallow & Srinivasan, 2023). However, public debt levels remain high in much of the region, requiring fiscal consolidation to maintain debt sustainability (Carrière-Swallow & Srinivasan, 2023). Southeast Asia's vulnerability to global financial flows presents concerns, as financial markets are prone to periods of stress, shock, and crisis (Bhaskaran, 2018:6). Large and volatile capital flows can cause unexpected swings in regional currencies, affecting monetary management. Since the Asian financial crisis in 1997, the area has steadily improved its financial and economic stability, with high levels of foreign currency reserves relative to GDP and a low rate of national debt defaults (Ormiston, 2022).

While examining the dynamics of economic globalisation and public debt in Southeast Asia provides critical insights into how developing markets navigate global financial pressures, it is equally essential to also assess sub-Saharan Africa, where similar dynamics are at play but within a distinctly different economic context. Understanding the economic background of Sub-Saharan African countries allows for meaningful comparisons and an exploration on how globalisation and public debt are shaping the region's economic trajectory. This will be done in the next section.

3.4 SUB-SAHARAN AFRICA

3.4.1 Brief economic background

Sub-Saharan Africa (SSA) is a region with diverse economies, encompassing low, lower-middle, upper-middle, and high-income countries with a wide range of economic activities and different development levels. The economies in this region are defined by the existence of numerous dimensions of economic diversification, such as manufacturing, mining, financial services, utilities, and agriculture, however, this differs from country to country (Natural Resource Governance Institute (NRGI), 2023). Kenya has made tremendous progress in diversifying its economy, especially in the services sector, and has also invested in infrastructure development and has a thriving manufacturing industry (IMF, 2017). Mozambique's economy has grown rapidly, owing to its abundant natural resources, particularly in the mining sector (Casal, 2023). It has also expanded its economy by investing in agriculture and manufacturing (World Bank, 2023).

Furthermore, in oil-exporting countries, mining and utilities constitute a large share of GDP, while manufacturing is smaller (IMF, 2017). The SSA region has a sizable and expanding labour force, which presents opportunities for productivity growth and economic development; and possesses ideal agricultural characteristics, such as plenty of sunlight, arable land, and water resources (World Bank, 2023). However, these economies may also be more susceptible to changes in global market prices if they depend on a limited number of commodities. With its abundant natural resources, largest free trade area in the world, and over one billion people as its market, the continent can lead the way in development by fully utilising its people and resources (World Bank, 2023).

Alas, the region has several development obstacles, including inconsistent economic performance among various countries and regions, high rates of poverty, and sluggish economic growth (World Bank, 2023). The most recent update shows that growth in the region is projected to slow to just over two per cent in 2023 from four per cent in 2022 with over four million of the population still living in extreme poverty in 2023 (World Bank, 2023). SSA countries also suffer from a lack of infrastructure while limited access to finance and credit hinders business growth and investment in the region (Harrison *et al.*, 2014:61).

Furthermore, to finance development programmes, projects, and other expenditures, governments incur debt either through international organisations such as the ADB or World Bank that provide financial and technical assistance to developing countries, or through the sale of government bonds *etc.* (World Bank, 2024). The International Development Association (IDA) also distributes funding entirely in the form of grants to countries deemed at high risk of or in debt difficulty (Comelli *et al.*, 2023). China has been a major lender to SSA countries through a variety of initiatives, including the Belt and Road Initiative (BRI) (Hooper *et al.*, 2022:8). The BRI aspires to foster economic cooperation and infrastructural development between China and other countries, notably those from SSA (Hooper *et al.*, 2022:8). Regional integration through initiatives like the African Continental Free Trade Area (AfCFTA) also helps reduce the region's dependence on external markets and increase intra-regional trade (Ndikumana & Boyce, 2011:150). This reduces the risk of debt distress by promoting economic diversification and growth (Ndikumana & Boyce, 2011:150). To contextualise the debt landscape in sub-Saharan Africa, the Figure 3.2 illustrates the levels of total external debt in selected countries prior to the onset of the COVID-19 pandemic.

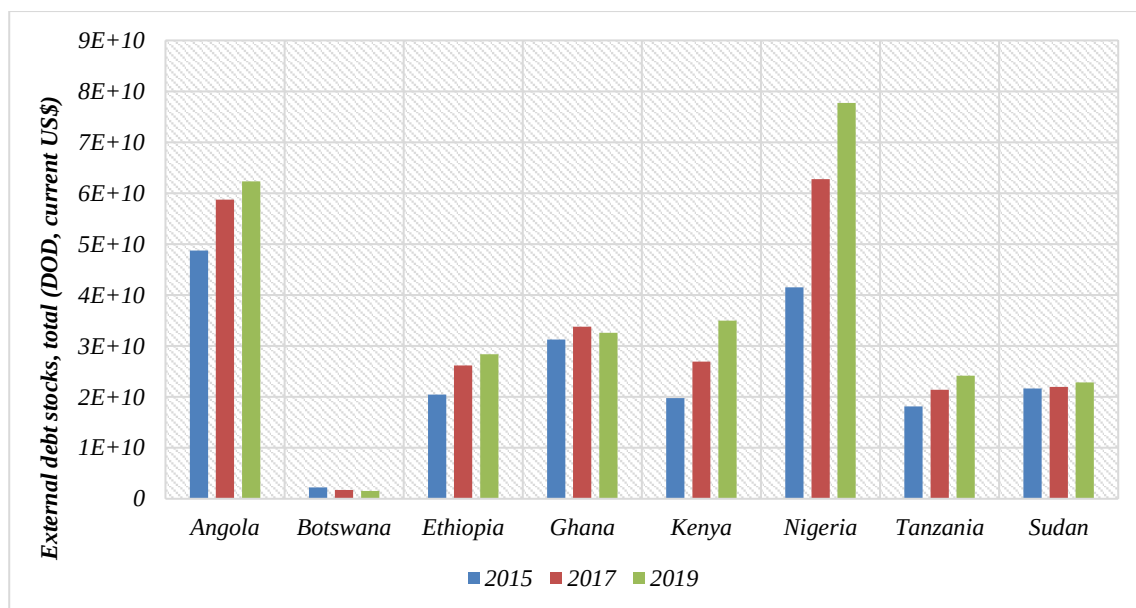


Figure 3.2: Total external debt pre-Covid-19 in selected sub-Saharan Africa

Source: World Development Indicators (2024)

In terms of debt, the SSA countries have seen a significant increase in public debt in recent years, with countries such as Nigeria and Angola being more reliant on external debt (Figure 3.2 and Figure 3.3). Botswana has a particularly low external debt about one billion US dollars in comparison to other SSA countries as the country is more reliant on internal debt (CEIC, 2024). Its government has been financing deficits primarily through domestic debt issuance and external concessional financing (IMF, 2023). Furthermore, the debt ratio of SSA has increased significantly in the last decade, almost doubling from 30 per cent of GDP in 2013 to over 60 per cent by the end of 2022 (IMF, 2023). This increase in debt ratio has led to higher costs for repaying the debt. Figure 3.3 shows the increase in external borrowing for selected SSA post Covid-19 and how most of the countries have not yet managed to bring the debt levels down to pre-covid level, what with Susan managing to reduce public debt slightly while Angolan and Nigerian public debt remained high. The volume of nominal public debt in SSA has more than tripled since 2010, reaching over 1 trillion USD by the end of 2022, primarily because of weak debt management systems, substantial debt transparency issues, weak macro-fiscal management, increased reliance on costlier and riskier financing sources, and adverse negative shocks (World Bank, 2024).

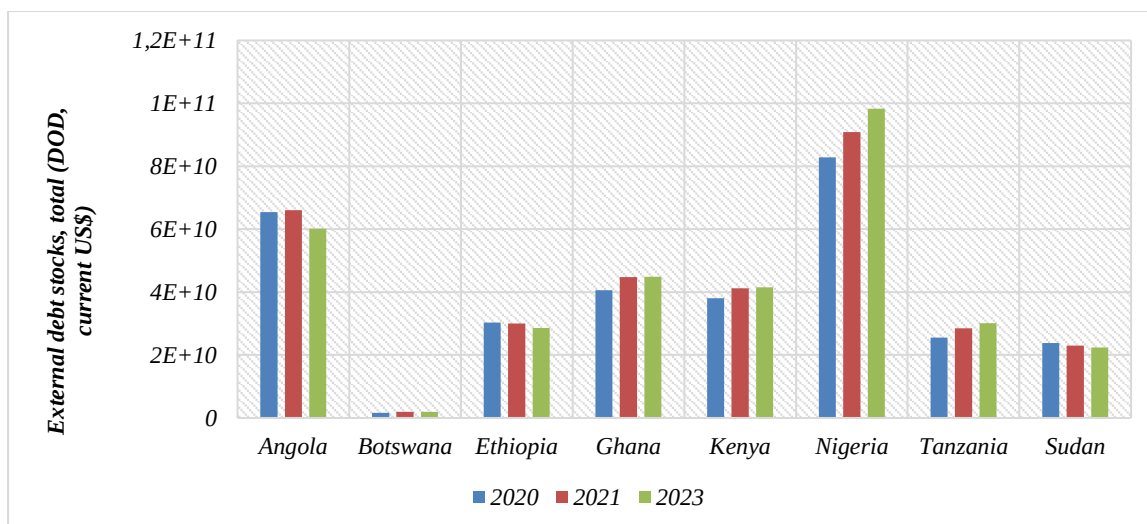


Figure 3.3: Total external debt post-Covid-19 in selected sub-Saharan Africa

Source: World Development Indicators (2024)

The interest cost on public debt also increased, rising from a median of five percent of government revenues (excluding grants) at the end of 2012 to ten percent by the end of 2022, reducing the revenue available to meet development needs (IMF, 2023). Additionally, 34 sub-Saharan African countries experienced an increase in the proportion of government income (excluding grants) allocated to interest payments, with 13 of these countries seeing an increase of more than ten percentage points (IMF, 2023). These numbers highlight the issue of sustainable debt and its potential to spur economic growth and long-term poverty alleviation.

The region's interest payment to revenue ratio, a crucial statistic for assessing debt servicing capacity and forecasting the risk of a fiscal crisis, has more than doubled since the early 2010s and is currently close to four times that of advanced countries (IMF, 2023; Savage, 2023). The causes of the increase in governmental debt in Sub-Saharan Africa are multifaceted, including factors like low commodity prices, poor fiscal management, and the COVID-19 pandemic (Bataka, 2021:1757). The region's reliance on external borrowing and the vulnerability of its economies to external shocks have also added to the debt burden over the years. Some of the region's governments rely on foreign aid and investment (World Bank, 2023).

While this can provide critical support for development programs, a reliance on external funds can also pose economic sustainability issues (Thapa, 2020:4). Additionally, external borrowing, while providing immediate financing, can lead to higher debt servicing costs and currency risks for SSA countries, especially when denominated in foreign currencies. The SSA region is still grappling with significant financial distress risks, with 21 countries considered as either at high risk of or already in a state of

external debt distress, and several countries, particularly Chad, Zambia, and Ghana, have begun debt restructuring initiatives to restore sustainability and rebuild fiscal space (World Bank, 2023).

The stagnant growth and development of the SSA region continue to fuel the debate on whether economic globalisation is beneficial in and of itself and how governments can make the most of the benefits (Mavodyo, 2023:599). SSA is becoming increasingly integrated into the global economy, much like any other region in the globe, so it is still relevant and imperative to consider why the region has not seen significant growth and positive outcomes in reducing poverty. It is argued that most countries stand to benefit from economic integration through technological transfers, foreign aid, international loans, foreign trade, and foreign direct investment (OECD, 2020). For SSA though, economic integration also means a heavy dependence on external markets, a skewed distribution of benefits, and infrastructure challenges which hinder effective trade (Subaşat, 2015:4).

Moreover, efforts towards regional economic integration are ongoing in the SSA region. Regional integration institutions such as the SADC, Common Market for Eastern and Southern Africa (COMESA), and the African Union (AU) facilitate economic integration for African countries (Gakunga, 2022). Throughout the years, these institutions have had the responsibility to promote economic integration in African countries to enhance growth and development; facilitating trade and investment, harmonising integration policies to reduce trade barriers and promote economic cooperation; foster peaceful conflict resolution and improve regional stability. Furthermore, it has provided African countries with capacity-building and technical aid, while also supporting institutional development and increasing the effectiveness of regional integration efforts (Mathews, 2003; World Bank, 2023).

Unlike with Southeast Asian countries, intra-regional trade in SSA has been historically low with challenges and impediments hindering its growth. Despite the potential benefits of increased intra-regional trade, such as knowledge transfer, diversified economies, and value creation, SSA has struggled to boost trade within the region (Songwe, 2019, Keane *et al.*, 2010). The African Continental Free Trade Area (AfCFTA) intends to address these issues by enhancing trade facilitation, building productive capacity, and lowering non-tariff obstacles to enhance intra-African trade (Songwe, 2019).

Extra-regional commerce in SSA, on the other hand, refers to transactions with partners outside of the continent. SSA trade has switched from developed to emerging economies during the previous decade, with exports to India, Indonesia, and Russia more than doubling (Sow, 2018). While traditional trading partners such as the European Union and the United States continue to hold a significant share of overall exports from Africa, the region's trade destination has been diversifying towards emerging economies (Sow, 2018). FDI can provide long-term investment money for infrastructure development and economic diversification, potentially lowering the need for government borrowing in SSA countries.

However, over relying on short-term portfolio investment, especially in volatile financial markets, can increase vulnerability to capital flight and currency depreciation, threatening debt sustainability. Considering this economic background, the next subsection discusses the relationship economic globalisation and public debt in SSA.

3.4.2 The relationship between public debt levels and economic globalisation in SSA

As sub-Saharan African countries integrate progressively into the global economy, international trade, investment, and financial flows have a greater impact on their borrowing patterns and debt sustainability. Understanding the complex interactions between economic globalisation and public debt is critical for the policymakers in this group of countries seeking to manage the challenges and opportunities posed by global economic integration while guaranteeing fiscal stability and long-term development. As previously mentioned in Chapter 2, section 2.4 of the study, a notable mechanism contributing to the accumulation of public debt amidst economic integration is facilitated by the access to global financial markets.

Economic globalisation has thus far helped SSA countries gain access to global financial markets, allowing these countries to borrow from international creditors (Bayar *et al.* 2023). Since the late 2000s, SSA countries have progressively issued Eurobonds, generating funds for development financing without conditionality, despite difficult conditions during the global financial crisis and European debt crises (Gbohoui *et al.*, 2023:3). Global investors are drawn to SSA sovereign bonds due to their potential for high returns, improved macroeconomic policies, and development prospects, as well as low global interest rates, increased liquidity, and portfolio diversification (Gbohoui *et al.*, 2023:4).

Furthermore, trade plays a crucial role in SSA economies, with exports of commodities such as oil, minerals, and agricultural products being major sources of revenue (Allard *et al.*, 2016:4). However, the region's trade dynamics are marked by a strong focus on extra regional trade, with a low share of intra-African trade. Intra-African trade makes up approximately 18 per cent of total exports and imports, compared to 59 per cent and 69 per cent for intra-Asia and intra-Europe trade, respectively (Sow, 2018). Dependence on commodity exports has exposed SSA to price volatility and external shocks (UN, 2023). Export earnings fluctuations can affect government revenue, resulting in fiscal deficits and higher borrowing to fund public spending. Furthermore, trade imbalances, in which imports exceed exports, can also lead to current account deficits, necessitating external borrowing to cover the difference (UN, 2023).

International financial flows in Sub-Saharan Africa encompass various forms of capital movements between countries in the region and the rest of the world. This includes various components such as FDI, foreign aid, remittances, and illicit financial flows. The evolution of capital inflows into SSA has

followed a different path compared to global capital flows, with external shocks like the 2008-09 global financial crisis, the 2011-12 European sovereign debt crisis, and the 2014 plunge in international oil prices reshaping the composition of capital inflows (Calderon *et al.*, 2019). Illicit financial flows have also been a concern in SSA, with countries like South Africa, the Democratic Republic of Congo, Ethiopia, and Nigeria emitting over 50 per cent of total illicit financial flows from the region (Madden, 2020). Illicit flows often occur through trade mis invoicing, where exporters or importers deliberately misreport the value or nature of goods to evade taxes or launder money.

In terms of official finance, SSA continues to receive a substantial proportion of government development finances. SSA's private capital flows have fluctuated throughout time, with foreign direct investment, private loans, and portfolio equity flows affecting the region's financial landscape (Nyang 'Oro, 2017). Prior to 2020, SSA was attracting increasing amounts of FDI, although overall FDI inflows remained much lower than in other world regions (Qiang, Kusek, Steenbergen & Viney, 2021). Indeed, economic globalisation has provided critical access to international funding and economic opportunities in SSA, but it has also introduced challenges in managing increased public debt; South Africa, as the region's leading economy, exemplifies these dynamics through its unique experiences with globalisation and debt management.

However, SSA countries frequently experience higher borrowing costs relative to other regions, ascribed partially to structural issues such as substantial informal sectors, inadequate institutional frameworks, and underdeveloped domestic financial markets (Gbohoui *et al.*, 2023:14). Despite the increase in borrowing, concerns remain surrounding debt sustainability and the impact of borrowing costs on economic growth and development. Many SSA countries exhibited reduced debt accumulation after 2020, reflecting measures to minimise debt pressures (Bayar *et al.* 2023). Furthermore, the debt outlook remains unpredictable since several countries face vulnerabilities and want debt treatment under the Common Framework (Georgieva & Pazarbasioglu, 2023). According to Heitzig *et al.* (2021:7), the catastrophic debt position may result in credit downgrades, debt distress (economic and liquidity), reduced access, or outright rationing of credit markets.

While examining economic globalisation and public debt in SSA reveals significant challenges and opportunities for the region, it is important to hone the focus on South Africa, a key player within the continent and the focus of this study. By understanding the economic background of South Africa, the study will delve deeper into how globalisation and public debt specifically impact this country's economy, offering insights into both its unique and shared experiences within the broader African context. This will be done in the following section of this chapter.

3.5 ECONOMIC GLOBALISATION AND PUBLIC DEBT IN SOUTH AFRICA

3.5.1 Economic history

With its unique economic background, the relationship between economic globalisation and public debt differs in South Africa and the rest of SSA countries due to differences in economic development, integration, and borrowing patterns. South Africa is characterised by a complicated history that includes colonialism, apartheid, and its fight for independence. During the pre-apartheid era, South Africa's economy was predominantly agricultural, with the production of maize, wheat, and other crops serving as the primary source of income (Schirmer, 2021:29). The discovery of diamonds and gold in the late nineteenth century changed the economy, resulting in substantial investment from foreign capital (Britannica, 2023). British and Dutch colonisation had a profound impact on South Africa's economy, resulting in the extraction of natural resources and the construction of a racially structured economy. The colonial powers' economic policy emphasised cash crop production and a commodity-based trading system which had a severe impact on the African economy (Settles 1996:3).

The region became further integrated into the global capitalist economy, with resource exploitation such as gold and diamonds playing a significant role in this process (Britannica, 2023). Colonialism also introduced a parallel economic framework, disarticulated the African economy, and made the colonies dependent on a mono-cultural economy, resulting in the dehumanisation of labour force and traders (Ocheni & Nwankwo, 2012:52). The expansion of manufacturing posed a significant threat to apartheid's viability, which led to new political issues and the foundation of the dictatorship (Schirmer, 2021:27). During those colonialism and organised apartheid years, Black South Africans were subject to income taxation and wielded minimal political influence within the governmental framework, were mainly denied economic possibilities, resulting in a lopsided growth, distribution of income, and overall development (Hazlett, 2019; Sguazzin, 2021). This left a persistent wealth divide, with the top ten per cent owning over 85 per cent of household wealth and over half having more liabilities than assets (Sguazzin, 2021). A system characterised by disparate taxation and governmental expenditure, wherein individuals of White descent bore the weight of the tax burden was introduced (South Africa History Online (SAHO), 2023).

When tax revenue is constrained but government expenditure continues to rise, government debt tends to escalate, resulting in rising borrowing rates along with possible economic instability. Furthermore, the country's economy suffered because of the imposed sanctions, which decreased international investment and access to foreign debt (Evenett, 2002:561). The South African government also had to spend more on defence and security to maintain the apartheid regime, which further strained the country's finances (Truesdell, 2009:116). The restrictions and dis-investment may have influenced

South African trade flows too and caused exports to decline, which decreased government revenue from trade taxes and tariffs (Evenett, 2002:561).

To effectively manage the mountainous public debt, the government enforced fiscal discipline to control expenditure and public debt - an almost impossible endeavour considering the social discrepancies that required government spending - which included decreasing government spending, boosting tax collection, and enhancing the efficiency of public services (Lundahl & Petersson, 2013:13). A strong macroeconomic framework was established to foster economic stability and growth which included developing monetary measures to manage inflation and keep the currency stable (Francis *et al.*, 2021:99). Additionally, state-owned firms in the telecommunications, energy, and transportation sectors were privatised to improve efficiency and lessen the load on the public sector; and the government liberalised trade policies by lowering tariffs and trade obstacles to attract and boost foreign trade and investment (SAHO, 2014).

Additionally, the sanctions comprised trade and financial restrictions, an arms embargo, and an oil embargo (Hefti & Staehelin-Witt, 2002:4). These were implemented particularly by most of its major trading partners such as the US, the European Community, and Japan, which had a considerable influence on the country's economy and pushed it into a recession (Hefti & Staehelin-Witt, 2002:3). Rarely did any trade take place between South Africa and the rest of the world during those years (South African Market Insights (SAMI), 2019). While the merits of the sanctions are debatable amongst scholars, they did increase economic pressure on the apartheid system (Afesorghor, 2019; Becker, 2011:147; Heine-Ellison, 2010:81). The economic repercussions incurred from trade sanctions surpassed those stemming from financial sanctions and the diverse array of trade sanctions imposed resulted in significant economic burdens (Hefti & Staehelin-Witt, 2002:4). Among these measures, the oil embargo emerged as particularly the most detrimental to South Africa, despite substantial loopholes (Hefti & Staehelin-Witt, 2002:4).

Throughout the sanctions period, access to capital within South Africa was constrained by challenging circumstances, characterized by elevated costs. However, such constraints were attributed to social unrest and the prevailing economic adversity (Hefti & Staehelin-Witt, 2002:4). According to Davis (1993:1), economic sanctions played a crucial role in bringing down Apartheid and opening South Africa's economy, which relied significantly on foreign finance. Furthermore, Bhattacharya and Lowenberg (2010:57) postulate that Apartheid policies that resulted in inadequate investment in physical and human capital and high government spending contributed to South Africa's dismal economic performance during the era. This resulted in poor productivity and wasteful use of inputs, but South Africa's richness of natural resources often concealed this impact.

The end of apartheid in 1994 marked a new era of political reform and inclusive governance although this did not bring about an accelerated change in all aspects of the economy. Upon its transition to democracy in the 1990s, the South African government implemented several economic policies to bring about economic reform and address the challenges inherited (SAHO, 2014). Some of these include the Reconstruction and Development Programme (RDP) as the primary socio-economic programme to establish a more equal society through reconstruction and development as well as strengthening democracy; the Growth, Employment, and Redistribution (GEAR) macroeconomic policy framework, which included the majority of the RDP's social goals in addition to reducing inflation, maintaining exchange rate stability, minimising trade barriers, and expanding capital flows (SAHO, 2014). Although the post-apartheid era saw efforts to alleviate these gaps through initiatives such as Black Economic Empowerment (BEE) and Transformative Constitutionalism (Mathebula & Odeku, 2023:3-5), obstacles remain in achieving significant economic transformation and empowerment for the Black community.

Currently, South Africa is commonly considered a middle-income emerging market or developing country, even with its well-developed infrastructure and diversified economy (Marnewick & Bekker, 2022:6). Despite its progress in the field of industry and manufacturing, the constant obstacles such as excessive inequality, high unemployment rates, and poverty prove that development in the country is a continuous process that hinders the country from being fully developed (Bakari, 2017:1). Furthermore, South Africa remains a dual economy with one of the highest and most persistent inequality rates in the world, with a consumption expenditure Gini coefficient of 0.63 in 2023 (Statista, 2023). This is continuously sustained by a history of exclusion in the country and the nature of economic growth, which needs to be pro-poor or managed to provide sufficient jobs in the economy (World Bank, 2023). The already fragile South African economy was further weakened by the COVID-19 crisis which saw the country plunge into a much deeper recession (Mathe, 2020).

Figure 3.4 depicts that South Africa has gone from a negative 0.32 percent GDP growth in 1990 to over three per cent in 1994 (Macrotrends, 2024). Since then, GDP percentage growth has remained positive except for 2009 during The Great Recession and 2020 during the Covid-19 pandemic (Figure 3.4). The GDP growth pre pandemic in South Africa was 0.2 per cent in 2019 and was revised to the growth of real GDP was revised to a negative seven per cent in 2020 due to the lockdown implemented by the South African government (Statista, 2024). The pandemic led to increasing poverty and unemployment rates, with women and youth persistently more impacted. In the fourth quarter of 2021, the unemployment rate reached an unprecedented 35 per cent, declining marginally to almost 33 percent by the second quarter of 2023 (World Bank, 2024). The government implemented the COVID-19 Social Relief of Distress Grant to those who are unemployed to avoid a deeper plunge into poverty, which was extended until March 2024 to support those affected by the pandemic (World Bank, 2024). In addition, the Russian-Ukrainian war has also added fuel to the fire as supply chain bottlenecks and inflationary

pressures were exacerbated via higher energy and food prices, which could result in a more rapid tightening of monetary policy and impose additional fiscal pressures (UNDP South Africa, 2022:1).

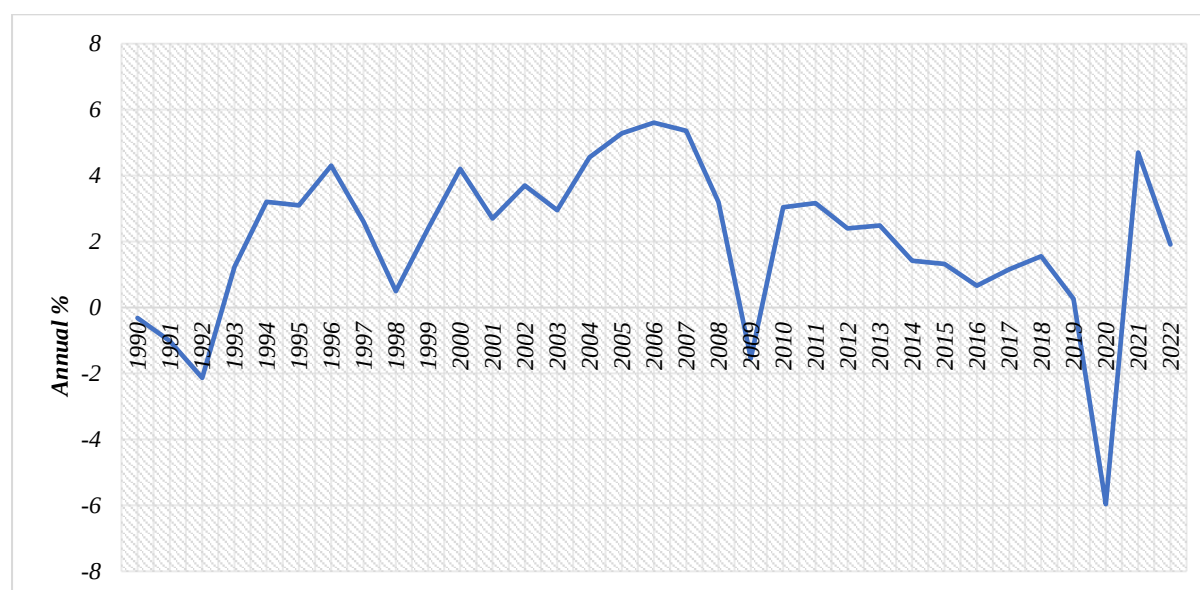


Figure 3.4: South Africa GDP growth rate and annual percentage from 1990-2022

Source: Macrotrends (2024)

Bearing in mind, that the government that came into power in 1994 inherited the economic and social legacies, not to mention a challenging political future and raising uncertainties regarding the ability to improve economic performance, integrating South Africa into the global economy yielded an interesting outcome (Nowak, 2005:2). Since the democratic transition in 1994, South Africa's governmental debt has changed significantly. Initially, the country's public debt was quite manageable, remaining under 60 per cent of GDP (Brou & Bouoiyour, 2023:673). However, in the years since the transition, state debt has risen dramatically, reaching about 74 per cent of GDP in 2023 (Brou & Bouoiyour, 2023:673). This represents a shift from the prior sustainability, with the country's public debt witnessing a significant increase. South Africa's debt-servicing expenditures are expected to spend almost R400 billion on debt-servicing costs over the next financial year is about R1 billion per day in the fiscal year 2024/25 (National Treasury, 2024; Jacobs, 2024). This condition undermines the country's ability to invest in important sectors such as infrastructure, education, and healthcare, thereby harming future economic growth and development.

Regarding economic globalisation in the country, South Africa's reintegration into the global economy has provided countless benefits, but it has also required increased discipline in managing the economy and business operations. The country's engagement in global financial markets has significantly increased, with non-residents accounting for around one-third of turnover on the JSE Securities Exchange (ITA, 2024). This increased integration has exposed South Africa to foreign competition,

particularly in areas such as manufacturing, where open trade has enabled access to global markets. Growth in the financial and business services sector has been fuelled by large investments from foreign financial institutions and expanding cross-border provision of financial services (BIS, 2002:2). To ensure inclusive growth and development across all levels of society, South Africa is responding to these opportunities by investing in people through infrastructure development, education, skill development, support for industrial clusters, small business development, and strategic trade interactions (National Treasury, 2023).

3.5.2 An overview of public debt in the post-apartheid era

With the foundation laid in understanding South Africa's economic backdrop, the subsequent exploration centres on understanding the dynamics of public debt in the aftermath of Apartheid. South Africa currently faces an intricate combination of economic, financial, and policy-related issues that are contributing to its public debt. The economic challenges faced by post-Apartheid South Africa, such as high unemployment, inequality, and poverty (*see* 3.5.1) and proportionately high government spending have made public debt unsustainable. Moreover, these have also impacted the government's ability to manage its debt effectively particularly due to reduced economic growth, lower revenue collection, and increased social spending (Bakatar, 2023; Anser *et al.*, 2020; Inchauste *et al.*, 2017). South Africa's largest fiscal portfolio is its debt portfolio, which contains the government's financial liabilities.

Furthermore, the country's public debt is both internal and external. External debt, in this case, would refer to borrow from international financial institutions such as the World Bank, New Development Bank, and the African Development Bank amongst others, to try to balance expenditures and avoid a downward economic spiral (Hlongwane & Daw, 2022:4). This sort of debt is sensitive to exchange rate fluctuations and affects public debt repayments. Domestic short-term borrowing is made up of Treasury bills with various maturity dates ranging from 91 to 364 days; and borrowing from the Corporation for Public Deposits that are used for bridging finance facility over the medium term (National Treasury, 2024:75). Furthermore, the government's long-term borrowing consists primarily of bonds where RSA retail savings bonds, fixed-rate bonds accounted for just 56 per cent of the total 86 per cent raised by the government in 2023/24, and floating rate notes, inflation-linked bonds, domestic sukuk and retail bonds making up the remainder (National Treasury, 2024:75).

However, the public debt in South Africa is predominantly domestic (about 80 per cent) and dominated in the Rand with long maturity, while its foreign debt remains a relatively small share of its overall borrowings (National Treasury, 2023:81, Sachs, 2021:8). This reduces its vulnerability to risks associated with interest rate rises and currency depreciation. However, debt-service expenses are significant accounting for approximately five per cent of GDP (National Treasury, 2023). This is why, in 2022, credit rating agencies (Fitch, Moody's, and S&P) upgraded their outlook on South Africa's

sovereign credit ratings. However, concerns remained regarding power outages, the high debt burden, and significant fiscal risks (National Treasury, 2023:82). Over the years, the government's gross borrowing needs have been addressed through issuing domestic short- and long-term loans, foreign currency long-term loans, and cash balances (Felix, 2022).

This debt burden has mostly been attributed to a couple of factors. Maturing loans, budget deficits, weak economic growth, and financial volatility have resulted in a deteriorating fiscal position, thereby increasing the government's borrowing requirements which had risen by almost R72 billion to over R407 billion in 2020 and decreased to about R388 billion in 2023, due to higher-than-anticipated revenue collection. (National Treasury, 2023:81; National Treasury, 2020:77). Adding even more to the debt burden is the financial support that the government affords to the distressed state-owned companies in the country. For instance, the 2023 *Budget Review* from the National Treasury highlighted that the government will service over R180 billions of Eskom's debt, including capital and interest payments over the next three years (National Treasury, 2023:82). Consequently, this would increase the gross borrowing requirements from about R516 billion in 2023/24 to R555 billion in 2025/26 (National Treasury, 2023:82).

As the country became more integrated into the global economy in 1994, the public debt (%GDP) in South Africa has continued in an upward trend peaking in 2020, before making roughly two percent decrease in 2021 post pandemic (Figure 3.5) (Macrotrends, 2024). Public debt in 1994 was reported at about 44 percent of GDP and remained in the lower forties until 1999 (Macrotrends, 2024). The largest annual growth percentage in public debt was 13 per cent witnessed between 2000 and 2015 where debt was affected by the 2007-2008 Global Financial Crisis and hosting the 2010 FIFA World Cup (Macrotrends, 2024). In 2020, the debt in South Africa soared to almost 78 per cent, a 12.81 per cent increase from 64.72 per cent in 2019 as shown in Figure 3.5 (Macrotrends, 2024).

Several causes led to South Africa's high amount of governmental debt during this period. The COVID-19 pandemic and related economic disruptions resulted in lower tax collection and higher government spending to mitigate the crisis's consequences (National Treasury, 2020:77). The disparity between revenue and expenditure grew, leading to a significant increase in the gross borrowing requirements and credit rating downgrades and capital market outflows caused higher government borrowing costs, aggravating the debt position (National Treasury, 2020:77). Meanwhile about eight per cent of the gross national income in South Africa were used to service the debt (World Bank, 2024). Figure 3.5 below depicts the public debt in South Africa against the debt service costs accumulated from 2000 to 2022.

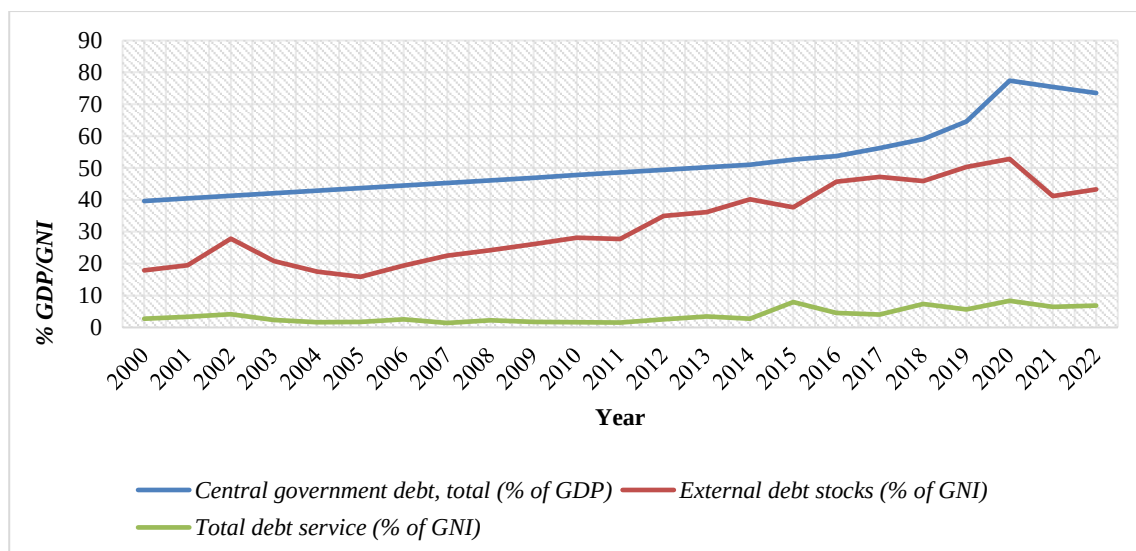


Figure 3.5: Public debt accumulation vs. debt service costs 2000 to 2022 in South Africa

Source: World Development Indicators (2024)

Therefore, the current state of public debt patterns leaves the country in a dire fiscal state and highlight the significance of pragmatic debt management. Indeed, the current public debt status quo pose several challenges for the country's economic stability and development. The high levels reduce fiscal policy flexibility and the government's capacity to effectively respond to crises and shock; and implement expansionary fiscal policies (BIS, 2023). A higher amount of the annual budget is spent on debt repayment, crowding out financing for critical areas like education, healthcare, and infrastructure development while over R380 bn is reserved for spending on debt-service costs in 2024 (National Treasury, 2024:79).

Furthermore, alarming debt levels may lead to downgraded credit ratings which will render it more expensive for South Africa to borrow internationally, restricting access to inexpensive financing, although an over-reliance on external financial sources also increases the risk of default under unfavourable macroeconomic conditions (Brou & Bouoiyour, 2023:683). Continued high debt levels may result in a debt crisis, like what other in SSA such as Chad, Zambia, Ghana have faced, forcing extreme actions such as austerity measures, inflation, or debt restructuring to restore sustainability and rebuild fiscal space (World Bank, 2023).

3.5.3 The relationship between public debt levels and economic globalisation in South Africa

As South Africa grapples with its present public debt status quo, characterised by elevated debt levels and fiscal concerns, it is critical to investigate the complex relationship between public debt and economic globalisation. South Africa witnessed significant economic and financial integration since the

dawn of democracy in April 1994, resulting in a small open economy strongly influenced by globalisation; a process that has generated both benefits and challenges for the economy (SARB, 2019:331). Some of the benefits include better access to global markets, foreign investment, and innovative technologies. The participation of South Africa in international trade, investment, and financial markets has been made far simpler by globalisation which has allowed companies to reach wider markets and draw in international capital (International Trade Administration (ITA), 2024). Additionally, due to its participation in international networks, South Africa has become more influential both inside and outside of Africa which is essential to regional alliances and economic partnerships.

South Africa has, however, faced enormous obstacles, including high debt levels, high levels of unemployment, corruption, inadequate infrastructure, and an unpredictable energy supply (ITA, 2024). Indeed, the interrupted energy supply in South Africa hinders industrial productivity, compromises reliability as a trading partner, and discourages foreign investment, consequently undermining the country's global integration efforts. The public debt of the country is among the highest in emerging economies (IMF, 2023) and the COVID-19 pandemic has exacerbated the country's social and economic issues more severe, thereby increasing rates of unemployment and poverty (World Bank, 2023). Furthermore, South Africa's fiscal limits and debt load have made it more difficult for the government to react to unfavourable shocks. Despite the myriad challenges posed by economic globalisation, South Africa remains integrally connected to the global community.

South Africa boasts a diversified set of trading partners, including both developed and developing economies around the world. A variety of factors contribute to this diversity, including historical relationships, geographical proximity, economic complementarity, and strategic trade agreements (ElGanainy *et al.*, 2023:31). The country's broad and mature economy provides exporters and investors with proven financial and other service sectors, as well as unique access to export markets. Table 3.3 depicts South Africa's diverse trading partners and show a complex network of economic linkages that span regional, emergent, and developed markets including but not limited to USA, European Union, Japan, BRICS countries (ITA, 2024). This diversity demonstrates South Africa's engagement into the global economy and efforts to capitalise on trade opportunities for economic growth, development, and international cooperation. South Africa's trade openness has increased over the last three decades, from 37 per cent in 1992 to over 60 per cent in 2016 to and a slight increase to 65 per cent in 2022 (The Global Economy, 2024).

South Africa's trade is gradually becoming more open and smaller, increasing its exposure to the global economy (Stern & Ramkolowan, 2021:3). While trade openness can boost economic growth and government revenue, South Africa's reliance on commodity exports renders it sensitive to changes in global commodity prices (UN, 2020:3). During times of economic depression or commodity price

volatility, government revenue may fall, resulting in fiscal deficits and higher borrowing to finance government expenditures. Diversification of trading partners reduces the risks associated with relying on a single market. However, problems such as trade imbalances, tariffs, and non-tariff barriers can have an impact on trade dynamics and income generation (UN, 2013:41). Furthermore, South Africa's trade relations with the African continent are aided by regional accords such as the SADC and COMESA as shown in Table 3.3, provide prospects for market diversification and revenue growth or revenue loss in terms of trade taxes and tariffs.

Table 3.3: Trade partner diversity in South Africa

Partners	Country/Organisation	Description
Regional partners	SADC, COMESA	These partnerships enable the exchange of goods and services, foster regional integration, and support economic development initiatives within the continent.
Emerging markets	Expanded trade relations with emerging markets such as China, India, and Brazil	These countries represent significant opportunities for trade and investment, driven by their growing consumer markets, expanding middle class, and demand for South African commodities such as minerals, metals, and agricultural products.
Developed Economies	Key trading partners include the US, the EU, the UK, Germany, and Japan	These partnerships provide access to advanced technologies, capital investment, and high-value markets for South African exports such as automotive products, machinery, and processed goods.
Bilateral and Multilateral Agreements	WTO and has signed preferential trade agreements with countries such as the US (AGOA), EU (EPA), and several African nations (SACU)	South Africa is party to various bilateral and multilateral trade agreements aimed at enhancing market access and promoting economic cooperation.

Source: ITA (2024) and SARS (2024)

Furthermore, South Africa has experienced persistent trade imbalances, with imports exceeding exports in recent years (Figure 3.4). South Africa is now experiencing a current account deficit rather than a surplus. The country experienced a current account deficit of over 19 billion rand (\$1.02 billion) in the third quarter of 2023 where previously, in Q4 2022, the deficit was over 2 billion (Reuters, 2023). This implies that South Africa spends more on imported products and services than it gets from exports and

other income streams. To finance these deficits, South Africa may need to borrow from external sources, leading to an increase in public debt levels.

Figure 3.6 depicts the total debt (% GDP) against trade (%GDP) in South Africa 1991-2022. This shows that the connection between South Africa's public debt and trade (% of GDP) from 1994 to 2022 appears to be somewhat inverse and independent. In the earlier years (1994-2007), as public debt decreased, trade as a percentage of GDP increased. However, from 2008 onwards, while government debt increased significantly, trade maintained a more stable trajectory with slight increases. This suggests that public debt and trade activities in South Africa have not moved in tandem, indicating that the factors driving public debt and trade may be largely independent of each other.

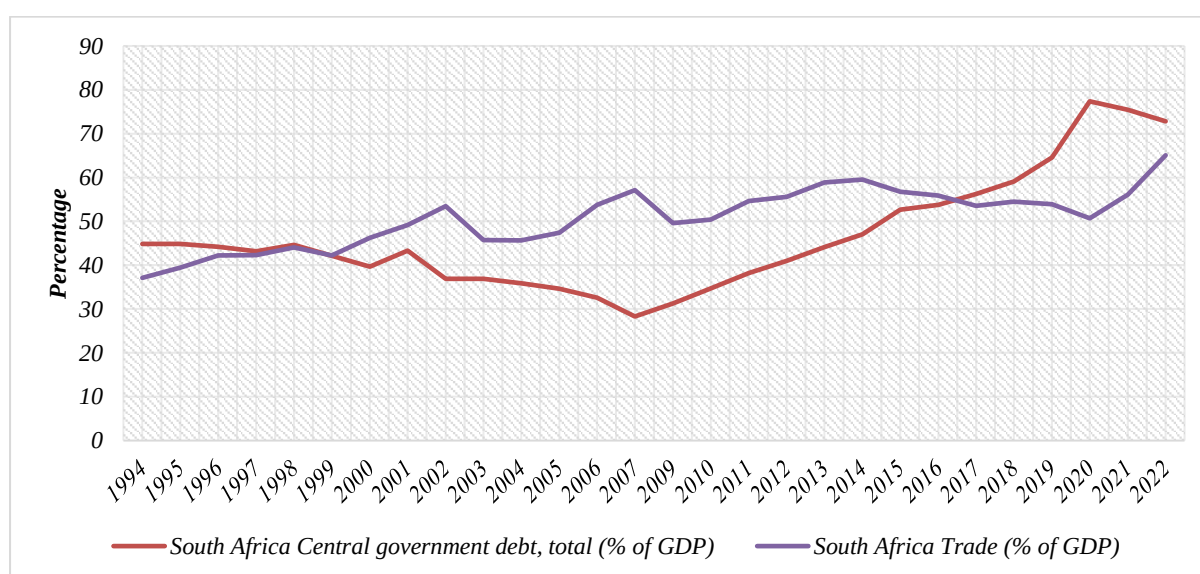


Figure 3.6: Total debt (% GDP) vs. Trade (%GDP) in South Africa 1991-2022

Source: World Development Indicators (2024) and SARB (2024)

Furthermore, the volatility of the exchange rate can also affect the public debt levels. Naturally, a depreciation in the South African Rand affects inflation, national debt, trade balance, and creates challenges for businesses as shown in several studies (Ndou, 2022; Ahmed *et al.*, 2021; Tala, 2017). The rand's devaluation elevates import prices, resulting in higher inflation rates and reduce purchasing power. Furthermore, this might also make it more expensive for South Africa to repay its debts by raising the cost of servicing external debt, however, inflation can reduce the actual value of the national debt, making it easier to repay (Miyajima, 2019). The weakening rand may also result in increasing bad debts for banks due to increased credit risk exposure and affect trade balances by increasing import prices and potentially diminishing export competitiveness (Miyajima, 2019). A stronger rand, on the other hand, may render imports more affordable while reducing export competitiveness, adversely impacting government revenue from export taxes and royalties (Mantshimuli, 2010). Managing

exchange rate volatility is critical for mitigating threats to public debt sustainability caused by trade dynamics.

Moreover, financial globalisation restrictions (Table 3.4) in South Africa are measures adopted by the government or regulatory organisations to regulate the flow of capital in and out of the country's financial markets. These restrictions are aimed at balancing the benefits of global capital flows with the need to maintain financial stability, promote economic development, and protect the interests of domestic stakeholder (SARB, 2024). While they may, at the same time, serve to manage the risks associated with financial globalisation, they can also undermine investor trust, impede capital mobility, and limit prospects for international investment and trade (Sundararajan, 2002). As a result, policymakers must carefully assess the potential trade-offs while enacting and modifying financial globalisation limitations.

Table 3.4: Financial globalisation restrictions in South Africa

Financial globalisation restriction	Description	Source
Exchange controls	Exchange controls have long been in place in South Africa with the goal of controlling financial flows across national borders. These regulations include restrictions on the amount of money residents can send abroad, prohibitions on foreign investment, and prerequisites for obtaining South African Reserve Bank (SARB) approval for specific capital transactions.	SARB (2024)
Capital controls	Restricting capital movement into and out of the country's financial markets are known as capital restrictions to prevent excessive speculation, maintain exchange rate stability, or shield the home economy from outside shocks, South Africa may implement capital controls. These controls might impose prohibitions on foreign investment, limitations on the repatriation of profits and dividends, and demands that certain capital transactions receive regulatory authority before proceeding.	Loewald (2021:32)
Foreign exchange regulations	South Africa has legislation governing foreign exchange operations, such as currency conversion, foreign currency accounts, and risk management. These regulations may compel organisations and individuals to comply with certain reporting requirements and documentation when conducting foreign exchange operations.	SARB (2012)
Prudential regulations	Prudential laws are aimed to guarantee the financial system's safety and soundness by requiring financial institutions to meet capital adequacy, liquidity, and risk management standards. The SARB enacts prudential measures to limit the risks of financial globalisation, such as exposure to volatile capital flows and speculative activities.	SARB (2024)

Financial globalisation restriction	Description	Source
Selective controls	South Africa may also impose selective limitations on specific industries or activities deemed to be risky to financial stability or economic development. For example, the government may place limits on specific types of foreign investment, such as speculative derivatives trading or investments in sensitive industries.	U.S. Department of State (2023)

Source: Author's compilation

On the financial flow side of the coin, FDI has a significant impact on the South African economy, altering public debt dynamics and overall performance. Research indicates that South Africa's governmental debt has a beneficial impact on FDI, with greater levels potentially attracting more investment (Oche *et al.*, 2016:454). However, the relationship is complex, and it is crucial to consider other factors, such as interest rates and exchange rates, which might influence foreign direct investment decisions. High public debt may raise concerns about a country's creditworthiness, thereby inhibiting foreign direct investment (Strauss, 2016:54). Nonetheless, FDI remains an important source of capital for South Africa, assisting in financing the current account deficit and contributing to economic growth.

It is also worth noting that FDI contributes to South Africa's current account balance, offsetting the negative impacts of trade deficits and providing valuable foreign exchange reserves (Strauss, 2016:54). Figure 3.7 shows that South Africa recorded foreign direct investment inflows over R20 billion in the third quarter of 2023, a significant reduction from around R53 billion in the second quarter (SARB, 2024). This decline was mostly caused by non-resident parent corporations making loans and increasing their ownership shares in local subsidiaries during this time. Furthermore, portfolio investments demonstrated a greater outflow of R42 billion in Q3, compared to the outflow over of R4 billion in the previous period, mostly due to a public body redeeming a \$1 billion overseas bond (SARB, 2024).

While FDI can contribute to economic growth, job creation, and technology transfer, thereby reducing the need for public borrowing to finance investment projects, the extent to which FDI affects public debt levels depends on factors such as the sectors targeted for investment, the terms of investment agreements, and the degree of reliance on external financing (OECD, 2020). Furthermore, portfolio flows can provide liquidity to domestic capital markets and assist in lowering the cost of borrowing for both the government and the private sector (World Bank, 2016:2). But in this case, South Africa's reliance on portfolio investment for financing would make it more vulnerable to unexpected fluctuations in investor sentiment, which can lead to capital flight and currency devaluation, thereby affecting public debt levels.

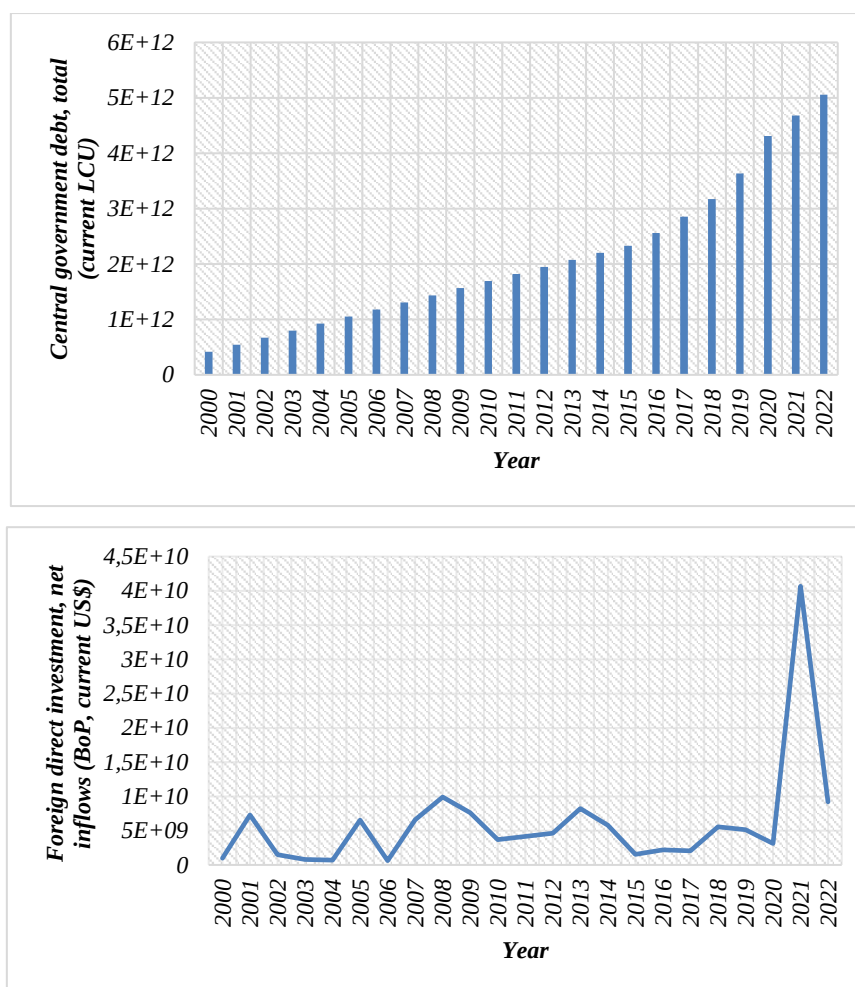


Figure 3.7: Foreign direct investment, net inflows and total public debt in South Africa (2000 – 2022)

Source: IMF (2024)

Transitioning on from the discussion of economic globalisation and public debt in developed, developing, and SSA countries, including South Africa, it is evident that the impact of globalisation on public debt varies significantly depending on a country's level of economic development and integration into the global economy. This difference emphasises the need for a better understanding of how these processes play out in diverse circumstances. The following section will conduct an empirical literature review to further investigate these relationships, examining previous studies that have analysed the specific mechanisms through which economic globalisation influences public debt, focusing on empirical evidence from various economic contexts. This will create the groundwork for comprehending the intricate relationship between globalisation and public debt in both international and South African context.

3.6 EMPIRICAL LITERATURE REVIEW

Whilst the studies have provided insight on the nature of the relationship between economic globalisation and public debt within the developed, developing, and the sub-Saharan world, given the nature of the study's focus, it is important to consider the empirical contributions from the context of these economies. From these perspectives, some research has made significant contributions. For instance, Sinah *et al.* (2011:15) examined the determinants of public debt in high and middle-income countries using panel regression from 1993 to 2008 and suggests that for both country groups, government expenditure, current account balance, and GDP growth rate is a significant determinant of public debt. Furthermore, FDI and inflation have insignificant impact on debt to GDP ratios in high-income countries but are more important in defining the public debt conditions of middle-income countries.

Swamy (2015:25), applying a panel Granger causality testing and GMM regressions for 252 countries encompassing the BRICS countries, OECD countries, high-income countries (HIC), least developed countries, (LDC), middle-income countries (MIC), low-income countries (LIC), and heavily indebted poor countries (HPC), over the period of 1980 to 2009 reports that real GDP growth, FDI, government expenditure, inflation, and population increase all have a negative impact on public debt in all country groups. Additionally, public debt levels are positively correlated with gross fixed capital formation, final consumption spending, and trade openness. In relation to high income countries specifically, the author found an upsurge of debt (ranging between 1,22 per cent and 1,81 per cent) for every percentage point increase in FDI and a positive effect of trade openness on public debt (0,83 per cent to 1,26 per cent) (Swamy, 2015:21).

According to the author, investment openness, indicated by the level of FDI in a country, reflects its capacity to attract international investments. Increased FDI inflows can alleviate the pressure on the government to rely on external borrowings for investment purposes (Swamy, 2015:10). Consequently, higher FDI levels tend to have a negative impact on government debt (Swamy, 2015:10). For trade openness, open countries would more likely succeed in attracting foreign investors to the domestic market and the impact of external borrowing on balance sheets is much less for the more countries (Calvo *et al.*, 2003:40). Swamy (2015:9) predicts that it is for these two reasons that trade openness of countries should have a positive impact on the government debt.

Also looking a combination of countries is Kim *et al.* (2018: 2799) who empirically investigated the effect of globalisation on government size and debt in 53 developed and developing countries using DOLS and FMOLS estimators from 1980 to 2011. The results thereof show that with economic globalisation, government debt increases with trade openness and financial openness for both developed and developing countries. Kim *et al.* (2018:2799) contend that these results are consistent with the

results from the findings of Azzimonti *et al.* (2014) and Combes and Sedik (2006:5) which suggests that governments may opt to have steeper debt levels when the trade and financial markets become internationally integrated. This increase in public debt may result from governments borrowing more to support economic growth and stability in the face of greater exposure to global market fluctuations and competition due to increased trade and financial openness.

Concurrently, the results of Azzimonti *et al.* (2014:1) for industrialised countries from 2003 to 2012 show that in addition to the positive relationship between financial globalisation and public debt, public debt also increases with the volatility of uninsurable idiosyncratic income. This is likely because volatile incomes increase demand for social safety nets and economic stabilisation measures, leading to higher government spending (Chen *et al.*, 2018:6). Income volatility can cause revenue shortfalls, prompting governments to borrow more to meet their obligations. These factors combined may result in an increase in public debt (*see* Chapter 2, section 2.4).

In examining the determinants of the composition of public debt using the random effects and fixed effects model, Forslund *et al.* (2011:215) shows that for the period of 1990 to 2007, the effects of both trade openness and capital account openness differ in low-income countries and middle-income countries. In low-income countries, both trade openness and capital account openness negatively impact the share of domestic debt, though only the effect of trade openness is statistically significant. Conversely, in middle-income countries, both openness variables positively correlate with domestic debt share, but the effect of trade openness is almost zero and not statistically significant. According to the authors, these contrasting effects align with the observation that openness attracts foreign investors in middle-income countries, a phenomenon less common in low-income countries. Another explanation is that middle-income countries typically have more developed financial markets and stronger institutional frameworks, making them more appealing to foreign investors, whereas low-income countries may lack the necessary infrastructure and stability to attract significant foreign investment.

Similarly, Omrane- Belguith and Omrane (2017:167) using the VECM model for Tunisia from 1986 to 2015 show that real interest rates, budget deficits and trade openness inflate public debt while inflation and investment decreases the value of public debt. In addition to this, when considering all Southern Mediterranean developing countries, including Tunisia, from 1990 to 2015, Ouhibi *et al.* (2017:5) show that there is a unidirectional causal relationship between public debt and foreign direct investment using dynamic simultaneous-equation models estimated by GMM.

This could occur because some of the Southern Mediterranean countries have prominent levels of public debt (Ouhibi *et al.* 2017:3) which may indicate economic instability or uncertainty, discouraging foreign investors from investing in the country. However, increases in FDI levels, in this case, would not necessarily result in changes in state debt. Pyeman *et al.* (2016:441) inspected the factors affecting

external debt in Malaysia, covering the period of 1972 to 2012 while using the Dickey-Fuller (ADF) test, Granger causality test, and multiple regression analysis to show that FDI and exports have a strong relationship with external debt.

Furthermore, examining the impact of financial openness on public debt in 37 developing countries, Dong (2021: 2289) assert that financial openness within the home country minimises both external and total public debt. In contrast, foreign financial openness increases the receiving country's external public debt. Kizilgöl and Evren (2014:42) maintains that increasing trade openness affects external debt positively in both the short-run and long-run for Türkiye from 1990:1-2012:2 using an ARDL model and GMM estimation. This alludes that increasing trade openness consistently leads to higher external debt in Türkiye over both the short and long term. This indicates that economic globalisation, particularly through trade integration, can significantly influence a country's debt dynamics by increasing its reliance on external borrowing to support trade activities.

In parallel to the above-mentioned, Bölükbaş (2016:47) who conducted a similar study from 1998: Q1-2011:Q4, showed a significant positive relation between trade openness and external debt in Türkiye. The author argues that the coefficient of trade openness is statistically significant and offers a crucial framework for understanding external debt in Türkiye. Given that imports play a more significant role than exports in Türkiye's trade openness, it is observed that external debt is pivotal in the country's international economic relations (Bölükbaş, 2016:47).

In addition to the abovementioned studies, there have been fewer studies reporting on the implications of economic globalisation on public debt levels in the African region. Amongst the few that have been Bataka (2023:11), who studied the relationship between economic globalisation and public debt in sub-Saharan Africa with data spanning from 1980 to 2017 using cross-sectional error correction model with the estimation by dynamic common correlated effect technique. The results thereof show that economic globalisation increases public debt in the short-run while decreasing it in the long-run; financial globalisation increases public debt in both the short and long-run; and trade globalisation increases public debt in the short-run but decreases it in the long-run. Also utilising the KOF globalisation index, the author was able to show that *de facto* economic globalisation and its dimensions increase public debt in the short-run, while in the long-run only the *de facto* trade globalisation decreases the public deb. *De jure* economic globalisation, on the other hand, does not influence public debt while its trade dimension reduces the short-run debt and its financial dimension increases the long-run public debt (Bataka, 2023:11).

In the short term, openness to economic flows in the mostly poor SSA countries can lead to the collapse of small industries, job losses, and decreased tax revenues. To protect the population, governments may resort to increasing public debt (Bataka, 2023:8). However, in the long term, these economic flows can

generate income, create jobs, and facilitate technology transfer, which are crucial for economic growth and reducing public debt in the SSA region (Bataka, 2023:8). Furthermore, due to issues with institutional quality in the SSA region, such as political instability and corruption, openness to financial flows can result in capital flight, undermining investment, and economic growth opportunities (Bataka, 2023:8). This economic slowdown can prompt governments to increase their debt in the long term.

Focusing more on this relationship in South Africa, specifically, for the period of 1980 to 2020 is Moeng and De Jongh (2023:56). Using Bayer-Hanck combined cointegration tests, FMOLS, DOLS and CCR estimation, all three models show a positive and significant (at the 1% level of significance) effect, corroborating economic integration does contribute to the accumulation of public debt in South Africa (Moeng & De Jongh, 2023:51). The findings highlight significant implications of the integration process, such as higher borrowing costs, greater external vulnerability, and restricted fiscal capacity, all of which hinder efforts to improve the country's social environment.

Based on the foregoing review, this study has the following expectations regarding the nuances of the disaggregated relationship between economic globalisation and public debt in South Africa:

It is anticipated that *de facto* economic globalisation will increase public debt due to greater exposure to global economic fluctuations and potential reliance on external borrowing for investment. Economic integration can lead to higher borrowing to capitalise on investment opportunities and stabilise the economy against external shocks. Mixed results can be expected for *de jure* economic globalisation as legal frameworks promoting globalisation might improve economic stability, reducing debt, or encourage more borrowing due to enhanced access to credit. Trade and financial globalisation could potentially increase public debt. The reason is that increased trade may lead to higher government spending on infrastructure and economic adjustments to remain competitive and greater access to international financial markets can lead to more external borrowing and higher debt burdens.

Table 3.5: Summary of empirical evidence on the relationship between economic globalisation and public debt in developed, developing, sub-Saharan African countries

Author(s)	Subject	Period	Countries	Method	Main findings
Forslund <i>et al.</i> (2011:215)	The determinants of the composition of public debt	1990-2007	Developing and emerging market countries	Random effects model, fixed effects model	The exchange rate regime does not have a statistically significant impact on the share of domestic debt; GDP growth is positively linked to increases in the domestic debt share; and there is no notable relationship between trade openness and the share of domestic debt.

Author(s)	Subject	Period	Countries	Method	Main findings
Sinha <i>et al.</i> (2011:15)	Determinants of public debt	1993-2008	High and Middle-income countries	Panel regression. Total effects model, Cross section fixed effects model, Cross section random effects model, Autoregressive multiple regression model	Central government expenditure, education expenditure and Current account balance influence debt for both groups. FDI and inflation do not affect debt-to-GDP ratios in high-income countries, but they are more significant when assessing the debt situations of middle-income countries.
Nelasco (2012)	Economic analysis on the external debt burden	2000-2009	South Asian countries	Regression model	FDI influences external debt negatively in Bangladesh, Bhutan, and Sri Lanka. In Pakistan, Maldives, and India the results are contradictory. There are mixed results for the effect of imports and exports on external debt across these countries
Azzimonti <i>et al.</i> (2014:1)	Financial globalization, inequality, and the rising public debt	2003 to 2012	Industrialized countries	Multi-country model, Infinite horizon model	With economic globalization, public debt rises with increased trade and financial openness. As financial markets become more integrated internationally, governments may opt for higher levels of debt.
Kizilgöl and Evren (2014:42)	Relationship between trade openness and external debt	1990:1-2012:2	Türkiye	ARDL model, GMM estimation	Maintains that increasing trade openness affects external debt positively in both the short-run and long-run for Türkiye
Swamy (2015:25)	Government debt and its macroeconomic determinants	1980-2009	Advanced, emerging and developing economies.	Panel Granger causality testing, GMM regressions	Real GDP growth, foreign direct investment (FDI), government expenditure, inflation, and population growth have a negative impact on debt. In contrast, gross fixed capital formation, final consumption expenditure, and trade openness positively influence debt.
Pyeman <i>et al.</i> (2016:441)	Factors affecting external debt	1972–2012	Malaysia	Dickey-Fuller (ADF) test, Granger causality test, and multiple regression analysis	FDI and exports have strong relationship with external debt.

Author(s)	Subject	Period	Countries	Method	Main findings
Bölükbaş (2016:47)	The relationship between trade openness and external debt in Türkiye: A Cointegration Analysis	1998: Q1-2011:Q4	Türkiye	ARDL model	Findings suggest a significant positive relation between trade openness and external debt in Türkiye.
Omrane-Belguith and Omrane (2017:167)	Macroeconomic determinants of public debt growth	1986-2015	Tunisia	VECM model	Inflation and investment reduce the value of public debt. real interest rate, budget deficit and trade openness increase public debt
Ouhibi <i>et al.</i> (2017:3)	The nexus between foreign direct investment, economic growth, and public debt	1990-2015	Southern Mediterranean countries	Dynamic simultaneous-equation models estimated by GMM	Bidirectional relationship between economic growth and foreign direct investment, a unidirectional causal relationship between public debt and economic growth, as well as between public debt and foreign direct investment
Waheed (2017:1)	Determinants of external debt	2004-2013	Two oil and gas exporting and importing countries	Panel data estimation	Increased economic growth, foreign exchange reserves, GGR, price of oil, and domestic investment are the crucial factors in reducing external debt
Kim <i>et al.</i> (2018:2801)	Government size, government debt and globalization	1980-2011	Developed and developing countries	Panel heterogeneous cointegration techniques	Government size grows with trade openness but shrinks with financial, social, and political globalisation. Conversely, government debt rises with financial and trade openness but declines with social and political globalisation.
Çolak and Özkaya (2021:882)	The nexus between external debts and military expenditures	1997-2016	Transition economies	A Panel Threshold Regression Approach	In the initial stages, countries finance military expenditure with domestic savings, whereas the requirement for external borrowing comes later when domestic savings become insufficient.
Dong (2021:2289)	Impact of financial openness on public debt	1970-2015	37 developing countries	The baseline model	Financial openness within the home country lowers both external and total public debt. However, financial openness in foreign countries tends to increase the home country's external public debt.

Author(s)	Subject	Period	Countries	Method	Main findings
Shah <i>et al.</i> (2022:15)	Impact of trade openness and public debt level on fiscal spending	1990-2019	Pakistan	The ARDL model	Trade openness in Pakistan is mainly influenced by inflation, interest rates, and unemployment. Additionally, fiscal expenditure is often linked to public debt; no link between budgetary expenditure and trade openness
Bataka (2023:11)	Economic globalization and public debt	1980-2017	Sub-Saharan Africa	Cross-sectional error correction model with the estimation by dynamic common correlated effect technique	Economic globalisation raises public debt in the short-run but reduces it in the long-run. Financial globalisation increases public debt both in the short and long-runs, while trade globalisation boosts public debt in the short-run but lowers it in the long-run.
Eng and De Jongh (2023:56)	Economic globalisation and public debt	1980-2020	South Africa	Bayer-Hanck combined cointegration tests, FMOLS, DOLS and CCR estimation	Results show a positive relationship between higher levels of economic globalisation and public debt

Source: Author's compilation (2024)

Based on the review above and Table 3.5, FDI has insignificant effect on debt in high-income countries, while it is more significant in middle-income countries. For most of the author's conducting a study for both developed and developing countries, the results seem to point to a positive effect of trade and financial openness on public debt. In low-income countries, trade openness has more of an effect on public debt than financial openness due to underdeveloped financial markets and weak institutional frameworks to attract foreign investment. In SSA, the results for trade and financial globalisation are different for the short- and long-term mostly because of the effect of economic globalisation on small industries, taxes, institutional quality, and political stability in the different countries. While these studies offer much insight into the dynamics of some parts of economic globalisation and public debt, the evidence is still quite inconclusive. Many of these studies have relied on proxies such as trade openness, FDI, or exports and imports as measures of economic globalisation which may lead to an oversimplified understanding and a disregard that economic globalisation is a multifaceted phenomenon. The study that has focused on South Africa particularly, focuses only on the effect of economic globalisation on public debt. There is still a lack of a nuanced analysis that could have been perceived through the differentiation between the influence of both *de jure* and *de facto* trade and financial globalisation as these have different fiscal implications. This is the shortfall that this study seeks to address.

3.7 CONCLUSION

The aim of this chapter was to empirically review the nature of economic globalisation and its sub-dimensions trade and financial globalisation and its effect on public debt levels within various regions of the world including developed, developing regions and sub-Saharan Africa. It also provided a review of the relationship between public debt and economic globalisation in South Africa and a review of empirical studies to gauge this effect from different bodies of literature. In developed countries, economic globalisation has a nuanced relationship with public debt in developed countries such as the United States and Canada. Increased trade and financial integration frequently result in larger public debt for these countries, as governments use international capital markets to fund investments and stabilise their economies in the face of global economic volatility. While globalisation can boost economic growth and expand access to financial resources, it also entails concerns such as increased vulnerability to external economic shocks and potential fiscal imbalances. This makes effective debt management and prudent fiscal policies essential to harness the benefits of globalisation while mitigating its associated risks.

This relationship is slightly different in Southeast Asian developing countries. Economic globalisation has a distinct influence on public debt in developing Southeast Asian countries compared to affluent states. Increased trade and financial openness in these emerging countries frequently results in larger public debts due to the reliance on external borrowing to fund infrastructure and economic development. However, these economies are more sensitive to global market volatility and external shocks, which can worsen debt levels and economic insecurity. Unlike developed countries, which benefit from more stable economies and mature financial markets, Southeast Asian developing countries confront more challenges in managing public debt in the face of globalisation, emphasising the importance of strong financial governance and strategic economic policy.

Furthermore, the dynamics of this relationship in SSA are similar to those in the developing countries in Southeast Asia. Much like in Southeast Asia, increased trade and financial openness in these developing nations frequently results in higher public debt due to a substantial reliance on external borrowing to fund development projects and stabilise the economy. However, Sub-Saharan countries face increased risks due to global market volatility, political instability, and poorer institutional frameworks, all of which can worsen debt levels and stifle economic progress. Unlike developed countries with more stable economies and advanced financial systems, Sub-Saharan African countries face more challenges in managing public debt in the face of globalisation, emphasising the importance of stronger governance and long-term financial strategy.

The dynamics of economic globalisation and public debt in South Africa are shaped by its unique economic history and the process of its integration into the global economy. South Africa's abundant

natural resources and strong financial markets make it an appealing destination for foreign investment. This integration has improved South Africa's access to international financing, allowing it to borrow heavily to finance infrastructure and development projects, contributing significantly to public debt growth much like in the rest of SSA economies. Furthermore, economic globalisation has exposed South Africa to external economic shocks such as commodity price changes, resulting in economic instability and higher borrowing required to stabilise the economy. Trade liberalisation has also opened South Africa's markets to worldwide competition, boosting exports and economic growth while pressuring domestic industries and necessitating economic adjustments and increased public spending.

To attract and retain international investment, South Africa has implemented structural reforms aimed at strengthening economic governance and institutional quality. While critical to preserve investor confidence, these measures have necessitated significant public spending. Furthermore, the gains of globalisation have not been transmitted equitably across South Africa, aggravating social and economic disparities. To remedy these discrepancies, the government has frequently boosted public spending on social programmes, which adds to the public debt stock of the country.

After examining the literature for an empirical review, researchers have to some extent shown different dynamics of economic globalisation and public debt for developed economies, developing countries, SSA economies and South Africa. Although different parts of economic globalisation seem to have slightly similar fiscal implications for these countries, the reasons for those differences and similarities are different across developed, developing, and SSA countries. Low-income countries suffer from underdeveloped financial markets and weak institutional frameworks to attract foreign investment unlike with developed countries. In SSA, the results for trade and financial globalisation are different for the short- and long-term mostly because of the effect of economic globalisation on small industries, taxes, institutional quality, and political stability in the different countries. The effect of FDI on debt is insignificant in high-income countries, while it is more significant in middle-income countries. Many of these studies have relied on proxies such as trade openness, FDI, or exports and imports as measures of economic globalisation which may lead to an oversimplified understanding and a disregard that economic globalisation is a multifaceted phenomenon, a shortcoming that will not be overlooked in this study.

CHAPTER 4

RESEARCH DESIGN AND METHODOLOGY

4.1 INTRODUCTION

The previous chapter of the study focused on a trend analysis of public debt and the components of economic globalisation in various economies worldwide. This helped create a foundation for analysing historic performance trends and policy interventions and evaluating the associated trends and facts to conceptualise the nature of economic globalisation and public debt in South Africa. The analysed findings in sub-Saharan Africa (including South Africa) showed that overall economic globalisation has a different impact on public debt in the short-run and long-run, increasing it in the former and decreasing it in the latter, although the results for sub-components thereof, trade and financial globalisation, are different.

This chapter outlines the methodology utilised to conduct the research, elucidating how the study aimed to fulfil the following empirical objectives delineated in Chapter 1:

- To determine both the short-run and long-run effects of economic globalisation on public debt levels in South Africa.
- To compare the effects of financial globalisation and trade globalisation on public debt levels in South Africa and the possible differences between the *de jure* and *de facto* aspects of these processes.
- To determine and analyse any causal effects between economic globalisation, trade globalisation, financial globalisation, and public debt levels in South Africa.

Furthermore, this section encompasses the research design and philosophical underpinnings guiding the study. Subsequent sections, namely Sections 4.2 and 4.3, discuss the philosophical foundations adopted in the study and the research design, respectively. Thereafter, section 4.4 delves into the data origin, sample size and descriptions of the variables employed in the study. Section 4.5 explores the methodological approaches and model specification. This is followed by Section 4.6, which details the econometric estimation approach. Finally, the chapter concludes with a summary of the work discussed, which is presented in Section 4.7.

4.2 RESEARCH PARADIGM AND PHILOSOPHICAL FOUNDATIONS ADOPTED IN THIS STUDY

Research is a methodical procedure for discovering and advancing human knowledge, while also solving a problem or contributing to existing knowledge in an innovative way (Asenahabi, 2019:77). The importance of research lies in the pivotal role that it plays in expanding the boundaries of human understanding by systematically exploring and analysing phenomena, generating new information, informing evidence-based decision-making, driving innovation, and ultimately contributing to societal progress and improvement in a variety of fields ranging from medicine and technology to social sciences and the arts (Bhagyamma & Ramesh, 2023:34). As researchers explore the definition of research, they inevitably encounter the critical role of research paradigms, which not only guide the methodologies but also shape the comprehension of the phenomena under investigation, thereby creating an intricate connection between the fundamental nature of research with the conceptual frameworks through which it is conducted (Kivunja & Kuyini, 2017:26). Philosophical foundations inform ethical considerations in research, such as the treatment of participants, the dissemination of findings, and the potential impact of research on society (Resnik, 2022:12).

Research foundations and paradigms are related concepts that help shape the research structure. Research foundations refer to the fundamental philosophical assumptions that guide the research process, whereas research paradigms are the broader worldviews or frameworks that contain these beliefs (Ayton & Tsindos, 2023). Epistemology, ontology, methodology, and axiology are all foundational concepts in research. Epistemology is the study of knowledge, including its roots, structure, validity, and methods, while ontology refers to the nature of reality or being (Hiller, 2016:99-100). Methodology is the systematic structure of a study and the reasoning for design decisions (Killam, 2013:9). Axiology is the study of ethics, religion, aesthetics, and values - including value theory (Killam, 2013:6). These fundamental factors shape the researcher's worldview or paradigm, providing a larger context for the research.

In contrast, research paradigms are more extensive frameworks with foundational elements. These include positivism, interpretivism, pragmatism, and critical theory. Critical theory is based on the idea that power dynamics and social institutions influence knowledge (Murphy, 2021:11). Critical theorists aim to expose and address societal power inequalities and injustices and frequently investigate the larger repressive nature of politics or societal influences, striving to establish a more equal and democratic world (Ryan, 2018:11). Pragmatism accentuates the practical application of knowledge, with researchers prioritising research that is both theoretically reliable and applicable to real-world situations (Alele & Malau-Aduli, 2023:10). Using a pragmatic approach, researchers hope to combine qualitative and quantitative data using mixed approaches to facilitate a thorough understanding of the subject (Alele & Malau-Aduli, 2023:10). This methodological diversity allows for a detailed examination of

phenomena, which improves the accuracy and application of research outputs when addressing real-world challenges.

Furthermore, the fundamental principle of interpretivism is that social interactions and human interpretation are the building blocks of knowledge (Ryan, 2018:8). Interpretivist researchers stress the interpretive element of human experiences while attempting to comprehend the subjective experiences of individuals (Ryan, 2018:8). Positivism is based on the belief that knowledge may be acquired by objective observation and measurement (Alele & Malau-Aduli, 2023:7). Positivists strive to conduct objective, measurable, and replicable research, and frequently use controlled experiments to predict and regulate phenomena (Alele & Malau-Aduli, 2023:7). As a response to some of the limitations and criticisms of positivism, post-positivism is “a certain pluralism” which balances interpretivism and positivism approaches (Panhwar *et al.*, 2017:253).

Post-positivism emphasises the subjectivity and contextual impacts on scientific inquiry and acknowledges that while researchers cannot achieve absolute objectivity, they can strive for intersubjectivity through critical reflection and robust methodology (Farrow *et al.*, 2020:5). Furthermore, it emphasises the importance of using many approaches and perspectives to triangulate findings. It recognises the impact of theory on research outcomes (William, 2024). Post-positivism highlights the necessity of reflexivity, identifying the researcher's positionality and biases, and calls for humility in interpreting results, realising that knowledge is provisional and subject to modification based on new evidence or perspectives (William, 2024; Farrow *et al.*, 2020:5). It further recognises the fallibility of all observations, including objective reality, while emphasising an evidence-based, mathematically interpretable world and highlights the subjective nature of reality (Farrow *et al.*, 2020:5). In this respect, the paradigm posits that not everything is knowable. It underlines the significance of the methodology or strategy employed to discover the truth. The study follows a post-positivist paradigm, which acknowledges that while objective reality exists, it can only be measured imperfectly through empirical data, making statistical inference and modelling essential for understanding complex economic relationships.

4.3 RESEARCH APPROACH

Philosophical foundations inform the choice of research approach by shaping researchers' epistemological, ontological, and axiological perspectives, thereby influencing the research approach and decisions regarding data collection methods, analysis techniques, and the interpretation of research findings (Indu & Vidhukumar, 2020:64). The research approach reflects the researcher's ideas and is basically a structural plan that integrates the important aspects of the research to address the research questions (Asenahabi, 2019:77). It sets a blueprint for data analysis, collection, and measurement.

Generally, there are three distinct approaches to connecting research: quantitative, qualitative, and mixed methods approach.

While there are various definitions for qualitative research, it focuses on understanding the nuances of human experiences, behaviours, and relationships while acknowledging the role of the researcher's subjectivity and emphasising comprehension rather than objectivity (Taherdoost, 2022:54). The goal of qualitative researchers is to probe meanings, interpretations, and subjective viewpoints through comprehensive evaluation of non-numerical data such as words, images, and observations (Taherdoost, 2022:54). This method is based on the constructionist position, which holds that knowledge is produced rather than discovered, and that numerous realities are depending on individual viewpoints (Sheppard, 2020:1). This is done through in-depth interviews that allow researchers to explore participants' perspectives, experiences, and meanings or group discussions that facilitate interaction among participants, generating insights into shared experiences and perspectives (Asenahabi, 2019:81).

In contrast, the quantitative research approach is distinguished by its emphasis on objective measurements and statistical analyses. Its goal is to test hypotheses, establish patterns, and forecast outcomes by collecting and analysing numerical data (Asenahabi, 2019:79). This technique is based on the idea that there is a single reality or truth that can be discovered by systematic observation and measurement (Asenahabi, 2019:79). Furthermore, quantitative research includes the methodical development of measurements before collecting the data, standardised data-gathering methods, and the application of statistical analysis to test hypotheses (McLeod, 2023:8). Structured questionnaires or surveys are widely used to collect data from a large sample of individuals. Researchers may also analyse pre-existing datasets such as census data or economic indicators (Mcloed, 2023:8). A quantitative research approach was chosen for this study to ensure empirical measurement and objectivity by using statistical analysis to assess the impact of economic globalisation on public debt. This method also facilitates time-series analysis through econometric modelling, such as ARDL, to capture both short- and long-run relationships.

The research approaches mentioned above can also be integrated to overcome the limitations of standalone quantitative or qualitative studies. This is known as a mixed method research design, which incorporates elements of both quantitative and qualitative methodologies to provide an in-depth understanding of a research question (Asenahabi, 2019:84). According to Creswell (2014:3), qualitative research uses open-ended data without predefined answers, whereas quantitative research uses closed-ended data. Therefore, the mixed method research design aims to provide a more comprehensive understanding of research questions and allow researchers to triangulate different sources of data, increase credibility, provide richer context, and generate more robust conclusions (Alele & Malau-Aduli, 2023:5). Mixed methods research is especially beneficial in multidisciplinary contexts, complex sociological studies, and situations that require a more comprehensive image (Asenahabi, 2019:84).

However, it is necessary to carefully analyse how quantitative and qualitative data will be merged to maintain coherence and validity in the research findings.

4.4 DATA ORIGIN, SAMPLE SIZE AND VARIABLES EXPLANATION

4.4.1 Data selection and sample period

The primary objective of this study is to examine the relationship between public debt and economic globalisation in South Africa. Following this, supporting empirical objectives are formulated to facilitate the achievement of this objective, as mentioned in Section 4.1. In achieving the specified empirical objectives, this study follows the quantitative research approach and utilises secondary annual time-series data to determine the relationship that exists between the underpinned variables. The dataset spans from 1980 to 2022 and consists of 43 annual observations. This time frame is chosen primarily based on data availability and allowed for more accurate results considering the start of the country's integration process when the apartheid sanctions were being lifted.

The dataset encompasses gross national government debt in total Rand value (GND); economic globalisation (ECG), trade globalisation (TRG) *de facto* trade globalisation (DFTRG), *de jure* trade globalisation (DJTRG), and financial globalisation (FIG), *de facto* financial globalisation (DFFIG), *de jure* financial globalisation (DJFIG) measured using the KOF globalisation index; government expenditure as a percentage of GDP (GOE), inflation measured using CPI (INF), and gross fixed capital formation as a percentage of GDP (GFCF), and GDP per capita measured in dollars (GDP) as the control variables (see Table 4.1 for full descriptions). The data is acquired from the South African Reserve Bank (SARB, 2024), KOF Swiss Economic Institute (2024), and the World Bank Development Indicators (World Bank, 2024). It should also be noted that all variables are transformed to a natural logarithm (L) before analysis. This is done to achieve several objectives, including minimising variability, ensuring that data conforms more closely to the normal distribution, and simplifying the interpretation of elasticities for the dependent variables since this can then be interpreted as percentages (Feng *et al.*, 2019:105-107; West, 2021:163).

4.4.2 Variable description and measurement

4.4.2.1 *Dependent variable*

The study investigates how being globally integrated has affected the fiscal environment of South Africa, particularly its public debt levels. While studies have shown that globalisation has had an impact on public debt (Kim *et al.*, 2018:2799; Çolak & Özkaya, 2020:896, Bataka, 2021:1; Moeng & de Jongh, 2023:51), this study particularly focuses on South Africa and determines how the country's public debt responds to economic, trade and financial globalisation. This sub-section delves deeper into the

discussion of the abovementioned variables. The dependent variable of the study is South Africa's gross national government debt.

- *Gross government debt (GND) in total Rand value*

Gross government debt in total Rand value is the whole sum of money that the South African government owes to its creditors, expressed in the form of the South African Rand (ZAR). This debt is created when the government borrows money to fund its responsibilities, such as covering budget deficits, funding public services, and investing in infrastructure projects (Vaidya, 2023). Furthermore, the gross government debt total offers valuable insights into the government's fiscal health, indicating the total burden of debt that the government must eventually repay and its capacity to handle debt responsibilities relative to the overall economic output (OECD, 2024). GND is divided into two categories: domestic debt owing to creditors within the country and external debt owed to foreign creditors or international financial organisations (OECD, 2017:62). The composition of total national debt can change based on government borrowing policy, economic conditions, and capital market access.

Employing gross government debt in a study that seeks to determine the effects of economic globalisation on public debt in South Africa provides various benefits. This variable is sensitive to global market circumstances and external shocks, which makes it useful for studying how globalisation affects borrowing costs, debt accumulation, and fiscal sustainability (Adrian, Gaspar, & Gourinchas, 2024). Sustainable debt levels ensure macroeconomic stability and long-term economic growth (Adrian, Gaspar & Gourinchas, 2024). Therefore, considering the objectives of this study, this measure is considered the most prudent. It is also a widely used and informative measure for assessing public debt levels and fiscal sustainability (Panizza & Presbitero, 2013:193; Bataka, 2021:3). Its standardised nature, relative perspective, and policy relevance make it a valuable tool for researchers, policymakers, and analysts by highlighting the risks and benefits of economic integration, as well as historical and comparative data, which can help guide decisions towards managing public debt in a globalised economy.

4.4.2.2 *Independent variables and control variables*

As mentioned in Chapter 2, understanding how economic globalisation affects public debt is critical for policymakers seeking to make informed decisions, manage risks, and maintain fiscal sustainability in an increasingly integrated and dynamic global economy (Lutkevich, 2023). It sheds light on the intricate interactions between globalisation, government finances, and economic development, informing policy responses and strategies for managing global economic difficulties and possibilities (Bataka 2021:1). Therefore, this study will employ economic globalisation and its sub-dimensions of *de facto* and *de jure*

trade and financial globalisation as the independent variables of this study. By disaggregating economic globalisation into trade and financial globalisation, it allows for a more nuanced analysis of how different channels of globalisation influence public debt dynamics, as trade globalisation may affect revenue streams and expenditure patterns differently than financial globalisation, which could impact borrowing costs and debt accumulation strategies (Azzimonti *et al.*, 2014:2298; Kim *et al.*, 2018:2799; Çolak & Özkaya, 2020:896).

- *KOF economic globalisation index*

The KOF Globalisation Index (KOFGI), developed by the KOF Swiss Economic Institute, is a widely used measure that quantifies the extent of globalisation in countries worldwide (KOF Swiss Economic Institute, 2024). It is a multidimensional approach to globalisation that allows for a more nuanced understanding of globalisation trends and their implications for various economic, social, and political outcomes (Bataka, 2021:1). The KOFGI is used to monitor changes in the globalisation levels of various countries over time and is available for 190 countries and covers the period 1970-2022 (KOF Swiss Economic Institute, 2024). The Index as a whole and its economic, social, and political components distinguish between *de facto* and *de jure* status.

The Index evaluates globalisation on a scale of 0 to 100, with higher numbers indicating greater globalisation (Haelg, 2019:695). The values for the constituent variables are shown as percentiles, meaning that outliers are smoothed out, resulting in lower volatility over time (Haelg, 2019:695). Over time, the KOFGI has undergone several revisions to better capture the complexity of globalisation, which allowed for a more nuanced assessment of globalisation's impact on economies (Dreher, 2006; Dreher *et al.*, 2008; Gygli *et al.*, 2019). The latest revised KOFGI differentiates between *de jure* and *de facto* measures for every measure of globalisation (Haelg, 2019:691). Under the economic dimension, this index incorporates various indicators related to the trade and financial sub-dimensions such as international trade, capital flows, FDI, and overall economic integration to provide a holistic view of economic globalisation (Gygli *et al.*, 2019:546).

- *KOF trade globalisation index*

The trade globalisation index, a sub-component in the KOFGI assesses the amount of trade globalisation across countries until 2022 (KOF Swiss Economic Institute, 2024). It considers a variety of international trade indicators, including trade openness, export and import volumes, and tariff barriers, to assess the degree of economic integration via trade channels (KOF Swiss Economic Institute, 2024). The index sheds light on the volume of international trade and the degree to which countries' economies are open to trade.

De facto trade globalisation refers to the real level of trade integration between countries, as measured by observable trade flows, export-import ratios, and trade quantities (Haelg, 2019:696). It assesses the degree to which countries engage in international trade and exchange products and services with other countries. *De facto* trade globalisation reflects the concrete economic exchanges and trading links between countries, providing a measure of actual trade activity (Haelg, 2019:696). A variable measuring trade partner diversity is incorporated to account for the geographical dispersion of trade ties (Gygli *et al.*, 2019:544). The calculation is based on the inverse of the Herfindahl-Hirschmann trade partner concentration index for both exports and imports (Gygli *et al.*, 2019:544).

De jure trade globalisation, on the other hand, refers to the legal or institutional components that facilitate and promote trade integration, emphasising international trade rules, agreements, and regulations (Gygli *et al.*, 2019:556). It is measured using variables such as trade agreements, tariff rates, customs procedures, and trade policy openness which are among the issues considered. Trade regulation, a component of the KOFGI, encompasses two sub-components: the prevalence of non-tariff trade barriers and compliance costs of exporting (Haelg, 2019:694). Trade taxes measure the proportion of taxes on international trade relative to total income, while tariff rates represent the average level of tariffs. These variables are normalised inversely so that higher values indicate greater *de jure* trade globalisation (Gygli *et al.*, 2019:556). Additionally, free trade agreements refer to the accumulation of multilateral and bilateral agreements to promote free trade.

- *KOF financial globalisation index*

The financial globalisation index within the KOFGI assesses the level of financial integration among countries (KOF Swiss Economic Institute, 2024). It considers various indicators such as capital flows, FDI, and cross-border financial transactions to measure the extent to which countries are interconnected through financial markets (KOF Swiss Economic Institute, 2024). This index provides insights into the depth and breadth of financial globalisation, reflecting the degree of integration and interdependence in global financial systems.

Foreign asset and liability stocks and capital flows are the key indicators of *de facto* financial globalisation index (Gygli *et al.*, 2019:554). *De facto* financial globalisation refers to the actual level of financial integration among countries based on observable financial flows, investment patterns, and cross-border capital movements (Haelg, 2019:696). Basically, it measures the tangible economic interactions and financial relationships between countries, reflecting the real-world integration of financial markets and institutions. According to Gygli *et al.* (2019:554), all variables are computed by summing the stocks of assets and liabilities and normalising them by GDP whilst the sum of primary income payments and receipts are also included as a proportion of GDP. This encompasses earnings

and payments primarily originating from the cross-border provision of labour and capital (Gygli *et al.*, 2019:554).

De jure financial globalisation, on the other hand, focuses on the laws, agreements, and rules that control cross-border financial activity (Haelg, 2019:694). It is the legal or regulatory face of financial integration. It includes capital restrictions, financial liberalisation policies, and legal frameworks controlling global finance (Haelg, 2019:694). *De jure* financial globalisation measures the official pledges and legislative frameworks that either help or impede cross-national financial integration, offering perceptions of the regulatory landscape and political climate that shape international finance. To accommodate policies that may be conducive to capital flows, several international investment agreements are incorporated, encompassing bilateral investment agreements and treaties with investment provisions (Gygli *et al.*, 2019:556).

- *Control variables*

Besides the explanatory variables above, the study includes government expenditure, inflation, gross fixed capital formation, and GDP per capita as the control variables. This is based on their inclusion in similar studies and their significance in the relationship between public debt and economic globalisation. While these are not the focus of the study, they are vital variables derived from the literature addressing the determinants of budget deficit or public debt (Kim, 2003; Swamy, 2015; Sadik-Zada & Gatto, 2019; Çolak & Özkaya, 2020). Hünermund and Louw (2023:4) attest that in econometric analysis, control variables are integrated to address extraneous factors that could affect the relationship between the independent and dependent variables. Through statistical adjustment for these variables, their impact on the variables of interest can be minimised, thereby improving the accuracy of estimating the causal relationship between the primary variables under investigation (Hünermund & Louw, 2023:5).

The first control variable, government expenditure, represents spending on programs, services, and investments and is a vital control variable in this study (Goodwin *et al.*, 2019:3). Elevated government spending, if not counterbalanced by adequate revenue, can escalate public debt, while governmental expenditure policies also shape economic globalisation through trade, investment, and infrastructure strategies (Kose *et al.*, 2021). Furthermore, the second control variable, inflation, refers to the sustained increase in prices for goods and services that diminishes purchasing power over time (Oner, 2023). It serves as a critical control variable, impacting public debt through the erosion of government bond values and influencing economic globalisation by affecting exchange rates, trade competitiveness, and investment strategies (Ferroni & Mojo, 2017:73; Binici, *et al.*, 2022:5-6). Additionally, the inclusion of GFCF reflects investments in fixed assets such as buildings and infrastructure, all of which are essential

because they reflect the level of investment in the economy, which is intricately linked to both public debt and economic globalisation (Cama & Emara, 2022:3).

Increased investment levels can foster economic growth, potentially lowering public debt ratios, while investments in infrastructure and technology can strengthen a country's competitiveness and global integration (Bataka, 2021:3). Lastly, as a control variable, GDP per capita, measured in dollars, helps isolate the effects of public debt and economic globalisation on a country's economy by accounting for differences in economic output per person. GDP per capita is the average economic output per person, calculated by dividing a country's GDP by its population (World Bank, 2024). Higher GDP per capita can indicate a stronger economy (World Bank, 2024), which may better handle public debt and benefit more from globalisation. Conversely, lower GDP per capita may signal economic challenges, affecting how public debt and globalisation impact the economy.

Table 4.1: Variable descriptions

Variable	Description	Expected Priori	Source
Dependent variables			
Gross national government debt total in Rand value	In total rand value, gross government debt includes the sum of all outstanding loans, bonds, and other forms of borrowing the government has issued. This figure reflects the government's overall financial obligations and is a key measure of the country's fiscal health. It is distinct from net debt, which would subtract any assets the government holds.		SARB (2024)
Explanatory variables			
Economic globalisation	This index assesses the degree of global economic integration among countries, with separate considerations for financial and trade globalisation. Scores range from 0 to 100, where higher scores indicate greater economic integration. The index incorporates both actual (<i>de facto</i>) and legal (<i>de jure</i>) measures of integration.	+	KOF Swiss Economic Institute (2024)
Trade globalisation	This measure focuses specifically on the extent of international trade integration within countries, measuring factors such as trade openness, export and import volumes, and tariff barriers. It provides insights into the degree of economic interconnectedness through trade	-	

	channels and aggregates individual trade-related indicators into composite scores.		
Financial globalisation	Measures cross-country financial integration using metrics like capital flows, foreign direct investment, and cross-border financial transactions, measuring the degree of interconnectedness in global financial markets. Like other KOF indices, it combines relevant financial indicators to produce composite scores.	+	
Control variables			
Government expenditure (% of GDP)	This metric serves as a key indicator of the size and scope of government intervention in the economy and represents the total amount of money spent by the government on goods and services, including public services, infrastructure, social programs, and administrative expenses, relative to the country's GDP.	+	SARB (2024)
Inflation (Consumer price index)	Utilised as an indicator of macroeconomic stability, the annual inflation rate is determined by changes in consumer prices over the course of a year. Expressed as a percentage, higher rates signify more pronounced increases in the overall price levels.	+	SARB (2024)
Gross fixed capital formation (% of GDP)	Represents the total value of investment in fixed assets, such as machinery, equipment, and infrastructure, relative to the country's GDP. This metric indicates the proportion of GDP devoted to expanding and maintaining the capital stock, serving as a measure of investment activity and economic development.	+/-	World Bank (2024) WDI database
GDP per capita	GDP per capita measures a country's economic output that accounts for its population size. This metric is often used to compare the economic performance of different countries or to track economic growth over time within a country.	-	World Bank (2024) WDI database

Source: Author's own compilation

4.5 METHODOLOGICAL APPROACHES AND MODELS SPECIFICATION

Scholars commonly employ various approaches to analyse or assess relationships between economic and financial variables (Habanabakize, 2020:132). Dynamic models enable the examination of contemporaneous associations between variables, exploring whether alterations in one or more

independent variables at a specific time t led to simultaneous immediate shifts in the dependent variable (Brooks, 2014:202). These models can be further enhanced by incorporating lagged terms. For instance, the autoregressive distributed lag (ARDL) model extends dynamic modelling by integrating lagged specifications for both the dependent and independent variables (Brooks, 2014:202).

This study utilises an ARDL model to capture economic globalisation's effect on South Africa's public debt. The ARDL model is well-suited for small sample sizes and versatile in its application across a mix of variables (either $I(0)$ or $I(1)$) when considering stationarity properties, provided none of these variables are integrated at the second order (Dube & Zhou, 2013:203). Notably, it offers the flexibility of employing varying optimal lag lengths for each variable within the same model (Kabini, 2022:94). Moreover, it addresses issues of autocorrelation and endogeneity by distinguishing between independent and dependent variables (Mobin & Masih, 2014:15). In addition to these benefits, the ARDL model can generate simultaneous estimations for both short-run and long-run effects. Four models are estimated so the study can compare the results from each of these models to achieve the empirical objectives listed in Chapter 1. As such, the impact of *de jure* and *de facto* economic, trade, and financial globalisation on public debt is obtained by estimating the following four equations:

$$LGND_t = f(LECG_t, LGOE_t, LINF_t, LGFCF_t, LGDP_t) \dots\dots\dots (4.1)$$

$$LGND_t = f(LTRG_t LFIG_t, LGOE_t, LINF_t, LGFCF_t, LGDP_t) \dots\dots\dots (4.2)$$

$$LGND_t = f(LDFTRG_t LDFFIG_t, LGOE_t, LINF_t, LGFCF_t, LGDP_t) \dots\dots\dots (4.3)$$

$$LGND_t = f(LDJTRG_t LDJFIG_t, LGOE_t, LINF_t, LGFCF_t, LGDP_t) \dots\dots\dots (4.4)$$

Where:

GND_t = Gross national government debt over time

ECG_t = Economic globalisation over time

TRG_t = Trade globalisation over time

FIG_t = Financial globalisation over time

$DFTRG_t$ = *De facto* trade globalisation over time, $DJTRG_t$ = *De jure* trade globalisation over time

$DFFIG_t$ = *De facto* financial globalisation, $DJFIG_t$ = *De jure* financial globalisation

GOE_t = Government expenditure over time

INF_t = CPI inflation over time

$GFCF_t$ = Gross fixed capital formation over time

$LGDP_t$ = GDP per capita over time

All the study variables are transformed into a natural logarithm to determine the effect of independent variables on the dependent variable and the responsiveness of the dependent variable to shocks in independent variables. For equations 4.1 and 4.2, an ADRL model is used to determine the impact of economic, trade and financial globalisation, respectively. Furthermore, for equations 4.3 and 4.4, an ADRL model is used to determine the disaggregated impact of *de jure* and *de facto* trade and financial globalisation measures.

4.6 ECONOMETRIC ESTIMATION APPROACH

As mentioned in the previous subsection 4.5, this study utilises an ARDL econometric estimation to analyse the study's data. All necessary statistical tests are conducted to ensure the stationarity of the study's data and the stability of the model. These include tests for lag selection, unit root, as well as residual and stability diagnostics. The decision to use this econometric approach is based on its capacity to generate dependable findings, as it can detect and rectify issues such as multicollinearity, non-stationarity, and serial correlation (Arodoye & Iyoha, 2014:127-129). Ordinary least square estimation (OLS) will not be utilised due to the study's small sample size (43 observations) and its objective to determine both the short- and long-run effects of economic globalisation on public debt. OLS regression requires a sufficiently large sample size to produce reliable estimates. It does not account for potential cointegration among variables, which is essential in time-series data analysis, and this will hinder the study's ability to determine the short- and long-run relationships between the variables (Gavilanes & Michael, 2019). In this regard, this section of the chapter aims to structure the econometric approach adopted by the study to capture the impact of economic globalisation on public debt. First, the descriptive analysis will be alluded including the adoption of using trend analysis and various descriptive statistics. After this, correlation analysis will be employed, followed by the unit root tests.

4.6.1 Pearson correlation analysis

Pearson correlation analysis is a statistical technique that assesses the strength and direction of a linear relationship between two continuous variables (Berman, 2016). It is typically represented as r and ranges from -1 to 1. A value close to 1 suggests a strong positive relationship, whereas a value near -1 indicates a strong negative relationship. A number near zero indicates that the two variables have no linear association.

The Pearson correlation coefficient between two variables, X and Y , is calculated using the following formula:

$$r = \frac{\sum(X_i - \bar{X})(Y_i - \bar{Y})}{\sqrt{\sum(X_i - \bar{X})^2 \sum(Y_i - \bar{Y})^2}} \dots \dots \dots (4.5)$$

Where:

X_i and Y_i - individual sample points for variables X and Y.

$\bar{X}$ and $\bar{Y}$ - the mean values of the variables for X and Y, respectively.

The numerator, in this case, represents the covariance between X and Y, and the denominator normalises this by the product of the standard deviations of X and Y.

Pearson correlation follows some assumptions, some of which are that the two variables should have a linear relationship and that variables should be continuous and measured at the interval or ratio scale (McClenaghan, 2024). Furthermore, Pearson correlation assumes that both variables are normally distributed, and the variability in scores for one variable should be similar across all values of the other variable (McClenaghan, 2024). The correlation between variable X and Y is the same as the correlation between Y and X. In addition to calculating r , studies may want to test whether this correlation is statistically significant through hypothesis testing:

H_0 : There is no linear relationship between the two variables (i.e., $r=0$).

H_1 : There is a linear relationship between the two variables (i.e., $r \neq 0$)

A t-test can be conducted to determine if the calculated correlation coefficient significantly differs from zero, to verify findings.

4.6.2 Unit root/ stationarity tests

In the previous sub-section (4.6.1), the Pearson correlation was examined to assess the strength and direction of the linear relationship between variables. Building on this, the next sub-section involves discussing unit root and stationarity tests, which are essential for determining the time-series properties of the data and ensuring that the variables are suitable for further econometric analysis. Unit root testing is essential to the integrational features of data series in time-series analysis and guarantees that the investigation yields viable results that lead to a precise conclusion (Rath & Akram, 2021:1). The unit root test or stationarity test stabilises a series' auto-covariance, variance, and mean over time (Brooks, 2014:318). Gujarati (2010) describes stationary time series as those without systematic differences in auto-covariance, covariance, or mean over time. Studies typically employ two types of approaches to ensure data stationarity: parametric and non-parametric methods. Parametric approaches are frequently used in economic studies concentrating on the time domain, whereas non-parametric methods are more common in electrical engineering studies focusing on the frequency domain (McCamel, 2015:103). Considering this, this study employs a parametric approach to identify unit roots and ensure data stationarity.

Several techniques are used to detect unit roots and ensure statistical stationarity, including the augmented Dickey-Fuller (ADF) unit root test, Phillips-Perron (PP) unit root test, and the Kwiatkowski, Phillips, Schmidt, and Shin (KPSS) stationarity test (Srivastav, 2024). The ADF unit root test is widely used in empirical studies due to its simple nature (Cavaliere & Xu, 2014; McCamel, 2015:104; Afriyie *et al.*, 2020:657; Roussel *et al.*, 2021:7). Although this may be true, Cheung and Chinn (1997:70) argue that the ADF unit root tests pertain specific limitations in assessing data consisting of a small sample and is sensitive to structural breaks. Thus, to account for these limitations the study proceeded to additionally estimate the PP unit root tests coupled with the KPSS stationarity test to assess the robustness of the ADF unit test results. The ADF, PP unit root tests, and KPSS stationarity tests are differentiated in three steps: first assessing a model with only a constant, then a model with only a trend, and finally, a model with both a constant and trend. The study employs the ADF, PP unit root, and KPSS stationarity tests, which are described below.

4.6.2.1 *Augmented Dickey-Fuller (ADF) unit root test*

The ADF unit root test is a statistical test used to determine whether a time series is stationary (Dickey & Fuller, 1981). Stationarity is a crucial concept in time series analysis, indicating that the statistical properties of a series, such as mean and variance, remain constant over time (Kumar, 2024). As a result, the ADF unit root test hypothesis testing can be shown as follows (Dickey & Fuller, 1981):

H_0 : Unit root in the series (not stationary)

H_1 : No unit root in the series (stationary)

Considering this, the absence of a unit root or the establishment of stationarity centres on the outcome of the Augmented Dickey-Fuller (ADF) unit root test, which must yield statistical significance at either the one or five per cent level for the null hypothesis to be rejected. Much like any other statistical examination, when the null hypothesis (H_0) of the ADF unit root test is rejected, it means the alternative hypothesis (H_1) stands, provided the p-value is statistically significant. Conversely, if the p-value fails to attain statistical significance at the one or five per cent level, the null hypothesis of a unit root in the series is not rejected. Consequently, should this occur, the ADF unit root test is then re-estimated, proceeding through the three-step process of differencing until the null hypothesis of a unit root in the series is rejected. Habanabakize (2016:53) further notes that the ADF unit root test assumes that the regressed (Y) obeys a straightforward test equation of order (p). This leads to the following expression for the simple test equation 4.5:

$$\Delta Y_t = \alpha + \varphi x_t + \lambda_1 \Delta Y_{t-1} + \lambda_2 \Delta Y_{t-2} + \dots + \lambda_n \Delta Y_{t-n} + u_t \dots \dots \dots (4.6)$$

Where:

Δ - The first difference operator;

Y_{t-n} - Variables that rectify serial correlation errors (by means of introducing lags);

x_t - Exogenous variable (or constant) ;

φ - Coefficient; and

u_t - Error term

Furthermore, using equation 4.5, the hypotheses for the unit root test under ADF are the following:

$$H_0: \alpha = 0$$

$$H_1: \alpha < 0$$

In this instance, if the coefficient is found to be less than zero, the null hypothesis of the ADF unit root test is rejected, indicating that the variable lacks a unit root. Consequently, the alternative hypothesis is accepted, suggesting that the variable is stable or stationary. Conversely, if the coefficient equals zero, the null hypothesis is not rejected, suggesting the presence of a unit root in the variable, which in turn signifies its non-stationarity.

4.6.2.2 *Phillips-Perron (PP) unit root test*

Similarly to the ADF test but with a slightly different approach, the Phillips-Perron (PP) unit root test is also a statistical test used to determine whether a time series variable has a unit root, indicating non-stationarity. Because the PP and ADF unit root tests use the same hypothesis-testing methodology, the findings of both tests are typically identical (Brooks, 2014:331). However, because the PP test is non-parametric, no model or lagged parameter is required in the regression test. The test is likewise developed to assess unit roots in long time series while the ADF test is defined for linear nonstationary processes (Arltová & Fedorová, 2016:49). Moreover, when addressing serial correlation, the Phillips-Perron (PP) test incorporates the Newey-West method (1987:81). This aspect makes the PP unit root test a preferable choice over the Augmented Dickey-Fuller (ADF) test, as it accounts for structural breaks within economic variables (Phillips & Perron, 1988:81). Therefore, the simple test process for the PP unit root test can be expressed as follows:

$$Y_t = \alpha Y_{t-1} + \varphi x_t + u_t \dots\dots\dots (4.7)$$

$$Y_t = \beta_0 + \beta_1 t + \beta_2 t^2 + u_t \dots\dots\dots (4.8)$$

Where t is the trend and, β_0 is a constant; therefore, when β_1 is equal to zero, then the series is not stationary (i.e. has unit root). Conversely, when β_1 is less than zero, then the series is stationary (no unit root). As mentioned above, ADF and PP unit root test follow the same hypothesis testing

framework; therefore, the null hypothesis (H_0) for the PP unit root test the coefficient is equal to zero, while the alternative hypothesis (H_1) is that the coefficient is less than zero. Succinctly:

$$H_0: \beta_0 = 0$$

$$H_1: \beta_0 < 0$$

Just as with the ADF unit root test, the PP unit root test rejects the null hypothesis if the coefficient is less than zero, indicating the absence of a unit root and thus implying stationarity for the variable. Consequently, the alternative hypothesis is not rejected, concluding that the variable is indeed stationary. Conversely, if the coefficient equals zero, the null hypothesis is not rejected, implying the presence of a unit root and, therefore, non-stationarity. Hence, akin to the ADF unit root test, when applying the PP unit root test, non-stationary variables undergo the above-mentioned process of differencing until they attain stationarity.

4.6.2.3 Kwiatkowski, Phillips, Schmidt, and Shin (KPSS) stationarity test

An alternative to the ADF and PP unit root test is the KPSS stationarity test developed by Kwiatkowski *et al.* (1992). In contrast to the ADF and PP unit root tests, the KPSS stationarity test presents a straightforward evaluation of the null hypothesis (H_0), suggesting no unit root or trend stationarity, against the alternative hypothesis (H_1), indicating the presence of a unit root and hence non-stationarity. This distinctive feature makes the KPSS stationarity test an innovative method for assessing stationarity compared to the ADF and PP tests, which initially proposed the null hypothesis of a unit root. Basically, the null hypothesis proposes that the variable Y_t possesses a unit root, while the alternative hypothesis suggests stationarity (Brooks, 2014:365). Furthermore, KPSS findings are deemed reliable regardless of the size of the sample under investigation (Kabini, 2022:99). The following equations are representative of the estimation:

$$Y_t = \delta_0 + \delta_1 t + u_t \dots \dots \dots (4.9)$$

$$u_t = u_t - 1 + \varepsilon t \sim iid(0, \sigma_\varepsilon^2) \dots \dots \dots (4.10)$$

the intercept and trend are represented by δ_0 and t respectively, whilst u_t represents the error term. The null hypothesis suggests that both error term and variance are zero. The following are the KPSS tested hypotheses:

$$H_0: \sigma_\varepsilon^2 = 0$$

$$H_1: \sigma_\varepsilon^2 \neq 0$$

The variable is stationary if $\sigma_\varepsilon^2 = 0$, alternatively, the variable is not stationary (has a unit root) if $\sigma_\varepsilon^2 \neq 0$.

4.6.3 Cointegration test

The previous sub-section 4.6.2, focused on confirming that variables do not possess unit roots. If the study determines that the variables are stationary at a pure $I(1)$ level after differencing, it will then go on to examine co-integration. Cointegration describes a statistical condition in which two or more non-stationary time series variables move together over time, indicating a long-run equilibrium relationship despite short-run fluctuations (Nkoro & Uko, 2016:68). The bounds test is a critical component of the ARDL approach that helps determine whether such a relationship exists between the variables under consideration. Additionally, the bounds test is particularly useful for time-series data where some variables may be stationary at level $I(0)$ while others may be integrated at the first difference $I(1)$. In light of this, the ARDL model estimation approach is the most suitable method for testing cointegration in this study, particularly because the study comprises eight individual equations and has a small sample size. This approach allows the study to proceed with cointegration testing, even when the variables exhibit stationary properties at $I(0)$, $I(1)$, or a combination of both $I(0)$ and $I(1)$ levels. The ARDL approach, once cointegration is established, enables the estimation of both long-run relationships (cointegrating equation) and short-run adjustments (error correction model), which aligns with the study's objective of determining the short- and long-run effects of economic globalisation on public debt.

4.6.3.1 Autoregressive distributed lag (ARDL)

The autoregressive distributed lag (ARDL) model was initially introduced by Pesaran and Shin in 1999 and subsequently enhanced by Pesaran *et al.* (2001). Pesaran gained prominence for advocating the ARDL model from 1997 to 2001, owing to its numerous benefits (Menegaki, 2019:16). The unit test assesses data validity, while the ARDL test examines the co-integration of data using the Lag approach. During this test, adjustments to the lag are made to identify the appropriate values for the probability and F-statistics (Sulaiman *et al.*, 2019:13). In this study, the bounds test is employed to ascertain the co-integration among public debt and economic globalisation, *de facto* and *de jure* trade and financial globalisation.

The ARDL model provides unbiased long-run estimates for tested causalities and produces reliable t-statistics even when dealing with endogenous data series (Harris & Sollis, 2003). This means that the ARDL model can effectively differentiate between dependent and independent variables (McCamel, 2015:108). Unlike traditional cointegration methods that use system equations, the ARDL model utilises an OLS technique, as noted by Pesaran *et al.* (2001:289-326), simplifying estimating relationships between variables. Given these advantages, the ARDL model adopts the following hypothesis-testing framework for cointegration analysis:

H_0 : No cointegration (no long-run impact)

H_1 : Cointegration (long-run impact)

In testing the two hypotheses, the bounds test utilises F-statistics (and two critical bounds, lower bound $I(0)$ and upper bound $I(1)$) and t-statistics to assess the null hypothesis of no cointegration against the alternative hypothesis of cointegration. Specifically:

F-statistic - tests whether all coefficients in the long-run equation are equal to zero.

t-statistic - tests whether the error correction term (ECT) significantly differs from zero.

If the F-statistic exceeds both the lower and upper critical values, the null hypothesis (H_0) of no long-run impact is rejected, indicating a long-run impact from the independent variables to the dependent variables. Conversely, if the F-statistic is below both critical values, the null hypothesis cannot be rejected, suggesting no long-run impact. The conclusion remains the same if the F-statistic is greater than the lower bound's critical value but less than the upper bound's critical value.

Furthermore, the ARDL model also produces the error correction model (ECM), which considers both short-run adjustments and long-run equilibrium, incorporating the error correction term (ECT). The ECT represents the short-run adjustment coefficient, indicating the extent to which the dependent variable's long-run disequilibrium is corrected, which in a study using annual observations, shows per annum (Masih & Masih, 1997). Therefore, if cointegration is found among the variables of interest, the study will proceed to estimate the ECM. Conversely, if cointegration is not found among the variables of interest, the study will proceed with causality testing to identify any causal patterns and short-run relationships between these variables.

Additionally, it is important to note that the ARDL model allows for the use of multiple optimal lags. This means the ARDL model employs a general-to-specific modelling approach, considering all necessary lags (Emeka & Uko, 2016:82). The number of lags is selected based on a lag selection criterion – Schwarz information criterion (SIC), Hannan-Quinn (HQ), Akaike information criterion (AIC), likelihood ratio (LR) and final prediction error (FPE) (Brooks, 2014:189; Emeka & Uko, 2016:83). Since the current study does not include a large sample, the AIC is used for lag selection where the model with the lowest AIC value is preferred.

In light of all this, this study investigates whether there is a long- and short-run impact of economic, *de facto* and *de jure* trade and financial globalisation on public debt. The ARDL models estimated for the study are shown in the following equations:

$$\Delta LGND_t = \alpha_0 + \sum_{j=1}^k \beta_j \Delta LGND_{t-j} + \sum_{j=1}^k \beta_j \Delta LECG_{t-j} + \sum_{j=1}^k \beta_j \Delta LGOE_{t-j} + \sum_{j=1}^k \beta_j \Delta LINF_{t-j} + \sum_{j=1}^k \beta_j \Delta LGFCF_{t-j} + \sum_{j=1}^k \beta_j \Delta LGDP_{t-j} + \varphi_1 LGND_{t-1} + \varphi_2 LECG_{t-1} + \varphi_3 LGOE_{t-1} + \varphi_4 LINF_{t-1} + \varphi_5 LGFCF_{t-1} + \varphi_6 LGDP_{t-1} + u_t \dots \dots \dots (4.11)$$

$$\Delta LGND_t = \alpha_0 + \sum_{j=1}^k \beta_j \Delta LGND_{t-j} + \sum_{j=1}^k \beta_j \Delta LTRG_{t-j} + \sum_{j=1}^k \beta_j \Delta LFIG_{t-j} + \sum_{j=1}^k \beta_j \Delta LGOE_{t-j} + \sum_{j=1}^k \beta_j \Delta LINF_{t-j} + \sum_{j=1}^k \beta_j \Delta LGFCF_{t-j} + \sum_{j=1}^k \beta_j \Delta LGDP_{t-j} + \varphi_1 LGND_{t-1} + \varphi_2 LTRG_{t-1} + \varphi_3 LFIG_{t-1} + \varphi_4 LGOE_{t-1} + \varphi_5 LINF_{t-1} + \varphi_6 LGFCF_{t-1} + \varphi_7 LGDP_{t-1} + u_t \dots \dots \dots (4.12)$$

$$\Delta LGND_t = \alpha_0 + \sum_{j=1}^k \beta_j \Delta LGND_{t-j} + \sum_{j=1}^k \beta_j \Delta LDFTRG_{t-j} + \sum_{j=1}^k \beta_j \Delta LDFFIG_{t-j} + \sum_{j=1}^k \beta_j \Delta LGOE_{t-j} + \sum_{j=1}^k \beta_j \Delta LINF_{t-j} + \sum_{j=1}^k \beta_j \Delta LGFCF_{t-j} + \sum_{j=1}^k \beta_j \Delta LGDP_{t-j} + \varphi_1 LGND_{t-1} + \varphi_2 LDFTRG_{t-1} + \varphi_3 LDFFIG_{t-1} + \varphi_4 LGOE_{t-1} + \varphi_5 LINF_{t-1} + \varphi_6 LGFCF_{t-1} + \varphi_7 LGDP_{t-1} + u_t \dots \dots \dots (4.13)$$

$$\Delta LGND_t = \alpha_0 + \sum_{j=1}^k \beta_j \Delta LGND_{t-j} + \sum_{j=1}^k \beta_j \Delta LDJTRG_{t-j} + \sum_{j=1}^k \beta_j \Delta LDJFIG_{t-j} + \sum_{j=1}^k \beta_j \Delta LGOE_{t-j} + \sum_{j=1}^k \beta_j \Delta LINF_{t-j} + \sum_{j=1}^k \beta_j \Delta LGFCF_{t-j} + \sum_{j=1}^k \beta_j \Delta LGDP_{t-j} + \varphi_1 LGND_{t-1} + \varphi_2 LDJTRG_{t-1} + \varphi_3 LDJFIG_{t-1} + \varphi_4 LGOE_{t-1} + \varphi_5 LINF_{t-1} + \varphi_6 LGFCF_{t-1} + \varphi_7 LGDP_{t-1} + u_t \dots \dots \dots (4.14)$$

Where $LGND$ is the natural log of GND; $LECG$ is the natural log for economic globalisation; $LTRG$ is the natural log of trade globalisation, $LFIG$ is the natural log of financial globalisation; $LDFTRG$ and $LDJTRG$ is the natural log of *de facto* and *de jure* trade globalisation; $LDFFIG$ and $LDJFIG$ is the natural log of *de facto* and *de jure* financial globalisation. This while $\beta_1 - \beta_{23}$ denote the coefficients representing short-run dynamics and $\varphi_1 - \varphi_{23}$ denotes the long-run relationship. Therefore, the cointegration test for the equations above is tested using the ARDL hypothesis test:

$$H_0: \varphi_1 + \varphi_2 + \varphi_3 + \varphi_4 + \varphi_5 + \varphi_6 = 0 \text{ (No co-integration)}$$

$$H_1: \varphi_1 + \varphi_2 + \varphi_3 + \varphi_4 + \varphi_5 + \varphi_6 \neq 0 \text{ (Co-integration)}$$

Rejecting H_0 implies that there is a long-run impact running from economic, along with its sub-dimensions *de facto* and *de jure* trade and financial globalisation to public debt in the study. Simply put, these variables have a long-run effect of on public debt. This will enable the study to proceed with estimating the Error Correction Model (ECM), as highlighted by Banerjee *et al.* (1993), indicating that the ECM is only estimated when there is evidence of cointegration among the variables of interest. The ECM equations for equations 4.14, 4.15, 4.16 and 4.17 are expressed as follows:

$$\Delta LGND_t = \alpha_0 + \sum_{j=1}^k \beta_j \Delta LGND_{t-j} + \sum_{j=1}^k \gamma_j \Delta LECG_{t-j} + \sum_{j=1}^k \delta_j \Delta LGOE_{t-j} + \sum_{j=1}^k \vartheta_j \Delta LINF_{t-j} + \sum_{j=1}^k \tau_j \Delta LGFCF_{t-j} + \sum_{j=1}^k \varphi_j \Delta LGDP_{t-j} + \omega_1 ECT_{t-1} + u_t \dots \dots \dots (4.15)$$

$$\Delta LGND_t = \alpha_0 + \sum_{j=1}^k \beta_j \Delta LGND_{t-j} + \sum_{j=1}^k \theta_j \Delta LTRG_{t-j} + \sum_{j=1}^k \pi_j \Delta LFIG_{t-j} + \sum_{j=1}^k \delta_j \Delta LGOE_{t-j} + \sum_{j=1}^k \vartheta_j \Delta LINF_{t-j} + \sum_{j=1}^k \tau_j \Delta LGFCF_{t-j} + \sum_{j=1}^k \varphi_j \Delta LGDP_{t-j} + \omega_2 ECT_{t-1} + u_t \dots \dots \dots (4.16)$$

$$\Delta LGND_t = \alpha_0 + \sum_{j=1}^k \beta_j \Delta LGND_{t-j} + \sum_{j=1}^k \sigma_j \Delta LDFTRG_{t-j} + \sum_{j=1}^k \varepsilon_j \Delta LDFFIG_{t-j} + \sum_{j=1}^k \delta_j \Delta LGOE_{t-j} + \sum_{j=1}^k \vartheta_j \Delta LINF_{t-j} + \sum_{j=1}^k \tau_j \Delta LGFCF_{t-j} + \sum_{j=1}^k \varphi_j \Delta LGDP_{t-j} + \omega_3 ECT_{t-1} + u_t \dots \dots \dots (4.17)$$

$$\Delta LGND_t = \alpha_0 + \sum_{j=1}^k \beta_j \Delta LGND_{t-j} + \sum_{j=1}^k \sigma_j \Delta LDJTRG_{t-j} + \sum_{j=1}^k \varepsilon_j \Delta LDJFIG_{t-j} + \sum_{j=1}^k \delta_j \Delta LGOE_{t-j} + \sum_{j=1}^k \vartheta_j \Delta LINF_{t-j} + \sum_{j=1}^k \tau_j \Delta LGFCF_{t-j} + \sum_{j=1}^k \varphi_j \Delta LGDP_{t-j} + \omega_4 ECT_{t-1} + u_t \dots \dots \dots (4.18)$$

Where ECT indicates the error correction term and depicts the speed of adjustment to equilibrium for ARDL model equations for the abovementioned equations, additionally, the hypotheses formulated for the ARDL model, which regress economic globalisation and its *de facto* and *de jure* sub-dimensions on public debt, are equally crucial and can be expressed as follows:

H₀: There is no short- and long-run effect of economic globalisation and the sub-dimensions *de facto* and *de jure* trade, *de facto* and *de jure* financial globalisation on public debt.

H₁: There are short- and long-run effects of economic globalisation along with the sub-dimensions *de facto* and *de jure* trade, *de facto* and *de jure* financial globalisation on public debt.

4.7 TODA-YAMAMOTO GRANGER CAUSALITY

While cointegration analysis is essential for understanding long-run equilibrium relationships between non-stationary time series, the Toda-Yamamoto Granger causality approach offers a robust method to test for causality. Developed by Hiro Y. Toda and Taku Yamamoto in 1995, the Toda-Yamamoto (TY) procedure for Granger causality testing is a robust statistical method used to determine whether one time series can predict another (Giles & Mirza, 1999:5). This test is an enhanced version of the traditional Granger causality test that can be used irrespective of the variables' integration and cointegration properties (Chandra, 2020:10). Unlike the standard causality test, the Toda-Yamamoto Granger causality approach has better small sample properties and can be applied to variables that are integrated of different orders, i.e. I(0), I(1) or I(2) (Dembure & Ziramba, 2016:60).

The Toda-Yamamoto procedure for the Granger Causality test begins by determining the optimal lag length k using standard lag selection methods. Next, the maximum order of integration, d_{max} , must be identified. If stationarity tests (unit root tests) indicate that the variables are stationary at I(0), I(1), and I(2), then d_{max} is 2. For a valid model, k should be at least as large as d_{max} (i.e., $k \geq d_{max}$). Finally, a

VAR of order $k+d_{max}$ is estimated, and the Block Exogeneity Wald test is conducted to determine the direction of causality (Chandra, 2020:10). The following hypotheses are assumed:

$$H_0: Y_t \text{ does not Granger cause } X_t, \text{ if } \sum_{j=n}^n \delta_{nj} = 0$$

$$H_1: Y_t \text{ does Granger cause } X_t, \text{ if } \sum_{j=n}^n \delta_{nj} \neq 0$$

The causality between two variables can be described as unidirectional, bidirectional or no causality. In the standard VAR model, the Toda-Yamamoto approach combines two types of lag selection ($k+d_{max}$). Here, k is the lag length chosen for the VAR system, and d_{max} represents the additional number of lags included in the same VAR system. Essentially, this approach augments the VAR system with an extra lag, making it $k+1$, and continues this process until reaching the maximum lag length of $k+d$ (Habanabakize, 2019:139). The Toda-Yamamoto method is preferred for causality tests, particularly when the ARDL is employed to assess cointegration (Zachariadis, 2006:12-13). For the same reason, this method was chosen for this study, and the following equations were estimated:

$$\begin{aligned} \Delta LGND_t = & \alpha_0 + \sum_{i=1}^k \beta_i \Delta LGND_{t-i} + \sum_{k+1}^{K+d_{max}} \beta_i \Delta LGND_{t-i} + \sum_{i=1}^k \gamma_i \Delta LECG_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \gamma_i \Delta LECG_{t-i} + \sum_{i=1}^k \vartheta_i \Delta LTRG_{t-i} + \sum_{k+1}^{K+d_{max}} \vartheta_i \Delta LTRG_{t-i} + \sum_{i=1}^k \vartheta_i \Delta LFIG_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \vartheta_i \Delta LFIG_{t-i} + \sum_{i=1}^k \rho_i \Delta LDFTRG_{t-i} + \sum_{k+1}^{K+d_{max}} \rho_i \Delta LDFTRG_{t-i} + \sum_{i=1}^k \rho_i \Delta LDFFIG_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \rho_i \Delta LDFFIG_{t-i} + \sum_{i=1}^k \sigma_i \Delta LDJTRG_{t-i} + \sum_{k+1}^{K+d_{max}} \sigma_i \Delta LDJTRG_{t-i} + \sum_{i=1}^k \sigma_i \Delta LDJFIG_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \sigma_i \Delta LDJFIG_{t-i} + \sum_{i=1}^k \delta_i \Delta GOE_{t-i} + \sum_{k+1}^{K+d_{max}} \delta_i \Delta LGOE_{t-i} + \sum_{i=1}^k \delta_i \Delta LINF_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \delta_i \Delta LINF_{t-i} + \sum_{i=1}^k \gamma_i \Delta LGFCF_{t-i} + \sum_{k+1}^{K+d_{max}} \gamma_i \Delta LGFCF_{t-i} + \sum_{i=1}^k \varphi_i \Delta LGDP_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \varphi_i \Delta LGDP_{t-i} + u_t \dots \dots \dots (4.19) \end{aligned}$$

$$\begin{aligned} \Delta LECG_t = & \alpha_0 + \sum_{i=1}^k \gamma_i \Delta LECG_{t-i} + \sum_{k+1}^{K+d_{max}} \gamma_i \Delta LECG_{t-i} + \sum_{i=1}^k \beta_i \Delta LGND_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \beta_i \Delta LGND_{t-i} + \sum_{i=1}^k \vartheta_i \Delta LTRG_{t-i} + \sum_{k+1}^{K+d_{max}} \vartheta_i \Delta LTRG_{t-i} + \sum_{i=1}^k \vartheta_i \Delta LFIG_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \vartheta_i \Delta LFIG_{t-i} + \sum_{i=1}^k \rho_i \Delta LDFTRG_{t-i} + \sum_{k+1}^{K+d_{max}} \rho_i \Delta LDFTRG_{t-i} + \sum_{i=1}^k \rho_i \Delta LDFFIG_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \rho_i \Delta LDFFIG_{t-i} + \sum_{i=1}^k \sigma_i \Delta LDJTRG_{t-i} + \sum_{k+1}^{K+d_{max}} \sigma_i \Delta LDJTRG_{t-i} + \sum_{i=1}^k \sigma_i \Delta LDJFIG_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \sigma_i \Delta LDJFIG_{t-i} + \sum_{i=1}^k \delta_i \Delta GOE_{t-i} + \sum_{k+1}^{K+d_{max}} \delta_i \Delta LGOE_{t-i} + \sum_{i=1}^k \delta_i \Delta LINF_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \delta_i \Delta LINF_{t-i} + \sum_{i=1}^k \gamma_i \Delta LGFCF_{t-i} + \sum_{k+1}^{K+d_{max}} \gamma_i \Delta LGFCF_{t-i} + \sum_{i=1}^k \varphi_i \Delta LGDP_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \varphi_i \Delta LGDP_{t-i} + u_t \dots \dots \dots (4.20) \end{aligned}$$

$$\begin{aligned} \Delta LTRG_t = & \alpha_0 + \sum_{i=1}^k \vartheta_i \Delta LTRG_{t-i} + \sum_{k+1}^{K+d_{max}} \vartheta_i \Delta LTRG_{t-i} + \sum_{i=1}^k \gamma_i \Delta LECG_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \gamma_i \Delta LECG_{t-i} + \sum_{i=1}^k \beta_i \Delta LGND_{t-i} + \sum_{k+1}^{K+d_{max}} \beta_i \Delta LGND_{t-i} + \sum_{i=1}^k \vartheta_i \Delta LFIG_{t-i} + \end{aligned}$$

$$\begin{aligned} & \sum_{k+1}^{K+d_{max}} \vartheta_i \Delta LFIG_{t-i} + \sum_{i=1}^k \rho_i \Delta LDFTRG_{t-i} + \sum_{k+1}^{K+d_{max}} \rho_i \Delta LDFTRG_{t-i} + \sum_{i=1}^k \rho_i \Delta LDFFFIG_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \rho_i \Delta LDFFFIG_{t-i} + \sum_{i=1}^k \sigma_i \Delta LDJTRG_{t-i} + \sum_{k+1}^{K+d_{max}} \sigma_i \Delta LDJTRG_{t-i} + \sum_{i=1}^k \sigma_i \Delta LDJFIG_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \sigma_i \Delta LDJFIG_{t-i} + \sum_{i=1}^k \delta_i \Delta GOE_{t-i} + \sum_{k+1}^{K+d_{max}} \delta_i \Delta LGOE_{t-i} + \sum_{i=1}^k \delta_i \Delta LINF_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \delta_i \Delta LINF_{t-i} + \sum_{i=1}^k \gamma_i \Delta LGFCF_{t-i} + \sum_{k+1}^{K+d_{max}} \gamma_i \Delta LGFCF_{t-i} + \sum_{i=1}^k \varphi_i \Delta LGDP_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \varphi_i \Delta LGDP_{t-i} + u_t \dots \dots \dots (4.21) \end{aligned}$$

$$\begin{aligned}
\Delta LD FTRG_t = & \alpha_0 + \sum_{i=1}^k \rho_i \Delta LD FTRG_{t-i} + \sum_{k+1}^{K+d_{max}} \rho_i \Delta LD FTRG_{t-i} + \sum_{i=1}^k \vartheta_i \Delta L F I G_{t-i} + \\
& \sum_{k+1}^{K+d_{max}} \vartheta_i \Delta L F I G_{t-i} + \sum_{i=1}^k \vartheta_i \Delta L T R G_{t-i} + \sum_{k+1}^{K+d_{max}} \vartheta_i \Delta L T R G_{t-i} + \sum_{i=1}^k \gamma_i \Delta L E C G_{t-i} + \\
& \sum_{k+1}^{K+d_{max}} \gamma_i \Delta L E C G_{t-i} + \sum_{i=1}^k \beta_i \Delta L G N D_{t-i} + \sum_{k+1}^{K+d_{max}} \beta_i \Delta L G N D_{t-i} + \sum_{i=1}^k \rho_i \Delta L D F F I G_{t-i} + \\
& \sum_{k+1}^{K+d_{max}} \rho_i \Delta L D F F I G_{t-i} + \sum_{i=1}^k \sigma_i \Delta L D J T R G_{t-i} + \sum_{k+1}^{K+d_{max}} \sigma_i \Delta L D J T R G_{t-i} + \sum_{i=1}^k \sigma_i \Delta L D J F I G_{t-i} + \\
& \sum_{k+1}^{K+d_{max}} \sigma_i \Delta L D J F I G_{t-i} + \sum_{i=1}^k \delta_i \Delta G O E_{t-i} + \sum_{k+1}^{K+d_{max}} \delta_i \Delta L G O E_{t-i} + \sum_{i=1}^k \delta_i \Delta L I N F_{t-i} + \\
& \sum_{k+1}^{K+d_{max}} \delta_i \Delta L I N F_{t-i} + \sum_{i=1}^k \gamma_i \Delta L G F C F_{t-i} + \sum_{k+1}^{K+d_{max}} \gamma_i \Delta L G F C F_{t-i} + \sum_{i=1}^k \varphi_i \Delta L G D P_{t-i} + \\
& \sum_{k+1}^{K+d_{max}} \varphi_i \Delta L G D P_{t-i} + u_t \dots \dots \dots (4.23)
\end{aligned}$$

$$\begin{aligned}
\Delta L D F F I G_t = & \alpha_0 + \sum_{i=1}^k \rho_i \Delta L D F F I G_{t-i} + \sum_{k+1}^{K+d_{max}} \rho_i \Delta L D F F I G_{t-i} + \sum_{i=1}^k \rho_i \Delta L D F T R G_{t-i} + \\
& \sum_{k+1}^{K+d_{max}} \rho_i \Delta L D F T R G_{t-i} + \sum_{i=1}^k \vartheta_i \Delta L F I G_{t-i} + \sum_{k+1}^{K+d_{max}} \vartheta_i \Delta L F I G_{t-i} + \sum_{i=1}^k \vartheta_i \Delta L T R G_{t-i} + \\
& \sum_{k+1}^{K+d_{max}} \vartheta_i \Delta L T R G_{t-i} + \sum_{i=1}^k \gamma_i \Delta L E C G_{t-i} + \sum_{k+1}^{K+d_{max}} \gamma_i \Delta L E C G_{t-i} + \sum_{i=1}^k \beta_i \Delta L G N D_{t-i} + \\
& \sum_{k+1}^{K+d_{max}} \beta_i \Delta L G N D_{t-i} + \sum_{i=1}^k \sigma_i \Delta L D J T R G_{t-i} + \sum_{k+1}^{K+d_{max}} \sigma_i \Delta L D J T R G_{t-i} + \sum_{i=1}^k \sigma_i \Delta L D J F I G_{t-i} + \\
& \sum_{k+1}^{K+d_{max}} \sigma_i \Delta L D J F I G_{t-i} + \sum_{i=1}^k \delta_i \Delta G O E_{t-i} + \sum_{k+1}^{K+d_{max}} \delta_i \Delta G O E_{t-i} + \sum_{i=1}^k \delta_i \Delta L I N F_{t-i} + \\
& \sum_{k+1}^{K+d_{max}} \delta_i \Delta L I N F_{t-i} + \sum_{i=1}^k \gamma_i \Delta L G F C F_{t-i} + \sum_{k+1}^{K+d_{max}} \gamma_i \Delta L G F C F_{t-i} + \sum_{i=1}^k \varphi_i \Delta L G D P_{t-i} + \\
& \sum_{k+1}^{K+d_{max}} \varphi_i \Delta L G D P_{t-i} + u_t \dots \dots \dots (4.24)
\end{aligned}$$

$$\begin{aligned} \Delta LDJTRG_t = & \alpha_0 + \sum_{i=1}^k \sigma_i \Delta LDJTRG_{t-i} + \sum_{k+1}^{K+d_{max}} \sigma_i \Delta LDJTRG_{t-i} + \sum_{i=1}^k \rho_i \Delta LDFFIG_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \rho_i \Delta LDFFIG_{t-i} + \sum_{i=1}^k \rho_i \Delta LDFTRG_{t-i} + \sum_{k+1}^{K+d_{max}} \rho_i \Delta LDFTRG_{t-i} + \sum_{i=1}^k \vartheta_i \Delta LFIG_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \vartheta_i \Delta LFIG_{t-i} + \sum_{i=1}^k \vartheta_i \Delta LTRG_{t-i} + \sum_{k+1}^{K+d_{max}} \vartheta_i \Delta LTRG_{t-i} + \sum_{i=1}^k \gamma_i \Delta LECG_{t-i} + \end{aligned}$$

$$\begin{aligned} & \sum_{k+1}^{K+d_{max}} \vartheta_i \Delta LTRG_{t-i} + \sum_{i=1}^k \gamma_i \Delta LECG_{t-i} + \sum_{k+1}^{K+d_{max}} \gamma_i \Delta LECG_{t-i} + \sum_{i=1}^k \beta_i \Delta LGND_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \beta_i \Delta LGND_{t-i} + \sum_{i=1}^k \sigma_i \Delta LDJTRG_{t-i} + \sum_{k+1}^{K+d_{max}} \sigma_i \Delta LDJTRG_{t-i} + \sum_{i=1}^k \varphi_i \Delta LGDP_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \varphi_i \Delta LGDP_{t-i} + u_t \dots \dots \dots (4.29) \end{aligned}$$

$$\begin{aligned} \Delta LGDP_t = & \alpha_0 + \sum_{i=1}^k \varphi_i \Delta LGDP_{t-i} + \sum_{k+1}^{K+d_{max}} \varphi_i \Delta LGDP_{t-i} + \sum_{i=1}^k \gamma_i \Delta LGFCF_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \gamma_i \Delta LGFCF_{t-i} + \sum_{i=1}^k \delta_i \Delta LINF_{t-i} + \sum_{k+1}^{K+d_{max}} \delta_i \Delta LINF_{t-i} + \sum_{i=1}^k \delta_i \Delta GOE_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \delta_i \Delta GOE_{t-i} + \sum_{i=1}^k \sigma_i \Delta LDJFIG_{t-i} + \sum_{k+1}^{K+d_{max}} \sigma_i \Delta LDJFIG_{t-i} + \sum_{i=1}^k \rho_i \Delta LDFFIG_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \rho_i \Delta LDFFIG_{t-i} + \sum_{i=1}^k \rho_i \Delta LDFTRG_{t-i} + \sum_{k+1}^{K+d_{max}} \rho_i \Delta LDFTRG_{t-i} + \sum_{i=1}^k \vartheta_i \Delta LFIG_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \vartheta_i \Delta LFIG_{t-i} + \sum_{i=1}^k \vartheta_i \Delta LTRG_{t-i} + \sum_{k+1}^{K+d_{max}} \vartheta_i \Delta LTRG_{t-i} + \sum_{i=1}^k \gamma_i \Delta LECG_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \gamma_i \Delta LECG_{t-i} + \sum_{i=1}^k \beta_i \Delta LGND_{t-i} + \sum_{k+1}^{K+d_{max}} \beta_i \Delta LGND_{t-i} + \sum_{i=1}^k \sigma_i \Delta LDJTRG_{t-i} + \\ & \sum_{k+1}^{K+d_{max}} \sigma_i \Delta LDJTRG_{t-i} + u_t \dots \dots \dots (4.30) \end{aligned}$$

Where k is optimal lag, d_{max} is maximum lag length, u_t is the error term, and α_0 , β_i , δ_i , σ_i and γ_i denote the estimated coefficients.

4.8 MODEL DIAGNOSTIC TESTS

The previous Section, 4.6.2, outlined the ARDL models employed in the study. Hence, it is crucial to conduct residual and stability diagnostics tests on the estimated ARDL model before drawing any conclusions. Model diagnostic tests are conducted to assess the validity and reliability of statistical models. These tests ensure that the model accurately reflects the data generating process by identifying potential issues like misspecification, heteroscedasticity, autocorrelation, or multicollinearity. Addressing these issues improves the model's predictive accuracy and enhances trust in its conclusions. In essence, diagnostic tests are crucial for evaluating the robustness and suitability of the model for making accurate predictions or inferences. Therefore, the model residual and stability diagnostic tests conducted on all estimated ARDL models in the study are organised as follows:

4.8.1 Residual diagnostic tests

In this study, residual diagnostic tests, such as normality, serial correlation, and heteroscedasticity tests, will assess the validity of assumptions in econometric modelling. These tests aim to pinpoint any abnormal features within the ARDL model that could challenge conclusions. These tests were used as follows.

4.8.1.1 Normality test

Given the prevalence of statistical errors in econometric literature, it is crucial to prioritise normality and other previously indicated assumptions. As such, to test for normality the Jacque-Bera (JB) test is

employed to assess whether the study model residuals are normally distributed. According to Jarque and Bera (1980), the Jarque-Bera test calculates the disparity in asymmetry (or skewness) and kurtosis of a variable in comparison to a normal distribution. The following hypothesis are formulated for this test:

H_0 : Normally distribution

H_1 : Non-normally distribution

The decision of whether the variables are normally distributed is made using a test statistic:

$$JB = n \left[\frac{s^2}{6} + \frac{(k-3)^2}{24} \right] \dots\dots\dots (4.31)$$

Where:

n = sample size

s = skewness coefficient

k = kurtosis coefficient

The null hypothesis suggests that the residuals are normally distributed. Adenomon and Ojo (2020:10) suggest that with a sufficiently low p-value (0.05) of the JB, the normal distribution hypothesis is rejected; however, with a high p-value (≥ 0.1), the normality assumption is not rejected because there is a rational reason for accepting the null hypothesis in that the error term followed a normal distribution.

4.8.1.2 *Serial correlation test*

Serial correlation is a statistical phrase that indicates the relationship, specifically the correlation, between the current value of a variable and the lagged value of the same variable from earlier periods (CFI, 2024). This consequence arises from either having non-stationary dependent and independent variables or from manipulating data through interpolation or extrapolation (Makuria, 2013:79). The Lagrange Multiplier test is utilised to identify data independence. At the same time, serial correlation can be readily assessed by examining the Durbin-Watson statistics or the Ljung-Box Q statistic. Ljung and Box (1978) introduced the Ljung-Box test to evaluate the assumption that residuals exhibit no serial correlation up to a specified order k . The test is structured within a hypothesis-testing framework as follows:

H_0 : No serial correlation up to order k

H_1 : Serial correlation up to order k

Whether the residuals exhibit serial correlation is determined using the following test statistic:

$$Q_{LB} = T(T + 2) \sum_{j=1}^k \frac{r_j^2}{T-j} \dots\dots\dots(4.32)$$

Where T represents the number of captured observations and k represents the tested elevated order of serial correlation, while the r_j^2 represents the j^{th} serial correlation. In this test, if the p-value is less than or equal to the chosen significance level, the null hypothesis of no serial correlation is rejected, indicating that the residuals are serially correlated. Conversely, if the p-value exceeds the significance level, it suggests that the residuals are not serially correlated.

4.8.1.3 Heteroscedasticity

Heteroscedasticity indicates that the variance of the error terms is not constant, violating the assumption of homoscedasticity required for many statistical methods like linear regression (Astivia & Zumbo, 2019:2). This results from the presence of an outlier in the data, which suggests the existence of small or large observations in relation to other captured observations (Makuria, 2013:81). Additionally, heteroscedasticity might occur because of data manipulation through interpolation or extrapolation. Consequently, the consequence of heteroscedasticity is that the ARDL estimators, not being the best linear unbiased estimators (BLUE), become inefficient and consequently lead to unreliable conclusions (McCamel, 2017:114). The following are the assumptions used when testing for heteroscedasticity:

H_0 : Homoscedasticity

H_1 : Heteroscedasticity

The decision of whether heteroscedasticity exists is made with the help of a test statistic:

$$LM_e = nR^2 \dots\dots\dots(4.33)$$

In this equation, n represents the number of observations collected, and R^2 signifies the coefficient of determination for the augmented residual regression. The null hypothesis **H_0** concerning homoscedasticity is rejected if the p-value is less than or equal to the chosen significance level. This indicates the presence of heteroscedasticity. Conversely, if the p-value exceeds the significance level, it implies the absence of heteroscedasticity.

4.8.2 Stability diagnostic tests

This study employed stability tests to ensure better results to determine consistency within the study parameters. The residual tests, such as the cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squared residuals (CUSUMQ) tests, are used to assess the stability of a statistical model (Mukhtarov *et al.*, 2019:426). These tests involve plotting residuals around zero to evaluate the standard errors at each data point. In the context of these tests, the null hypothesis for CUSUM and

CUSUMQ indicates that the model parameters are stable. In contrast, the alternative hypothesis suggests that the model parameters are not stable. This approach allows researchers to detect any potential instability in the model parameters, providing valuable insights into the reliability and robustness of the statistical analysis (Bhowmik, 2021:4). The hypotheses for these tests are as follows:

H_0 : Parameters are stable (desirable)

H_1 : Parameters are not stable (not desirable)

4.7 SUMMARY AND CONCLUSION

The study's primary objective was to examine the relationship between public debt and economic globalisation in South Africa. In support of that, the aim of this chapter was to outline the methodology utilised to conduct the research, specify the data set used in the study and methodise the econometric estimation approach adopted to fulfil the study's primary objective. As specified in Section 4.4.1, the dataset spans from 1980 to 2022 and consists of 43 annual observations. This time frame was chosen primarily based on data availability and allowed for more accurate results considering that the country's integration process only began in the early 1990s when the apartheid sanctions were being lifted. The dataset encompasses 12 variables, including gross national government debt; economic globalisation, *de facto* and *de jure* trade globalisation, *de facto* and *de jure* financial globalisation, government expenditure, inflation, and gross fixed capital formation, and GDP per capita as the control variables where all variables are transformed to logarithms.

Furthermore, it can be deduced from Section 4.5 that in equations 4.1 and 4.2, an ADRL model is used to determine the impact of economic globalisation, along with trade and financial globalisation, respectively, on public debt. While equation 4.3 and 4.4 represent an ADRL model used to determine the dissembled impact of *de jure* and *de facto* trade and financial globalisation, *de facto* being the real level of trade and financial integration and *de jure* being the legal or institutional components that facilitate and promote this integration.

The methodology of this study is based on quantitative methods that support a post-positivist approach that attempts to understand the effect of economic integration on the public debt levels of the South African economy. This study will employ an ARDL model because it can be applied regardless of whether the data series are stationary at $I(0)$, $I(1)$, or a combination of both. The study includes four single equations, and the ARDL model is particularly effective for testing single equations. Before estimating the ARDL model, two unit-root tests (ADF and PP) and a stationarity test (KPSS) will be conducted to detect unit roots and determine the order of integration.

Additionally, it is important to note that if a series is of second-order integration, the ARDL model will not be estimated. However, if the analysed series are found to be free from unit roots at $I(0)$, $I(1)$, or a

mixture of $I(0)$ and $I(1)$, the ARDL model will be estimated to identify the long-run impacts of the independent variables on the dependent variables. Once the long-run impacts are identified, corresponding error correction models will be estimated to capture the speed of adjustment to equilibrium. The hypothesis-testing framework for the ARDL models focuses on determining whether there is a short- and long-run impact from economic globalisation and its sub-dimensions, trade, and financial globalisation with public debt. This will be followed by residual and stability diagnostic tests (normality, serial correlation, heteroscedasticity, and stability tests) to assess the reliability of the results produced by the ARDL models. The following chapter will report, interpret, and discuss the empirical results obtained when applying the methodised econometric estimation approach.

CHAPTER 5

EMPIRICAL ESTIMATIONS, RESULTS AND DISCUSSION

5.1 INTRODUCTION

The previous chapter, Chapter 4, focused on presenting the methodology and explanation of different econometric and statistical techniques and models used in the study. The objective was to establish a robust foundation and framework for a thorough empirical or practical analysis of the series. Chapter 4 detailed the ARDL model as a dynamic tool for achieving the study's empirical objectives and outlined other essential econometric techniques. These include unit root tests, stationarity tests, the error correction model, and residual and stability diagnostic tests, all of which are crucial for ensuring the reliability and validity of the ARDL model results. This chapter presents a range of econometric estimates and results derived from the approaches, methods, and models discussed in Chapter 4.

The initial section of this chapter presents a descriptive summary, presenting the descriptive statistics to highlight the characteristics and key figures of the data used in the study. The next section will provide a preliminary analysis through graphical trends from the South African perspective to provide a general view of variables' trends considered over the timeframe. The correlation results, unit root tests, and stationarity test outcomes will be reported. This section examines the relationships between the study's variables and determine their order of integration, which is essential for applying the ARDL bounds test approach to cointegration. The ADF unit root test, PP unit root test, and KPSS stationarity test were conducted to diagnose unit roots and confirm the order of integration.

The study employs four ARDL models to estimate equations 4.11 to 4.14. The following sections of this chapter present and deals with the results for each ARDL model. First, the long-run impacts are reported on, using the ARDL bounds test approach to cointegration, followed by the corresponding error correction models and results for each ARDL bounds test. Finally, the results of the residual and stability diagnostic tests performed on each ARDL model will be presented. These tests ensure that the models' results are free from serial correlation, heteroscedasticity, and instability. Finally, this chapter will present the Toda-Yamamoto Granger causality results.

5.2 DESCRIPTIVE STATISTICS RESULTS AND TREND ANALYSIS

Table 5.1 summarises the descriptive statistics for the data on the variables under study. The first row in Table 5.1 depicts the mean of South Africa's GND as a percentage of GDP is 36.07 per cent, which suggests a moderate level of national debt relative to its economic output, while the mean of GND measured in total rand value is R840348.1. This debt level can be understood in conjunction with the

mean level of economic globalisation, which is 46.50. A relatively high degree of economic globalisation indicates South Africa's active participation in global trade and investment, which can help support debt sustainability by providing diverse income streams and opportunities for economic growth. Examining the means of *de jure* and *de facto* globalisation further clarifies the integration landscape: mean scores for the *de jure* trade globalisation (60.97) and *de jure* financial globalisation (35.62) highlight that South Africa has well-developed legal and regulatory frameworks to facilitate trade and finance. However, the *de facto* measures - *de facto* trade globalisation (39.82) and *de facto* financial globalisation (49.61) - reveal a gap between the formal legal structures and actual global integration, especially in trade where the actual level of integration is lower than the legal framework would suggest. This disparity points to potential challenges in fully realising the benefits of globalisation due to practical constraints or market conditions.

Furthermore, the third row in Table 5.1 indicates that the maximum for GND (% GDP) and GND (total ZAR) is 70.10 and R4277663.0, respectively, so too the corresponding maximum values for economic, trade and financial globalisation are 58.19, 61.46, and 57.85, respectively. In the same row, the figures for inflation, government expenditure, and gross fixed capital formation are 18.70, 20.57, and 27.32, respectively. On the other hand, the minimum for GND (% GDP) and GND (ZAR) is 23.60 and R18151.00, respectively, the corresponding minimum values for economic, trade and financial globalisation are 30.38, 37.37, and 22.49. The fourth row also shows that the minimum values of inflation, government expenditure, and gross fixed capital formation are 1.40, 12.77, and 13.18. The GND (total ZAR) signify a wide fluctuation in absolute debt levels, likely due to varying economic conditions, fiscal policies, or changes in borrowing strategies over time. For economic, trade and financial globalisation, these ranges suggest variability, especially in trade and financial globalisation, which could imply shifts in global economic integration or policy changes impacting South Africa's participation in international markets.

The fifth row in Table 5.1 shows the standard deviation values. The standard deviation of South Africa's GND as a proportion of GDP is 11.01%, showing that debt levels fluctuate significantly over time. On the other hand, the standard deviation GND in total rand is 1099482.00. This implies that South Africa has had periods of high and low debt compared to its economic production, reflecting changing fiscal policies or economic conditions. The standard deviation for economic globalisation is 9.81, indicating substantial variation in South Africa's integration into the global economy. This moderate variance implies that South Africa's engagement in global commerce and investment has been reasonably consistent, but occasional periods of change have occurred. The standard deviation for trade globalisation is 8.03, indicating substantial variability in South Africa's trade integration. This demonstrates that trade activities have fluctuated, although in a narrower range than government debt.

Table 5.1: Descriptive statistics results

Statistic / Variable	GND (% GDP)	GND (ZAR)	ECG	FIG	DFFIG	DJFIG	TRG	DFTRG	DJTRG	INF (CPI %)	GOE (% GDP)	GFCF (% GDP)	GDP (\$)
Mean	36.074	840348.1	46.504	42.615	49.607	35.623	50.394	39.821	60.967	8.672	17.342	18.045	5333.9
Median	32.000	399284.6	52.806	49.769	53.744	40.189	53.972	39.730	65.395	7.100	17.405	17.441	5266.4
Maximum	70.100	4277663.7	58.191	57.848	68.588	54.788	61.464	52.444	74.923	18.700	20.575	27.324	6263.1
Minimum	23.600	18151	30.384	22.489	29.888	13.741	37.365	28.468	42.961	1.400	12.771	13.184	4269.7
Std. Dev.	11.010	1099482	9.814	12.407	12.908	14.094	8.032	6.905	10.147	4.447	1.650	3.714	684.28
Skewness	1.351	1.701	-0.290	-0.411	-0.094	-0.527	-0.298	0.103	-0.256	0.554	-0.617	1.103	-0.000
Kurtosis	4.648	5.015	1.318	1.420	1.459	1.699	1.529	1.889	1.600	2.061	3.586	3.463	1.516
Jarque-Bera	17.951	28.002	5.672	5.682	4.321	5.024	4.512	2.288	3.979	3.775	3.345	9.111	3.946
Probability	0.000***	0.000***	0.058*	0.058*	0.115	0.081*	0.104	0.318	0.136	0.151	0.187	0.010**	0.139
Observations	43	43	43	43	43	43	43	43	43	43	43	43	43

Note: *** denotes significance at 1%; ** at 5%; * at 10% levels

Source: Compiled by author (Data from SARB, KOF Swiss Economic Institute, and the World Bank Development Indicators)

Financial globalisation has a standard deviation of 12.41, showing that South Africa's integration into the global financial system has been highly volatile.

Additionally, the skewness and kurtosis statistics in Table 5.1 reveal a mix of distribution shapes among the variables, with both negative and positive skewness indicating asymmetrical data and varying levels of peaked distribution. The Jarque-Bera test results further show that variables like GND (% GDP), GND (total ZAR), and several globalisation indicators deviate from a normal distribution, while others, such as inflation and government expenditure, align more closely with normality. Overall, these descriptive statistics, combined with a graphical trend analysis, offer a preliminary view of the data's variability and distributional characteristics over time, setting the stage for deeper analysis.

5.2.1 Graphical (trends) analysis

The graphical representation provided an overview of the movements between variables throughout the selected study period. Graphical representation is crucial for identifying outlier deficiencies, structural breaks, and heterogeneous fluctuations in variables (Kabini, 2022:102). Additionally, conducting a graphical analysis before performing stationarity and unit root tests can be beneficial, as it helps select an appropriate model for long-run analysis (Kabini, 2022:102). Graphical analysis was used for all study variables to examine the trends each variable experienced over the selected period.

5.2.1.1 *South African gross public debt (in % of GDP and total Rand value)*

The study employed graphical analysis to assess the trends in the public debt of South Africa. As shown in Figure 5.1, there was a gradual rise in debt in the mid to late 1980s due to economic challenges, international sanctions, and increased borrowing to sustain government expenditures (Levy 1999:5), with the upward trajectory continuing well into the mid-1990s reflecting the economic instability and period of transition to democracy. In the 2000s, public debt continued increasing partly due to increased public investment and spending on social programs to address historical inequalities and efforts to mitigate the impacts of the global economic downturn following the global financial crisis (Schoeman, 2015:13). Furthermore, Figure 5.1 depicts a sharp increase likely due to pre-existing fiscal pressures, economic challenges, and increased borrowing to finance government programs. In 2020, the COVID-19 pandemic substantially increased public debt, reflecting economic disruptions, reduced revenues, and increased borrowing to fund health responses and economic relief measures (Stats SA, 2022). This spilt into 2021 as the government dealt with the ongoing economic impacts of the pandemic and implemented recovery measures (Stats SA, 2022).

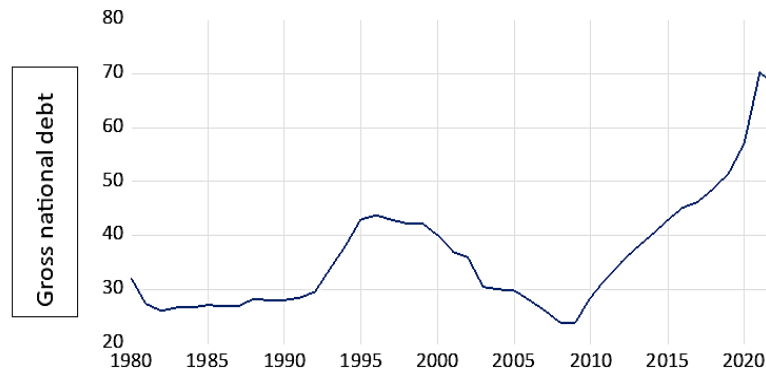


Figure 5.1: Gross public debt (% GDP) of South Africa from 1980 to 2022

Source: Compiled by author (Data from SARB)

Analysing South Africa's gross public debt as a percentage of GDP sheds light on the economy's growing debt burden relative to its overall size. Although not included in the econometric modelling, complementing this with the total rand value of debt (used as main dependent variable) illustrates the absolute scale of borrowing, highlighting the substantial increase in debt over time. Therefore, Figure 5.2 depicts the GND in total rand value in the South African economy.

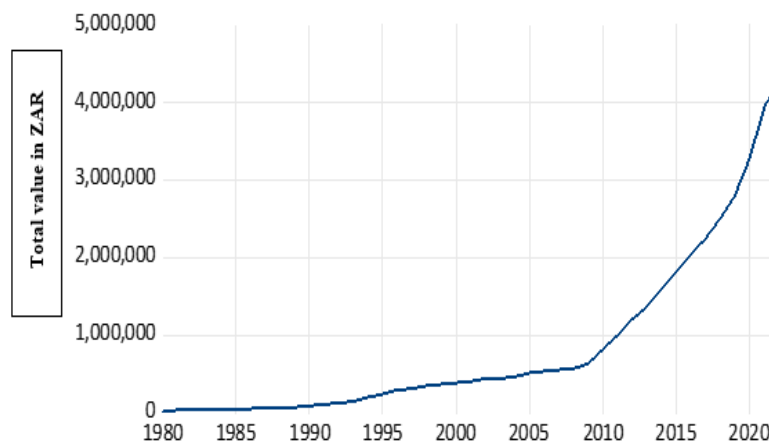


Figure 5.2: GND (total ZAR) of South Africa from 1980 to 2022

Source: Compiled by author (Data from SARB)

The graph illustrates a steady increase in South Africa's gross public debt over time, measured in total rand value. Initially, the debt grows slowly with a flat trend, indicating stable debt accumulation. However, as time progresses, the curve sharply rises from 2009, suggesting an acceleration in debt growth. The sharp increase can be attributed to several interrelated factors, primarily stemming from the global financial crisis and subsequent fiscal policies aimed at mitigating its effects. The 2008-2009

global financial crisis led South Africa to adopt a countercyclical fiscal policy, increasing public spending to stabilise the economy despite declining revenues (National Treasury, 2009). This shift from budget surpluses to deficits was driven by the need to stimulate growth and address social needs, particularly through a large-scale public infrastructure program (National Treasury, 2009). However, rising debt levels were further impacted by the financial strain of supporting state-owned enterprises (SOEs), such as Eskom, whose inefficiencies and financial mismanagement added to the debt burden (Ngotana, 2021:1). Additionally, South Africa's limited domestic savings constrained available capital, leading the government to rely more heavily on borrowing to fund its developmental objectives (Ngotana, 2021:5).

Furthermore, the acceleration in South Africa's debt growth from 2020 onwards was primarily driven by persistent budget deficits and rising expenditures for social services and infrastructure development amid slow economic growth. Additionally, factors such as rising interest rates globally and inflationary pressures have increased the cost of borrowing for the South African government, contributing to higher debt levels as it seeks to finance its operations under external economic pressures (SARB, 2023). Meanwhile, SOEs have continued to require substantial funding to address operational inefficiencies service delivery challenges and structural inefficiencies within state enterprises, which have led to increased government guarantees and support, further inflating public debt levels in South Africa (PMG, 2023).

5.2.1.2 *Economic globalisation, trade globalisation, and financial globalisation*

With an understanding of South Africa's gross public debt trends, the study now turns to the patterns in economic, trade, and financial globalisation to assess their roles in shaping debt trajectories. Generally, economic globalisation includes both trade and financial globalisation, reflecting the extent to which a country is economically integrated with the rest of the world; however, for the purpose of this study, these will be graphically represented individually. Looking at the graphical representation of economic globalisation in South Africa, Figure 5.3, the index starts at a low level, indicating limited economic integration due to apartheid policies and international sanctions and continues into fluctuations with a declining trend in the mid-1980s and a sharp decline into the early 1990s, reflecting the impact of increased international isolation and internal political instability (Bhattacharya & Lowenberg, 2010:57).

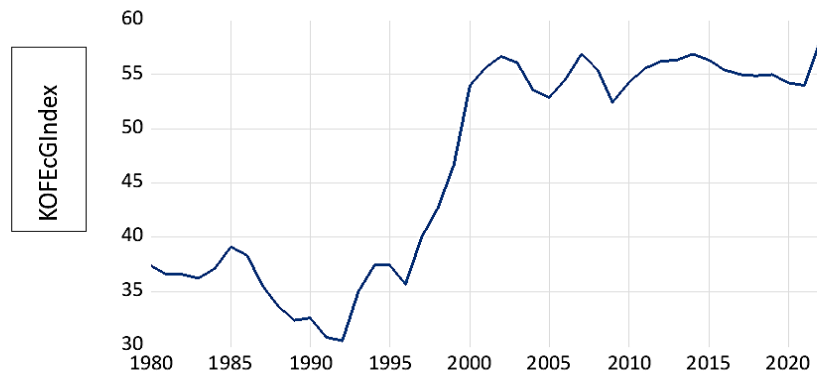


Figure 5.3: KOFGI for economic globalisation of South Africa from 1980 to 2022

Source: Compiled by author (Data KOF Swiss Economic Institute)

By the late 1990s to early 2000s, the trade globalisation index, as shown in Figure 5.4, showed a significant increase as trade sanctions were swiftly being removed and the country implemented economic reforms and liberalisation policies (Hviding, 2005:134). The country's involvement in international trade agreements, such as replacing quantitative restrictions with ad valorem tariffs and simplifying the tariff regime, along with its participation in organisations like the WTO, the SACU, and the SADC, further enhanced trade globalisation (Hviding, 2005:134). In the mid-2000s, trade ties with the rest of the world continued to expand, reflecting increased trade volumes and economic growth. Hosting major international events in South Africa, such as the 2010 FIFA World Cup, likely contributed to heightened global interest and investment in the country (Merler, 2018).

From around 2010 onwards, the graph depicts a stagnation or slow growth pattern. South Africa has long relied on raw material exports like gold, platinum, coal, and iron ore, which made its economy vulnerable to global commodity cycles; during boom periods, demand drove growth, but prices fell after the 2008 financial crisis, leading to stagnation around 2010 (Business Cycle Analytics (BCA), 2024). Despite some growth in automotive and agriculture, the lack of diversification into high-value manufacturing and persistent infrastructure challenges limited trade's ability to drive sustained economic growth in South Africa (Badsha, 2024).

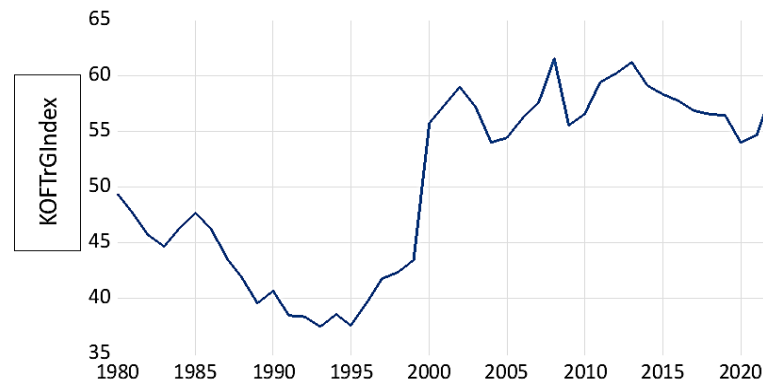


Figure 5.4: KOFGI for trade globalisation in South Africa from 1980 to 2022

Source: Compiled by author (Data from KOF Swiss Economic Institute)

The financial globalisation index trajectory for the country has not been that much different from that of trade globalisation. Financial globalisation in the mid-1990s depicted a significant rise as South Africa adopted economic liberalisation policies, leading to increased foreign investment and financial integration (see Figure 5.5). The 2000s reflect South Africa's limited progress in deepening financial globalisation despite its advanced financial system. Financial inflows have largely come from portfolio investments rather than productive FDI, meaning that capital has often flowed into stock and bond markets rather than into long-term projects that could stimulate sustained economic growth (South African Institute of International Affairs (SAIIA), 2015). Therefore, while South Africa became highly integrated financially, this integration was marked by a predominance of short-term, speculative capital flows, which made the economy vulnerable to global volatility with minimal economic improvements (Moghadam, 2011:8).

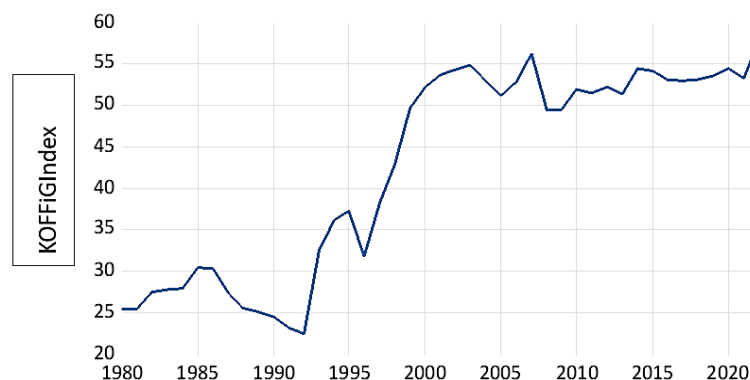


Figure 5.5: KOFGI for financial globalisation in South Africa from 1980 to 2022

Source: Compiled by author (Data from KOF Swiss Economic Institute)

Figure 5.5 further shows that the global financial crisis from 2008 to 2009 led to a dip in the index, reflecting reduced financial flows and economic instability worldwide (Dullien *et al.*, 2010:4). South Africa's status as a developing and emerging market often renders it a riskier investment destination, particularly during global crises. In periods like the 2008-2009 financial crisis, investor risk aversion intensified, reducing foreign financial flows (M&G Investments, 2018). The 2008 financial crisis saw a marked increase in risk premiums for emerging markets, including South Africa, as global investors reassessed their exposure to perceived risks associated with political instability, economic uncertainty, and high levels of government debt (de Klerk, 2023). Consequently, despite South Africa's advanced financial system, its vulnerability to sudden foreign inflow shifts hindered sustained financial globalisation and resilience to external shocks. Across Figures 5.3, 5.4, and 5.5 above, the COVID-19 pandemic caused a slight dip in 2020 due to global economic disruptions, reduced trade and financial flows, and economic uncertainty (World Bank, 2020). However, there was a bit of recovery in 2021 as global economic activity picked up and South Africa adapted to the post-pandemic economic environment (World Bank, 2020). With an understanding of South Africa's economic, trade, and financial globalisation trends, the study now explores government expenditure, observing shifts in spending over the years.

5.2.1.3 *Government expenditure*

Figure 5.6 provides a graphical representation of the government expenditure in South Africa. The graph depicts South Africa's government expenditure between 1980 and 2022. Government spending gradually increased in the 1980s, reflecting rising expenditure on public services and infrastructure, with a considerable surge in the late 1980s, probably due to increased defence spending (Gopaul *et al.*, 2024:68). Expenditure remained stagnant between 16 and 18 per cent in the 1990s, reflecting economic challenges and increasing spending on social services during apartheid's transition, peaking in 1994 with the first democratic elections (Inchauste *et al.*, 2015:2). In the early 2000s, government spending climbed considerably, reflecting the small economic growth and investments in public services and infrastructure. During the global financial crisis in the late 2000s, spending increased significantly, and it remained high in the early 2010s due to much needed fiscal stimulus through continuous investment in social programmes and economic development (Stamm & Vorisek, 2023). Over the past decade, South Africa's government has faced escalating fiscal challenges, with constrained public finances and rising debt levels (Section 3.5.1).

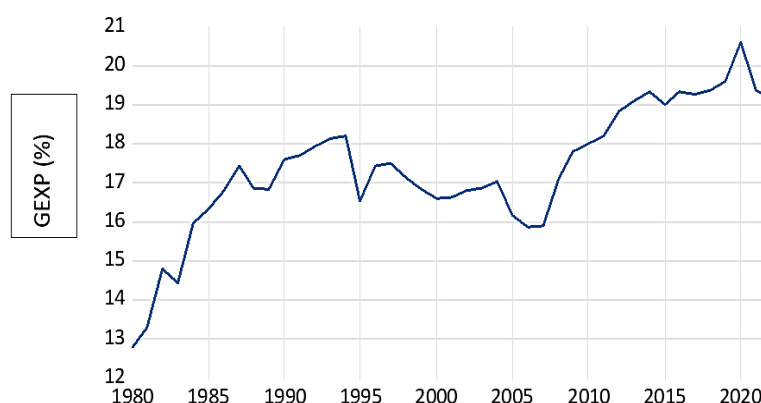


Figure 5.6: Government expenditure percentage of South Africa from 1980 to 2022

Source: Compiled by author (Data from SARB)

Factors contributing to this strain have included low economic growth, high unemployment, and persistent budget deficits, which have limited the government's ability to generate revenue (Section 3.5.1). Additionally, social spending pressures, state-owned enterprise bailouts, and inefficient public spending have further stretched the fiscal budget over the years (National Treasury, 2021) which led to an increased reliance on borrowing, raising public debt and heightening vulnerability to global economic shifts. During the COVID-19 pandemic, the government further increased spending on healthcare, social support, and economic stimulus measures, but then fell slightly in 2021 as efforts were made to manage budget deficits while supporting economic recovery and public services (Stats SA, 2022). From government expenditure, the study proceeds to analyse CPI inflation to gain insights into the country's price stability.

5.2.1.4 *CPI inflation*

Figure 5.7 shows the CPI inflation rate which indicates the changes in the general price level of goods and services in an economy over a period, reflecting the cost of living in South Africa. The graph represents CPI inflation from 1980 to 2022. In the early 1980s, inflation was relatively high, reflecting economic instability and external shocks, with a notable spike in the mid-1980s, possibly due to political unrest and economic sanctions. The late 1980s saw inflation gradually decline as economic policies were implemented to stabilise prices, with fluctuations reflecting ongoing economic challenges (Hefti & Staehelin-Witt, 2002:3).

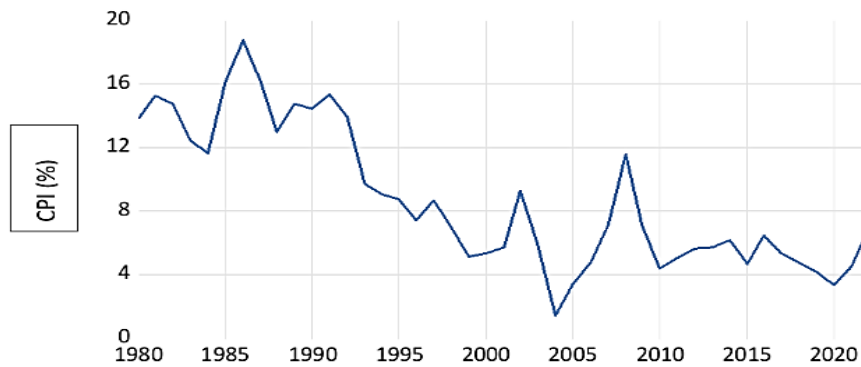


Figure 5.7: CPI percentage of South Africa from 1980 to 2022

Source: Compiled by author (Data from SARB)

Prior to the 1990s, South Africa's economy was highly concentrated, characterised by import-substitution and protectionist policies that restricted foreign competition (SAHO, 2014). This inward focus contributed to an inflationary environment, as limited competition allowed domestic producers to set higher prices. However, with the shift to a more neoliberal political stance in the 1990s, trade liberalisation opened borders, allowing more foreign competition, and led to a gradual stabilisation of inflation as domestic businesses adjusted to compete globally (Sebake, 2017:4). However, while South Africa's transition to neoliberalism facilitated greater integration into the global economy and helped stabilise inflation, it also highlighted significant challenges related to unemployment and inequality that remain relevant decades later (Section 3.5.1).

Moreover, the SARB shifted from broad money targeting to an inflation-targeting framework in 2000, emphasising price stability as its primary objective (SARB, 2020). This change marked a more focused and transparent approach to controlling inflation, aiming for a target range of three to six per cent, which helped anchor expectations and reduce inflation rate volatility (SARB, 2020). In tandem with adopting inflation targeting, South Africa implemented a managed float exchange rate system, allowing market forces to largely determine the rand's value while enabling the SARB to occasionally intervene to curb extreme volatility (SARB, 2020). This approach supported price stability and external competitiveness, aligning with broader neoliberal policies aimed at integrating South Africa into the global economy.

Therefore, in the early 2000s, South Africa experienced moderate inflation, with fluctuations due to external factors such as oil prices. The late 2000s saw a rise in inflation during the global financial crisis, followed by a period of stability in the early 2010s. The period from 2020 to 2021 shows fluctuations in inflation due to the COVID-19 pandemic, reflecting supply chain disruptions and economic uncertainties (Wolhuter, 2022).

5.2.1.5 Gross fixed capital formation

Much like the fluctuations noted for inflation, Figure 5.8 depicts the GFCF in South Africa from 1980 to 2022. GFCF, representing the net increase in physical assets within an economy, is a critical component of economic growth. The trajectory indicates several fluctuations due to various economic, political, and global factors. In the early 1980s, GFCF showed a steady decline, likely due to economic sanctions, political instability, and international isolation during the apartheid era, continuing into the mid to late 1980s due to further economic sanctions and internal strife (Bhattacharya & Lowenberg, 2010:57). From 1990 to 1994, the decline continued but began to stabilise as the country transitioned from apartheid. The end of apartheid in 1994 and Nelson Mandela's election marked the beginning of economic reforms, but the initial impact on GFCF was slow due to lingering uncertainties (Bhattacharya & Lowenberg, 2010:57). In the mid-1990s, a slight increase in GFCF occurred as economic reforms took root and confidence in the South African economy grew, although fluctuations continued into the late 1990s due to adjustments to new policies and the global economic environment.

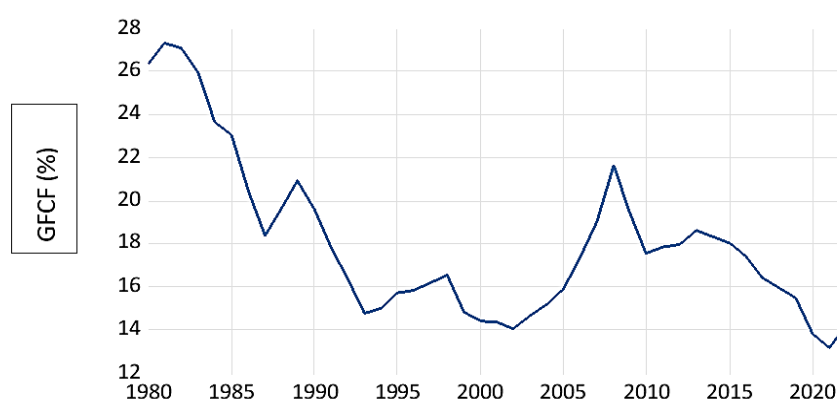


Figure 5.8: Gross fixed capital formation percentage of South Africa from 1980 to 2022

Source: Compiled by author (Data from World Bank Development Indicators)

From 2000 to 2005, GFCF saw a gradual increase, reflecting growing investor confidence and economic stability, followed by a significant spike in the mid-2000s due to increased infrastructure investments and preparations for the 2010 FIFA World Cup. There is a sharp decline in the late 2000s due to the global financial crisis of 2008, impacting investment and economic activity worldwide (RBA, 2023). The general trend of stagnating investment since 2010 reflects broader global factors that affected many economies, including South Africa. Following the 2008 financial crisis, investor confidence declined worldwide, with slow recovery and persistent uncertainty in global markets (Stamm & Vorisek, 2023:8). Factors such as trade tensions, particularly between economies such as China and the U.S.,

economic slowdowns in key markets like China, and volatility in commodity prices stifled investment flows (Stamm & Vorisek, 2023:6; UNCTAD, 2024).

Additionally, the competition for capital intensified as emerging markets competed for limited investment resources in an increasingly interconnected global economy which made it more challenging for countries such as South Africa to attract sustained FDI (UNCTAD, 2024). In 2020, the COVID-19 pandemic caused a sharp decline, due to economic lockdowns disrupting the economy, reducing investments, and creating uncertainty. The restrictions on movement and heightened transaction costs intensified these challenges, leading to a contraction in both domestic and international investment flows (Hugo, 2020; Jiang *et al.*, 2021:3). However, by 2021, a slight recovery emerged as the economies adjusted to the post-pandemic environment, and investment activity began to increase again sustained by the gradual lifting of restrictions and the introduction of vaccination programs, which helped restore some level of confidence among investors (Hayakawa, 2022). Finally, from GFCF, the study transitioned to GDP, providing an overview of South Africa's economic growth trajectory.

5.2.1.6 GDP

Figure 5.9 below presents the graphical representation of South Africa's GDP from 1980 to 2022. GDP showed a decline from the early 1980s to the mid-1990s. This period was marked by economic sanctions and international isolation due to apartheid, which significantly affected the economy. Additionally, internal political instability and resistance movements likely contributed to economic downturns. From the mid-1990s to around 2000, the GDP began to recover. The end of apartheid in 1994 and the subsequent political transition brought optimism and increased international cooperation, likely spurring economic growth (Lundahl & Petersson, 2003). South Africa had adopted policies aimed at attracting foreign investment, industrialising, and opening up the economy to global markets. This included key initiatives such as trade liberalisation, which included reducing tariffs and eliminating import controls, engaged in multilateral trade agreements, such as those under the SADC, and establishing industrial development zones (IDZs) that aimed to attract foreign companies by offering incentives such as tax breaks and streamlined regulations (Hviding, 2005:134-139).

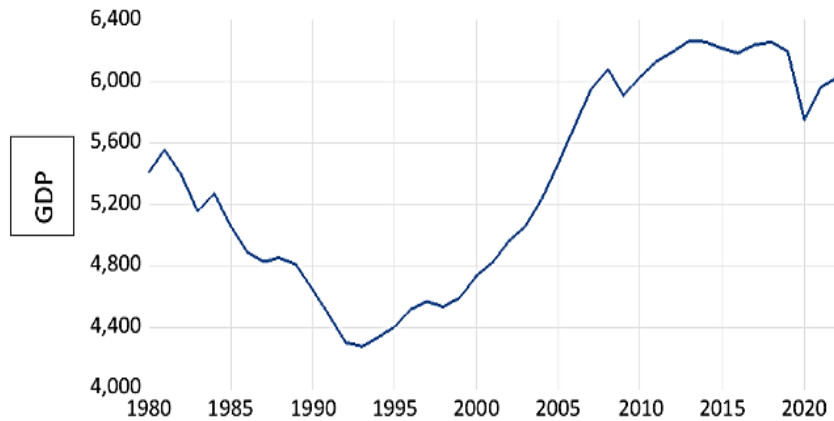


Figure 5.9: The GDP of South Africa from 1980 to 2022

Source: Compiled by author (Data from World Bank Development Indicators)

Furthermore, the GDP declined around 2008-2009, corresponding with the global financial crisis, which impacted economies worldwide, including South Africa. Since 2008, South Africa has faced economic stagnation marked by a lack of significant, inclusive growth (Mdingi & Ho, 2023:3). The global shift towards value-added sectors and knowledge-based economies exposed South Africa's premature deindustrialisation and limited its ability to integrate into global value chains, reducing its competitive edge in the international market (Imbs, 2013:529; Andreoni & Tregenna, 2021:256). Furthermore, structural challenges like high unemployment, persistent poverty, and inequality have further strained the economy and put immense pressure on the fiscal budget (Section 3.5.2). This low-growth environment has made it difficult for the South African government to generate revenue, exacerbating socio-economic issues and limiting progress in inclusive economic development.

The COVID-19 pandemic in 2020 would have also significantly impacted the GDP, as the country's economy was already under strain from structural issues (World Bank, 2024). The pandemic triggered the sharpest downturn in the world economy since the Great Depression, with global GDP declining due to stringent lockdowns and a collapse in global trade, which severely affected economic activity across various sectors (Gagnon *et al.*, 2023:1-2). South Africa faced a GDP contraction in 2020 due to the pandemic and associated containment measures (IMF, 2021). Some recovery began in late 2020 and into 2021 as restrictions eased and global trade rebounded, but full recovery has been challenging. The economy still faces structural weaknesses and needs inclusive growth strategies to address persistent socio-economic disparities.

Having visually represented the trends in public debt, economic globalisation, both *de facto* and *de jure* trade and financial globalisation, and the control variables in Section 5.2, the study turns to a more

detailed analysis. The next section of the study will present and analyse the results of the estimated correlation, unit root tests, and stationarity tests.

5.3 CORRELATION, UNIT ROOT TESTS AND STATIONARITY TEST RESULTS

Correlation analysis and unit root tests are essential components of statistical estimation, including regression (Ogbokor, 2015:124). This section will present the correlation matrix, unit root tests, and stationarity test results. It is also worth noting that the data for the variables in this study have been converted into natural logarithms (L) to minimise variation within the datasets and to calculate the growth rates of these variables.

5.3.1 Correlation results

Table 5.2 presents the correlation matrix results, showing the correlation coefficients and their subsequent probability values for all variables under study. These coefficients quantitatively determine the strength of the relationships between the variables. Specifically, the relationships can be assessed if the correlation coefficient values range from -1 to +1. A value near -1 indicates a strong inverse (or negative) linear relationship, while a value near +1 indicates a strong direct (or positive) linear relationship. Conversely, a correlation coefficient value of zero suggests no direct or inverse relationship between the variables, indicating no rationale for further investigation.

Taking this into consideration, Table 5.2 shows LGND, LECG, LFIG, LDFFIG, LDJFIG, LTRG, LDFTRG, LDJTRG, LINF, LGOE, and LGFCF as the natural log of GND, economic globalisation, financial globalisation, *de facto* financial globalisation, *de jure* financial globalisation, trade globalisation, *de facto* trade globalisation, *de jure* trade globalisation, inflation, government expenditure, and GFCF, respectively. Therefore, with the relationship between GND and the other variables under study, Table 5.2 shows that the correlation coefficients between GND and economic globalisation, financial globalisation, *de facto* financial globalisation, *de jure* financial globalisation, trade globalisation, *de facto* trade globalisation, *de jure* trade globalisation, and government expenditure are 0.387, 0.473, 0.481, 0.392, 0.216, 0.315, 0.127, and 0.605, respectively. These coefficients are adjacent to +1, therefore implying a positive or direct relationship.

Table 5.2: Correlation results

Variable	LGND	LECG	LFIG	LDFFIG	LDJFIG	LTRG	LDFTRG	LDJTRG	LINF	LGOE	LGFCF	LGDP
LGND	1.0000 ----- -----											
LECG	0.3876 [2.6926] (0.010**)	1.0000 ----- -----										
LFIG	0.4730 [3.4375] (0.001***)	0.9745 [27.8635] (0.000***)	1.0000 ----- -----									
LDFFIG	0.4811 [3.5144] (0.001***)	0.9455 [18.6017] (0.000***)	0.9111 [14.1594] (0.000***)	1.0000 ----- -----								
LDJFIG	0.3920 [2.7291] (0.009***)	0.8498 [10.3256] (0.000***)	0.9260 [15.7140] (0.000***)	0.6883 [6.0757] (0.000***)	1.0000 ----- -----							
LTRG	0.2166 [1.4207] (0.163)	0.9382 [17.3642] (0.000***)	0.8369 [9.7911] (0.000***)	0.9031 [13.4712] (0.000***)	0.6462 [5.4230] (0.000***)	1.0000 ----- -----						
LDFTRG	0.3159 [2.1319] (0.039**)	0.7467 [10.1912] (0.000***)	0.7478 [7.2140] (0.000***)	0.6653 [11.0561] (0.000***)	0.5241 [3.9411] (0.000***)	0.913921 [14.4174] (0.000***)	1.0000 ----- -----					
LDJTRG	0.1279 [0.8259] (0.413)	0.9090 [13.9689] (0.000***)	0.8159 [9.0362] (0.000***)	0.8408 [9.9469] (0.000***)	0.6663 [5.7228] (0.000***)	0.6610 [22.2798] (0.000***)	0.7662 [7.6359] (0.000***)	1.0000 ----- -----				

Variable	LGND	LECG	LFIG	LDFFIG	LDJFIG	LTRG	LDFTRG	LDJTRG	LINF	LGOE	LGFCF	LGDP
LINF	-0.5129 [-3.8266] (0.000***)	-0.7944 [-8.376] (0.000***)	-0.6706 [-11.3317] (0.000***)	-0.7065 [-6.3933] (0.000***)	-0.6856 [-12.2131] (0.000***)	-0.5966 [-4.7600] (0.000***)	-0.5207 [-3.9057] (0.000***)	-0.5900 [-4.6798] (0.000***)	1.0000 ----- -----			
LGOE	0.6050 [4.8656] (0.000***)	0.4412 [3.1480] (0.003***)	0.5047 [3.7439] (0.005***)	0.5536 [4.2568] (0.000***)	0.3816 [2.6436] (0.011**)	0.2984 [2.0023] (0.051*)	0.3531 [2.4172] (0.020**)	0.2321 [1.5281] (0.134)	-0.4962 [-3.6604] (0.001***)	1.0000 ----- -----		
LGFCF	-0.5849 [-4.6176] (0.000***)	-0.4381 [-3.1208] (0.003***)	-0.5863 [-4.6348] (0.000***)	-0.3941 [-2.7464] (0.009***)	-0.6712 [-5.7990] (0.000***)	-0.1648 [-1.0705] (0.290)	-0.0573 [-0.3676] (0.715)	-0.2220 [-1.458069] (0.152)	0.6535 [5.5283] (0.000***)	-0.6714 [-5.8012] (0.000***)	1.0000 ----- -----	
LGDP	0.2351 [1.5490] (0.129)	0.7378 [6.9987] (0.000***)	0.6190 [5.0470] (0.000***)	0.8109 [8.8741] (0.000***)	0.3471 [2.3703] (0.023**)	0.8467 [10.1918] (0.000***)	0.7151 [14.5330] (0.000***)	0.7176 [6.5992] (0.000***)	-0.4472 [-3.2021] (0.002***)	0.3213 [2.1728] (0.035**)	0.1127 [0.7266] (0.471)	1.0000 ----- -----

Note: [] shows the t-statistic; () shows p-values; *** indicates significance at 1% level of significance, ** at 5% level of significance, * at 10% level of significance.

Source: Compiled by author (Data from SARB, KOF Swiss Economic Institute, and the World Bank Development Indicators)

While this may be true, the probability values (p-values) corresponding to these correlation coefficients that exhibit positive relationships with GND are significant at a 1 per cent significance level for financial globalisation, *de facto* financial globalisation, *de jure* financial globalisation, and government expenditure; and 5 per cent level of significance level for economic globalisation and *de facto* trade globalisation; and no statistical significance for trade globalisation and *de jure* trade globalisation. That said, it seems these variables have a positive relationship with GND; however, these positive relationships are statistically significant for all variables except trade globalisation (which consists of both *de facto* and *de jure*) and *de jure* trade globalisation. This suggests that the South African government's policies, agreements, and regulations to facilitate international trade have been insufficient in contributing significantly to its GND. This could be because South Africa's public debt may be more influenced by domestic fiscal policies, public spending, and revenue collection than by trade policies and/or these trade policies may cause economic adjustments and transitional costs that do not immediately reflect in the public debt levels.

Furthermore, Table 5.2 also shows that the correlation coefficient between GND and inflation and GFCF are -0.512 and -0.584, respectively. Both variables are adjacent to -1 and thus indicate a moderate negative relationship with GND. The p-values corresponding to these negative correlation coefficients are both significant at a 1 per cent significance level, meaning that inflation and GFCF have a negative and significant relationship with the GND in South Africa. This means that higher inflation and increased investment in fixed assets are associated with lower public debt levels. Studies have provided empirical evidence in support of these inverse relationships (Akitoby *et al.*, 2017; Filip, 2019; Kamau, 2021; Fukunaga *et al.*, 2022; Adamu *et al.*, 2023). The following section will present and discuss the unit root test results.

5.3.2 Unit root tests and stationarity test results

This subsection of the chapter will show the unit root and stationarity test results to determine the order of integration for the variables being studied. It is essential to conduct these tests before estimating an ARDL model to avoid spurious or illogical results. Therefore, this study employs the ADF and PP unit root tests, along with the KPSS stationarity test, to diagnose unit roots and determine the order of integration. Including a stationarity test, in addition to unit root tests, is motivated by econometric literature highlighting inconsistencies in the power and features of unit root tests.

Section 4.6.1 of the previous chapter mentioned that the ADF and PP unit root tests frequently produce similar results, often suffering from the same weakness of being biased toward not rejecting the null hypothesis. Consequently, the KPSS stationarity test is used as a confirmatory measure to evaluate the

robustness of the ADF and PP test results. With this in mind, the presentation of these test results will be structured as follows: Table 5.3 will present the ADF unit root test results.

5.3.2.1 The Augmented Dickey-Fuller (ADF)

Table 5.3 shows the ADF unit root test results where some of the variables utilised in the study are stationary at level, whilst others are stationary at first difference. To be specific, the natural log of GND, economic globalisation (LECG), financial globalisation (LFIG), *de facto* financial globalisation (LDFFIG), *de jure* financial globalisation (LDJFIG), trade globalisation (LTRG), *de facto* trade globalisation (LDFTRG), and LGDP are not stationary at I(0) with or without trend but became stationary at I(1) without trend after being differenced. The natural log of *de jure* trade globalisation (LDJTRG) and inflation (LINF) was also not stationary at I(0) but only became stationary at I(1) with trend. Furthermore, the natural log of government expenditure (LGOE) and GFCF (LGFCF) both became stationary at I(0) without trend. These results were derived using the standard unit root testing method. Initially, the variables were tested at the level without a trend. If they were found to be non-stationary, the trend was then incorporated. If the variables remained non-stationary at the level, both with and without a trend, they were differenced at the first difference. The decision rule for the ADF unit root test, as outlined in Section 4.6.1.1 of Chapter 4, was also taken into account when obtaining the ADF unit root test results. Moreover, the PP unit test results are shown in Table 5.4.

Table 5.3: Augmented Dickey-Fuller (ADF) unit root results

Variable	Levels				1 st Difference				I (0)/ I (1)
	Intercept		Trend & intercept		Intercept		Trend & intercept		
	<i>t</i> -stat	<i>p</i> -value	<i>t</i> -stat	<i>p</i> -value	<i>t</i> -stat	<i>p</i> -value	<i>t</i> -stat	<i>p</i> -value	
LGND	-0.4489	0.8908	-1.1002	0.9167	-4.1003	0.0026***	-4.1430	0.0115**	I (1)
LECG	-0.9015	0.7777	-2.2824	0.4336	-3.9440	0.0040***	-3.8888	0.0215**	I (1)
LTRG	-0.8661	0.7891	-2.0580	0.5533	-5.4098	0.0001***	-5.3741	0.0003***	I (1)
LDFTRG	-1.3099	0.6161	-3.0865	0.1226	-6.7964	0.0000***	-6.7989	5.1501	I (1)
LDJTRG	-1.1797	0.6743	-1.8276	0.6733	-5.4726	0.0000***	-5.4041	0.0003***	I (1)
LFIG	-0.9243	0.7706	-1.6620	0.7503	-5.5901	0.0000***	-5.5180	0.0002***	I (1)
LDFFIG	-1.0199	0.7372	-2.4197	0.3645	-4.4205	0.0010***	-4.3564	0.0066***	I (1)
LDJFIG	-1.4300	0.5585	-1.7442	0.7134	-5.6741	2.3978	-5.5989	0.0002***	I (1)
LINF	-0.8865	0.7816	-1.0096	0.9306	-5.5856	3.7852	-5.5344	0.0002***	I (1)
LGOE	-2.7951	0.0675*	-2.8141	0.2004	-6.7474	9.6434	-6.8887	3.8133	I (0)

Variable	Levels				1 st Difference				I (0)/ I (1)
	Intercept		Trend & intercept		Intercept		Trend & intercept		
	<i>t</i> -stat	<i>p</i> -value	<i>t</i> -stat	<i>p</i> -value	<i>t</i> -stat	<i>p</i> -value	<i>t</i> -stat	<i>p</i> -value	
LGFCF	-3.0711	0.0367**	-2.8518	0.1881	-4.3076	0.0014***	-4.4298	0.0054***	I (0)
LGDP	-0.7370	0.8258	-2.6031	0.2810	-4.3640	0.0012***	-4.6239	0.0032***	I(1)

Note: ***shows significance at 1% level, **significance at 5% level, and *significance at 10%

Source: Compiled by author (Data from SARB, KOF Swiss Economic Institute, and the World Bank Development Indicators)

5.3.2.2 Phillips-Perron (PP) unit root tests

Similarly, the PP unit root test results align with the ADF unit root test results for most the variables under study; this consistency is anticipated, as highlighted in econometric literature. Table 5.4 therefore shows that LGND, LECG, LTRG, LDJTRG, LFIG, LDFFIG, LDJFIG, LINE, LGFCF, and LGDP were not stationary at I(0) with or without trend. LGND, LECG, LDFFIG, LGFCF, and LGDP became stationary at I(1) without trend, while LTRG, LDJTRG, LFIG, LDFFIG, LDJFIG became stationary at I(1) with trend. These results were obtained using the same conventional unit root testing approach, along with the decision rule for the PP unit root test as outlined in Section 4.6.1.2. As noted earlier, both the ADF and PP unit root tests share the limitation of being biased toward failing to reject the null hypothesis. To address this weakness and ensure reliable results, the KPSS stationarity test was also performed. Table 5.5 presents the KPSS stationarity test results.

Table 5.4: Phillips-Perron (PP) unit root tests

Variable	Levels				1 st Difference				I (0)/ I (1)
	Intercept		Trend & intercept		Intercept		Trend & intercept		
	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	
LGND	0.6091	0.9883	-0.6417	0.9709	-4.0954	0.0026***	-4.1617	0.0109**	I (1)
LECG	-0.7080	0.8336	-1.8352	0.6696	-3.8595	0.0050***	-3.8062	0.0262**	I (1)
LTRG	-0.9551	0.7603	-2.1418	0.5083	-5.3997	5.5470	-5.3701	0.0004***	I (1)
LDFTRG	-1.1570	0.6839	-3.0262	0.1374	-6.9689	5.1186	-7.0393	2.2814	I (0)
LDJTRG	-1.3998	0.5733	-2.1100	0.5253	-5.4850	4.2748	-5.4178	0.0003***	I (1)
LFIG	-0.9344	0.7673	-1.7787	0.6971	-5.5375	3.6407	-5.4547	0.0003***	I (1)
LDFFIG	-0.7053	0.8343	-1.9821	0.5938	-4.3325	0.0013***	-4.2640	0.0084***	I (1)

Variable	Levels				1 st Difference				I (0)/ I (1)
	Intercept		Trend & intercept		Intercept		Trend & intercept		
	t-stat	p-value	t-stat	p-value	t-stat	p-value	t-stat	p-value	
LDJFIG	-1.3667	0.5893	-1.8047	0.6846	-5.6010	2.9987	-5.6421	0.0001***	I (1)
LINF	-1.5731	0.4872	-2.7568	0.2205	-8.1162	2.56877	-11.1197	2.5749	I (1)
LGOE	-2.8285	0.0628*	-2.8104	0.2017	-6.7534	9.4778	-6.8913	3.7809	I (0)
LGFCF	-2.1043	0.2440	-1.9382	0.6169	-4.2590	0.0016***	-4.2954	0.0077***	I (1)
LGDP	-0.7380	0.8258	-1.9114	0.6309	-4.4589	0.0009***	-4.6731	0.0028***	I (1)

Note: ***shows significance at 1% level, **significance at 5% level, and *significance at 10%

Source: Compiled by author (Data from SARB, KOF Swiss Economic Institute, and the World Bank Development Indicators)

5.3.2.3 Kwiatkowski-Phillips-Schmidt-Shin (KPSS) stationarity test

Unlike the ADF and PP unit root tests, which propose the null hypothesis of a unit root, the KPSS stationarity test's null hypothesis is that the series is stationary, as outlined in Section 4.6.1.3 of Chapter 4. Therefore, Table 5.5 shows that LGND is stationary at I(0) without trend, while LECG, LTRG, LDFTRG, LDJTRG, LFIG, LDFFIG, LGOE, and LGFCF are stationary at I(0) with trend. Furthermore, LDJFIG, LINF, and LGDP are stationary at I(1) with trend, but without trend for LGDP. The KPSS results are consistent with ADF and PP tests for LDJFIG, LINF, LGOE, LGFCF, and LGDP.

Table 5.5: Kwiatkowski-Phillips-Schmidt-Shin (KPSS) stationarity tests

Variable	Levels				1 st Difference				I (0)/ I (1)
	Intercept		Trend & intercept		Intercept		Trend & intercept		
	LM-stat.	Crit. value	LM-stat.	Crit. value	LM-stat.	Crit. value	LM-stat.	Crit. value	
LGND	0.4248	0.4630	0.1631*	0.1460	0.3182	0.4630	0.1182	0.1460	I (0)
LECG	0.6741*	0.4630	0.1016	0.1460	0.1092	0.4630	0.1082	0.1460	I (0)
LTRG	0.5557*	0.4630	0.1027	0.1460	0.1656	0.4630	0.1293	0.1460	I (0)
LDFTRG	0.5893*	0.4630	0.1447	0.1460	0.2189	0.4630	0.1411	0.1460	I (0)
LDJTRG	0.4872*	0.4630	0.0919	0.1460	0.0847	0.4630	0.0803	0.1460	I (0)
LFIG	0.7064*	0.4630	0.1216	0.1460	0.0898	0.4630	0.0832	0.1460	I (0)
LDFFIG	0.7217*	0.4630	0.0904	0.1460	0.1206	0.4630	0.1129	0.1460	I (0)
LDJFIG	0.5631*	0.4630	0.1645*	0.1460	0.1260	0.4630	0.1092	0.1460	I (1)

Variable	Levels				1 st Difference				I (0)/ I (1)
	Intercept		Trend & intercept		Intercept		Trend & intercept		
	LM-stat.	Crit. value	LM-stat.	Crit. value	LM-stat.	Crit. value	LM-stat.	Crit. value	
LINF	0.6681*	0.4630	0.1606*	0.1460	0.3170	0.4630	0.0700	0.1460	I (1)
LGOE	0.5898*	0.4630	0.0967	0.1460	0.2348	0.4630	0.1390	0.1460	I (0)
LGFCF	0.4225	0.4630	0.1557*	0.1460	0.1910	0.4630	0.0986	0.1460	I (0)
LGDP	0.5008*	0.4630	0.1523*	0.1460	0.2788	0.4630	0.1698*	0.1460	I (1)

Note: (*) the null hypothesis of stationarity is rejected if $LM > \text{Critical Value}$

Source: Compiled by author (Data from SARB, KOF Swiss Economic Institute, and the World Bank Development Indicators)

Building on this, the next section of this chapter will present and analyse the estimated results of the ARDL models to assess the short- and long-term effects of economic globalisation and its various sub-dimensions on public debt in South Africa.

5.4 AUTOREGRESSIVE DISTRIBUTED LAG (ARDL) MODEL RESULTS: LONG- AND SHORT-RUN IMPACTS

The unit root and stationarity test results presented in Section 5.3 of this chapter revealed that the study variables exhibit a combination of I(0) and I(1) orders of integration. This finding justifies using the ARDL bounds testing approach to assess cointegration and determine the long-run effects of economic globalisation and its sub-dimensions on public debt in the South African economy. Following identifying long-run impacts, the ECMs will be reported, interpreted, and discussed to evaluate the short-run effects of economic globalisation and its sub-dimensions on public debt in South Africa. Therefore, an ARDL model was employed to investigate whether economic globalisation and its sub-dimensions influence public debt in the South African economy. This will fulfil the first two empirical objectives of this study. Figure 5.10 below presents the structure of economic globalisation, its sub-components, trade, and financial globalisation, along with a differentiation of the *de jure* and *de facto* aspects of it.

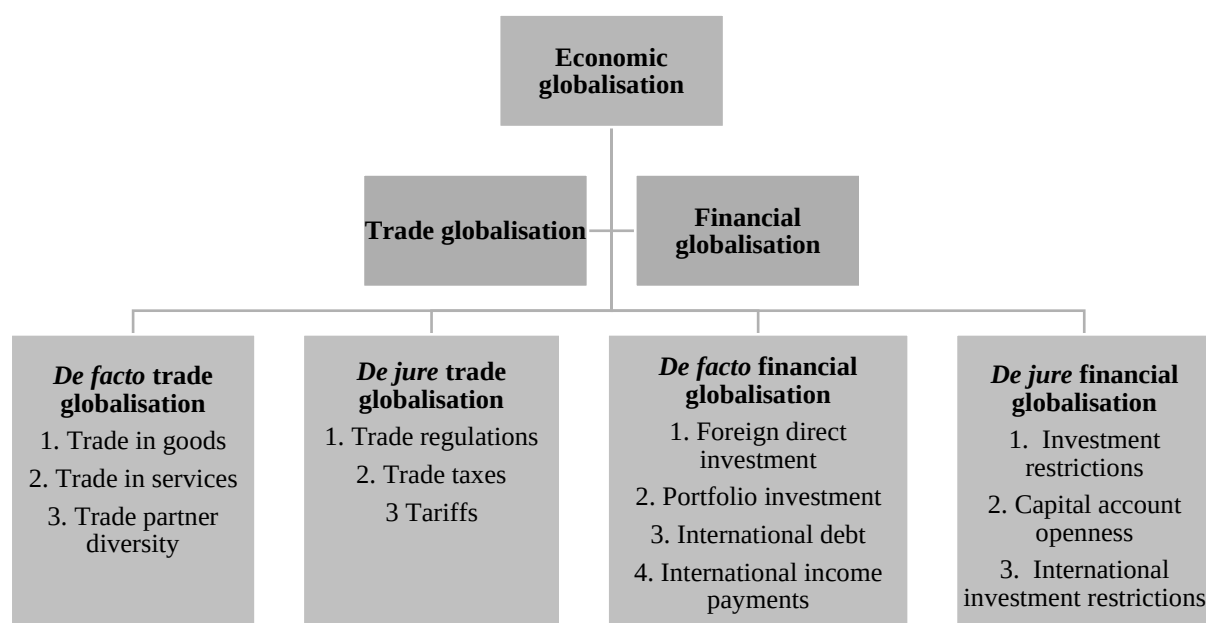


Figure 5.10: Economic globalisation and sub-component structure

Source: Compiled by author

5.4.1 Lag selection and optimal ARDL model

The Akaike information criterion (AIC) was used to determine the maximum number of lags to include in each of the ARDL models discussed earlier. AIC helps to establish an equilibrium between the model's goodness of fit and its complexity and further penalises models with additional parameters (lags) to avoid overfitting, ensuring that the chosen model is both accurate and parsimonious (Banerjee, 2023). Therefore, the AIC selected four lags as the maximum number of lags to include in the ARDL model regressing economic globalisation, trade and financial globalisation, *de facto* economic globalisation, and *de jure* economic globalisation on public debt. Thus, when including four as the maximum number of lags, the optimal ARDL model that was selected following the sequence of the variables in Equations 4.11, 4.12, 4.13, and 4.14 was ARDL model (3,3,1,3,3,4), (4,4,4,4,4,4), (2,1,1,3,0,1,3), and (4,3,4,4,4,4,4), respectively. As such, the extensive details of the optimal ARDL models selected for Equations 4.11, 4.12, 4.13, and 4.14 are presented in Table 5.6 below.

Table 5.6: Optimal ARDL models selected

ARDL Model	Max. no. of lags	Optimal model	R-Square	Adj. R-Square
Economic globalisation vs. public debt	4	(3,3,1,3,3,4)	72.73%	67.44%
Trade and financial globalisation vs public debt	4	(4,4,4,4,4,4)	69.87%	69.56%

ARDL Model	Max. no. of lags	Optimal model	R-Square	Adj. R-Square
<i>De facto</i> globalisation vs public debt	4	(2,1,1,3,0,1,3)	73.15%	70.78%
<i>De jure</i> globalisation vs public debt	4	(4,3,4,4,4,4,4)	69.78%	59.31%

Source: Authors' compilation from the study sample

Furthermore, Table 5.6 includes the corresponding R-square and adj. R-square values. The R-square value for the (3,3,1,3,3,4) model implies that 72,73 per cent of the variation in public debt can be explained by the regression on economic globalisation, while the R-square value for the (4,4,4,4,4,4,4) model infers that 69.87 per cent of the variation in public debt can be explained by trade and financial globalisation. Furthermore, for the (2,1,1,3,0,1,3) and (4,3,4,4,4,4,4) models, the R-square values imply that *de facto* and *de jure* explain 73,15 per cent and 69.78 per cent, respectively, of the variation in public debt. However, since the adjusted R-squared modifies the R-squared value to reflect the number of independent variables in the model and restricts irrelevant variables that fail to improve the model significantly, the study also reports on the corresponding adjusted R-squared.

The adjusted R-squared value for the (3,3,1,3,3,4) model implies that 67.44 per cent of the variation in public debt can be explained by the regression on economic globalisation, while the R-square value for the (4,4,4,4,4,4,4) model infers that 69.56 per cent of the variation in public debt can be explained by trade and financial globalisation. Furthermore, for the (2,1,1,3,0,1,3) and (4,3,4,4,4,4,4) model, the R-square values imply that *de facto* and *de jure* explain 70.78 per cent and 59.31 per cent, respectively, of the variation in public debt. After identifying the optimal ARDL models for regressing economic globalisation, trade and financial globalisation, *de facto* economic globalisation, and *de jure* economic globalisation on public debt, the next step in the study was to present, interpret, and discuss the results obtained from estimating the bound tests and their corresponding ECMs for the optimal ARDL models.

5.4.2 Model 1 and Model 2 – Economic globalisation, trade globalisation, and financial globalisation on public debt

5.4.2.1 Bounds testing for cointegration

The ARDL bound test approach to cointegration is used to determine if there is a long-run impact running from economic, trade and financial globalisation to the public debt in the economy of South Africa. The ARDL bound test results consisting of the lower and upper bound with the corresponding F-value are shown in Table 5.7, where the long-run impact of economic globalisation on public debt is estimated by the ARDL model (3,3,1,3,3,4).

Table 5.7: Estimated ARDL model (3,3,1,3,3,4) bound test results

ARDL Model	Estimated F-value	
Economic globalisation vs. public debt (3,3,1,3,3,4)	5.33	
Critical Value Bounds		
Significance levels	Lower bound I(0)	Upper bound I(1)
10%	2.08	3.00
5%	2.39	3.38
1%	3.06	4.15
Null Hypothesis: No long-run relationships exist		

Source: Authors' compilation from the study sample

The estimated F-value for the ARDL model (3,3,1,3,3,4) is 5.33, as presented in Table 5.7. The F-value transcend the corresponding critical value bounds at a 1 per cent significance level, therefore, the study rejected the null hypothesis of no long-run relationship. This suggests that cointegration exists from economic globalisation to public debt in South Africa. It implies that since South Africa is an open economy with substantial integration into global markets, external factors such as trade balances, capital flows, and exchange rates can significantly impact domestic fiscal variables of the country such as public debt as enunciated by the open economy macroeconomic model (Uribe & Schmitt-Grohé, 2017).

When economic globalisation is disaggregated, the ARDL bound test approach to cointegration is also used to determine whether a long-run impact runs from trade and financial globalisation to the public debt in South Africa. The ARDL bound test results consisting of the lower and upper bound with the corresponding F-value are shown in Table 5.8, where the long-run impact of trade and financial globalisation on public debt is estimated by the ARDL model (4,4,4,4,4,4). For trade and financial globalisation, Table 5.8 shows the F-value as 23.26 which exceeds the critical value bounds. This confirms that there is also cointegration from a disaggregated trade and financial impulses to public debt in South Africa.

Table 5.8: Estimated ARDL model (4,4,4,4,4,4) bound test results

ARDL Model	Estimated F-value
Trade and financial globalisation vs public debt (4,4,4,4,4,4)	23.26

Critical Value Bounds		
Significance levels	Lower bound I(0)	Upper bound I(1)
10%	1.99	2.94
5%	2.27	3.28
1%	2.88	3.99

Null Hypothesis: No long-run relationships exist

Source: Authors' compilation from the study sample

5.4.2.2 Long-run results

The preceding section and the results in Table 5.7 and Table 5.8 established the presence of long-run relationships among the variables. However, these results did not quantify the effects of the independent variables on the dependent variable. Therefore, this section aims to present quantitative data, detailing the impact of the explanatory variables on the dependent variable and assessing the latter's responsiveness to long-term changes in the explanatory variables. As such, the results in Table 5.9 show the ARDL long-run coefficients for ARDL models (3,3,1,3,3,4) and (4,4,4,4,4,4) respectively.

Table 5.9: ARDL long-run coefficients for economic, trade and financial globalisation

ARDL model (3,3,1,3,3,4)				
Variable	Coefficient	Std. Error	t-Statistic	Probability
ECG (-1)	-0.02115	0.00545	-3.87640	0.0005***
GOE (-1)	0.06421	0.27990	0.22938	0.8200
INF (-1)	0.02783	0.00279	9.94741	0.0000***
GFCF (-1)	-0.03002	0.08479	-0.35409	0.7291
GDP (-1)	-0.33518	0.05398	-6.20828	0.0000***
C	8.01554	0.78667	10.18913	0.0000***
ARDL model (4,4,4,4,4,4)				
Variable	Coefficient	Std. Error	t-Statistic	Probability
TRG (-1)	-0.01032	0.00209	-4.93689	0.0002***

ARDL model (4,4,4,4,4,4)				
Variable	Coefficient	Std. Error	t-Statistic	Probability
FIG (-1)	0.01314	0.00586	2.24147	0.0417**
GOE (-1)	0.08048	0.01262	6.37440	0.0000***
INF (-1)	0.02854	0.00128	22.19255	0.0000***
GFCF (-1)	-0.01174	0.00826	-1.42017	0.1635
GDP (-1)	-0.25280	0.00889	-28.42533	0.0000***
C	5.71135	0.28240	20.22403	0.0000***

Note: ***shows significance at 1% level, **significance at 5% level, and *significance at 10%

Source: Authors' compilation from the study sample

Table 5.9 shows that a 1 per cent increase in economic globalisation will decrease the public debt of South Africa by 0.021 per cent in the long-run. Since an aggregate index is used to quantify economic globalisation, these findings imply that, over time, public debt is reduced by economic flows such as trade, FDI, capital, and portfolio investments. The decrease may result from improved access to international markets and increased foreign investment inflows that boost economic activity and government revenue. Compared to other African economies, the economy of South Africa is more stable and diversified (PwC, 2024). The country continues to experience a net inflow of FDI each year, largely due to its robust financial services and deep capital market (PwC, 2024). These results align with other studies' empirical findings (Kizilgöl & Evren, 2014; Bataka, 2023; Moeng & De Jongh, 2023).

In the same way, Table 5.9 shows the long-run coefficients corresponding to the long-run impact determined by the bound test results of the ARDL model (4,4,4,4,4,4), and it indicates that while trade will decrease public debt in the long-run, financial globalisation will have the opposite effect, increasing public debt in the long-run. In other words, a 1 per cent increase in trade globalisation will decrease public debt by 0.010 per cent, while a 1 per cent increase in financial globalisation will increase public debt by 0.013 per cent in the long-run. These results are in line with the findings of other studies (Swamy, 2015; Bataka, 2023), which found that trade globalisation decreases public debt in the long-run, while financial globalisation increases it. Other studies contradict these findings (Omrane-Belguith & Omrane, 2017; Kim *et al.*, 2018; Dong, 2021), indicating that public debt increases with both trade and financial globalisation.

Furthermore, the difference in the results for long-run trade and financial globalisation can be explained by their nature of integration and difference in stability. Trade tends to promote real economic activity, which can increase productivity and revenue, hence reducing debt (Section 2.3.1). Financial globalisation, on the other hand, exacerbates vulnerabilities due to unpredictable capital flows (see Section 2.4). Trade is typically more stable than financial movements, where an increase in trade produces more predictable results, such as better export performance and government revenue, financial flows, conversely, can be speculative, resulting in rapid inflows and outflows, making long-term debt management more difficult (World Bank, 2022).

As trade openness increases over time, South Africa might experience an increase in export earnings, particularly in sectors it has a comparative advantage in, such as mining and agriculture (OEC, 2024). Greater trade openness boosts South Africa's exports, as seen in the rise to over R170,000 million in July 2024, leading to higher foreign exchange earnings (Trading Economics, 2024). Increased exports improve the current account balance, reducing the need for external borrowing to finance deficits, which helps manage public debt. Through direct taxes or economic growth, higher export revenues strengthen government finances, enhancing fiscal stability and reducing reliance on debt financing. Also, trade globalisation can spur economic growth by creating more trade opportunities, fostering specialisation, and enhancing efficiency (Ndoricimpa, 2022). As the South African economy expands, the government can collect more revenue, reducing the need for borrowing and thereby lowering public debt.

Additionally, with greater exposure to international markets, South Africa and other SSA countries have experienced technology and knowledge transfers and continue to do so over time (Songwe, 2019). This is apparent in efforts such as the WIPO's On-the-Job Training Program, which aims to improve technology transfer throughout the Southern African Development Community (SADC) region, including South Africa (World Intellectual Property Organization (WIPO), 2024). In the long-run, programmes like this may increase productivity and government revenue, reducing the country's debt. However, South Africa's ability to reduce public debt through technology transfers depends on its capacity to absorb and utilise these technologies, which relies on its skills base, infrastructure, and institutions (ITA, 2024). Nevertheless, its reliance on foreign capital and exposure to global market volatility may undermine these potential benefits.

Similarly to trade globalisation, financial globalisation has increased South Africa's access to international financial markets (OEC, 2024). While this can provide lower credit in the short-run, it can also encourage excessive borrowing, leading to higher levels of public debt in the long-run. South Africa's financial markets, especially the bond and equities markets, have substantial international participation, and the high level of foreign ownership enhances the country's vulnerability to global market sentiments and capital flow volatility (IMF, 2022:9). Foreign participation in South Africa's

financial markets poses a risk of sudden capital outflows during economic shocks, as seen during the COVID-19 pandemic following the country's credit rating downgrade (BIS, 2020). Volatile portfolio debt flows can cause sudden stops or reversals in which increased debt issuance is needed to offset the loss of foreign capital.

Moreover, when capital flows reverse, the government's borrowing costs can increase sharply, making it more expensive to service existing and new debt, leading to increased public debt over time (Makrelov *et al.*, 2020:476). The depreciation of the Rand over time further increases the cost of servicing foreign-denominated debt, adding to the debt burden of South Africa in the long-run (National Treasury, 2023:82). South Africa's reliance on foreign savings to fund domestic investment and growth makes it particularly vulnerable to capital flow volatility (Makrelov *et al.*, 2020:478). The disruptions in foreign capital flows will often force the government to borrow more to maintain economic stability, contributing to higher public debt levels over time.

5.4.2.3 Short-run dynamics and error correction model (ECM)

This section will present the short-run dynamic parameters obtained through the ECM, following the determination of long-run effects using the bound test results from the ARDL models (3,3,1,3,3,4) and (4,4,4,4,4,4,4), as discussed in Section 5.5.2.2 of this chapter. Brooks (2014:376) explains that the ECM measures the time (or speed of adjustment) needed to return the observed variables to equilibrium after a previous period's discrepancy. Similarly, Gujarati and Porter (2010:764) note that the ECM helps correct short-run disequilibrium from the previous period. For the ECM to estimate the realisation of long-run equilibrium, two key conditions must be met. Specifically, the error term coefficient must be significant and negative (Mukhtar & Rasheed, 2010:54). If the coefficient is not significant, it indicates no equilibrating effect, and if positive, it suggests the model is unstable. Considering this, Table 5.10 reports the ECM results for the ARDL model (3,3,1,3,3,4) and (4,4,4,4,4,4,4) respectively.

Table 5.10: Estimated ECM results: ARDL model (3,3,1,3,3,4) and (4,4,4,4,4,4,4) - economic, trade and financial globalisation

ARDL model (3,3,1,3,3,4)				
Variable	Coefficient	Std. Error	t-Statistic	Probability
D(GND (-1))	0.30028	0.13028	2.30493	0.0310**
D(GND(-2))	0.25969	0.10378	2.50230	0.0203**
D(ECG)	0.01342	0.00567	2.36845	0.0271**
D(ECG(-1))	0.04615	0.00884	5.22267	0.0000***

ARDL model (3,3,1,3,3,4)				
Variable	Coefficient	Std. Error	t-Statistic	Probability
D(ECG(-2))	0.04128	0.01064	3.87953	0.0008***
D(GOE)	-0.09906	0.04035	-2.45517	0.0225**
D(INF)	-0.08770	0.02699	-3.24943	0.0037***
D(INF(-1))	-0.06759	0.03541	-1.90875	0.0694*
D(INF(-2))	-0.03290	0.02676	-0.12304	0.9032
D(GFCF)	-0.05910	0.02469	-0.23933	0.8131
D(GFCF(-1))	0.04010	0.02145	0.18698	0.8534
D(GFCF(-2))	0.07903	0.06322	0.23603	0.8150
D(GDP)	0.02547	0.01387	1.83621	0.0799*
D(GDP(-1))	0.02906	0.01278	0.22735	0.8222
D(GDP(-2))	0.02825	0.01613	1.75078	0.0939*
D(GDP(-3))	-0.08089	0.01346	-0.60065	0.5542
ECT(-1)	-0.26121	0.03647	-7.16237	0.0000***
ARDL model (4,4,4,4,4,4)				
Variable	Coefficient	Std. Error	t-Statistic	Probability
D(GND(-1))	-0.40967	0.05652	-7.24707	0.0000***
D(GND(-2))	-0.31093	0.03389	-9.17318	0.0000***
D(GND(-3))	-0.39117	0.03692	-10.59340	0.0000***
D(TRG)	-0.04252	0.00026	-16.46907	0.0000***
D(TRG(-1))	0.07464	0.03981	1.87495	0.0818*
D(TRG(-2))	0.09174	0.05147	1.78244	0.0963*
D(TRG(-3))	0.01895	0.03877	0.48881	0.6325
D(FIG)	0.03983	0.00022	18.51568	0.0000***
D(FIG(-1))	0.07574	0.00036	21.15398	0.0000***
D(FIG(-2))	0.01702	0.00290	5.85039	0.0001***
D(FIG(-3))	-0.01145	0.01945	-0.58853	0.5596

ARDL model (4,4,4,4,4,4)				
Variable	Coefficient	Std. Error	t-Statistic	Probability
D(GOE)	-0.01966	0.00130	-15.11583	0.0000***
D(GOE(-1))	-0.06351	0.00340	-18.64264	0.0000***
D(GOE(-2))	-0.06365	0.03232	-1.96924	0.0560*
D(GOE(-3))	-0.01611	0.01948	-0.82686	0.4133
D(INF)	-0.07499	0.00065	-11.42979	0.0000***
D(INF(-1))	-0.01661	0.00097	-16.95736	0.0000***
D(INF(-2))	-0.03000	0.01932	-3.21877	0.0082***
D(INF(-3))	0.02546	0.00075	3.37027	0.0062***
D(GFCF)	0.08367	0.06734	1.76726	0.1048
D(GFCF(-1))	-0.01139	0.06212	-0.18337	0.8555
D(GFCF(-2))	-0.03258	0.06311	-0.51625	0.6086
D(GFCF(-3))	0.01485	0.04442	0.33445	0.7398
D(GDP)	-0.03551	0.00286	-12.40538	0.0000***
D(GDP(-1))	-0.03134	0.00432	-7.24012	0.0000***
D(GDP(-2))	0.05263	0.04575	1.15037	0.2574
D(GDP(-3))	-0.04238	0.03561	-1.19011	0.2412
ECT(-1)	-0.707216	0.031260	-22.623674	0.00000***

Note: ***shows significance at 1% level, **significance at 5% level, and *significance at 10%

Source: Authors' compilation from the study sample

The estimated ECM results with the short-run dynamic coefficients associated with the ARDL bound test results for the ARDL model (3,3,1,3,3,4) and (4,4,4,4,4,4) are given in Table 5.10 above. As such, for the ARDL model (3,3,1,3,3,4), the ECT coefficient is -0.26121 and significant at a 1 per cent significance level, which implies that around 26.12 per cent of any previously transpired disequilibrium between economic globalisation and public debt is re-established back to long-run equilibrium each year. In other words, it takes almost 3.83 (1/0.26121) years for any changes in economic globalisation to have any impact on the public debt of South Africa.

As such, in the long-run, causality runs through the ECT from economic globalisation to public debt. This result confirms that economic globalisation has a long-run impact on public debt in the South African economy. In the short-run, the GND coefficient is positive and significant at 5 per cent. This implies that past increases in debt are strongly linked to current debt levels. Essentially, the government's present debt obligations are still impacted by its previous borrowing, most often because of ongoing interest payments or the requirement for more borrowing to pay for South Africa's existing liabilities.

Furthermore, in the short-run, the coefficients of economic globalisation (ECG) are positive and significant at a 1 per cent significance level, implying that in the short-run causality also runs from economic globalisation to public debt in the South African economy. This suggests that short-term changes in economic globalisation will lead to an increase in public debt. This could be due to the need for infrastructure investment to support globalisation or vulnerabilities such as capital flow volatility or exchange rate fluctuations, which could increase borrowing requirements in the short-run. The short-run findings align with those of Barış (2019) and Combes and Saadi-Sedik (2006), who also observed that economic globalisation indicators positively influence the inflow of external debt.

Moreover, when economic globalisation is disaggregated into its sub-components, trade and financial globalisation, the ECM results for the ARDL model (4,4,4,4,4,4) shown in Table 5.10 show that the ECT coefficient is -0.707216 and significant at a 1 per cent significance level. This suggests that approximately 70.72 per cent of any previously transpired disequilibrium between trade and financial globalisation and public debt is re-established back to long-run equilibrium each year. Therefore, it takes approximately 1.41 ($1/0.707216$) years for any changes in economic globalisation to have any impact on the public debt of South Africa. Thus, despite short-term shocks (e.g., changes in trade, investment, or capital flows), public debt returns to its equilibrium level fairly quickly.

Therefore, this confirms that trade and financial globalisation have a long-run impact on public debt in South Africa. Trade and financial globalisation have a similar effect in the short- and long-run. The short-run coefficient for trade globalisation is negative and significant at a 1 per cent significance level, which suggests that greater trade globalisation tends to reduce public debt in the short-run. This could be because increased trade leads to higher government revenues through taxes on trade-related activities or improves the South African current account balance, reducing the need for external borrowing (Monamodi, 2024:15). For financial globalisation, the short-run coefficient is positive and significant at the 1 per cent level of significance, which means that, unlike trade, greater financial globalisation in the country will increase public debt even in the short-run.

This could be prompted by enhanced capital inflows driving up public spending by the South African government or higher borrowing costs associated with global financial markets. Over the years, South

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Africa's public debt borrowing costs have fluctuated, often rising due to economic instability, credit rating downgrades, and fiscal pressures (National Treasury, 2024). Additionally, economic instability and increased investment in infrastructure might prompt the government to increase debt to manage short-term economic adjustments. South Africa already faces major challenges with outdated and insufficient infrastructure where substantial investment is vital (Williams, 2024). This investment would not only improve connectivity and facilitate trade but also support industrial growth and enhance service delivery. Furthermore, to verify that the results from the ARDL model (3,3,1,3,3,4) and (4,4,4,4,4,4,4) are reliable and not misleading, the next section will present the findings from the residual and stability diagnostic tests conducted on both models.

5.4.2.4 *Stability and residual diagnostic test*

Sections 5.5.2.1, 5.5.2.2 and 5.5.2.3 of this chapter detailed the bound tests, long-run, and ECM results for the ARDL model (3,3,1,3,3,4) and (4,4,4,4,4,4,4) respectively. This section will now present the findings from the residual and stability diagnostic tests conducted on both ARDL models to confirm that their results are accurate and not misleading. The tests were conducted to address common econometric issues like normality, heteroscedasticity, and serial correlation that could affect the validity of the stochastic properties (Takaendesa, 2006:100). It is noteworthy that both ARDL models (3,3,1,3,3,4) and (4,4,4,4,4,4,4) has successfully passed all the tests, as indicated by the probability values presented in Table 5.11. The null hypotheses were; the series are normally distributed, there is no heteroscedasticity, no serial correlation. Since none of these null hypotheses were rejected, it indicates that the ARDL models were correctly identified, and the results are not spurious or misleading. As such, the residual diagnostic test results for ARDL (3,3,1,3,3,4) and (4,4,4,4,4,4,4) are shown in Table 5.11.

Table 5.11: Residual diagnostic test results for ARDL (3,3,1,3,3,4) and (4,4,4,4,4,4,4) - economic, trade and financial globalisation

Residual diagnostics tests	ARDL Model			
	ARDL (3,3,1,3,3,4)		ARDL (4,4,4,4,4,4,4)	
	P-value	Decision	P-value	Decision
Normality Test (JB)	0.5777	Do not reject H_0	0.7087	Do not reject H_0
Breusch-Godfrey Serial Correlation LM Test	0.6120	Do not reject H_0	0.3113	Do not reject H_0
Heteroscedasticity Test: Breusch-Pagan-Godfrey	0.5532	Do not reject H_0	0.5647	Do not reject H_0

Source: Authors' compilation from the study sample

Figure 5.11 the cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squared recursive residuals (CUSUMSQ) for the ARDL (3,3,1,3,3,4) and (4,4,4,4,4,4). The red lines in Figure 5.12 represent the 5 per cent significance level critical boundaries, while the blue lines depict the CUSUM and CUSUMSQ statistics. The results indicate that there is no evidence of residual instability, as the blue lines for the ARDL models remain within the critical boundaries of the 5 per cent significance level.

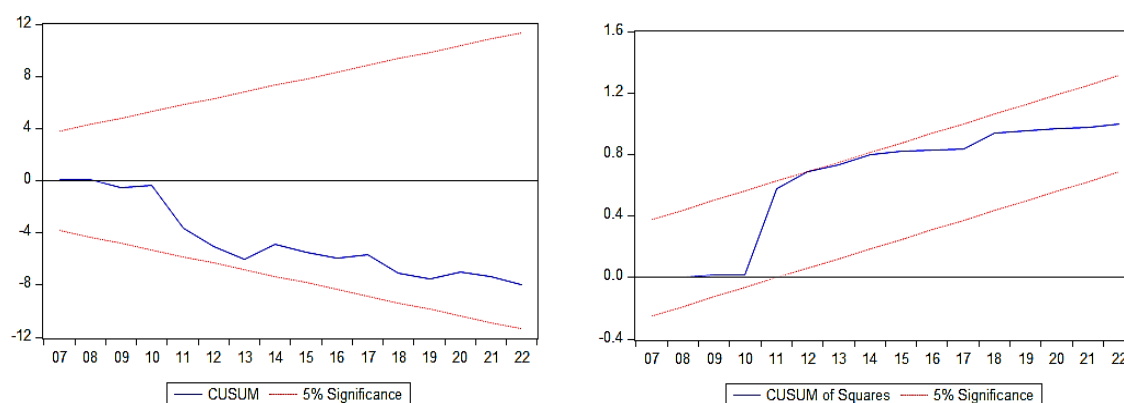


Figure 5.11: CUSUM and CUSUMSQ test for ARDL (3,3,1,3,3,4)

Source: Authors' compilation from the study sample

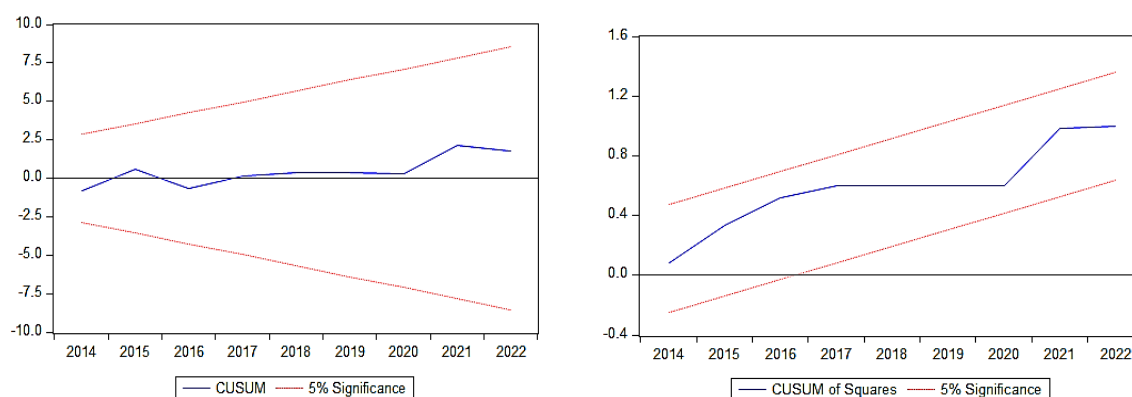


Figure 5.12: CUSUM and CUSUMSQ tests for ARDL (4,4,4,4,4,4)

Source: Authors' compilation from the study sample

The next section of this chapter will report, interpret, and discuss the results obtained when estimating a more nuanced impact of *de facto* and *de jure* trade and financial globalisation to gauge the differences in effect on the public debt of South Africa.

5.4.3 Model 3 and Model 4 – *De facto* and *de jure* trade and financial globalisation

5.4.3.1 Bounds testing for cointegration

Further dissecting trade and financial globalisation, the third model focuses on *de facto* trade and financial globalisation (actual trade activities and financial flows). The ARDL bound test approach to cointegration is used to determine whether there is a long-run impact running from *de facto* trade and financial globalisation to the public debt in the South African economy. The ARDL bound test results consisting of the lower and upper bound with the corresponding F-value are shown in Table 5.12, where the long-run impact of *de facto* trade and financial globalisation on public debt is estimated by the ARDL model (2,1,1,3,0,1,3).

Table 5.12: Estimated ARDL model (2,1,1,3,0,1,3) bound test results (*de facto* trade and financial globalisation)

ARDL Model	Estimated F-value	
De facto globalisation vs. public debt (2,1,1,3,0,1,3)	9.65	
Critical Value Bounds		
Significance levels	Lower bound I(0)	Upper bound I(1)
10%	1.99	2.94
5%	2.27	3.28
1%	2.88	3.99

Null Hypothesis: No long-run relationships exist

Source: Authors' compilation from the study sample

As such, Table 5.12 reports the F-value for the ARDL model (2,1,1,3,0,1,3) is 9.65 and is larger than the corresponding critical values of the lower and upper bound at a 5 per cent significance level. For this reason, the null hypothesis of no long-run impact is rejected, implying that cointegration exists from *de facto* trade and financial globalisation to public debt in South Africa. Furthermore, the fourth model focuses on *de jure* trade and financial globalisation (the formal policies and regulations to facilitate trade activities and financial flows). The ARDL bound test results consisting of the lower and upper bound with the corresponding F-value are shown in Table 5.13 where the long-run impact of *de jure* trade and financial globalisation on public debt is estimated by the ARDL model (4,3,4,4,4,4,4).

Table 5.13: Estimated ARDL model (4,3,4,4,4,4) bound test results (*de jure* trade and financial globalisation)

ARDL Model	Estimated F-value	
<i>De jure</i> globalisation vs. public debt (4,3,4,4,4,4)	15.84	
Critical Value Bounds		
Significance levels	Lower bound I(0)	Upper bound I(1)
10%	1.99	2.94
5%	2.27	3.28
1%	2.88	3.99

Null Hypothesis: No long-run relationships exist

Source: Authors' compilation from the study sample

Regarding *de jure* trade and financial globalisation, Table 5.13 shows that the F-value for the ARDL model (4,3,4,4,4,4) is 15.84 and is larger than the corresponding critical values of the lower and upper bound at 1 per cent significance level. For this reason, the study rejects the null hypothesis of no long-run impact, indicating that there is a presence of cointegration between the *de jure* trade and financial globalisation and public debt in the South African economy.

5.4.3.2 Long-run results

While the previous sub-section and the bounds test results in Table 5.12 and Table 5.13 established the presence of long-run relationships among the variables, this section aims to present quantitative data, explaining the impact of the explanatory variables on the dependent variable and assessing the latter's responsiveness to long-term changes in the explanatory variables. As such, the results in Table 5.14 show the ARDL long-run coefficients for ARDL models (2,1,1,3,0,1,3) and (4,3,4,4,4,4,4).

Table 5.14: ARDL long-run coefficients for *de facto* and *de jure* trade and financial globalisation

ARDL model (2,1,1,3,0,1,3)				
Variable	Coefficient	Std. Error	t-Statistic	Probability
DFTRG	-0.04686	0.01044	-4.48745	0.0000***
DFFIG	0.08758	0.02987	2.93197	0.0056***
GOE	0.25893	0.04582	5.65179	0.0000***
INF	0.02506	0.02689	0.93177	0.3572

ARDL model (2,1,1,3,0,1,3)				
Variable	Coefficient	Std. Error	t-Statistic	Probability
GFCF	0.08226	0.02416	3.40446	0.0018***
GDP	-0.27215	0.04918	-5.53346	0.0000***
C	2.06689	0.88087	2.34642	0.0251**
ARDL model (4,3,4,4,4,4,4)				
Variable	Coefficient	Std. Error	t-Statistic	Probability
DJTRG	-0.04845	0.03659	-1.32381	0.1949
DJFIG	0.08678	0.02804	3.09464	0.0041***
GOE	-0.02297	0.04853	-0.47335	0.6386
INF	0.03393	0.03006	0.11288	0.9107
GFCF	0.03809	0.01221	3.10048	0.0040***
GDP	-0.04620	0.01092	-7.58160	0.0000***
C	4.17958	0.13461	31.04845	0.0000***

Note: ***shows significance at 1% level, **significance at 5% level, and *significance at 10%

Source: Authors' compilation from the study sample

Table 5.14 presents the long-run coefficients for the ARDL model (2,1,1,3,0,1,3) depicting *de facto* trade and financial globalisation. In this model, *de facto* trade globalisation has a negative long-run impact on public debt. In other words, a 1 per cent improvement in the KOF index of *de facto* trade globalisation will decrease public debt by 0.0467 per cent in the long-run. Gaining more access to international markets, better trade balances, and higher exports are all possible outcomes of improved *de facto* trade globalisation for South Africa. Long-term public debt can be decreased by this increased trade since it can improve economic growth, increase revenues, and lessen the need for government borrowing

In contrast, *de facto* financial show a positive impact, where a 1 per cent increase in the KOF index of *de facto* financial globalisation will increase public debt in the South African economy by 0.0876. These results are consistent with those of a study by Bataka (2023) that was conducted to determine the effects of economic globalisation on public debt for SSA countries. One explanation would be that South Africa's financial system is more advanced and integrated than that of other African countries, drawing in more capital and making it more susceptible to changes in the world economy. South Africa's advanced and integrated financial system facilitates easier access to international capital markets, which

increases public debt as the government borrows more readily from abroad to fund domestic needs like infrastructure projects or balance budget deficits.

On the other hand, for model ARDL model (4,3,4,4,4,4,4), *de jure* trade globalisation also has a negative impact on the South African public debt, as shown in Table 5.14. That is, a 1 per cent increase in the KOF index of *de jure* trade globalisation will decrease public debt by 0.0486 per cent in the long-run. These results are, however, not significant. This may be due to various factors such as government spending and fiscal deficits driving public debt instead, delayed economic effects that take time to materialise, or inadequate enforcement of trade laws. Table 5.14 also shows that a 1 per cent increase in government expenditure and gross fixed capital formation will have a significant positive increase of 0.2589 and 0.0823, respectively, on public debt. Increased government spending directly increases public debt by increasing fiscal deficits (Section 2.2.2.1), and investments necessitate additional borrowing as it might require upfront financing despite the potential for future economic growth (Section 2.2.2.2).

In the case of *de jure* financial globalisation, Table 5.14 presents a significant positive long-run relationship between *de jure* financial globalisation and public debt of the South African economy. A 1 per cent improvement in the KOF index of *de jure* financial globalisation will have a 0.0868 per cent increase in the South African public debt. These results correspond to those of Bataka (2023), where *de jure* financial globalisation induces public debt in the long-run. The similar effect of both *de facto* (0.0876 per cent) and *de jure* (0.0868 per cent) financial globalisation on public debt in South Africa may be due to the country's high level of financial integration. The legal frameworks (*de jure*) and actual financial flows (*de facto*) contribute significantly to increased external borrowing, increasing public debt as South Africa becomes more embedded in global financial markets.

The positive effect of *de jure* financial globalisation on public debt can be attributed to increased access to international credit markets and government reliance on external funding (Section 2.4.2). As South Africa strengthens its legal and institutional frameworks for financial integration, along with high sovereign credit ratings, it becomes easier for the government to borrow from international lenders, which can lead to higher public debt (Institute for Economic Justice (IEJ), 2023). Additionally, with greater financial openness, the government may increasingly turn to foreign capital to finance large-scale projects or cover fiscal deficits, particularly when domestic resources are insufficient to meet expenditure needs. Now that the existence of long-run impacts between the estimated variables is confirmed, the ECMs estimated by both the ARDL model (2,1,1,3,0,1,3) and (4,3,4,4,4,4,4) are reported, interpreted and discussed in the next section (Section 5.5.3.3) of this chapter.

5.4.3.3 Short-run dynamics and error correction model (ECM)

This section presents, interprets, and discusses the short-run dynamic parameters obtained through the ECM, following the determination of long-run effects using the ARDL bound test results from Section 5.5.1.1. and 5.5.3.2. The importance and role of ECMs are outlined in Section 5.5.2.3. Accordingly, Table 5.15 displays the ECM results for the ARDL model (2,1,1,3,0,1,3) and (4,3,4,4,4,4,4).

Table 5.15: Estimated ECM results: *de facto* and *de jure* trade and financial globalisation

ARDL model (2,1,1,3,0,1,3)				
Variable	Coefficient	Std. Error	t-Statistic	Probability
D(GND(-1))	0.127839	0.07736	1.65238	0.1092
D(DFTRG)	-0.08421	0.06191	-1.36015	0.1843
D(DFFIG)	0.06979	0.06571	0.23603	0.8150
D(GOE)	0.00356	0.00282	1.26128	0.2172
D(GOE(-1))	-0.01644	0.00409	-4.02252	0.0003***
D(GOE(-2))	-0.01589	0.00339	-4.69119	0.0000***
D(GFCF)	0.00165	0.00184	0.89966	0.3757
D(GDP)	-0.02757	0.00971	-2.83841	0.0081***
D(GDP(-1))	-0.02645	0.00996	-2.65786	0.0126**
D(GDP(-2))	-0.01973	0.00921	-2.14371	0.0405**
ECT(-1)	-0.157393	0.015601	-10.088678	0.0000***
ARDL model (4,3,4,4,4,4,4)				
Variable	Coefficient	Std. Error	t-Statistic	Probability
D(GND(-1))	-0.22088	0.05065	-4.36067	0.0009***
D(GND(-2))	-0.22783	0.04042	-5.63534	0.0001***
D(GND(-3))	-0.52096	0.03508	-14.84804	0.0000***
D(DJTRG)	-0.06488	0.01499	-4.32821	0.0069***
D(DJTRG(-1))	-0.10603	0.08258	-1.28396	0.2200
D(DJTRG(-2))	-0.06653	0.06721	-0.98988	0.3390

ARDL model (4,3,4,4,4,4)				
Variable	Coefficient	Std. Error	t-Statistic	Probability
D(DJFIG)	0.04331	0.02253	1.92232	0.0752*
D(DJFIG(-1))	0.08673	0.03589	2.41655	0.0299**
D(DJFIG(-2))	0.03228	0.02936	1.09945	0.2901
D(DJFIG(-3))	0.06423	0.03538	1.68494	0.1142
D(GOE)	-0.08184	0.01131	-7.23607	0.0000***
D(GOE(-1))	-0.05213	0.02430	-2.45212	0.0279**
D(GOE(-2))	-0.05606	0.02584	-2.16950	0.0478**
D(GOE(-3))	-0.02032	0.01719	-1.18208	0.2569
D(INF)	-0.07199	0.01639	-4.39231	0.0061***
D(INF(-1))	-0.09294	0.09257	-1.00399	0.3324
D(INF(-2))	0.10249	0.10426	0.98302	0.3423
D(INF(-3))	0.04162	0.07609	0.54698	0.5931
D(GFCF)	-0.03523	0.06312	-0.55814	0.5856
D(GFCF(-1))	-0.09740	0.06768	-1.43912	0.1721
D(GFCF(-2))	-0.09268	0.01733	-5.34795	0.0001***
D(GFCF(-3))	-0.04576	0.05181	-0.88322	0.3920
D(GDP)	0.05842	0.03957	1.47637	0.1620
D(GDP(-1))	0.07056	0.02126	3.31891	0.0051***
D(GDP(-2))	0.05069	0.03812	1.32975	0.2049
D(GDP(-3))	-0.05867	0.04620	-1.26991	0.2248
ECT(-1)	-0.52280	0.01883	-27.768166	0.0000***

Note: ***shows significance at 1% level, **significance at 5% level, and *significance at 10%

Source: Authors' compilation from the study sample

As previously stated, any short-run disequilibrium between the observed variables can be corrected, returning to equilibrium, if the ECT coefficients of the two ARDL models are negative and statistically significant, allowing the speed of adjustment to be estimated. Considering this, Table 5.15 shows the ECT coefficient for the *de facto* trade and financial globalisation ARDL model (2,1,1,3,0,1,3) is - 0.157393 and significant at the 1 per cent significance level, which suggests that 15.74 per cent of any

previously transpired disequilibrium between *de facto* trade and financial globalisation and public debt is re-established back to long-run equilibrium each year. It takes approximately 6.35 ($1/0.157393$) years for any changes in *de facto* trade and financial globalisation to have any impact on the public debt of South Africa.

This indicates that, in the long-run, the causality flows from *de facto* trade and financial globalisation to public debt through the ECT. Consequently, it confirms that *de facto* trade and financial globalisation have a long-term effect on public debt in the South African economy.

Furthermore, the short-run coefficient for GND in Table 5.15 is 0.128, but not significant under ARDL model (2,1,1,3,0,1,3). However, under ARDL model (4,3,4,4,4,4,4), the short-run coefficient for GND is a positive and statistically significant at 0.221, implying that past increases in debt are linked to current debt levels. Additionally, the short-run coefficient for *de facto* trade globalisation is also negative, albeit not significant. Conversely, the short-run coefficient for *de facto* financial globalisation is positive but also not significant. This implies that short-run causality does not run from *de facto* trade and financial globalisation to public debt. In other words, changes in the KOF index for *de facto* trade and financial globalisation do not have a clear or statistically significant influence on public debt in the short-run for South Africa. This could suggest that any impact of actual trade activities and financial flows on South Africa's public debt may take time to materialise, as structural adjustments in the economy do not happen immediately, making this effect more relevant in the long-run (see Section 5.5.3.2) rather than the short-run.

Moreover, regarding the role played by *de jure* trade and financial globalisation under study, the ECM results for ARDL (4,3,4,4,4,4,4) shown in Table 5.15 present the ECT coefficient as -0.52280 and is significant at 1 per cent significance level. This suggests that 52.28 per cent of any previously transpired disequilibrium between *de jure* trade and financial globalisation and public debt is re-established back to long-run equilibrium each year. Thus, it takes about 1.91 ($1/0.52280$) years for any changes in *de jure* trade and financial globalisation to have an impact on the public debt of South Africa. Consequently, causality runs through the ECT from *de jure* trade and financial globalisation to public debt in the long-run.

This confirms that the formal policies, regulations, and legal frameworks that govern South Africa's participation in international trade and financial markets, such as tariff policies, trade agreements, and financial liberalisation laws, will have an impact South Africa's public debt in the long-run. The *de jure* trade globalisation variable understudy has a negative short-run coefficient that is significant at the 1 per cent level, which implies that short-run causality runs from *de jure* trade globalisation to public debt. Thus, it can be alluded that the formal regulations that either facilitate or restrict the flow of goods and services across the borders of South Africa will decrease public debt in the short-run. This could be

due to stimulated economic growth and a broadening the revenue base. Increased trade boosts economic activity and revenue, compensating for losses from reduced tariffs and minimising the need for government borrowing. In contrast, if the South African government implements strict regulations, these can reduce economic activity and revenues, thereby raising public debt if the government borrows more in the short-run to compensate for reduced income through higher borrowing.

In addition, the *de jure* financial globalisation variable shows a positive short-run coefficient that is significant at the 5 per cent significance level. This suggests that like *de jure* trade, causality runs from *de jure* financial globalisation to public debt in the short-run. Therefore, it can be deduced that an increase in the KOF index for *de jure* financial globalisation will increase South Africa's public debt in the short-run. This implies that the formal regulations that facilitate or restrict financial globalisation play a crucial role in shaping public debt dynamics in South Africa. Facilitative regulations, such as the liberalisation of capital flows and improved market access, can lead to increased foreign investment and lower borrowing costs, potentially encouraging higher government borrowing from international sources and raising public debt if not managed prudently (OECD, 2024) by the South African government. Conversely, restrictive regulations, such as capital controls and stricter financial oversight, can protect the South African economy from volatility but might result in higher borrowing costs and reduced access to international capital, potentially increasing public debt if the government must rely more on domestic borrowing or if there is a decrease in economic growth (OECD, 2024). The nature of financial regulations can affect the effectiveness of debt management strategies of the country (OECD, 2024).

Additionally, to verify that the results from the ARDL models (2,1,1,3,0,1,3) and (4,3,4,4,4,4,4) are accurate and reliable, the following section will present the outcomes of the residual and stability diagnostic tests conducted on these models.

5.4.3.4 *Stability and residual diagnostic test*

The previous Sections 5.4.3.1, 5.4.3.2 and 5.4.3.3 of this chapter detailed the bound tests, long-run, and ECM results for the ARDL models (2,1,1,3,0,1,3) and (4,3,4,4,4,4,4) respectively. This section will now present the findings from the residual and stability diagnostic tests conducted on both ARDL models to confirm that their results are accurate and not misleading. In light of this, the residual diagnostic test results for the ARDL model (2,1,1,3,0,1,3) and (4,3,4,4,4,4,4) are given in Table 5.16.

The residual diagnostic test results given in Table 5.16 show that the bound tests and ECMs generated by the ARDL model (2,1,1,3,0,1,3) and (4,3,4,4,4,4,4) have both successfully passed all the tests, as indicated by the probability values presented in Table 5.16. The null hypotheses were that the series are normally distributed, there is no heteroscedasticity, no serial correlation. Since none of these null

hypotheses were rejected, it indicates that the ARDL models were correctly identified, and the results are not spurious or misleading.

Table 5.16: Residual diagnostic test results for ARDL (2,1,1,3,0,1,3)

Residual diagnostics tests	ARDL Model			
	ARDL (2,1,1,3,0,1,3)		ARDL (4,3,4,4,4,4,4)	
	P-value	Decision	P-value	Decision
Normality Test (JB)	0.8959	Do not reject H_0	0.4869	Do not reject H_0
Breusch-Godfrey Serial Correlation LM Test	0.2751	Do not reject H_0	0.1417	Do not reject H_0
Heteroscedasticity Test: Breusch-Pagan-Godfrey	0.5719	Do not reject H_0	0.7554	Do not reject H_0

Source: Authors' compilation from the study sample

Furthermore, Figures 5.13 and 5.14 present the cumulative sum of recursive residuals (CUSUM) and the cumulative sum of squared recursive residuals (CUSUMSQ) for the ARDL (2,1,1,3,0,1,3) and (4,3,4,4,4,4,4). The red lines represent the 5 per cent significance level critical boundaries, while the blue lines depict the CUSUM and CUSUMSQ statistics. The results indicate that there is no evidence of residual instability, as the blue lines for ARDL models remain within the 5 per cent significance level critical boundaries.

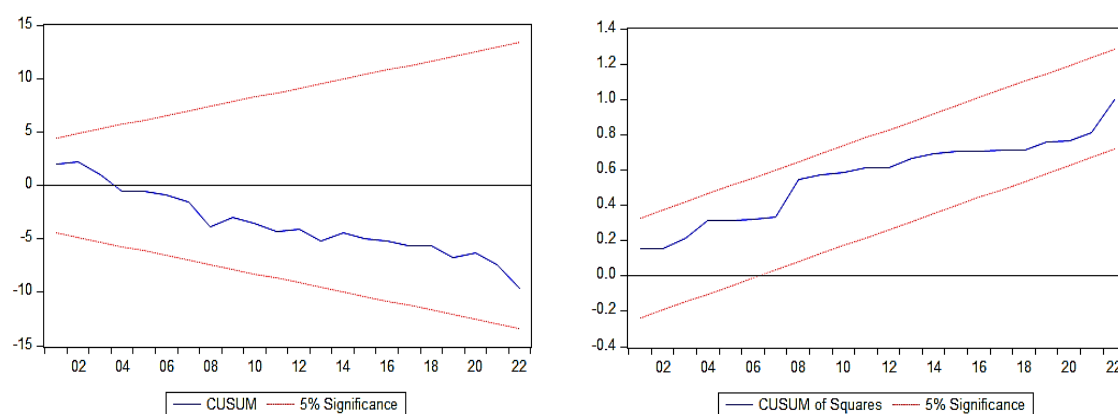


Figure 5.13: CUSUM and CUSUMSQ tests for ARDL (2,1,1,3,0,1,3)

Source: Authors' compilation from the study sample

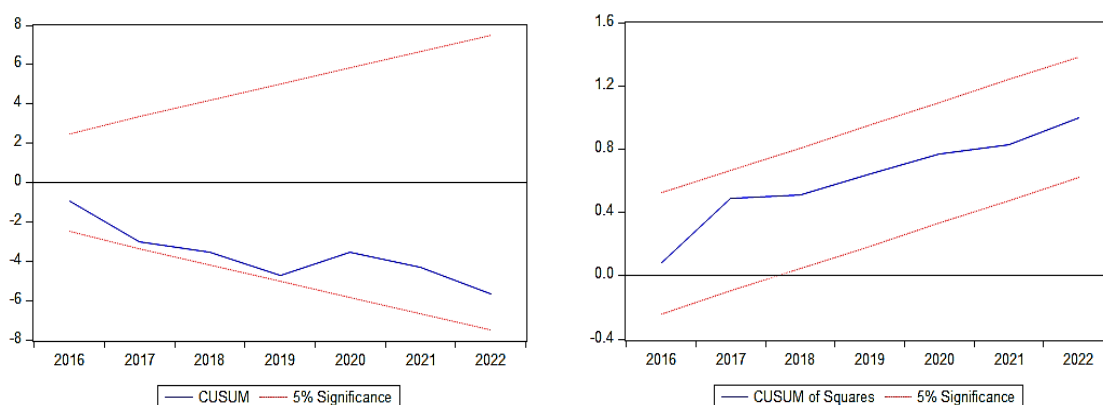


Figure 5.14: CUSUM and CUSUMSQ test for ARDL (4,3,4,4,4,4)

Source: Authors' compilation from the study sample

5.5 CAUSALITY ANALYSIS RESULTS

Having analysed the long-run and short-run relationships amongst the variables, this section determines the presence of a causal relationship between explanatory and dependent variables. As explained in Section 4.7, when applying the ARDL model to investigate integration among variables, it is not recommended to use the standard Granger causality test to detect causality (Habanabakize *et al.*, 2019:7). Instead, the Toda-Yamamoto approach, applying the Modified Wald test (MWALD), is the appropriate method for assessing causality. The null hypothesis in this test assumes no causality between variables, while the alternative hypothesis indicates the presence of causality. The results of the Toda-Yamamoto tests are presented in Table 5.17.

These estimates suggest that there is uni-directional between economic globalisation (ECG) and GND (LGND), as well as between *de facto* trade globalisation (DFTRG) and GND (LGND) of South Africa. This implies that both economic globalisation and actual trade activities influence the South African economy's national debt. Since financial globalisation forms a key component of economic globalisation, this implies that financial integration—through foreign investments, capital flows, and access to international markets—also likely contributes to changes in public debt. However, because the causality is unidirectional, national debt fluctuations do not impact financial globalisation. This indicates that while economic globalisation dynamics drive debt accumulation, South Africa's debt levels do not influence the country's financial or trade openness. These results align with the theory of capital mobility and debt accumulation (i.e. Open Economy Macroeconomics) and the Dependency Theory (see Section 2.5).

Table 5.17: Toda-Yamamoto Granger causality results

Variable	LGND	ECG	DFFIG	DFTRG	DJFIG	DJTRG	CPI	GEXP	GFCF	GDP
LGND	-----	[0.7320] (0.9473)	[4.9571] (0.2917)	[3.18831] (0.5268)	[3.3707] (0.4978)	[2.7059] (0.6082)	[1.4160] (0.8414)	[11.7659] (0.0192**)	[3.4409] (0.4869)	[7.6741] (0.1043)
ECG	[14.4566] (0.0060***)	-----	[1.3890] (0.8386)	[0.5224] (0.4698)	[0.3428] (0.5582)	[1.8112] (0.1784)	[4.3267] (0.3636)	[4.3267] (0.3636)	[3.5274] (0.4737)	[46.1186] (0.0000***)
DFFIG	[1.6713] (0.7959)	[1.9879] (0.7386)	-----	[3.9091] (0.4184)	[0.2068] (0.6492)	[11.3678] (0.0034***)	[6.3550] (0.1742)	[4.0914] (0.3938)	[2.1728] (0.7040)	[3.0461] (0.5501)
DFTRG	[25.3219] (0.0000***)	[1.7597] (0.7652)	[0.1328] (0.7171)	-----	[2.0029] (0.6570)	[0.1282] (0.7203)	[1.6664] (0.7968)	[6.3322] (0.1757)	[2.9708] (0.5627)	[2.9331] (0.5691)
DJFIG	[0.7173] (0.9492)	[0.11735] (0.7319)	[8.8121] (0.0872*)	[2.0093] (0.1570)	-----	[1.7084] (0.7892)	[6.0809] (0.1932)	[15.4871] (0.0038***)	[11.8879] (0.0182**)	[7.2337] (0.1240)
DJTRG	[1.4620] (0.8333)	[0.0512] (0.9429)	[0.6687] (0.7158)	[8.3696] (0.0789*)	[0.7906] (0.9397)	-----	[3.1673] (0.5302)	[13.7601] (0.0081***)	[19.6358] (0.0061***)	[10.7712] (0.0293**)
CPI	[15.6861] (0.0035***)	[4.4861] (0.3442)	[8.5544] (0.0733*)	[8.6921] (0.0693*)	[4.1687] (0.3837)	[3.4294] (0.4887)	-----	[4.0893] (0.3941)	[6.6994] (0.1527)	[12.1293] (0.0164**)
GEXP	[3.6933] (0.4491)	[0.9693] (0.9144)	[4.6771] (0.3221)	[13.4747] (0.0092***)	[7.6357] (0.1059)	[1.1797] (0.8814)	[3.7598] (0.4395)	-----	[18.3621] (0.0010***)	[39.2616] (0.0000***)
GFCF	[3.3423] (0.5022)	[1.8233] (0.7682)	[9.8971] (0.0422**)	[4.4117] (0.3531)	[9.3439] (0.0531*)	[2.8249] (0.5875)	[4.0678] (0.3969)	[2.4985] (0.6449)	-----	[50.0497] (0.0000***)
GDP	[19.6705] (0.0006***)	[3.0723] (0.5457)	[2.9092] (0.5731)	[4.6273] (0.3277)	[10.7712] (0.0293**)	[2.1425] (0.7096)	[1.3563] (0.8518)	[12.7833] (0.0124**)	[13.9307] (0.0075***)	-----

*Note: [] shows chi-square values; () shows p-values; * significance at 10% level; ** significance at 5% level; *** significance at 1% level*

Source: Authors' compilation from the study sample

According to the Dependency Theory, developing countries such as South Africa grow more reliant on foreign capital and trade systems as they integrate into the global economy, resulting in rising debt (Emeh, 2013:122). This theory supports the notion that globalisation promotes debt accumulation without substantially altering a country's place in the global system. In addition, greater capital mobility, a major aspect of financial globalisation in open economy models, enables governments to borrow more easily from international markets and institutions to finance deficits or infrastructure projects without immediate constraints (Arif-Ur-Rahman & Inaba, 2020). The uni-directional causality demonstrates that while financial globalisation facilitates borrowing and increases public debt, the debt itself does not directly impact the country's level of financial openness.

Furthermore, the estimates in Table 5.17 also suggest that there is a uni-directional relationship between economic globalisation and GDP. There is also a uni-directional causality between *de jure* financial globalisation and GDP, and *de jure* trade globalisation and GDP. This implies that changes in these globalisation indicators can drive changes in GDP of South Africa, highlighting the role of globalisation policies and practices in impacting economic growth. The export-led growth hypothesis suggests that trade openness fuels economic growth by expanding markets and enhancing efficiency through competition (Ee, 2016:233). Similarly, financial liberalisation theory posits that policy-driven financial openness promotes growth by improving resource allocation, attracting investment, and developing the financial sector (Sulaiman *et al.*, 2012:17).

5.6 SUMMARY AND CONCLUSION

The main objective of this chapter was to present empirically the impact of economic, trade and financial globalisation on the public debt of the South African economy. To achieve this objective, an ARDL model and other econometric techniques (i.e., unit root tests, stationarity test, error correction model and residual and stability diagnostic tests) were used to estimate the independent variables' short- and long-run impact on the dependent variables. As such, the chapter started by presenting the graphical (trends) analysis for the variables under study. This was followed by descriptive statistics to profile the study's data. A correlation matrix was used to assess the relationship between the dependent variables and the independent variables of the study, and it indicated that economic globalisation, financial globalisation, *de facto* financial globalisation, *de jure* financial globalisation, trade globalisation, *de facto* trade globalisation, *de jure* trade globalisation has a positive relationship with GND in South Africa.

Additionally, this chapter presented the results from both the unit root and stationarity tests, conducted using the ADF unit root test, PP unit root test, and KPSS stationarity test. The KPSS test was employed as a confirmatory measure for the ADF and PP tests. The common conclusion drawn from these tests was that the study's variables exhibit a mix of I(0) and I(1) levels of integration, with no variables being

stationary at I(2). Subsequently, in the lag selection and optimal ARDL model selection, the Akaike information criterion (AIC) was used to determine the maximum number of lags to include in each of the ARDL models and the optimal ARDL model that was selected following the sequence of the variables in Equation 4.11, 4.12, 4.13, and 4.14 was ARDL model (3,3,1,3,3,4), (4,4,4,4,4,4,4), (2,1,1,3,0,1,3), and (4,3,4,4,4,4,4), respectively.

Following this, an ARDL model was applied, and the results showed that economic globalisation, *de jure* and *de facto* trade and financial globalisation affect the public debt levels of South Africa. The results proved the existence of long-run relationships between globalisation and its sub-components in the public debt of the South African economy. To be precise, economic globalisation has a negative long-run impact on the public debt in South Africa. Furthermore, while trade will decrease public debt in the long-run, financial globalisation will have the opposite effect, increasing public debt in the long-run. In the short-run, economic and financial globalisation have positive and significant coefficients, indicating that these variables will increase public debt in the short-run. In contrast, trade globalisation has a negative significant short-run coefficient, indicating that trade will decrease public debt in the short-run.

When disaggregated further into the *de jure* and *de facto* sub-indexes, *de facto* trade globalisation negatively impacts public debt, and *de facto* financial globalisation positively impacts public debt in the long-run. In the case of *de jure* globalisation, trade globalisation has a negative impact on the South African public debt, albeit the relationship is not significant. The result of financial globalisation presents a significant and positive long-run relationship between *de jure* financial globalisation and public debt.

Moreover, the short-run coefficient for *de facto* trade globalisation is negative but not statistically significant. Similarly, the short-run coefficient for *de facto* financial globalisation is positive yet insignificant. This indicates no short-run causality from *de facto* trade or financial globalisation to public debt. Fluctuations in the KOF index for *de facto* trade and financial globalisation do not have a clear or statistically significant impact on public debt in the short-run in South Africa.

Additionally, the *de jure* trade globalisation variable under study has a negative short-run coefficient that is significant at a 1 per cent level, which implies that short-run causality runs from *de jure* trade globalisation to public debt. Thus, it can be alluded that the formal regulations that either facilitate or restrict the flow of goods and services across the borders of South Africa will decrease public debt in the short-run. The *de jure* financial globalisation variable shows a positive short-run coefficient that is significant at a 5 per cent significance level. Therefore, an increase in the KOF index for *de jure* financial globalisation will increase South Africa's public debt in the short-run.

Equally significant, the residual and stability diagnostics results conducted on all the models in the study showed that none exhibited non-normality, serial correlation, heteroscedasticity, or instability. This confirms that the study's findings are both accurate and reliable. Furthermore, the Toda-Yamamoto Granger causality estimates suggest that there is uni-directional between economic globalisation (ECG) and GND (LGND), as well as between *de facto* trade globalisation (DFTRG) and GND (LGND) of South Africa. This implies that economic globalisation and actual trade activities influence the South African economy's national debt but not vice versa.

CHAPTER 6

SUMMARY, RECOMMENDATIONS AND CONCLUSIONS

6.1 INTRODUCTION

This study was motivated by South Africa's rising public debt and its expanding economic integration into the global economy. Given the significance of globalisation, the study found it crucial to determine whether and how global economic integration contributes to the country's public debt. By analysing the short- and long-run impacts of economic globalisation on public debt, this study aimed to provide insights into the globalisation factors driving debt accumulation and inform policy recommendations on fiscal sustainability for South Africa. Accordingly, the impact of several factors of economic globalisation, such as FDI and trade openness, has been empirically investigated in various economies. Yet, few studies have tested this relationship in South Africa using the appropriate measures, such as the comprehensive KOF globalisation index, which provides a holistic overview of the impact of actual trade and financial activities and the regulations driving them on public debt. Therefore, this study aimed to fill the existing gap in the literature regarding the impact of economic globalisation and its subcomponents, trade, and financial globalisation on public debt in South Africa.

Considering the discussion above, the primary objective was to estimate the relationship between public debt and economic globalisation in South Africa. To do so, the study intended to answer four pivotal research questions:

- How has South Africa's economic integration influenced its ability to manage public debt?
- What are the differences in the short-run and long-run effects of economic, trade, and financial globalisation on public debt in South Africa?
- How does economic globalisation contribute to changes in public debt levels in South Africa?
- What distinguishes the impact of *de facto* and *de jure* economic globalisation on public debt in South Africa?

In responding to these questions, the study reviewed theoretical literature underpinning public debt, the intricacies of economic globalisation and how these two aspects of an economy engage. A review of empirical literature on regional economic globalisation and public debt dynamics then followed this. Finally, the study implemented a structured econometric estimation approach, and the results were reported. In this regard, Chapter 6 offers a summary, highlights the study's achievements and conclusions, and presents recommendations.

6.2 SUMMARY OF THE STUDY

6.2.1 Theoretical background

Chapter 2 of this study presented the theoretical literature of the study in fulfilment of the theoretical objectives. It provided a strong theoretical foundation supporting any claims that would be made in subsequent sections. First, it provided a full conceptualisation of public debt through the first subsection, including the public debt definition and classifications, the drivers of public debt, methods of quantifying and measuring public debt, as well as the various debt redemption and debt management methods (*see* Section 2.2). Secondly, the study sought to conceptualise and understand economic globalisation by reviewing it and disaggregating it into its subcomponents: trade and financial globalisation (Section 2.3). The different economic globalisation perspectives and measurements were then reviewed to support this.

Thirdly, Chapter 2 also endeavoured to provide a theoretical understanding of the relationships that could possibly exist between economic globalisation and public debt. This section also looked at the relevant costs and benefits of economic globalisation and how some of these factors could have contradictory effects on the fiscal environment of an economy, thus making them double-edged swords, so to speak. In addition, the possible channels through which trade globalisation may affect public debt were reviewed. Lastly, the chapter reviewed theories exploring the relationship between economic globalisation and public debt. Accordingly, this provided a rational basis for the study to consult empirical studies examining the role of economic globalisation on public debt.

Chapter 3 presented a review of the empirical literature, and regional economic globalisation and public debt relationships. In other words, the chapter first reviewed developed countries, focusing on North American countries, followed by a review of developing Southeast Asian economies, then honed it into sub-Saharan African countries, and finally, the South African economy. In this case, the economic background of the countries was presented, followed by the relationship between public debt levels and economic globalisation in the region. In this regard, the chapter employed tables, figures, and graphs to depict trends in various regions. Finally, this chapter meticulously presented the empirical literature review of similar studies on factors of economic globalisation and how they impact public debt.

6.2.2 Methodology and empirical process

Following the post-positivist stance, the study took a quantitative research approach and utilised secondary annual time-series data to determine the relationship that exists among the underpinned variables (*see* Chapter 4). The dataset spans from 1983 to 2022 and consists of 40 annual observations. The time frame was chosen primarily based on data availability, allowing for more accurate results. The

data was sourced from the South African Reserve Bank, KOF Swiss Economic Institute, and the World Bank Development Indicators.

The dataset encompasses gross national government debt in total Rand value (GND) as the dependent variable; economic globalisation (ECG), trade globalisation (TRG), *de facto* trade globalisation (DFTRG), *de jure* trade globalisation (DJTRG), and financial globalisation (FIG), *de facto* financial globalisation (DFFIG), *de jure* financial globalisation (DJFIG) as the independent variables; government expenditure (GOE), inflation (INF), and gross fixed capital formation (GFCF), and GDP per capita (GDP) as the control variables of the study. All the variables were transformed to a natural logarithm (L) before analysis. An ARDL model was employed in this study to report the South African public debt response to changes in economic globalisation and its sub-components, trade, and financial globalisation, and even further when it is disaggregated into its *de facto* and *de jure* factors.

The study employed ARDL models and various essential econometric techniques, including unit root tests, stationarity tests, the error correction model, the Toda-Yamamoto Granger causality test, and residual and stability diagnostic tests, to ensure reliable and accurate results. In summary, Chapter 4 outlines the data sources, sample size, and variable specifications and details the econometric estimation methods used in the study.

6.3 ACHIEVEMENT OF THE STUDY'S OBJECTIVES

The previous section summarised the theoretical background and methodological processes followed in the study. This section will explain how each objective was achieved and where in the study it was achieved.

6.3.1 Primary objective

The primary objective of the study was to examine the relationship between public debt and economic globalisation in South Africa. Accordingly, to achieve this objective, a number of theoretical and empirical objectives were formulated, and the subsequent section shows how these objectives were achieved.

6.3.2 Theoretical objectives

In support of the primary objective mentioned above, this section outlines the five theoretical objectives outlined in Chapter 1 and how these objectives were achieved throughout the study.

- *To define and conceptualise the main components of economic globalisation and public debt*

This objective was achieved in Chapters 2. Specifically, Sections 2.2 and 2.3 defined and conceptualised the main components of economic globalisation and public debt. This included delving more deeply into the definitions of public debt and economic globalisation (along with its subcomponents, *de jure* and *de facto* trade and financial globalisation), the different measurements used to quantify economic globalisation (Section 2.3.1.2) and public debt (Section 2.2.3), the drivers of public debt (Section 2.2.2), the various debt redemption and debt management methods (Section 2.2.4), and the different globalisation perspectives (Section 2.3.1.1).

- *To provide a review of the components of economic globalisation and its links with public debt*

This objective was achieved in Section 2.4. This section pointed out that the connection between economic globalisation is intricate and multifaceted, often not following a straightforward path and sometimes manifesting as a secondary consequence through various channels. As such, relevant advantages and disadvantages of economic globalisation were analysed along with how they affect the fiscal environment of a country. The study also included the channels through which trade and financial globalisation may affect debt (Sections 2.4.1 and 2.4.2). Some of these included the channels of export earnings volatilities, currency depreciation and debt servicing, access to foreign capital, and the movements in interest rates and exposure to shocks.

- *To review the theories relating to public debt and its interlinkages with the financial and trade dimensions of economic globalisation*

This third objective was achieved in Section 2.5. Examining theories investigating the relationship between economic globalisation and public debt was critical because it provided a more in-depth understanding of how the conceptualisation of public debt within the context of economic globalisation is informed by and informs the evolving dynamics of international finance and economic interdependence. Some of these theories included the Keynesian theory of debt (see Section 2.5.1), dependency theory (see Section 2.5.4), and the global capitalism theory (see Section 2.5.5).

- *To empirically review the nature of economic globalisation and its sub-dimensions and its link with public debt levels within various regions of the world including developed and developing regions, sub-Saharan Africa, and South Africa*

The study's fourth theoretical objective were achieved in Sections 3.2 to 3.5. In summary, it was found that globalisation can boost economic growth and expand access to financial resources in developing and sub-Saharan African countries, but it also increases concerns about vulnerability to external shocks and fiscal imbalances (Section 3.4). In addition, increased trade and financial openness in developing countries frequently lead to developing regions like Southeast Asia and SSA facing increased public debt due to their reliance on external borrowing for infrastructure and economic development (Section

3.3 and 3.4). These economies are more exposed to global market volatility, political instability, and weaker institutions, making debt management more difficult. Furthermore, integration into the global economy has expanded South Africa's access to international financing, contributing to public debt growth while also exposing it to external shocks, increased competition, and higher public spending to stabilise the economy and support domestic industries (Section 3.5).

- *To review empirical studies and trends to conceptualise the nature of economic globalisation and public debt levels in South Africa*

Finally, Section 3.6 presented the empirical literature review, the last theoretical objective. The studies reviewed in this section showed that FDI has a less significant effect on public debt in high-income countries than in middle-income countries. Empirical studies on developed and developing countries often show a positive relationship between trade and financial openness, and public debt. In low-income countries, trade openness affects public debt more than financial openness due to underdeveloped financial markets and weak institutional frameworks to attract foreign investment. In the studies that focused on SSA, the impact of economic globalisation on public debt differs in the short and long term due to factors like small industries, taxes, institutional quality, and political stability. Many studies use proxies like trade openness and FDI, oversimplifying economic globalisation. This study addressed this gap by distinguishing between *de jure* and *de facto* trade and financial globalisation, as they have different fiscal impacts.

6.3.3 Empirical objectives of the study

In addition to the theoretical objectives, the study also formulated empirical objectives for the study. The first three empirical objectives were achieved in Chapter 5 of this study.

- *To determine both the short-run and long-run effects of economic globalisation on public debt levels in South Africa*

The short- and long-run effects of economic globalisation on South Africa's public debt were rigorously examined through the correlation results and econometric models in Sections 5.4 and 5.5. These analyses confirmed the distinct impacts of economic, trade, and financial globalisation on public debt.

- *To compare the effects of financial globalisation and trade globalisation on public debt levels in South Africa and the possible differences between the de jure and de facto aspects of these processes*

The comparison between trade and financial globalisation's effects on public debt, including the differentiation between *de jure* and *de facto* aspects, was accomplished in Section 5.5. The analysis distinctly highlighted the divergent fiscal impacts of each form of globalisation and underscored the

critical differences between policy-based (*de jure*) and practical (*de facto*) globalisation processes, fulfilling the second objective effectively.

- *To determine and analyse any causal effects between economic globalisation, trade globalisation, financial globalisation, and public debt levels in South Africa*

The causal relationships between economic globalisation dimensions and public debt were analysed using the Toda-Yamamoto Granger causality approach in Section 5.6. This approach revealed a uni-directional causality from economic globalisation and *de facto* trade globalisation to gross national debt, achieving the third objective by establishing clear causal pathways.

6.4 KEY FINDINGS OF THE STUDY

This section provides an overview of the study's main findings. In many ways, the results align with studies conducted in various countries worldwide. Only statistically significant findings are discussed here.

6.4.1 Economic globalisation has a negative long-run impact and a positive short-run impact on the public debt in South Africa

One of the key findings showed that economic globalisation would reduce public debt in South Africa over the long-run. This was attributed to economic flows such as trade, FDI, capital, and portfolio investments, which can enhance access to international markets and increase foreign investment inflows, boosting economic activity and government revenue. Unlike other African economies, South Africa's economy is more stable and diversified, supported by strong financial services and deep capital markets. These results were consistent with findings from other empirical studies (e.g. Kizilgöl & Evren, 2014; Bataka, 2023; Moeng & De Jongh, 2023). In the short-run, the coefficients of economic globalisation were positive and significant, indicating that economic globalisation contributes to increased public debt in South Africa. This suggests that short-run changes in economic globalisation would increase public debt due to factors such as the need for infrastructure investment to support globalisation and vulnerabilities like capital flow volatility and exchange rate fluctuations, which can increase borrowing requirements.

6.4.2 In the long-run, trade reduces public debt, while financial globalisation has the opposite effect, leading to an increase in public debt

The long-run coefficients from the ARDL model suggested that trade globalisation would reduce public debt while financial globalisation increased it. Greater trade openness enhances exports, which boosts foreign exchange earnings and improves the current account balance, thereby reducing the need for external borrowing. Also, the study found that higher export revenues would strengthen government

finances through economic growth and direct taxes, supporting fiscal stability and decreasing reliance on debt. While trade globalisation promotes economic growth by expanding trade opportunities, fostering specialisation, and increasing efficiency, financial globalisation, while providing short-term access to international markets, could lead to excessive borrowing and rising public debt over time. The significant foreign participation in South Africa's bond and equity markets heightens vulnerability to global market shifts and capital flow volatility, posing risks of sudden capital outflows during economic shocks.

6.4.3 Trade will decrease public debt in the short-run, while financial globalisation increases it

In the short-run, the coefficient for trade globalisation was negative and significant, indicating that greater trade globalisation reduces public debt. The study stated that this could result from increased trade boosting government revenue through taxes on trade-related activities or improving the current account balance. Conversely, the short-run coefficient for financial globalisation was positive and significant, implying that greater financial globalisation leads to increased public debt. This effect could be due to increased capital inflows driving public spending or higher borrowing costs linked to global financial markets.

6.4.4 *De facto* trade globalisation and *de facto* financial globalisation dynamics and their impact on public debt in South Africa

The long-run coefficients from the ARDL model suggested that improvements in trade could reduce public debt through enhanced access to international markets, better trade balances, and increased exports, which boost economic growth and revenues while decreasing government borrowing needs. Conversely, *de facto* financial globalisation was shown to public debt, as greater financial globalisation correlates with increased debt levels. This trend reflects South Africa's advanced financial system, which attracts capital inflows and increases vulnerability to global economic fluctuations, allowing the government to borrow more easily from international markets for domestic needs like infrastructure projects or budget deficits.

6.4.5 *De jure* financial globalisation has a significant positive long-run impact on public debt in South Africa

The ARDL model analysing *de jure* trade globalisation indicated a negative impact on public debt in South Africa, suggesting that increases in the KOF index could reduce public debt; however, this relationship was not statistically significant. Possible reasons for this included government spending and fiscal deficits influencing public debt, delayed economic effects, or inadequate enforcement of trade laws. In contrast, the model showed a significant positive long-run relationship between *de jure*

financial globalisation and public debt, with increases in the KOF index correlating with higher public debt. These findings align with Bataka (2023), which noted that *de jure* financial globalisation contributes to rising public debt over the long term.

6.4.6 The *de jure* trade globalisation variable has a negative short-run coefficient, *de jure* financial globalisation variable shows a positive short-run coefficient

The *de jure* trade globalisation variable showed a significant negative short-run coefficient, indicating that causality runs from *de jure* trade globalisation to public debt. This suggested that formal regulations affecting the flow of goods and services can reduce public debt in the short-run, likely due to stimulated economic growth and an expanded revenue base that compensates for tariff losses. In contrast, the *de jure* financial globalisation variable had a significant positive short-run coefficient, indicating that causality also ran from *de jure* financial globalisation to public debt. This implied that increases in the KOF index for *de jure* financial globalisation contributed to rising public debt in South Africa, underscoring the importance of formal regulations in shaping public debt dynamics.

Furthermore, the Toda-Yamamoto Granger causality estimates suggested a uni-directional between economic globalisation (ECG) and gross national debt (LGND), as well as between *de facto* trade globalisation (DFTRG) and gross national debt (LGND) of South Africa. This implies that both economic globalisation and actual trade activities influence the South African economy's national debt but not vice versa.

6.5 POLICY RECOMMENDATIONS AND IMPLICATIONS

Like many other countries across the globe, the South African economy continues to battle with high public debt levels and debt service costs. South Africa's rising public debt levels have become a critical concern, with debt servicing costs consuming a growing share of the national budget. The escalation of public debt diverts valuable resources away from essential development areas, such as infrastructure investment, healthcare, and education, toward debt repayment obligations of South Africa (National Treasury, 2024:71). The rising public debt burden not only threatens South Africa's long-run economic stability and limits inclusive growth but also leads to higher borrowing costs, crowding out private investment as the government competes for limited financial resources (African Development Bank, 2024:40). This reduces capital available for businesses, hinders job creation, and restrains economic growth for the country.

To address this issue, the government has implemented various measures aimed at fiscal consolidation and reducing the public debt burden. These include efforts to cut non-essential spending, improve revenue collection through tax reforms, and implement structural reforms to enhance economic growth (National Treasury, 2023:21). However, these measures often fail to fully account for the effects of

South Africa's economic globalisation, particularly the pressures introduced by financial globalisation. As a result, while some progress has been made in stabilising debt levels, the country continues to face challenges in managing the impact of its integration into the global economy.

South Africa's economic globalisation, marked by increased trade openness and financial liberalisation, profoundly affects public debt dynamics. While trade globalisation has been shown to help reduce public debt in the long-run, the rapid expansion of financial globalisation has contributed to its increase (see Section 5.5.2). These results correspond to those of *de facto* and *de jure* trade and financial globalisation in the long-run (see Section 5.5.3). These divergent effects underscore the importance of producing tailored policy responses that leverage the benefits of globalisation while mitigating its risks. In this section, Section 6.4, key recommendations are proposed to address the underlying drivers of public debt linked to South Africa's global economic integration. These strategies aim to balance the positive impacts of trade globalisation while managing the pressures introduced by financial globalisation, ultimately fostering a more sustainable public debt trajectory for South Africa.

6.5.1 Promote and diversify trade globalisation

Since trade globalisation reduces public debt (see Section 5.5.2), the South African government could implement strategies to enhance the country's trade openness and competitiveness. Considering this, expanding export markets through trade agreements and regional partnerships like the African Continental Free Trade Area (AfCFTA) would open broader opportunities, particularly for manufactured goods and value-added products. This agreement offers opportunities to broaden market access and diversify exports, which can strengthen economic resilience (World Bank, 2024). This is crucial, as South Africa currently relies heavily on a few trading partners, such as China and the United States, leaving it vulnerable to global demand shifts that could drastically affect export revenues (Section 3.5.3). Investing in sectors with strong export potential - such as renewable energy, technology, and value-added agriculture - can help diversify the economy. South Africa's dependence on commodity exports, which are subject to volatile global prices, makes such diversification essential for economic stability.

Moreover, supporting small and medium enterprises (SMEs) in international trade by improving access to financing, logistics, and trade infrastructure will further enhance their participation in international trade. SMEs in South Africa face challenges in accessing international markets, often constrained by limited funding, high operational costs, market information deficiency, and infrastructural issues (unreliable energy supply), which inhibit their export potential (ITA, 2024). Lastly, South Africa's infrastructure, though relatively advanced by African standards, faces capacity constraints, ageing facilities, and inefficiencies in port and rail operations. Developing and maintaining critical infrastructure like ports, railways, and roads will reduce trade costs and enhance export logistics, better

positioning South Africa within global value chains. Improved logistics would make the country more attractive for international trade and investment, fostering long-run economic growth.

6.5.2 Carefully manage capital flows and external debt

The study shows that financial globalisation will increase the public debt of South Africa in the long-run (see Section 5.2.3.2). Therefore, policies that mitigate the risks posed by capital flows should be implemented. As such, strengthening financial regulation is a key priority given the country's exposure to volatile capital flows, especially in foreign debt and portfolio investments, which can exacerbate public debt levels. South Africa endeavours to strengthen financial regulation through micro prudential policy, implementing the Twin Peaks Model, and enhancing financial stability through the SARB. These methods, however, have certain limitations such as:

- *Macroprudential policy* – Macroprudential policy in South Africa faces several weaknesses, including data limitations that hinder real-time monitoring of systemic risks, regulatory fragmentation due to multiple bodies under the Twin Peaks model, and procyclical behaviour by financial institutions, which exacerbates economic cycles (Moodley, 2018; Rooplall & Nkosi, 2021; Magubane, 2024). To address these issues, it is recommended to strengthen data collection and analysis infrastructure, improve coordination between regulatory bodies through formal cooperation mechanisms, and monitor procyclical behaviour by implementing measures to discourage excessive risk-taking during economic booms, such as limits on leverage and incentives for prudent lending practices. (Rooplall & Nkosi, 2021).
- *Implementation of the Twin Peaks Model* – The division of responsibilities between the Prudential Authority (PA) and the Financial Sector Conduct Authority (FSCA) in South Africa's Twin Peaks model can lead to regulatory overlaps, causing inefficiencies and confusion for financial institutions (Christianson, 2022). The effective functioning of the model depends on strong cooperation between the PA and FSCA, and lack of collaboration can result in unaddressed systemic risks (Collocott, 2013). To address these issues, it is recommended to clearly define and communicate the roles of each authority, enhance the PA's independence from SARB, and establish formal mechanisms for ongoing collaboration, such as joint committees. Moreover, prioritising effective implementation through staff training, operational frameworks, and adequate resources is essential for the success of the Twin Peaks model.

Furthermore, while public debt in South Africa is predominantly domestic rather than external, it is still essential that the government rigorously monitor and regulate external borrowing. Excessive reliance on foreign debt could expose the country to exchange rate risks, higher interest costs, and vulnerability to global market fluctuations, worsening debt sustainability and negatively impacting long-term

economic stability (see Section 2.4.2). South Africa's public debt has continuously increased, and without strict monitoring, external borrowing may become unsustainable. Establishing a comprehensive legal framework, conducting regular audits, and strengthening the macroprudential oversight (efficiently tracking contingent liabilities associated with external borrowing and setting limits on the amount of external debt relative to GDP) will guarantee that borrowing is consistent with long-run economic goals while remaining manageable (Balibek *et al.*, 2024:3).

6.5.3 Enhance short-run trade facilitation and competitiveness

To enhance trade facilitation and competitiveness in the short-run, South Africa should prioritise policies that accelerate customs clearance and streamline trade logistics. Simplifying customs procedures and lowering trade-related transaction costs would promptly increase trade volumes, allowing the government to reap the immediate benefits of trade globalisation regarding public debt reduction in the short-run (see Section 5.5.2). Inefficient customs operations currently cause delays and expenses in cross-border trade, restricting the potential for fast trade expansion. These can be addressed by simplifying the documentation process and providing clear guidelines on required documents, providing a simplified explanation and application of the Harmonized System codes, and providing training on systems like the Electronic Data Interchange used by SARS (SARS, 2024).

Furthermore, implementing short-run trade incentives, such as tax rebates or subsidies for crucial export sectors, can further promote export activity and generate much-needed revenue to mitigate public debt. These incentives could particularly benefit sectors with strong growth potential in South Africa, such as manufacturing and agriculture. In addition to this, focusing on regional trade optimisation is another crucial short-run measure. Strengthening trade relations with neighbouring African countries through trade missions, agreements, and initiatives - especially under frameworks like the SADC or the AfCFTA - will enhance export opportunities in markets with high demand for South African goods.

6.5.4 Enhance capital flow monitoring and short-run controls to stabilise public debt

Addressing the stronger impact of *de facto* financial globalisation on South Africa's public debt is essential, given the significant 8.76 per cent increase in debt for each one per cent increase in financial globalisation (see Section 5.5.3). The immediate implementation of stringent monitoring systems for capital flows should be prioritised to mitigate this effect. Enhanced tracking mechanisms will enable regulators to detect and regulate speculative financial inflows that threaten public debt sustainability. Without such oversight, the country risks experiencing rapid increases in external borrowing, which could exacerbate the already high levels of public debt. Furthermore, continuous improvement in data accuracy and reporting on capital flows is crucial. By adhering to international guidelines and enhancing

statistical quality control, South Africa can better understand capital movements, allowing for better policy responses and increased investor confidence.

To mitigate the negative impacts of unpredictable capital inflows, it is necessary to implement short-term capital controls. Taxes on short-run foreign borrowing can deter excessive reliance on volatile funding sources, helping to stabilise public debt levels. In addition, imposing restrictions on speculative portfolio investments would prevent sudden surges in capital that can destabilise the financial system and lead to unsustainable debt accumulation. By managing these short-run inflows more effectively, South Africa can maintain a more balanced approach to financial integration while safeguarding the economy from the risks associated with unchecked speculative capital flows.

6.5.5 Adopt an effective public investment screening mechanism

Furthermore, adopting a public investment screening process is critical to ensuring that foreign investments align with South Africa's economic growth objectives. This screening mechanism will prioritise investments in productive areas like infrastructure, renewable energy, and manufacturing over speculative financial inflows that increase the country's public debt burden. South Africa may lessen its vulnerability to financial instability and develop a more sustainable path towards growth and debt management by focusing on investments that yield long-term economic returns.

6.5.6 Reform financial legislation to balance integration and debt management

Given that the formal structures enabling financial integration are contributing to greater external borrowing or financial inflows that elevate debt levels (see Section 5.5.3.2), it is important that financial regulations create harmony between global integration and public debt sustainability. Reforming financial legislation is crucial for balancing the benefits of financial integration with the need for sustainable debt management. South Africa could revise its financial integration policies to ensure they prioritise long-run, stable capital inflows over short-run speculative investments. This can be achieved by adjusting tax policies to discourage volatile, short-run capital, tightening financial regulations to better manage foreign borrowing, and revising investment treaties to favour investments that contribute to the country's economic growth and job creation. Such reforms could reduce the reliance on capital flows that contribute to rising public debt while promoting more stable, productive investments. Moreover, strengthening the legal framework to prioritise FDI over short-run capital flows is essential. *De jure* financial globalisation reforms should be designed to attract FDI, which has a more stable, growth-enhancing impact, as it fosters job creation, infrastructure development, and long-run economic benefits. Unlike speculative capital, which can increase debt and financial instability, FDI provides a foundation for sustainable economic growth and helps mitigate the risks of excessive public debt accumulation.

6.5.7 Leverage economic globalisation for sustainable growth

Leveraging economic globalisation for sustained growth necessitates strategically realigning South Africa's industrial policy to better fit global trade dynamics. South Africa's economy has traditionally been rooted in the primary sector, all of which are sensitive to global commodity fluctuations. Over time, there has been a shift where the key sectors driving the economy and contributing to the GDP include manufacturing, retail, financial services, telecommunications, mining, agriculture, and tourism (South African Embassy, 2021). While these remain crucial, South Africa must also place more focus on sectors with more growth potential, such as renewable energy, technology, and value-added manufacturing. By targeting these industries, South Africa can capitalise on the expanding worldwide demand for sustainable energy solutions, digital transformation, and innovative manufacturing products. This strategy adjustment will improve South Africa's global market competitiveness while generating more consistent revenues to help control public debt. Diversifying the industrial base minimises dependency on commodity exports while ensuring that economic globalisation promotes long-term industrial growth and fiscal stability (Andreonia & Avenyo, 2023).

In addition to industrial realignment, promoting innovation and skills development is critical to South Africa's global competitiveness. The country is currently experiencing a skills gap, notably in high-tech areas where demand for trained labour frequently exceeds supply (Van Wyk, 2024). South Africa may increase productivity and better prepare its people to compete in a fast-changing global economy by investing in upskilling programs, particularly in STEM (science, technology, engineering, and mathematics) disciplines. Higher productivity, driven by a more skilled labour force, will contribute to higher economic growth, improving public debt's sustainability through increasing revenues.

Furthermore, as the global economy moves towards sustainability, it is critical to include climate-smart trade and finance efforts into national economic agendas. South Africa, a major participant in the energy and agriculture sectors, is ideally positioned to lead in promoting green investments and ecologically responsible trading practices. Such initiatives could create new markets for environmentally friendly products while also lowering climate change risks, so contributing to economic resilience and environmental sustainability. By implementing these reforms, South Africa may use economic globalisation to achieve long-term prosperity while limiting the dangers associated with public debt.

6.6 LIMITATIONS OF THE STUDY AND AREAS FOR FURTHER RESEARCH

Firstly, one of the key limitations of this study is the exclusive focus on economic globalisation (due to time constraints). While economic globalisation is critical in shaping public debt, omitting social and political globalisation may overlook other significant factors that could influence public debt dynamics. Future research should consider these dimensions to provide a more comprehensive understanding of

globalisation's multifaceted effects on South Africa's public debt. Future research could also extend the analysis by incorporating political globalisation or geopolitical alignment to examine how these factors influence the relationship between economic globalisation and public debt. The growing practice of friendshoring or ally shoring, where trade and supply chains are increasingly shaped by geopolitical alliances, presents an important dimension for further exploration. Additionally, the Economic Complexity Index (ECI) could provide deeper insights into the role of export diversification and sophistication in shaping public debt dynamics. Future studies may consider investigating the interplay between ECI, globalisation, and other relevant economic indicators to enrich the understanding of these relationships.

The second limitation of this study is that it relies solely on time series analysis, which, while valuable, may not capture the full complexity of economic globalisation's impact across different regions within South Africa. A more comprehensive approach, such as a longitudinal panel analysis using provincial-level data, could offer deeper and more nuanced insights. By examining variations across provinces, such an analysis might reveal regional differences in how financial and trade globalisation influence public debt, thereby providing a more rounded understanding of the issue. Furthermore, future research could enhance the model specification by incorporating control period dummies to account for structural breaks in the time series, specifically capturing shifts caused by the global financial crisis and the COVID-19 pandemic.

Thirdly, the study used the gross debt variable despite South Africa's public debt being predominantly domestic rather than external. This choice highlights a potential area for future research, where it would be valuable to explore the impact of globalisation metrics on both domestic and external debt. Investigating these distinctions could yield important insights into how different types of debt are influenced by financial and trade globalisation, ultimately enhancing the understanding of public debt dynamics in the South African context.

Finally, the study focused on a linear assumption regarding the relationships among various aspects of economic globalisation - specifically, *de facto* and *de jure* trade and financial globalisation - and public debt. This linear approach may not adequately capture the complexities and interactions inherent in these dynamics. Future research could benefit from adopting a more non-linear methodology to investigate these relationships, allowing for a deeper understanding of how different dimensions of economic globalisation influence public debt levels. In considering non-linear relationships, researchers may uncover nuanced interactions and thresholds that affect the impact of globalisation on both domestic and external debt, leading to more comprehensive insights into these critical economic issues.

This study examined the intricate relationship between economic globalisation and public debt in South Africa, providing theoretical and empirical insights to better understand the impact of both trade and financial globalisation on the country's fiscal health. Through an extensive review of the literature, the study contextualised globalisation's multidimensional aspects, including its potential to drive both growth and financial vulnerability. The theoretical analysis established a comprehensive foundation for understanding public debt and economic globalisation, focusing on the unique fiscal channels through which trade and financial globalisation interact with public borrowing needs. This framework was critical in setting the foundation for an in-depth exploration of how globalisation influences public debt within the South African economy.

Empirical results revealed that economic globalisation has had a long-run negative impact on public debt in South Africa, highlighting that while trade globalisation reduces debt in the long-run, financial globalisation tends to increase it. Short-run effects, however, differed, with economic and financial globalisation showing positive impacts on public debt, suggesting a short-term increase in borrowing as the country responds to global market pressures. The study further disaggregated these effects into *de jure* (legal) and *de facto* (real) forms, revealing that formal trade regulations (*de jure*) decrease debt in the short-run. In contrast, *de facto* trade and financial globalisation, although not statistically significant in the short term, significantly impact debt in the long term. These findings underscore the complexity of managing public debt in a globalised economy, where benefits and risks coexist and necessitate nuanced, adaptive policies.

This study contributes valuable insights into the fiscal implications of globalisation for South Africa, emphasising the importance of targeted policy interventions to harness the benefits of trade while mitigating the risks associated with financial globalisation. The study's robust methodology and thorough diagnostic checks confirmed the reliability of its findings, enhancing its relevance for policymakers seeking sustainable debt management strategies. By highlighting the uni-directional causality from economic globalisation and trade to public debt, this research underscores that while globalisation can catalyse economic growth, effective debt management and policy adaptation are essential for minimising potential vulnerabilities in an increasingly interconnected global economy.

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Declaration

This is to certify that I, Annette Louise Combrink, member of the South African Translators' Institute, have language-edited the dissertation by

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