INFLUENCE OF BANKING SECTOR ON ECONOMIC GROWTH IN SOUTHERN AFRICAN COUNTRIES: EVIDENCE OF MOZAMBIQUE

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A DISSERTATION

Presented to the Department of
Business Administration
Program at Selinus University

Faculty of Business and Media
In fulfillment of the requirements
for the degree of Doctor of Philosophy
in Business Administration

June, 2024

DECLARATION

I do hereby declare that the thesis titled “INFLUENCE OF BANKING SECTOR ON ECONOMIC GROWTH IN SOUTHERN AFRICAN COUNTRIES” in evidence of Mozambique, submitted for the award of Doctor of Philosophy in Business Administration at Selinus University of Science and Literature, Faculty of Business and Media, is my original work.

I hereby declare that all the information has been written according to all aspects of publication ethics and procedures, and also declare that as requires by the rules and conduct, I have fully cited and referenced all material and results that are not original to this work.

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DEDICATION

This research work is dedicated to my loving family, especially to my children for their patience and unconditional support given during this process.

I also like to dedicate to my late father who advised and inspired me since my childhood to invest in education.

ACKNOWLEDGEMENTS

I would like to express my deepest gratitude to my supervisor, Professor Salvatore Fava for his collaboration, guidance and support through this study.

I also like to thank my company, Mozambique Road Network (REVIMO, SA), for the professional daily inspiration, experience, encouragement.

Disclosure statement

No potential conflict of interest was reported.

ABSTRACT

This research work is to investigate the influence of banking sector on economic growth in Southern African countries, in evidence of Mozambique. Will be used data on GDP as well as various commercial banks development indicators, which covers the period of twelve months, from December 2021 to December 2023, and the study employed the granger causality test in determining the causal relationship between banking sector development and economic growth. The study also employed the Auto Regression Distributive Lag (ARDL) methodology in determining existence of the short-run and long–run relationships. Using the ARDL results, the study concluded there is a positive short-run relationship between banking sector development and GDP growth connect by net interest income and funding liabilities of banks.

The causality test indicated the causality between economic growth and the banking sector development which the banking sector development would enhance GDP growth, vice versa. The empirical result revealed that the development of the banking sectors in Mozambique, influenced economic growth in the region during aforesaid period and this revealed that finance and degree monetization in the economies can be seen as the main drivers of short long run growth. In Mozambique, Southern Africa n country, banks with market power influence economic growth and the Central banks should come up with regulations for targeting large banks with market power to channel funds into productive sectors. Also institutional performance and quality improvement cause positive economic growth and improves a degree, however, varies depending on specific institutional factors even when we differentiated the effect of bank level and market power. The implication is that, policymakers and regulators should create a way to implement institutional structure that would ensure banking system to stimulate economic growth in Mozambique, as an evidence for the study and different tests will be employed.

The study concluded that commercial banks has a positive impact on economic growth In Mozambique and recommends for reforms in banking industry to ensure increased

lending in order to support the economic stage. Banking systems play a critical role in economic development as well as improving the quality of life of the people in Africa, however, little evidence exists in the literature about banking systems performance in Mozambique.

Keywords: Southern African Countries; SADC; Mozambique; Banking sector development; Economic Growth; Institutional performance.

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ABBREVIATION ANS ACRONYMS

BoM: Bank of Mozambique

AEO: African economic outlook

ARDL: Auto-Regression Distributive Lag

EU: European Union

NPL: Non-Performing Loans

OLS: Ordinary Least Square

SME: Small and Medium Enterprises

US: United States

M2: Broad Money Supply

GDP: Gross Domestic Product

IMF: International Monetary Fund

OECD: Organization for economic Co-operation and Development

FSI: Financial Soundness Indicators

SADC: Southern African Development Communities

WHO: World Health Organization

ATM: Automatic Teller Machine

CAR: Capital Adequacy Ratio

MZN: Mozambican Metical

ADF: Augmented Dickey Fuller Test

PP: Phillips-Peron

IDP: Internal displaced person

UNODC: United Nations Organization on Drugs and Crime

LNG: Liquefied Natural Gas

AEO: African Economic Outlook

VECM: Multivariate Vector Error Correction Model

1 CHAPTER ONE: Introduction and aim of the study

1.1 Introduction

The relationship between banking sector development and economic growth is long established in the literature. Economy has played an important role in the creation of sustainability of global business since the time of Schumpeter (1911), who argued that entrepreneurs require financial resources to fund both new and existing ventures. The activities and behavior of banking sectors for economic growth can be opposed to different abilities to access to finance performance and economic growth.

In 2022, the Government of Mozambique approved a package of economic acceleration measures to boost the private sector. The report calls for accelerating these efforts and outlines reforms aimed at reducing the cost of doing business and strengthening the role of services sector as a backbone of the economy. Mozambique has a mixed economy combining both traditional and market economic systems. The country is rich of different mineral resources, such as Coal (high quality cooking and thermal coal), graphite, iron ore, titanium, apatite, marble, bentonite, bauxite, kaolin, copper, gold, rubies, and tantalum.

Agriculture, fishing and forestry are the main activities that contribute for economy. Agriculture, in Mozambique is seen as the mainstay of the economy and the country has a great potential for growth in the sector. Agriculture employs more than 80 percent of the labor force and provides live hoods to the vast majority of over 23 million inhabitants.

According to World Bank (2022), the top exports of Mozambique are, Coal Briquettes ($3.45B), Raw aluminum ($1.99B), Coke ($839M), Petroleum Gas ($689M), and Gold (678M). This exports are mostly to India, (2.62B), to South Africa ($1.07B), to South Korea ($954M), to Italy ($808M), and to China ($678M)

1.2 Research Area

From the economic literature, it is well known that banking performance has been regarded as a crucial factor of economic growth. Banks collect deposits from different institutions and provide loans to the investors that contribute for economic growth. The banks to be effective in fostering economic growth, is always important that they stick to the right sectors of the economy that are essential and can act as catalysts to simulate growth. It is also fundamental that banks effectively manage various difficult and risks which they are exposed to, in order to remain stronger and solvent in the long-run process and be in a position to provide long term capital that is more essential for economic growth and development, so for the economic establishment and grown up, it should have a well-developed banking standard system that is resilient to external challenges to play effectively the role of financial terms,(McMillan & Schumacher, 2001).

Mostly, in Southern African Countries, the main funds suppliers for domestic economic activities support are the commercial banks, development banks and micro-finance institutions, and in Mozambique is not different. However, the banks and other financial institutions are there, the insurance companies also provides funds for domestic investment purposes, in order to raise up domestic savings. Insurance institutions is known as on-banking financial institution but provides funds for domestic investment, although they have limited resources (International Monetary Fund). Most of these fund institutions have their investment off-shore and mainly invested by South Africa institutions, and this has placed a larger expectation on commercial banks in Sothern African to provide credit that can still contribute for the economic growth.

The commercial banks in Southern Africa, like Namibia, Mozambique, South Africa, and among others, are expected to drive economic growth by providing credit to the important sectors of the economic class. The central banks of each country, are in charges of supervising the commercial banks in the country, and daily the concerns are raising by increasing household credit, dominated by instalment credit, overdrafts and other different loans, (World Bank, 2016). The banking sectors largely seen as the main

way for the financial crisis transmitted through the cross border activities between banks and other financial institutions. However, in the Southern Africa Countries, the economies and financial institutions were relatively resilient as a result of their limited exposure to the sub-prime mortgage. For instance, starting from the last month of 2021, enterprise in Mozambique started witnessing limited effect of the crises on the banking sector and incessant tightening of credit condition. South Africa registered the growth of the banks 'flow of credit to the private sectors.

The fall in credit flow to the private sector seems like to be peculiar to other countries and due to the credit tightening, many small, medium enterprises and household were affected drastically. Economic growth theory believes that financial institutions specially bank is considered a useful instrument for improving the channel of capacity of the economy and its crucial internal source of fund for any country especially in the birth stages of economic growth (SCHUMPETER, 1911).

The region is distinct from the rest of Africa, with a robust mining sector and comparatively developed secondary and tertiary sectors. Many countries, with the exception of Mozambique and Malawi, have relatively well developed infrastructure, and their economy is mainly by exportation of platinum, diamonds, gold, copper, cobalt, chromium and uranium. Southern African countries still faces some of the problems that the rest of the continent does, (African Economic Outlook, 2020).

In sixteen SADC countries, Botswana and Namibia are full of diamond production and it lifted up the economy of those countries. Despite this, Zimbabwe is facing a huge economical problem through sanctions imposed by the west (United State of America and European Union in 2001 and 2002), and they maintain a smaller banking and real estate sector along with what remains of its manufacturing industry, despite a protracted economic crisis. Zimbabwe's Balance of payment position has deteriorated significantly since the imposition of the sanctions, and the international credit market was blocked following the enactment of Zimbabwe Democratic and Economy Recovery (ZIDERA). The country has been forced to virtually operate on a hand to mouth basis, resulting in a

significant build-up of external debt arrears, therefore, in this unfavorable development has worsened the country's credit worthiness as the country's international financial risk profile escalated. Most global banks have their regional offices in South Africa in Johannesburg, (World Bank, 2018).

In terms of economic strength, South Africa is the dominant economy of the region, where, generally, mining, agriculture, the public sector and tourism dominate the economies of Southern African Countries, (African Economic Outlook, 2023).

According to African Economic Outlook (AEO) 2023, published by the National Statistic Institute (INE), Mozambique's real GDP contracted for the fourth quarter of 2022 was estimated in 4.9%, but in the third quarter of 2023 reached 5.92%, and in the fourth quarter it slowed down to 5.36%, about $43 billion US dollar at the end of the year in purchasing power parity terms, the strongest since 2015, compared to 4.4% in 2022. As the official data. Economic growth picked up momentum on the back of strong services production and the start of LNG production. After a modest recovery in 2021, growth gathered pace in 2022, reaching 4.2%, and was expected to accelerate to 6.0% in 2023 as LNG production at the coral South offshore picks up. The argument that the banking sector development is positively associated with the economic growth attracted the attention of many researchers and has been investigated empirically by many researchers worldwide.

According to Schumpeter (1911), Economic growth theory believes that financial institutions, especially banks are considered as useful instrument for improving the productive capacity of the economy and represent an important internal source of fund for any country especially in the birth stages of economic growth.

One of the role of banking sector is the intermediation between deficient and sufficient economic units, mediating between lenders and borrowers. The banking system is trying to reduce transaction and information costs that appear, and as a result of the financial markets imperfections, as a crucial part of the financial sector, banking sector facilitates

the allocation of resources across time and space in the uncertain environment (World Bank 2006).

1.3 Mozambique's economic Stage

According to World Bank report (2023), the Government of Mozambique approved a package of economic acceleration measures to boost the private sector. The report calls for accelerating these efforts and outlines reforms aimed at reducing the cost of doing business and strengthening the role of services sector as a backbone of the economy. Mozambique has a mixed economy combining both traditional and market economic systems. The country is rich of different mineral resources, such as Coal (high quality cooking and thermal coal), graphite, iron ore, titanium, apatite, marble, bentonite, bauxite, kaolin, copper, gold, rubies, and tantalum. Although Mozambique is high range of the mentioned resources, today's economy continue to be dominated by agriculture. The major exports include pawns, cotton, cashew nuts, sugar, citrus, copra, coconuts and timbers.

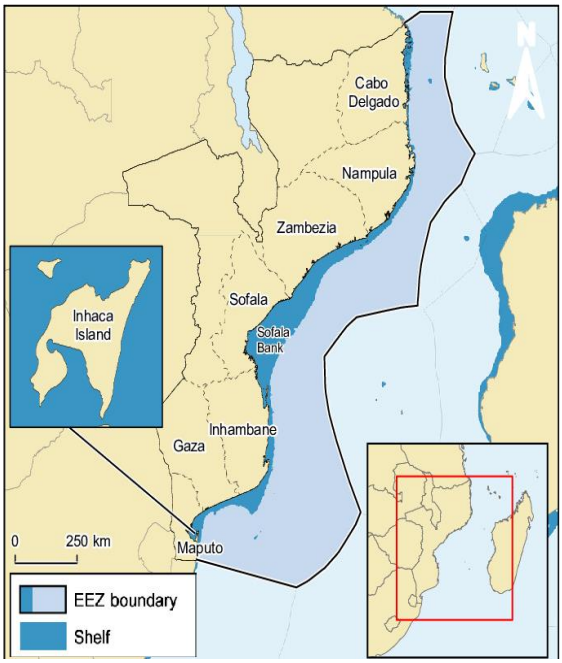
According to geographic map, Mozambique boarders Tanzania, Malawi, Zambia, Zimbabwe, South Africa, and Eswatini. Its long Indian Ocean coastline of 2.700 kilometers faces east to Madagascar, although SADC is compost by 16 countries.

About two-thirds of its estimated 33 million (2022) people live and work in rural areas. The country is endowed with ample resources, including arable land, abundant water sources, energy, and mineral resources, as well as newly-discovered deposits of natural gas off its coast. The country has three deep seaports and a relatively large potential pool of labor. It is also strategically located: Four of the six countries it borders are landlocked and hence dependent on Mozambique as gateway to global markets. Mozambique's strong ties to the region's economic engine, South Africa, underscore the importance of its economic, political, and social development to the stability growth of Southern Africa as whole, (World Bank, 2023).

Economic growth picked up momentum on the back of strong services production and start of LNG production. After a modest recovery in 2021, growth gathered pace in 2022, reaching 4.2%, and was expected to accelerate to 6.0% in 2023 as LNG production at the Coral South Offshore facility picks up. Growth was mainly driven by the recovery of services and the start of liquefied natural gas (LNG) production at the Coral South Offshore facility. Total public debt declined in recent years, and it is assessed to be sustainable in a forward-looking sense. However, risks are titled to the downside in the medium term. Headline inflation hiked to 10.3% in 2022, from 6.4% in 2021, as global prices surged due to war in Ukraine. A tighter monetary policy has supported the local currency (metical) and helped moderate inflation which stayed at 4.9% in August of 2023 (Africa Economic Outlook, 2023).

Figure 1: **Mozambique boarders**

Figure 2: **Mozambique economic zone**



Source: Both from World Bank, economic background report, (2023)

The national poverty rate surged from 48.4% to 62.8% between 2014/15 and 2019/20. The number of poor people increased from 13.1 to 18.9 million, reflecting mostly the impact of natural disaster, such as cyclone IDAI and in 2021 due to COVID 19 pandemic, that slower economic activities, (World Bank, 2022).

Economic growth in Mozambique slowed slightly in the fourth quarter of 2023 to the equivalent of 5.36% of gross domestic product (GDP), according to the central bank(BM), and National Statistic Institute (INE), February 15, (2024)

1.3.1 Mozambique Economy Expansion

According to National Statistic Institute, (Feb. 15, 2024), the gross domestic product of Mozambique grew 4.67% year on year in the second quarter of 2023, following a 4.17% rise in the previous three months period. The main driver of the expansion was the primary sector (8.98%), particularly mining and quarrying (42.71%) and agriculture, livestock, hunting, forestry and logging (3.11%). The services sector (4.24%) also contributed positively to the GDP, on account of auxiliary transport activities, along with information and communications (6.85%), hotels and restaurants (5.51%), and financial services (3.4%).

The industrial sector contracted (-6.52%), dragged down by construction (-10.43%, manufacturing (-7.72%) and electricity, gas and water supply (-0.18%).

The International Monetary Fund (2023), reveals that although financial soundness indicators paint a healthy picture for the aggregate financial system, bank-level data show pockets of vulnerability, especially among smaller banks, as very high interest rates drive up NPLs (non-performing loans), reads the IMF reports on the approval, in the third evaluation of the implementation of the Extended Credit Facility ECF) program in Mozambique. It adds that, although the financial system is relatively stable, the persistently high real rates increase financial stability and government financing risks, at a time when by decision of the Central Bank, the monetary policy interest rate was several months ago, left at 17.25%. At the same time, reserve requirements close to 40 percent constrain the ability of the banks to finance the sovereign, the IMF also notes, alluding to the monetary policy applied last year by the bank of Mozambique.

Data from the central bank, indicate that 15 commercial banks operate in Mozambique in addition to credit cooperatives and savings and credit organizations, among others. The Bank of Mozambique recognized, December 2023, an increase in non-performing loans (NPLs) in Mozambican banks in the first half of the year, which went from moderate to high risk.

1.3.2 Mozambique GDP (2021 to 2023)

The economy of Mozambique advanced by 5.36% from a year ago in the fourth quarter of 2023, following a 5.92% growth in the previous three month period , which was the strongest since the last quarter of 2017. The economic slowdown was mainly attributed to the slower growth of the extractive industry.

Table1.3.1: **GDP Annual Growth Rate**

Calendar	GMT	Reference	Actual	Previous	TE Forecast
2023-11-28	08:30 AM	Q3	5.92%	4.67%	4.5%
2024-02-20	09:15 AM	Q4	5.36%	5.92%	5.0%
2024-05-27	03:00 PM	Q1	-	-	4.7%

Chart 1: **Fourth quarter, 2021**

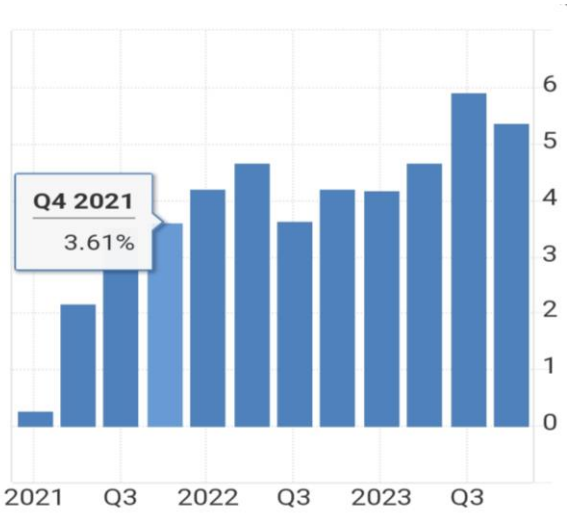


Chart 2: **Fourth quarter, 2022**

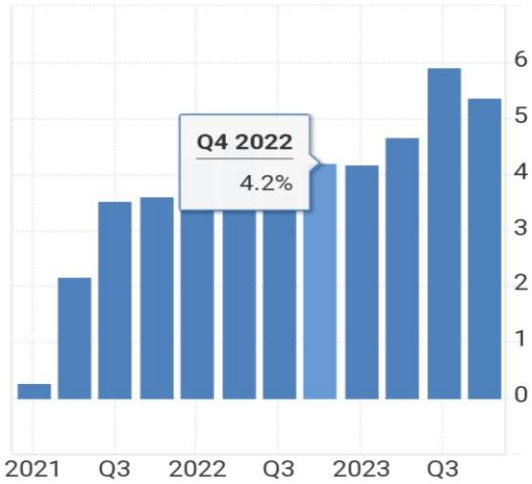
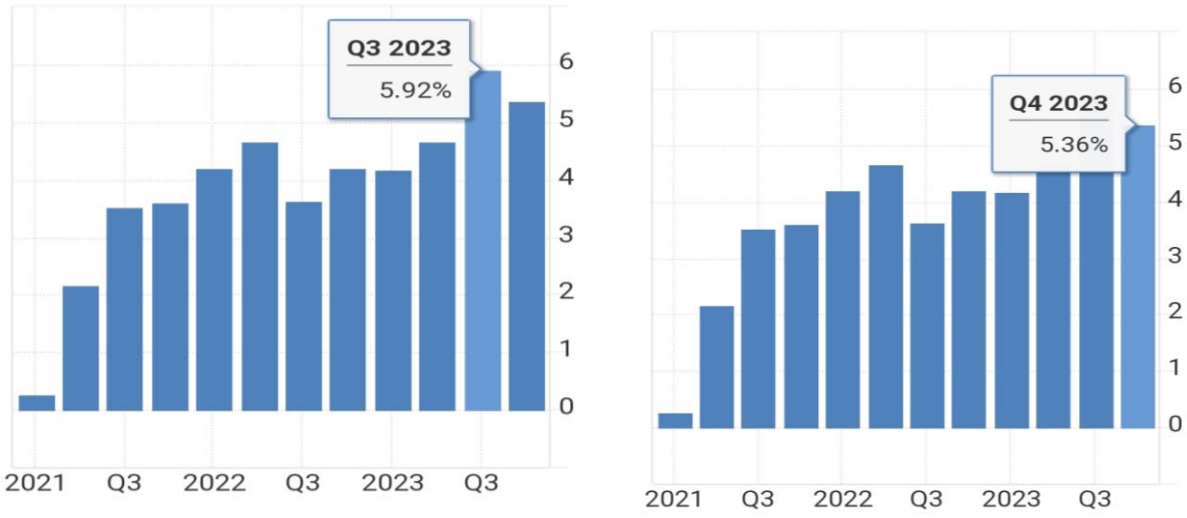


Chart 3: **Third quarter, 2023**

Chart 4: **Fourth quarter 2023**



Q4-2021 (3.61) + Q4-2022 (4.2%) + Q-2023 (5.36%) = Total medium (4.6%) +/- (5%)

Source: Table and chart, extracted from the National Statistic Institute, (INE, Feb 2024)

1.4 Mozambique development challenges

In 1990, Mozambique was one of the poorest country in the world, with the poverty estimated to reach 80% of the population. At the stage, a Millennium Development Goal of reducing this proportion half posed a very difficult target to meet. After 16 years civil war, in 1992, Mozambique experienced a stronger growth and stability INE, (Feb 15, 2024).

According to the Mozambique National Statistic Institute, (Feb 15, 2024), registered that from 2008 to 2015, the Mozambican economy kept growing at a similar stable pace, but from 2021 to 2023, the country is faced different challenges which destabilized development, such like:

1.4.1 COVID 19

The economic growth rate has declined further in recent years, by the pandemic virus “COVID 19” that create a huge health problems with registration of many deaths which the WHO decided to implement hard restriction in order to fulfill the norms for distancing and isolation, therefore, many institutions were closed and it contribute a lot to the economical regression in the World and especially in Africa, due to lack of prevention means, which Mozambique was part of these countries threatened by the epidemic (African Economic Outlook, 2023).

1.4.2 Armed conflict (Terrorism)

According to the United Nations report (2021), the Province of Cabo Delgado, north Province of Mozambique has been escalating terror attacks since 5th October 2017, attributed to the Islamic State Jihadists, IS-Mozambique, locally known as Al-Shabaab, has forced thousands of terrified civilians to flee the northern villages of Cabo Delgado, by killing people, burning and loot goods. It is especially impacted by poor infrastructure, lack of schooling and basic health care, and weak law enforcement. Deficient coast patrolling has created opportunities for illicit trade, including of precious minerals, timber, as well as drugs. Natural resources exploitation, including investment in large natural gas reserves, has not delivered for the economic and living condition for the local population, and discontent has fostered radicalism among unemployed local youth. Recurrent waves of violence started in 2017 and led to over 4,500 deaths and a peak in IPDs estimated at over 900,000 in 2021. The IDP count has been gradually declining as the state regain control of the territory with support from Rwandan and South African Development Community military forces, and as of end-April 2023.

1.4.3 Climate change

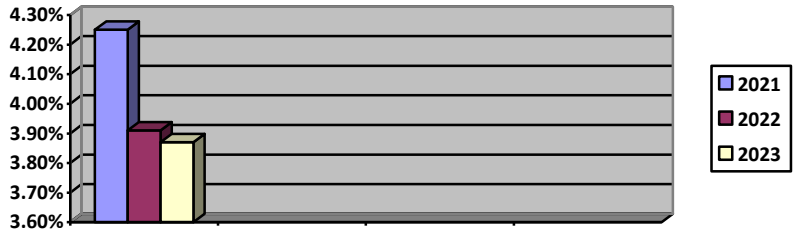
Climate change have entail significant risk to macro financial stability, and non-financial corporate sectors faced risks from climate damages and stranded assets such as coal reserves in Tete Province, that become uneconomic with carbon pricing and the disruption could affect corporate balance sheet quality. Mozambique's contribution to global greenhouse gas emissions is minimal at 0.21% and the country is one of the world's most vulnerable to climate change. The most critical economic sectors vulnerable to climate change in Mozambique are agriculture, transport, and potentially energy, since this sectors contributes a lot for economic stability.

Climate impacts increasingly affects growth and livelihoods in Mozambique, impacting its people, infrastructure, and natural resources. In Mozambique, poverty and inequality levels are among the world's highest compound by fragility, conflict and violence, especially in the northern, gas rich province of Cabo Delgado, implemented without adaptation action of climate change impacts, it could drive an additional 1.6 million people into poverty by 2050, under the worse scenario, (World Bank, 2023). The Information agency of Mozambique estimated that the level of investment needed until 2030 to achieve climate resilience of Mozambique's human, physical, and natural capital amounts to 37.2 billion US dollars, but the costs of inaction will likely be higher.

1.4.4 Poverty and unemployment

According to the World Bank report, (2023), Mozambique unemployment rate dropped to 3.87% in December 2023, from the previously reported figure of 3.91% in December 2022. Mozambique unemployment rate is updated yearly, available from December 1991 to December 2023, with an average rate of 3.10%. In Mozambique, the unemployment rate measures the number of people actively looking for job as a percentage of the labour force.

Chart 5: **Unemployment percentage**

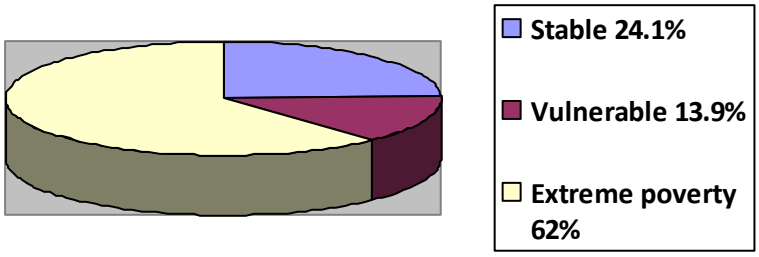


Source: From author data

Based on different estimation, 61.9% of the population in Mozambique (19.866 thousand people in 2021) is multidimensional poor while an additional 13.9 % is classified as vulnerable to multidimensional poverty (4.466 thousand people in 2021). In 2023, 62% of the population lived in extreme poverty with the poverty threshold at 1.90 US dollars a day, which corresponded to a roughly 21 million people in absolute number (IMF, 2023).

Mozambique, in 1990 was one of the poorest country in the world, with poverty estimated to reach 80% of the total population, and now it is part of the 10 poorest country in Africa with a GNI per capita of $56, due to the population growth level, high school drop rate, unemployment, natural disaster, climate change, COVID 19, and inequality that reduced the potential form economic growth to generate significant gains in reducing poverty, (world Bank, 2023).

Chart 6: **Poverty rate chart**



Source: From United Nation report (2023)

1.4.5 Natural Disasters (cyclone, floods and drought)

According to the United Nations Global Assessment Report on Disaster Risk Reduction (2023), Mozambique is the third most vulnerable country in Africa to disaster risks. Frequent natural disasters disrupt livelihoods and food production of the most vulnerable people, undermining the fight against extreme poverty, During the 35 years there were 75 declared disasters in Mozambique consisting of 13 drought events, 23 floods, 14 tropical cyclones and 23 epidemics, (National disaster institute, 2016). Approximately 80 percent of the Mozambican population relies on rain-fed agriculture for their subsistence, which is sensitive to extreme climatic events as well as pests.

Widespread (cyclone IDAI in March 2019, Shalane in December 2020, Freddy in March 2023), damage to public infrastructure and services were reported, including over one thousand schools, many health units and close to four thousand kilometers of roads were destroyed. The damage to road infrastructure severely affected movement across

the country which had a serious impact on economic activities such as trade, creating negative impact to GDP growth.

1.4.6 Corruption

According to the Transparency International Department, Mozambique ranks 145th out of 180 countries in the “corruption Perceptions Index” for the public sector in 2022, and it is the 142nd least corrupt nation. In 2016, Mozambican authorities uncovered a corruption scandal involving Mozambican government officials and “hidden debts” amounting to approximately $2.7 billion USD. This led to an economic collapse and an increase in unemployment rates. This was due to the most famous case that had become known as the secret debt scandal, where between 2011 and 2013, then-President Guebuza was presented a proposal to create a tuna fishing fleet, a maritime security company, and a ship repair and Maintenance Company (Hanlon, 2017). Corruption thrives in Mozambique due to a lack of transparency, lack of independent oversight from National Assembly, a judicial system that puts politics above the law, creating high possibility of growing fragility across economic, escape to the tax authorities, political, environmental and security dimensions in Mozambique. It scored 25 points out of 100 on the 2023 Corruption Perceptions Index reported by Transparency International.

1.4.7 Timbers contraband and drugs trafficking

According to the United Nations office report (2020), Mozambique is increasingly being a Centre of attention for having a considerable registration of growing threat of illicit trade on the East African coast. From heroin from the west Asia arriving and transiting through the region, to ivory and timber leaving its ports to reach Asian markets, the region is growing hub with dire consequences to fragile economies. In response to these challenges that threaten peace and stability in the country and the wider regional

security of the Southern Africa Development Community (SADC) region, UNODC Executive Director (Yury Fedotov), identified Mozambique as a priority country to benefit from the deployment of UNODC surge capacity, including the assignment of Mr. Guedes to coordinate a comprehensive offer of assistance bringing together expertise across UNODC mandate areas to give response to these illicit, by container control at sea ports and air cargo, and this was first launched in April 2019.

1.5 Mozambique and SADC Trade

The SADC protocol on trade (1996), as amended in 2010, is the one of the most import legal instruments guiding SADC's work on trade. It is an agreement between SADC members Sates to reduce customs duties and other barriers to trade on imported products among SADC member state. Mozambique was a member of the Informal Organization of Frontline States since its independence, being a founding member of SADCC in 1980 and later in SADC in 1992 (African Economic Outlook report, 2022).

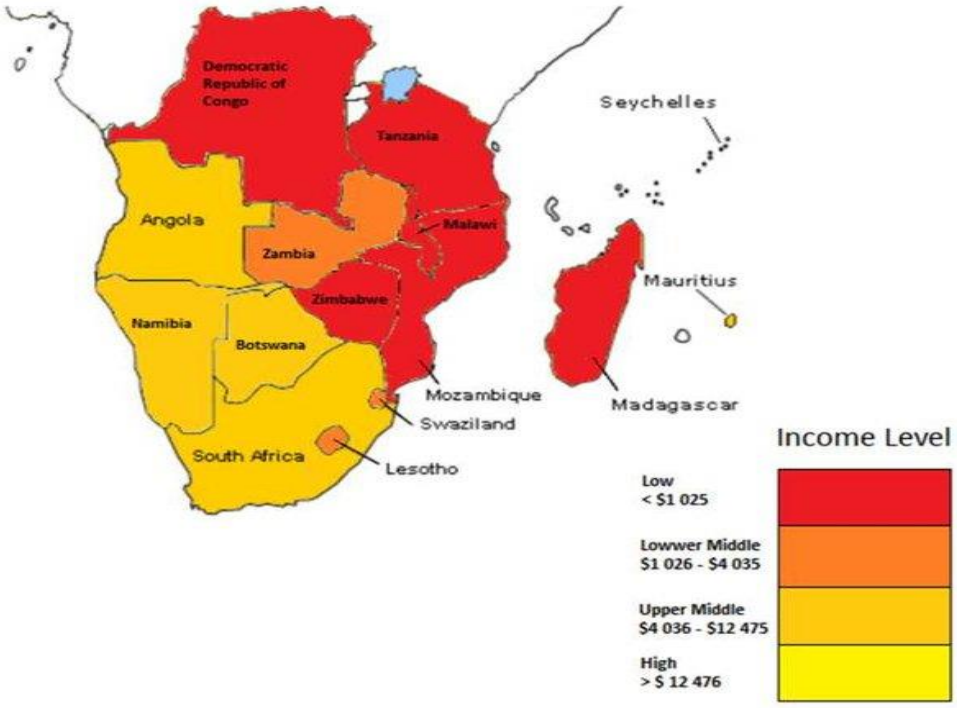
According to the latest African Union Regional Integration Report (2021), together with the African Economic Outlook (2022), there is an improvement in the southern African Development Community (SADC) intra-trade which has risen to 23% up from 19% in 2021. This improvements reflects the impact of ongoing efforts to roll out various provisions of the SADC Protocol on trade, including the implementation of simplified trading arrangements that have enabled an increase in informal cross-border trade covering both agricultural and non-agricultural commodities.

The SADC headquartered in Gaborone, Botswana, and the trade agreement that currently consists in 15 countries in a total of 16 members, mainly located in Eastern and Southern Africa. All member states comprise a total area of 3.80 million square miles 9.85 million km^2 and about 389.40 million people (www.world.data.info.sadc, 2021).

1.4.1: **Average Score Table**

Average Score	**Countries**
5 and above	Mauritius
4.5 – 4.99	South Africa, Mozambique and Namibia
4.0 – 4.49	DRC, Eswatini, Comoros, Madagascar
Below 4	Zambia, Lesotho, Malawi, Tanzania, Botswana, Zimbabwe

Figure 3: **Southern African Countries Income level map**



Source: From AEO report (2022)

1.6 Problem Statement

The facilitation of capital formulation for private investment purposes mainly require the availability of domestic savings and in some instances foreign assistance through aid and borrowings. Southern countries, like South Africa was classified, in Africa as an upper middle income country by the World Bank. This classification showed that the country with now higher income per capita will no longer qualify as a recipient of foreign aid from the World Bank, and it is now belonging to the seven countries namely Mauritius, Botswana, Namibia, Equatorial Guinea, Gabon, and Libya. Southern African Countries, had to heavily depend on the domestic financial system to play the critical role of financial intermediation to provide funds for different investments. So, this increased the important role that commercial banks as the dominant institutions in the financial system in term of credit extension.

Despite the important role that the banking sector has to play in the Southern African economy, the actual impact that the banking sector has on economic growth has not been thoroughly interrogated. While the total loans and advances of banking sectors have raised during 10 years, the economy of some Southern African Countries (SADC), such as South Africa, Mozambique and Zambia is stable and efficient, (African Economic Outlook, 2023). The Southern African countries economy has only grown at an average rate of 2.7% between the end of 2023 and beginning of 2024, over the same period of 2022 weighing down the environment further is the external debt burden which is forecast to remain high across the southern African region, where in 2022 it stood at 48%, (World Bank, 2022). This growth rate is below the targeted annual growth rate of 3.3%, that the government deems appropriate to achieve the vision of 2023, a long-term branch economic objective, in order to reduce the unemployment rate and income inequality. The problem highlighted above, necessities the conduct of this study, which will contribute to the literature with regard, Calderon and Liu (2002), define financial sector development as enhancements in quantity, quality and efficiency of financial products and services offered by intermediate institutions.

1.7 Purpose an significance of the research

According to the characteristics of the banking sector in Southern Africa and the important role that banking institutions can play in the Southern African economy, especially in Mozambique, the extent to which their activities have influenced economic growth has not been interrogated over the years, and there has been significant transformation in the banking sector as the security code changed, the increasing of new banks, such like ABSA bank and Mozabanco Bank, that focused in the level of inclusion.

1.8 Research questions and Scope

The main objective of this study is to analyze the existing relationship between commercial banks development, as the largest domestic credit provider in the economy and economic growth of Mozambique, located in Southern Africa region during the period of 2021/12 to 2023/12. Firstly the study will investigate the influence of the Mozambican banking sector development on economic growth by estimating the short-run and long-run relationship for the period above, by employing the autoregressive distributed Lag (ARDL) test of co-integration. The results will help to evaluate the effectiveness of Mozambican banking sector and its impact on the economic activities. It will also help to determinate the direction of causality between commercial banks development indicators and economic growth over the period above to stablish whether commercial banks development results from the development in the real sector or whether expansion of the banking sector precedes economic growth. This study will attempt to answer the following research questions:

1. Does commercial banks influence the economic growth?
2. What is the direction of causality between banking sector development and growth of the real sector?

Hypothesis 1:

H0: There is no relationship between banking sector development and economic growth.

H1: There is a relationship between banking sector development and economic growth.

Hypothesis 2:

H0: There is no causal relationship between banking sector development and economic growth.

H1: There is causal relationship between banking sector development and economic growth.

1.9 Research Assumptions

The underlying assumption of this study is, banking sector development according to its size and depth, efficiency and stability has a positive impact on economic growth. This assumption is based on the view which for an economy to expand, it would require funding and most of this would likely come from the banking sector as it is the largest domestic lending sector in the economic base.

The second underlying assumption is that the direction of causality runs from the banking sector development to the real sector based on the argument that banking sector development is a necessity for economic growth.

The paper's outcomes are expected to be useful to policy makers in developing strategies to enhance the role of banking sector and promote the economic growth. It is also useful to researchers and the academic body of knowledge, as the research will enrich the existing theoretical framework regarding the role of banks as essential drivers of any economy. There are few studies that have investigated the relationship between banking industry and economic growth in underdevelopment country, such as Mozambique, but the researcher will take into account a new investigation and variable to express the role of banking sector.

1.10 Organization of the study

This research study is divided into six chapters. Starting by the introduction, chapter two presents an overview of the literature reviewed, both theoretical and empirical, for the Sothern African countries banking sectors lightly, and take deeper on Mozambique especially. The theoretical literature covered the review of the evolution of theories on banking and financial sectors development and economic growth, while the empirical literature presents the outcome of various studies conducted on the topic in different field. Chapter three provides a description of the methodology employed in the study, as well as the data used, its source and description of the choice of variables considered in the model. Chapter four presents the results and the detailed empirical analysis of the study on which the conclusion and recommendation is based. Chapter five presents the discussions of the study, and finally chapter six presents the recommendations for future research and policy implications.

2 CHAPTER TWO: Literature review

2.1 Introduction

In this chapter is allocated the summary of a literature that is available in the role of financial sector development in general and the banking sector play in influencing economic growth, and in regard of this, the chapter will start by introducing the definition of banking sector development, this before presenting the overview of the Southern Africa with strong evidence in Mozambican banking sector and the various theories underpinning the role of banks and credit in fostering economic growth.

In this section will be present the review of empirical studies that is conducted on the subject in various countries inside the Southern Africa, in a specific focus according to variables examined, methodology employed and the outcome established. In the final step, the section will conclude with the review of literature conducted on Southern Africa country (Mozambique), and provide more justification for conducting this study in Mozambican context.

2.2 Defining Banking Sector Development

In general vision, banking sector development indicators only focused on the size and depth of the banking system services and products to the broader population and its efficiency in the process of financial intermediation and stability for resilience in compliance with banking systems to negative shocks (WORLD BANK, 2006).

The conventional measures of banking sector development only considered the ratio of broad money supply (M2) to GDP and the ratio of private credit to GDP, all have been used in measuring the causal effects of financial development on economic growth (WORLD BANK, 2006). Mostly, the traditional measures ignore the banking branch and Automated Teller Machine (ATM) network and the average loans and deposits size return on assets, net interest margin, capital adequacy ratio (CAR), non-performing

loans (NPL) and liquid assets ratio. These measures defines the size and depth, efficiency and stability of the banking sector.

In this study, banking sector development is defined as an increase in the size and depth of the banking sector services with improved efficiency and broader access to final services and products which are stabilized and extended by stable banking system. So, this explanation is aligned to the development indicators contained in the World Bank Financial Sector Operation and Policy (WORLD BANK, 2006).

2.3 Overview of the Mozambican Banking Sector

In Africa, the banking system is largely dominated by foreign-owned financial institutions. Like in Mozambique, one of the Southern African country, the banking sector is regulated by the Central Bank (Bank of Mozambique), which the objective is to serve as the state principle instrument to control money supply to ensure financial stability, price stability and economic growth (Bank of Mozambique, 2012).

There are 19 commercial banks out of a total 40 financial institutions. The largest banks are Millennium BIM (Portuguese and Mozambican shareholders), BCI (Portuguese and Mozambican shareholders), and Standard Bank (South African Shareholders). These three banks hold over 70% of all financial assets including deposits and loans. They also cover all major cities and areas of economic growth. Local commercial banks provide most services expected from commercial banks, including some investment banking services, and the largest banks have representation offices in Europe, U.S.A and China, (World Bank 2012).

In Common for companies and individuals to hold multiple currency accounts, the U.S. dollar, euro, and South African rand are common commercial currencies. Foreign currency payment are accepted in most formal commercial establishments, especially with the U.S. dollar.

Interest rate in Mozambique can be very high for loans in local currency (metical), usually between 11% and 31% for guaranteed loans. The use of credit card is relatively new making small payments sometimes inconvenient, however in the capital city of Maputo, credit card are regularly used. Mozambican business and consumers continue to adopt formalized financial payment systems, (Bank of Mozambique, 2023).

The authorities' data and IMF reported that policy rate has been at 17.25 percent since September 2022, and the required reserve ratio on local (foreign) currency deposits was raised from 10.5 (11.5) percent to 28 (28.5) percent in February, and 39 (39.5) percent in May 2023.

Mozambican banks' credit to the economy fell to 270.1 billion metical December 2022, the seventh monthly drop seen in 2023, confirming the growing indebtedness of private individuals. Credit to the economy granted by the banks had risen in May 2023 to maximum of 298.1 billion metical, (Bank of Mozambique Statistical Report, 2023).

The Central bank of Mozambique (Bank of Mozambique), which started operating normally after civil war, plays the key role in determining the credit policies which are introduced every year by the banks and directives to the commercial banking sector.

Central Bank (BoM), penalized five financial institutions in 2023

According to Bank of Mozambique Governor, Rogério Zandamela, the Central Bank penalized, over the year 2023, five financial institutions resulting in fines of over 46 million meticais, that is about (719,000 US dollars, at the current exchange rate). The penalization of the banks was a result of violation of their clients' rights, including unanswered complaints, the provision of unreliable and untrustworthy financial information, and misleading advertising, among others.

The Governor Zandamela said that the penalties took place in the field of consumer protection and financial education, a measure taken under the National Financial Inclusion Strategy, which is part of the Mozambican government's strategy for the development of the financial sector.

In addition, the consumer protection with the introduction of severe penalties, as part of the Financial Inclusion Strategy, the basic bank account has been introduced into the national banking system. This is a special current account with simplified identification requirements for opening, which aims to allow needy families to have bank accounts under more flexible conditions, he said.

As part of the strengthening of the financial infrastructure, Zandamela pointed to significant advances, such as the implementation of interoperability between electronic money institutions and banks, as well as the implementation of the Central Registry of Security Guarantees by credit institutions.

As a result of these reforms, the country is increasingly improving its level of financial inclusion, the governor claimed. In order to ensure inclusion in financial Inclusion, today every district in the country has at least one point of access to financial services, and a third (1/3%), of Mozambican population has access to banking services, and 93 per cent of the population has access to the services of electronic money institutions.

The Governor of the Bank of Mozambique, Rogério Zandamela, stated in November 2023 that the country's banking sector is solid and well capitalized, but warned that non-performing credit remains at high levels.

The national banking sector remains solid and well capitalized with the solvency ratio set at 24% in September 2023, corresponding to 12 percentage points above the regulatory minimum, (Bank of Mozambique, 2023).

2.4 Theoretical Framework

It is always good to note that researchers have had opposing views with regards to the role of banks credit extension in promoting economic growth, therefore, while some hold the views that finance plays a critical role in fostering economic development, others believe that finance is an overstressed determinant of growth and as such economic growth precedes demand for finance and this show an evolutions of the theories of financial development and economic growth theory for many years (Mc Millan & Schumacher, 2001).

2.4.1 Walter Bagehot

In finance and economics, the capital is playing a very important role in the business market and its description, whereby Walter Bagehot in 1873, almost 150 years ago, published a his famous book, Lombard Street (1873), with the adages against good collateral at a penalty rate “lending freely”.

The description of the money market refers to trading in very short-term debt Investments. At the wholesale level, it involves large-volume trades between institutions and traders. Bagehot (1873) argues that if English traders use a larger portion of borrowed funds in comparison to their own capital, then they can borrow at low interest rates and they can sell their commodities at much lower price than trader using his own capital and still be able to make higher returns on their own funds after paying for the interest on their loans.

The most objective of money market is to help the central bank in regulating liquidity in the economy. Money market helps short-term fund users to fulfill their needs at reasonable costs. The traders using borrowed capital are able to produce and sell more of their products inducing economic growth and this can enable the industrial revolution, (Schumpeter, 2012).

2.4.2 Schumpeterian Model of Economic Growth

Joseph Schumpeter is also known as a pioneer of financial development and economic theory and he is also considered innovations to be constantly taking place and new methods of production and newer variety of goods constantly replacing other ones. He is well known by his theory of economic development, innovation is the main driving force behind economic growth and the entrepreneur is the ideal type of economic innovation. In his published work in 1934, recognized the role of bank credit in promoting economic development, (Schumpeter, 1934).

Schumpeter introduced 5 types of innovation by where, the first one is development of new products by creative activity, second is introduction of new production methods, third is cultivation of new markets, and fourth is acquirement of new source supply and the last is organizational reforms. He also argued that economic development cannot move naturally but require an entrepreneur or investors to initiate the innovation in order to replace the old technology inducing economic growth by involving technical knowledge and banking credit to purchase good to lead to innovation and eventual growth (Schumpeter, 1934).

2.4.3 Neo Classical Model Growth

Alfred Marshall is regards as the father of neo-classical theory Neo classical theory is based. Neoclassical economics is a broad theory that focuses on supply and demand as the driving forces behind the production, pricing, and consumption of goods and services. It emerged in around 1900 to compete with earlier theories of classical economics.

The Neo classical growth theory outlines the three factors necessary for a growing economy. There are labor, capital and technology, however, neoclassical growth theory clarify that temporary equilibrium is different from long-term equilibrium, which does not require any of these factors, Solow (1956) and Shan (1956).

Solow argued that economic growth is independent of the rate of saving and investing the economy, and capital results from increased from savings to lead temporary growth and only through technological progress can suitable economic development can be achieved, Solow (1956) and Shan (1956).

2.4.4 Endogenous Growth Model

The Endogenous growth theory emerged in the 1980s as an extension of neo classical growth theory. In their 1992 paper called “A contribution to the Empirics of economic growth”, where the economists David Romer, Gregory Mankiw, and David Weil developed endogenous growth theory using the same basic framework as neoclassical theory, (Levine, 1997). The theory has two folds, the first one is the determination of the economic growth and the second one is focused on externalities and positive spillover effects that can lead to economic growth. In overview to this theory, the role that financial intermediation plays with for achieving economic growth, Bencivenga and Smith (1991).

Smith, argued that the efficient financial intermediation that arises when liquidity risk is adequately managed to prompt savers to invest in productive investment that can induce economic growth, (Smith, 1991). The arguments of Saint-Paul (1992), is that a well-developed and well-functioning stock market can promote economic growth through risk sharing by business person.

2.4.5 Financial Repression Hypothesis

This is an indirect way for governments to have private industry dollars pay down public debts. A government steals growth from the economy with subtle tools like zero interest rates and inflationary policies to knock down its own debts. In this framework, financial repression is a way to purchase debt-repayment credibility, meaning that the idea is that governments use banks to help raise funds is a conventional one among historians of

banking who have per suavely argued that the Bank of England, for example, was founded specially to raise funds for war expenditures, where the bank was then governed and regulated to ensure that the government had access to stable source of funding beyond national defense. Financial repression was common immediately following World War II as well, (McKinnon, 1973) and Shaw (1973). He also argued that, historically, many countries both developed and in development suppressed competition in their financial sectors through government interventions and regulations leading to low level of growth, and they believed this to be the case based on the notion that an uncompetitive financial sector leads to lower levels of saving and investment than the level that could otherwise be achieved in competitive market.

2.5 Empirical Literature in Mozambique

This work presents a thorough review of studies on bank efficiency and its effects on banking industry in emerging economies. Empirical evidence that exist presents varies results regarding to the role of banking sector development on economic growth in different jurisdictions examined. In regard of this, whole some researchers established that financial development resulted in an increase in GDP growth of economies of countries they examined, others found that economic growth is the enabler for banking sector and financial sector development. So, in contrast, empirical evidence also exists, showing that other researchers have failed to prove existence of any relationship between banking sector development and economic growth in countries they examined. So, it could be safely be concluded from the available literature that there is no clear-cut relationship between banking sector development and economic growth, but such would vary from country to country.

2.5.1 Size and Depth of the Banking Sector

According to the traditional measure of banking sector development, the size and depth of banking system and financial sector at large are widely used indicators employed in

determining the relationship between financial development and economic growth as well as in establishing the direction of this relationship. The indicators of size and depth of the financial sector include broad money supply (M2) to GDP, private credit to GDP, Central Banks assets to GDP, private credit to deposits, deposits to GDP, etc. For this purposes only the two commonly used indicators of M2 to GDP and private credit to GDP will be considered.

2.5.2 Money Supply to GDP

The country has recovered from 16 years civil war that ended in 1992, and has resumed economic growth, with GDP growing at an average 5.36%, and slowed out of was expected 6% to 2023, due to lower price of the main commodities, and natural disasters, such as cyclones, flood, and drought. The country ranked 138th on the World Bank's Doing Business report (out of 190 economies), and down 3 places compared to 2018, (International Monetary Fund, 2022).

Over the period 2001-2015A number of empirical studies have examined the relationship between money supply in the economy and economic growth coming up with an objective to determine whether or not an increase money supply, measuring monetization in the economy, has any economic growth impact. Was examined the relationship between the banking sector development and economic growth in South Africa, where the result shows that financial development has positive and statistically significant impact on economic growth at 1% level of significance. 1 percentage point increase in credit to the private sector as the ratio of GDP causes 0.015% increase in the real gross domestic product in the long-run, (Odhiambo, 2016). He also used the granger causality test of the co-integration and error-correction model in analyzing the direction of causality between economic growth and financial development for South Africa and give its effectiveness in both large and small samples, (Odhiambo 2004).

Tripathy and Pradhan (2014), examined the relationship between the banking sector development and economic growth in India, where in their study, Tripathy and Pradhan

used the broad money supply as an indicator of the size of the financial system and financial intermediary development among other. The also used the correlation matrix and the granger causality methodology where they stablished a positive bi-directional relationship between broad money supply and economic growth implying that growth in GDP can cause an increase in the broad money supply and vice versa, (Tripathy and Pradhan, 2014).

Kjosevski and Petkovski (2014), adopted the quasi money supply as a measure of the size of the financial sector development, and also they found the coefficient of the quasi money variable to be positive and statistically significant, implying that banking sector development promotes economic growth in the selected European countries and for period examined.

2.5.2.1 Banks Credit

According to what had been discussed before, credit to the private sector is one of the most widely used measure of the size of banking sector development as it captures the financial resources extended to the private sector by banking institutions in the economy, through loans and other account receivables. Timsina (2014), examined the relationship between bank credit extended to private sector and economic growth in Nepal, and the study used the approach of co-integration and error correction Model and stablished a long-run positive relationship between bank credit extended to the private sector and economic growth in line with the financial repression theory.

2.5.2.2 Efficiency of the Banking Sector

The examination held by Sufian, Kamarudin and Nassir (2016) examined the determinants of efficiency in the Malaysian banking sector, taking into consideration the impact that origination of banks would have on efficiency. For better efficiency, Sufian (2016) argued that six bank specific variables in regression model, namely loan loss

provision over total loans, non-interest income over total assets, non-interest expenses over total assets, total loans over total assets, log of total assets and book value of shareholders' equity as a fraction of total assets. The author used the loan loss provision as a proxy measure for credit risk, non-interest income as proxy measure for diversification in tradition activities, and the non-interest expense was used to provide data with regard to how the banks operating cost varies.

Hauner (2005), explained that in terms of efficiency being determined by size, it could either relate to market power, where large banks are likely to pay less for their inputs or it could be because of economies of scale where fixed costs are spread over higher volume of services or as a result of specialized labor force.

The positive relationship between capitalization and efficiency could be supported by the argument that well-capitalized banks face a lower cost of failing and hence they reduce their cost of funding. The positive relationship between non-interest income and efficiency appears to suggest that Malaysian banks with a higher proportion of their income derived from non-interest sources are likely to report higher efficiency level, and this co-efficient was only found to be statistically significant at 10 percent confidence level, (Sufian et al. 2016).

There is a contribution from Aurangzeb (2012), considered the banks on economic growth in Pakistan, where was employed the method of multiple regression analysis to test for the relationship between efficiency and economic growth and Granger Causality Test to determine the direction of causality. In this case, he established that profitability and interest earnings have a significant positive impact on economic growth of Pakistan, then, the causality test indicated a bi-directional relationship between profitability and economic growth running from interest earning to economic growth.

2.5.2.3 Stability of the Banking Sector

A stable financial system is capable of efficiently allocating resources, assessing and managing financial risks, maintaining employment level close to the economy's natural rate, and at the same time eliminating relative price movements of real or financial assets that will affect monetary stability or employment level.

In 2010, the government of Mozambique through the International Monetary Funds (IMF), encouraged people who wanted to invest and make available loans for many, where each district was endorsed 7.000.000, 00 meticais equal to 127.272,72 American dollar to run different project but the end of this was tragically because the project were closed and the money was not returned creating a very big economic gap to the Country, (International Monetary Fund, 2015).

According to the Central bank report (June, 2023) "Bank of Mozambique" the banking sector remained solid and resilient during the period under review, with growth in earning and adequate level of capitalization and liquidity, meanwhile, in terms of asset quality, the non-performing loan ratio stood at 8.97%, above the acceptable benchmark of 5.0%. Mozambique's banking sector has grown rapidly in recently years on the back of the country's resources boom. The World Bank, (2009) argued that the Mozambique's overall macroeconomic performance in recent years has been impressive and as a result, the banking sectors soundness in particular assets quality improved substantially, and between end of 2003 and 2008, non-performing loans (NPLs) for the system as a whole declined dramatically from 14.4 to 2.9 percent reflecting the restructuring of bank problem and assets for a supportive macroeconomic environment.

2.5.2.4 Capital Adequacy Ratio

Capital adequacy ratio measures the bank's capital as a percentage of the r risk weighted credit exposure and used to enhance the stability of individual banking institutions as well as the entire system on expected and unexpected losses offsetting. It is much expected that the banks facing higher capital requirements are likely to reduce

credit supply to the real sector as they become much conservative and hold a significant portion of its equity and partly debt in capital reserves to off-set losses that may slow down the economic growth.

Martynova (2015), conducted a survey in a quest to stablish the effect of bank capital requirements on economic growth by several reviewing to explore the relationship between bank capital and economic growth. Martynova, stablished short evidence of direct effect such as impact of banks capital on credit supply, bank assets risk and cost of bank capital which in turn can affect economic growth. In a different study, were examined the impact of bank capital on economic activity using a mixed-cross section global vector autoregressive model for the 28 European Union economies and sample of 42 significant listed European banking groups., (Gross, Kok and Zochowski, 2016). The study concluded that raising the capital ratio requirements for banks can result in materially reduced economic activities in the EU countries.

There is further findings supported by the study conducted by the Institute for international Finance (2011), which covers a different variety of regulatory reforms including new capital, in the United States, Eurozone, Japan, United Kingdom and Switzerland, Goss et al. (2016). The study stablished that following the financial crisis of 2008 and 2009, the regulatory reforms that led to, increases in capital requirements led to US bank lending rates increasing by around 5 percent in 2011 to 2015, and GDP growth declined by around 3 percent compared to the no reform level, and the view shows that higher capital requirements in banks will lead economic activities, (Admati, 2011).

Admati (2011), still argued that higher capital requirements do not force banks to stop lending but only encourage them to fund with relatively more equity, and it seems to be little empirical evidence that supports his assertion. The Mozambique economic Outlook defends that the fiscal deficit is projected to slightly deteriorate in 2023, to 4% of GDP, impacted by the wage bill, before turning to a deficit 3.6% of GDP in 2024.

2.5.2.5 Assets Quality

The quality of loans and advances extended by the commercial banks is measured by the percentage of Non-Performing loans (NPLs) to total loans. According to International Monetary Fund (2005, p.4) (IMF), a loan is non-performing when payments of interest are past due 90 days or more, or interest payments equal to 90 days or more, have been capitalized, refinanced, or delayed by agreement, or payments are less than 90 days overdue, but there are some other reasons such as debtor filing for bankruptcy which leads to doubt that payments will be made in full.

Murumba (2013), assessed the relationship between Real GDP and NPL in Nigeria in a period of 1995 to 2009, using the Person Product-Moment Correlation Coefficient to analyze the time series data, the study established existence of a significant and positive relationship between real GDP growth and NPL in the Nigerian banking sector. This findings of Murumba (2013), contrary to popular beliefs that positive growth in real GDP will lead to a decline in NPL since people are actually better off in environment of high GDP growth and are able to service their loans. So, this argument is supported by studies conducted by Jordan and Tucker (2013), on the extent to which economic output affects NPL in the Bahamas as well as a study by Morakinyo and Sibanda (2016) shows in which they assessed the long run determination of economic growth by NPL in Nigeria. Apart of different methodologies employed, Jordan and Tucker (2013), used the Vector Error Correlation model and Morakinyo and Sibanda (2016), employing the endogenous growth model, both arrived to the conclusion that the relationship between growth in GDP and NPL is negative.

2.5.2.6 Liquidity

Liquidity can be defined in the context of funding liquidity as well as market liquidity. It is defined by the Basel committee of banking supervision as the ability of banks to meet their liabilities. Bank management must ensure that sufficient funds are available at a

reasonable cost to meet potential demands from both funds providers and borrowers, (World Bank, 2012).

Market liquidity is defined as the ability to trade an assets at short notice, at low cost and with little impact on its price, and liquidity is fundamental to the well-being of financial institutions particularly banking, (Sekoni, 2015). As the study carried out by Ojiegbe, Makwe and Oladele, to determine the effect of bank liquidity on economic growth in Nigeria, using data from the central bank of Nigeria statistical bulletin covering the period of 1980 to 2013, employed the Ordinary Least Square (OLS) regression analysis and econometrics co-integration test, where from the OLS test, the study established a significant and positive relationship between total bank credit ratios and economic growth in Nigeria, implying that high liquidity in banks leads to increases in banks credit ratios and eventually in economic growth. The results established a positive coefficient for liquidity creation measures implying that liquidity creation role of banks is beneficial for economic growth.

2.5.3 Empirical Studies on Mozambique

There is a few number of empirical studies conducted on the relationship between the financial sector development and economic growth in Mozambique, so, only one study on this topic has been published in a credible journal on the Selinus university, about Mozambique located in Southern Africa, and the author's knowledge. So, all the other studies conducted on related topic were found to be academic thesis and were not published in any reliable journals. The only study considered credible in this regard is by Anthony Adu-Asare Idun, who investigated the effect of bank market power on economic growth in Africa: role of institutions employing the GM. This study was first of its kind as there was no any other study conducted before on this topic in Mozambique.

So, there is a difference between the studies because the one before employed the GDP per capita, and the ratio of investment to GDP as measures of economic growth.

The author cautioned that the results of this study should be interpreted with caution given the fact that a small sample size was used.

2.6 Conclusion

According to many studies reviewed, it is clear that there is uniformity in terms of the proxy used to measure economic growth, which is measures by GDP. There are various proxies used for measuring the banking sector as well as the stability of the banking sector. In terms of the methodology, most studies reviewed employed the co-integration and Error Correction Model, with a few others making use of the multiple linear regression analysis to stablish the relationship, while the granger causality test was used in determining the direction of this relationship. So, some were deduced further from the review of the literature, the empirical literature is inconclusive with regard to the relationship between banking sector development and economic growth according to development level attained by the country, as this relationship has been found to be positive in some jurisdictions, and negative in some insignificant cases. This study will be considered as the first topic conducted on Mozambique.

3 CHAPTER THREE: Research data and methodology

3.1 Introduction

This chapter presents the methodology employed in the study in an effort to establish the impact that the banking sector has on economic growth in Mozambique. The section begins by explaining the econometric methodology used and presenting the model specification before it goes on to explain the used, the period covered, its source and frequency. The section provides the sampling method employed to analyze the data collected and the section closes off by highlighting the research validity and reliability as well as its limitation.

3.2 Research Approach and Strategy

According to McMillan and Schumacher (2001), research design is a plan for a study that sets out the activities to be undertaken, such as data collection procedures and sampling strategy in order to provide answers to the research questions, and the study makes use of quantitative approach by employing mathematical, statistical and numerical analysis of the data to stablish the relationship among measures variables. The study is much more for explanatory nature in the sense that it employs an econometrics model to analyze the relationship and cause factors between various bank specific variables and the macro-economic variable. By this research approach allowed for the quantitative data collection for all the variables considered in the study in order to answer the research question and achieve the research objectives.

3.3 Specification of the Model

The model is specified based on the empirical literature reviewed by the relationship between banking sector development and economic growth in various jurisdiction. The model is specified in similar way to the studies which also examined the long run

relationship between banking sector development and economic growth such as Petkovski and Kjosevski (2014), while making few adjustment to suit the Mozambican environment.

This confirms that the specification of the model is well aligned to similar studies conducted in different jurisdiction.

Below is the regression equation's general specification:

$$GDPt = \beta^0 + \beta^1 FNDt + \beta^2 CREt + \beta^3 NETINTt + \beta^4 CAPt + \beta^5 LIQt + Є$$

Where:

$GDPt$ – Represents Gross Domestic Product at time t;

$FNDt$ – Represents Total Funding Related Liabilities held by Commercial Banks at time t;

$CREt$ – Denotes Total Credit Extended by Commercial Banks at time t;

$NETINTt$ – Denotes Net Interest Income/ Expenses of Commercial Banks at time t;

$CAPt$ – Level of Capital held by Commercial Banks at time t;

$LIQt$ – Liquid Assets held by Commercial Banks at time t.

Є – Denotes the Error Term (which captures all the other variables that have an impact on GDP but were not included in the model).

3.4 Justification and Measurement of Variables

Real GDP growth was taken into account in the model to indicate the aggregated demand in the domestic economy. Then, as the only macroeconomic variable considered in the model, GDP is presented as the dependent variable in order to

capture the impact that banking sector development variables would have on economic growth. This was similar to the topic such as Ojiegbe et al. (2016 and Aurangzeb (2012), many others have also used GDP growth as a proxy measure for economic growth, and providing justification for its use in the study.

3.4.1 Total Funding Liabilities

This is one of the proxy measures of size and depth of the banking sector development considered in the model to indicate the total funds at the bank's disposal to provide loans and advance to the economy. Total funding liabilities include total banks deposits and borrowings, and an increase in the bank's total funding liabilities is likely to have an indirect positive impact on the economy through an increase in the amount of credit that banks will provide to the economy leading to an increase in the demand for general goods and services. Ojiegbe et al. (2016) and Aurangzeb (2012), in their studies have considered the deposit liabilities component, so, this measure provides a complete picture of how banks fund their asset growth.

3.4.2 Banks Credit

Bank credit extended to both the private and public sector and is used as another proxy measure for size and depth of the banking sector in measuring the banking sector development, and this variable is expected to have a positive direct impact on GDP growth because banks provides funding to various sectors of the economy that are essential for economic growth, such as agricultural projects, Infrastructure projects, among others. This increases in loans and advances provided by banks would directly lead to an increase in GDP growth. The impact of bank credit on economic growth was also tested by Tripathy and Pradhan (2014) and others in different studies, and all these studies established a positive relationship between banks credit and economic growth.

3.4.3 Capital

The model have also considered the amount of capital held by banks as a proxy measure of banking sector development as it indicates the stability of the banking system. The relationship between the amount of capital held by banks and GDP growth is expected to be negative since banks facing higher requirements are likely to reduce credit supply which eventually reduces the demand for goods and services, and the impact of bank's capital on GDP growth was considered in similar studies such as Gross, Kok and Zochowski (2016) and the Institute for international Finance (2011), establishing a negative relationship.

3.4.4 Net Interest Income / Expenses

This indicate the banks' profitability and efficiency and also measures the banking sector development. This variable was considered on the basis that when banks are profitable they are like to increase either the amount of credit extended to the economy or duration of credit, then is visible the positive impact of GDP growth. This is considered by Aurangzeb (2012) and was concluded to have positive impact in GDP.

3.4.5 Liquid Assets

The model considered the amount of liquid assets held by commercial banks also as a proxy measure for stability in banking sector development, and the expectation of the study is that banks holding high amount of liquid assets are likely to provide long term credit, which is good for economic growth since they cover for funding obligations as they become due given their stock of assets that easily convertible into cash. The impact of banks liquidity on economic growth as also conducted by Firdmuc, Fungacova and Weill (2015), and they also stablished positive relationship between banks liquidity and economic growth.

The overall expectation of the study is that growth of the banking sector will lead to growth in the real economy, according to the economic justification of variables. This expectation is in line with the findings of Tripathy and Pradhan (2014, together with Petkovski and Kjosevski (2014), among others, supporting the financial repression hypothesis theory that recognizes the role of financial institutions in driving economic growth. Table 3.4 provides the data definition.

Table 3.4: **Data definition**

Variables	**Descriptions**	**Apriori Expectation**	**Research Support**
Dependent Variable			
Gross Domestic Product (GDP)	Real value of Gross Domestic Product expressed in Metical (MZN)	N/A	N/A
Independent Variables			
Total Funding related liabilities (FND)	Value of total deposits and borrowing available for credit extension by commercial banks, expressed in Metical (MZN)	+ (Positive)	Ogege and Shiro (2012)
Total Credit (CRE)	Value of gross loans and advances issued by commercial banks, expressed in Metical (MZN)	+ (Positive)	Timsina (2014)
Net Interest Income/ Expenses (NETINT)	Value of the net interest income or expenses of commercial banks	+ (Posetive)	Aurangzeb (2012)

	expressed in Metical (MZN)		
Capital (CAP)	Value of total qualifying capital held by commercial banks expressed in Metical (MZN)	-(Negative)	Institute for International Finance (2011)
Liquid Assets (LIQ)	Value of liquid assets held by commercial banks expressed in Metical (MZN)	+(Positive)	Fidrmuc, Fungacova and Weill (2015)

3.5 Data Collection, Frequency and Choice of Data

This study used the secondary time series data on GDP as well as on various other variables used as proxy measures for commercial banks development as presented in table 3.4.1 above. The data used in the study is quarterly, to avoid the problem of the extent of the measurement error that usually associated with high frequency data, and covers the period of December 2021 to December 2023, and presenting observations to conduct a regression analysis. The decision to base the data selection on the above mentioned period was based on the availability of the quarterly data on GDP which was available in from the first quarter of 2021 to the last quarter of 2023.

The data used in the model was sourced from Mozambique Central Bank (Bank of Mozambique), where was collected from the government financial database site, National Statistic Institute (INE, 2023). The government financial database department (National Statistic Institute), receives this from Bank of Mozambique statistical department, which is the institution responsible for GDP collection and computing in Mozambique. Some other information and data was collected from World Bank and United Nation Agency for economic development. The data on commercial bank's development indicators, like, total funding liabilities, credit extended to private sector, net

interest income or expenses, capital adequacy and liquid assets of banks was computed from the various aggregated industry returns published on the bank's website under the banks supervision department.

3.6 Sampling

The selected sample only includes the period from 2021:12 to 2023:12 taking into consideration that this is the period where the data was available on a quarterly basis, and about numbers of the banks included in the sample, the data collected covers all commercial banks authorized by Central Bank of Mozambique, (BoM).

3.7 Data Analysis Methods

To investigate the relationship between financial development and economic growth, the study employed the auto regression distributive lag modeling (ARDL) approach as this was also used in similar study by Kiprop et al (2015), and the choice of this model is justified by many and different reasons as outlined by Pesaran and Shin (1999). Firstly, this approach enables for estimation for both short-run coefficients simultaneous. Secondly, all the variables enter the model as endogenous. Thirdly, there is no need to pre-test for the univariate characteristics of the series. The model allows for estimation of series with mixture of order of integration either integrated of zero I(0) or first I(1) order, with the exception I(2). Fourthly, this addresses the problem of endogeneity in the model due to the fact that causal relationship between the regressand and regressors cannot be ascertained beforehand. Fifty and lastly, the technique is much suitable for small sample size as it has superior small sample properties in comparison with other methods. This approach is suitable in analyzing the underlying relationship between economic growth and banking sector development, as its use in empirical research has increased.

The equation bellow gives an easy interpretation which can be expressed in natural logarithms and it can be presented as follows:

$LNGDPt = \beta^0 + \beta^1 LNFNDt + \beta^2 LNCREt + \beta^3 LNNETINTt + \beta^4 LNCAPt + \beta^5 LNLIQt + Є$

3.7.1 Unit Root Tests

After data collection, firstly was to investigate the time series characteristics of the data in order to establish if the data set is integrated. In case of huge evidence suggesting presence of unit root the study will similar to Aurangzeb (2012). To ensure that the data is stationary and ensure that the result can be relied upon, employ the Augmented Dickey Fuller (ADF) and Phillips-Peron (PP) Unit Root tests. For the ADF and PP tests, the null hypothesis entails that there is presence of unit root in the series, while the alternative hypothesis entails that there is no evidence of unit root and the data is stationary in level or at first difference, and this is taken to ensure that none of the variables are integrated of order two or higher.

3.7.2 Bound Co-integration Test

The co-integration test is applied to prove whether or not if there exists a long-run relationship among the variables (Gujarati, 2004). The test is for the null hypothesis which postulates that there is no co-integration, although the alternative hypothesis postulates that there is co-integration. The presence of co-integration suggests that both long-run and short-run coefficients can be estimated differently using an unrestricted error correction model, see the expression bellow.

$\Delta LNGDP = \alpha 0 + \lambda^1 LNGDPt{-}1 + \lambda^2 LNFNDt{-}1 + \lambda^3 LNCREt{-}1 + \lambda^4 LNNETINTt{-}1 + \lambda^5 LNCAPt{-}1 + \lambda^6 LNLIQt{-}1 + \sum \gamma^1 \Delta LNGDPt{-}1 + \sum \gamma^2 \Delta\ LNFNDt{-}1 + \sum \gamma^3 \Delta\ LNCREt{-}1 + \sum \gamma^4 \Delta\ LNNETINTt{-}1 + \Sigma\gamma^5 \Delta LNCAPt{-}1 + \Sigma\gamma^6 LNLIQt{-}1 + U1t$ .....

Here is some explanation:

Where; λ^1 – λ^6 are the estimated long-run coefficients and γ^1 – γ^6 are short-run coefficients. The tests follow an F-test statistic and is then used to detect the existence of a long-run relationship among the variables. This is done by comparing the calculated value to the critical values in order to make a decision about the hypothesis of co-integration. The null hypothesis of no co-integration is tested under the condition $H0$: $\lambda^1 – \lambda^2 = \lambda^3 = \lambda^4 = \lambda^5 = \lambda^6 = 0$, while the alternative hypothesis is tested under the condition H^1: $\lambda^1 \neq \lambda^2 \neq \lambda^3 \neq \lambda^4 \neq \lambda^5 \neq \lambda^6 \neq 0$. The decision about co-integration is arrived at by comparing the calculated F-test statistic with the two critical bounds, the lower and the upper bounds. Pesaran, Shin & Smith (2001), argued that in case where the calculated F-value happens to fall between the two critical bounds, then the test is inconclusive.

3.7.3 Estimating Short-run Coefficients

According the conducted co-integration test and finding its existence, this suggests an estimation of an error correction model (ECM), and this helps to determine the speed of adjustment that the variables for a long-run equilibrium value (Gujarati and Porter, 2010).

The error correction model can be expressed in ARDL form, as shown below.

$$\Delta LNGDPt = \gamma^0 + \sum \gamma^{1i}\ n\ i{=}1\ \Delta LNGDPt{-}1 + \sum \gamma^{2}i\ n\ i{=}1\ \Delta LNFNDt{-}1 + \sum \gamma^{3}i\ n\ i{=}1\ LNCREt{-}1 + \sum \gamma^{4}i\ n\ i{=}1\ \Delta\ LNNETINTt{-}1 + \sum \gamma^{5}i\ n\ i{=}1\ \Delta LNCAPt{-}1 + \sum \gamma{+}6i\ n\ i{=}1\ \Delta LNLIQt{-}1 + \varphi ECMt{-}1 + \varepsilon 1$$

Where: ECM is taken as residual from the estimated co-integration equation 3, φ, is the parameter that represents the speed of adjustments in the long-run.

3.7.4 Granger-Causality Tests

The Granger causality test developed by Granger (1969), is mostly used in econometric analysis and in this case it is much used to determine any causal relationship between

financial development and economic growth in Mozambique. Granger causality is used in this study, in particular.

This Granger test yields three possibilities namely, unidirectional causality, which is (causality from one variable to another and not the other way round). The second one could be the causality from both variables (bidirectional causality). The last one is the non-existence of causal relationship among the variables.

3.8 Research Reliability and Validity

The study is making use of secondary data, and all the data used in this study was obtained from credible institution in Southern African Countries and Mozambique in special.

The authority's data in agreement with the Ministry of economy and finance, and central bank (Bank of Mozambique), collects data from commercial banks on a regular basis and different time for the purpose of effective banking supervision and this data is published in appropriate website. The institution responsible for data collection shares information with the allowed and certified departments where they receives data on GDP from Mozambique Statistics Agency (National Statistic Institute, 2024), which this study is conducted with reliable and valid data.

3.9 Limitations

In this study, the main limitation is the fact that the list of banking sector variables that could have impact on GDP growth is not complete, a part of the limited variables used to measure banking sector development. There is another limitation in this study, that are related to a number of considerable difference and non-uniformities of data to rise to the problem and the region is quite different by its economical and geographically state, although it is in the same continent and development community.

4 CHAPTER FOUR: Contents and results

4.1 Introduction

This chapter presents the results and detailed empirical analysis of the study on which the conclusion and recommendation were based. The section on empirical analysis is divided into nine sub-sections as follows below:

Section 4.2.1: Presents the correlation coefficient test;

Section 4.2.2: Presents the unit root test;

Section 4.2.3: Presents the determination of the optimal lag length;

Section 4.2.4: Presents the co-integration test;

Section 4.2.5 and 4.2.6: Presents the long term and short term ARDL regression results.

Section 4.2.7: Presents the bivariate error correction models;

Section 4.2.8: Presents the model diagnostic test;

Section 4.2.9: Presents the pairwise granger causality test.

4.2 Empirical Analysis

4.2.1 Correlation Coefficient Test

The relationship for a linear or not exists between the variables employed in the model, and the study made use the Pearson correlation coefficient test, where the test was also conducted to determine the possible existence of multicellularity within the variables, which if present, can lead to errors in the coefficient estimates of the multiple regression. All coefficients between all variables as indicated in table 4.1 bellow, were above 0.9, which is strongly showing the possible existence of multicollinearity by staying close to 1, and this outcome reliance cannot be placed on the estimation results of a multiple regression as multicollinearity could several affect these results, therefore, there is a need of run a separated model for each banking sector development.

Table 4.1: **Pearson Correlation Coefficient Test**

Variable	LNGDP	LNFND	LNCRE	LNNETINT	LNCAP	LNLIQ
LNGDP	1.000000	0.976556	0.977370	0.981389	0.972740	0.972134
LNFND	0.976556	1.000000	0.998207	0.992662	0.997044	0.995489
LNCRE	0.977370	0.998207	1.000000	0.994423	0.996691	0.991976
LNNETINT	0.981389	0.992662	0.994423	1.000000	0.989239	0.989219
LNCAP	0.981389	0.992662	0.997044	0.996691	1.000000	0.992204
LNLIQ	0.972134	0.995489	0.996691	0.989219	0.992204	1.000000

4.2.2 Unit Root Test

According to the ARDL technique not requiring the data to be tested for unit root, it is important to conduct this test in order to make sure that the series are not integrated to an order higher than one. Using an ARDL technique with series is integrated to an order of more than one may lead to spurious results. Using the ADF and PP unit root tests, the results as presented in table 4.2 below, indicate that all variables are stationary. This imply that the data is suitable to carry out an ARDL regression analysis and the null hypothesis of unit root can be rejected at 1 percent and 5 percent significance level.

Table 4.2: **Unit root tests: ADF and PP in differences**

Variable	Model Specification	ADF		PP		
		Levels	First difference	Levels	First difference	Order of integration

LNGDP	Intercept and trend	-5.304**	-6.316**	-5.300**	-29.759**	0
	Intercept	-1.007	-6.365**	-0.932	-27.585**	1
LNFND	Intercept and trend	-3.803**	-9.087**	-3.734**	-10.151**	0
	Intercept	-0.978	-9.085**	-1.203**	9.803**	1
LNCRE	Intercept and trend	-2.823	-6.572**	-1.957**	-6.909**	1
	Intercept	-0.594	-6.417**	-0.577**	-7.004**	1
LNNETINT	Intercept and trend	-2.995	-7.004**	-2.995**	-15.430**	1
	Intercept	0.26	-7.055**	1.388	-15.545**	1
LNCAP	Intercept and trend	-3.612**	-10.259**	-3.652**	-11.429**	0
	Intercept	-0.378	-10.370**	-0.224**	-11.551**	1
LNLIQ	Intercept and trend	-5.134**	-7.609**	-5.160**	-13.349**	0
	Intercept	-0.414	-7.698**	-0.156	-13.599**	1

Note: ** *means the rejection of the null hypothesis at 1% and 5%.*

4.2.3 Determination of Optimal Lag Length

After stablishing the univariate characteristics of the variables and subsequently the order of integration, the following step is undertaken to stablish the optimal lag length for the model, and this was determined using the lag length criterion such as Akaike Information Criterion (AIC), Schwarz Bayesian Criterion (SC) and Hannan-Quinn Criterion HQ. This study followed the SC and HQ, and the information criterion because of their consistency and strangeness.

The two criteria suggested a lag length of one as reported in table 4.3 presented below.

Table 4.3: **Lag Order Selection Criteria**

Lag	LogL	LR	FPE	AIC	SC	HQ
0	402.5699	N/A	3.93e-16	-18.44511	-18.19936	-18.35449
1	593.0014	318.8620	3.04e-19	-25.62797	**-23.90773***	**-24.99360***
2	625.3152	45.08903	3.98e-19	-25.45652	-22.26178	-24.27840
3	673.8072	**54.13063***	**2.93e-19***	-26.03754	-21.36832	-24.31568
4	714.9886	34.47746	4.23e-19	**-26.27854***	-20.13482	-24.01292

Note: * *Indicates lag order selected by the criterion*.

4.2.4 Bound Test Approach to Co-integration

The bound co-integration test as performed in order to ascertain whether or not there is a long-run relationship among the variables. The table 4.4 below presents the results of the test which show that the calculated F-Statistic value of 5.33 is greater than the critical upper bound values of 4.15 at 1 percent significance level. This imply existence of a long-run relationship between GDP and variables used in the model, and the null hypothesis of no cointegration can be rejected.

Table 4.4: **Bounds test results**

Test Statistic	Value	K
-F-statistic	5.329185	5

Critical Value Bounds

Significance	I(0) bound	I(1) Bound
10%	2.08	3
5%	2.39	3.38
2.5%	2.7	3.73

1%	3.6	4.15

4.2.5 Long-run Estimates

The results displayed in the long-run coefficients from the ARDL estimation show that the relationship between net interest income and economic growth was found to positive and statistically significant in the long-run with all the other explanatory variables found to be statistically insignificant. Looking to the positive relationship between net interest income and GDP growth is well in line with the theoretical expectations of this study, even given the high correlation coefficients. Look at table 4.5, below.

Table 4.5: **Estimated Long Run coefficients using the ARDL**

Variable	**Coefficients**	**Std. Error**	**t-statistic**	**Prob.**
LNFND	0.132987	0.263197	0.505275	0.6162
LNCRE	-0.132348	0.243153	-0.544298	0.5893
LNCAP	0.013198	0.141236	0.093443	0.9260
LNNETINT	0.344429	0.110141	3.127160	0.0033
LNLIQ	-0.019973	0.104336	-0.191432	0.8492
C	5.495557	1.002939	5.479455	0.0000

4.2.6 Short-Run

The table 4.6, presents the short-run coefficients from the ARDL estimation, since it is the case with the long-run estimates, the only variable that was found to be statistically significant in the model is the net interest income, with a t-statistic of 3.099 which is above the value of 2, that was confirmed by corresponding p-value of 0.0037, which is lower than 1 percent on significance value. This is similar to the long-run mode, these

results could not be relied upon in presence of multicollinearity, and hence the need to separate models for each commercial bank development indicators.

Table 4.6: **Error correction model using ARDL**

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
D (LNGDP (-1))	0.002621	0.155429	0.016860	0.9866
D (LNFND)	0.398840	0.276694	1.441451	0.1579
D (LNCRE)	0.127311	0.400300	0.318039	0.7522
D (LNCAP)	0.000726	0.178407	0.004070	0.9968
D (LNNETINT)	0.350874	0.113216	3.099172	0.0037
D (LNLIQ)	-0.116331	0.101617	-1.144801	0.2596
ECT (-1)	-1.098665	0.220638	-4.979482	0.0000
C	-0.012439	0.015782	-0.788208	0.4356

4.2.7 Bivariate Error Correction Model

From the conclusion managed from the ARDL conducted exercise with the comprehensive model, was repeated by regressing real gross domestic product with each banking sector development indicator. The high correlation coefficient among the variables was showed in table 4.1, which may have influenced the statistical significance of the regressors in the comprehensive model. Below are the results presented in table 4.7 to 4.11.

Table 4.7: **Error correction model using the ARDL**

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
D(LNGDP)	0.367915	0.224005	1.642442	0.1097

D(LNCRE)	0.513224	0.442943	1.158667	0.2547
D(LNCRE(1))	-0.020565	0.408616	-0.050328	0.9602
D(LNCRE(-2))	-1.175524	-1.175524	0.388923	0.0047
D(LNCRE(-3))	2.147860	2.147860	0.461809	0.0000
D(LNCRE(-4))	-1.190222	-1.190222	0.606240	0.0578
ECT01 (-1)	-1.083296	0.284795	-3.803780	0.0006
C	-0.001302	0.026865	-0.048479	0.0578

4.2.8 Model Diagnostic Test

According to the classical assumption, a model should be normally distributed with a constant variance and mean of zero in order to produce the linear unbiased estimator (Gujarati, 2004).The study conducted the model efficiency test and the results are presented below.

Table 4.8: **Heteroscedasticity (White) test**

F-statistic	1.195559	Pro. F (7,37)	0.3294
Obs* R-squared	8.300859	Prob. Chi-Square (7)	0.3068
Scaled Explained SS	4.250234	Prob. Chi-Square (7)	0.7505

Table 4.9: **Breusch-Godfrey Serial Correlation LM Test**

F-statistic	0.146373	Prob. F (2,35)	0.8644
Obs*R-squared	0.373266	Prob. Chi-Square (2)	0.8297

The hypothesis for the Ramsey Reset stability test is formulated in the following manner: The null hypothesis claims that the model is stable while the alternative hypothesis claims that the model is not stable. The decision rule entails that the null hypothesis should then be rejected if the probability of the F-statistic is higher than the 5 percent significance level, then the F-statistic probability of 0.8442 is higher than the 5 percent significance value and concludes that the hypothesis cannot be rejected, implying that the model is stable.

Table 4.10: **Ramsey Reset Test**

	Value	df	Probability
T-statistic	0.197974	36	0.8442
F-statistic	0.039194	1.36	0.8442

4.2.9 Pairwise Granger Causality Test Results

The study conducted the granger causality test in order to determine the direction of causality between GDP growth and the various banking sector development indicators considered in the model. Below are presented the results of the Pairwise Granger Causality Test, table 4.11.

Table 4.11: **Pairwise Granger Causality Test**

Null Hypothesis	Obs.	T-Statistic	Prob.
D(LNFND) does not granger cause D(LNGDP)	44	0.18592	0.8311
D(LNGDP) does not granger cause D(LNFND)		6.30162	0.0043
D(LNCRE) does not granger cause D(LNGDP)	44	2.80524	0.0727

D(LNGDP) does not granger cause D(LNCRE)		0.49566	0.6130
D(LNNETINT) does not granger cause D(LNGDP)	44	5.70388	0.0067
D(LNGDP) does not granger cause D(LNNETINT)		0.36683	0.6953
D(LNCAP) does not granger cause D(LNGDP)	44	2.80524	0.0727
D(LNGDP) does not granger cause D(LNCAP)		1.09005	0.3462
D(LNLIQ) does not granger cause D(LNGDP)	44	0.16941	0.8448
D(LNGDP) does not granger cause D(LNLIQ)		3.54214	0.0386

5 CHAPTER FIVE: Research discussions

5.1 Introduction

On this chapter is presented the detailed discussion of the study which the conclusion and recommendations were based. This discussion is to conclude the results managed from different tests, from sub-sections 4.2.1 to 4.2.9 in the empirical analysis listed before from page 46, chapter 4.

5.2 Discussions

In the bivariate error correction regression between credit extension and economic growth, the results indicate that the relationship between commercial banks credit extension to the private sector and economic growth is statistically significant for the second, third and fourth lag periods at 10 percent significance value, where the corresponding coefficients are, however, negative for the second lag, positive for the third and negative for the fourth lag, indicating an inconclusive outcome of the relationship between credit extension to the private sector and economic growth. Since credit extension to the private sector, was used as proxy measure for the size and depth of the banking sector and its relationship was found to be inconclusive, and for another indicator of banking size and depth, namely funding liabilities, was employed in the quest to stablish the impact of bank size and depth on economic growth.

The table 4.8 above, presents the heteroscedasticity (white) test, which was conducted in order to determine whether the model has a constant variance or not, and the statistical hypothesis for conducting a heteroscedasticity test is formulated based on the statistic where the null hypothesis implies that the variances are constant, (i.e., homoscedasticity). The alternative hypothesis implies that the variances are not constant (i.e., heteroscedasticity). The rejection rule states that the null hypothesis can be rejected, should the probability value of observation R-square be less than 5 percent

level of significance, when given that probability of Chi-Square is 0.3068 which is greater than 0.05 level of significance and the null hypothesis cannot be rejected and the conclusion is that the variances in the model are constant.

The relationship in bivariate error correction results of the relationship between funding liabilities of banks and economic growth was found to be positive statistically significant at 10 percent significance value, given the p-value of 0.0573. The bivariate regression results of the short-run relationship between capital held by commercial banks and economic growth presented in table 4.9, was found that relationship to be statistically insignificant entailing absence of any significant evidence that relationship exists between banks capital and economic growth, (Gross, Kok and Zochowski 2016).

The results of the bivariate error correction models are adopted as the reliable findings of this study. The results of the bivariate error correction models, indicate that there is a positive short-run relationship between banking sector development and indicators and economic growth in Mozambique.

The statistical hypothesis for conducting a heteroscedasticity test is formulated based on the statistic where the null hypothesis implies that variances are constant.

The hypothesis for autocorrelation are formulated on that the null hypothesis implies that there is no autocorrelation while the alternative hypothesis implies presence of autocorrelation among the error terms. The idea is coming from the state that the null hypothesis should be rejected if the p-value for the observed R-square is less than 5 percent significance value, but the observed R-square of 0.8297 is higher than the 5 percent level of significance implying the null hypothesis of no autocorrelation cannot be rejected.

The hypothesis of Ramsey Reset stability test is formulated in that the null hypothesis claims that the model is not stable and the decision rule entails that the null hypothesis should not be rejected if the probability of the F-statistic is higher than 5 percent

significance level, where in this case the F-statistic 0.8442 is higher than 5 percent significance value, and at same time comes a conclusion that the null hypothesis cannot be rejected.

After differencing the data to ensure that it was stationary and the results can be relied upon, table 4.11 presents the findings of causality test between economic growth and the other repressor's considered in the model. The results shows a unidirectional causality at 5 percent significance value, running from economic growth to banks funding liabilities, as well as from economic growth liquid assets held by commercial banks. In line with the findings of Aurangzeb (2012), the granger causality test established a unidirectional causality running from net interest income/expenses to economic growth at 5 percent significance value while credit extended to the private sectors by banks granger caused economic growth at 10 percent significance value, and partially corresponding with the findings of Apergis, Filipidis and Economidou (2007), which discovered a bi-direction causality between GDP growth and credit extension to the private sectors. Economic growth caused stability in the banking sector as well as expansion in the size and depth of the banking sector, but through different variables. This findings entails that the null hypothesis of no causal relationship between GDP growth and banking sector development can be rejected, concluding that there is existence of bi-direction causality in line with the findings of Apergis, Filipidis and Economidou (2007).

The multicolliarity was present when conducted the first test to determine the possible existence. Used the ARDL technique, and ADF and PP Unit root test, the results indicate that all variables are stationary. The null hypothesis of no cointegration can be rejected when the existence of a long-run relationship between GDP and variables used in the model (Calderon & Liu, 2002). The null hypothesis claims that the model is stable, while the alternative hypothesis claims that the model is not stable. The decision rules that entails that the null hypothesis should then be rejected if the probability of the F-statistic is higher than 5 percent significance level (Gujarati, 2004), and (Granger, 1969), and (Aurangzeb, 2012).

6 CHAPTER SIX: Research conclusions

6.1 Introduction

According to the regression outcomes and analysis of the results presented in the preceding chapter, this chapter seeks to present the conclusion of the all study.

6.2 Research conclusion

This study is much settled to stablish the impact that commercial banks' development has on economic growth in Southern Africa Countries, and especially to Mozambique. The study employed the quantitative methodology of ARDL in order to stablish the long-run and the short-run relationship between GDP growth and banking sector development as well as the Granger causality test in determining the direction of causality in order to clarify different results. The study used quarterly GDP growth rate and quarterly data on banks various development indicators such as total credit extended by banks to the private sector, that aggregates funding liabilities in covering the period of 2021/12 to 2023/12. To the regression analysis being conducted, the data was tested for unit root by using the PP and ADF unit root test to ensure that it was stationary and could yield reliable results.

In the context of Mozambique, a Country from Southern Africa, this is the first carried out, but following the inspiration from the study conducted by Anthony Adu-Asare Idun (2020), from Ghana, who investigated the effect of bank market power on economic growth in Africa: The role of institution, including 44 African countries, employed a dynamic GMM model to achieve the objective.

This study concluded that there is existence of positive short-run relationship between banking sector and development and economic growth. The positive short-run relationship is exerted through funding liabilities and net interest income and entails that only the size and depth of the banking sector as well as the efficiency of the sector have

an impact in economic growth. Contrarily, the stability of the banking sector was found not to have any influence on the growth of the economy.

The study, was concluded from the granger causality test, where it presented that the relationship between economic growth and banking sector development in Mozambique is bi-directional, where the economic growth will advance the banking sector development and at the same time development of the banking sector will promote the growth of the economy, although different variables. A unidirectional causality was between GDP and funding liabilities of banks as well as between GDP and liquid assets held by banks with causality running from GDP to banking sector development, while credit extended by banks to the private sector and net interest income of banks caused the growth of the economy.

In the last of the above, the study concludes that both the null hypothesis 1 of no relationship between commercial banks development and economic growth and the null hypothesis 2 of no causal relationship between commercial banks development and economic growth can be rejected. In conclusion, the study is in support of the findings of antecedent empirical studies conducted on the subject, following Aurangzeb, (2012), and many others, supported the endogenous growth model and financial repression hypothesis theories that acknowledge the role of financial institutions in guiding economic growth.

The results shows that there is a positive short-run between banking sector development and economic growth in Mozambique.

6.3 Policy Implications

In power of the study conclusions, the government of Mozambique, the Central Bank (Bank of Mozambique) as the regulator of the commercial banks in Mozambique, in order to drive economic growth in the same country. According to the study established a link between banking sector development and economic growth taken by the bank's

interest income and funding liabilities. Bank of Mozambique (BoM), should consider increasing the absolute amounts of loans and advances to the real sector in order to foster economic growth, and this may be achieved by the central bank authorizing department team or through existing banks on a campaign to secure more funding liabilities, such as deposits and borrowings to enable them on extending more credit to the local economy.

Considering an insignificant relationship between liquid assets held by commercial banks and economic growth, banks should not be required to hold too much assets in liquid assets as they are normally short term, and not ideal for financing long term developmental projects. The minimum liquid assets requirement set by the central bank is at 6 percent liquid assets to total liabilities to the public. Commercial banks tends to keep moving above the requirement to ensure that they enough liquidity to meet their funding obligations, at the same time, the central bank should be careful against setting the liquid assets requirements too tighten in for front.

Commercial banks should be incentivized to provide funding to sectors that can contribute to the growth of the economy as opposed to providing finance for unproductive activities. Commercial banks should increase funding to the SME sector since banks tend to be more risk averse and keep in place stringent requirements that most SMEs do not meet, such as audited financial statements, high annual turnover, etc.

6.4 Recommendations for future research

The research conducted on the subject above, matter Southern African Countries, in evidence of Mozambique, creates opportunities for further research extension on the subject. In this regard, new other future researchers may consider extending this research in various ways as listed below:

i) Have to investigate the efficiency of the Mozambican banking sector given the fact that there are only few banks in the industry.

ii) The banking abilities to support economic growth based on liquidity requirements.

iii) To investigate the role played by commercial banks in Mozambique the year December, 2021 to December, 2023.

iv) To investigate the financial inclusion after 16 years civil war in Mozambique and participative reforms that the government should implement to ensure access to financial services and products.

v) To investigate the commercial banks social responsibilities, competitive practices and its impact for communities.

APPENDICES

This research will contribute to policy initiatives that can bring reform in banking sector so that banks are given incentives to lend to the sectors of the economy that are productive in order to effectively promote economic growth of the century.

(i) The principal aim for the study, firstly was to investigate the influence of the Mozambican banking sector development on economic growth by estimating the short-run and long-run relationship for the period above, by employing the autoregressive distributed Lag (ARDL) test of co-integration.

(ii) Secondly, the results helped to evaluate the effectiveness of Mozambican banking sector and its impact on the economic activities.

(iii) The author analyzed the level of banking influences in different stages in Mozambique and some explanation and examples about other countries have been noted. It starts by having a short resume about Southern African Countries and SADC economic history. Although prior study carried out similar investigation but the aim and methodology used was quite different.

(iv) The investigation were necessary because the information in this paper offers policy directions on how banking system contribute to sustainable development in Mozambique.

(v) The results confirms that the relationship on banking, hypothesis that large banks can allocate credits effectively even in weaker systems and small scale but the difference is insignificant.

(vi) The author obtained data on GDP National Statistic Institute, and the country level of governance indicators from the World Bank (2023).

(vii) Many tests of different variable employed have been done in order to:

- Determine the causality direction, to find the significance of commercial banks and relationship with economic growth, (table 4.11).
- To find the relationship between net interest income and economic growth.
- To ascertain whether or not there is a long-run relationship among variables, the decision about hypothesis, (table 4.4).
- A Heteroscedasticity (white) test was conducted in order to determine whether the model has constant variable, (table 4.8)
- The autocorrelation to determine the absence or presence of correlation, to determine whether the model has constant variance or not.
- The finding of bivariate regression between net interest income of banks and economic growth.
- To indicate if there is a short-run relationship between banking sector development and economic growth in Mozambique.
- To ascertain whether or not there is a long-run relationship among variable, (table 4.5)
- To display the long-run coefficient from the ARDL, (table 4.5)

Mozambique Cuts Interest Rates for first time since 2020

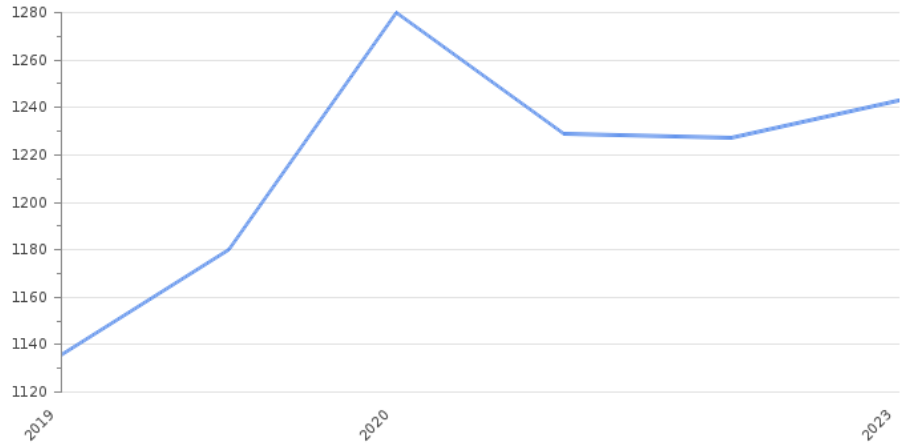
According to Central Bank (2023), monetary policy committee lowers key rate to 15.75% from 16.5%, and governor says that cuts is start of gradual loosening cycle. It is the first time since the height of the coronavirus pandemic that it's lowered rates at two consecutive meetings.

Figure 4: **Location of Mozambique in Africa**

Figure 5: **SADC Countries Map**

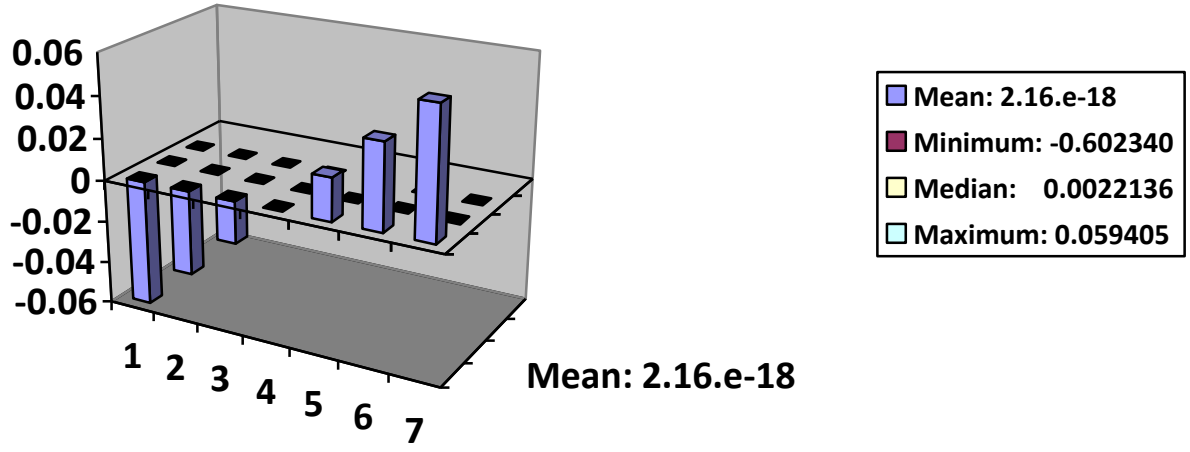
Source: From SADC report (2022)

Chart 7: **GDP demonstration from 2019 to 2023**



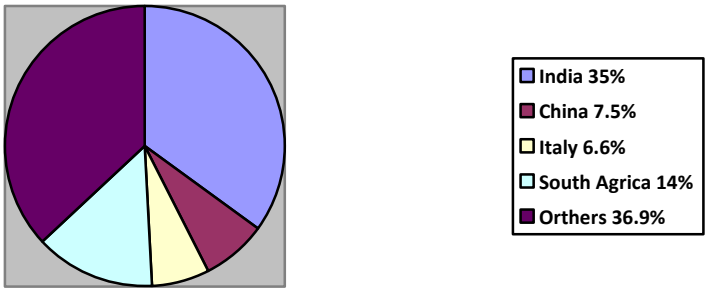
Source: From National Statistic Institute (Mozambique, 2023)

Chart 8: **Normality Test (Jacque-Bera)**



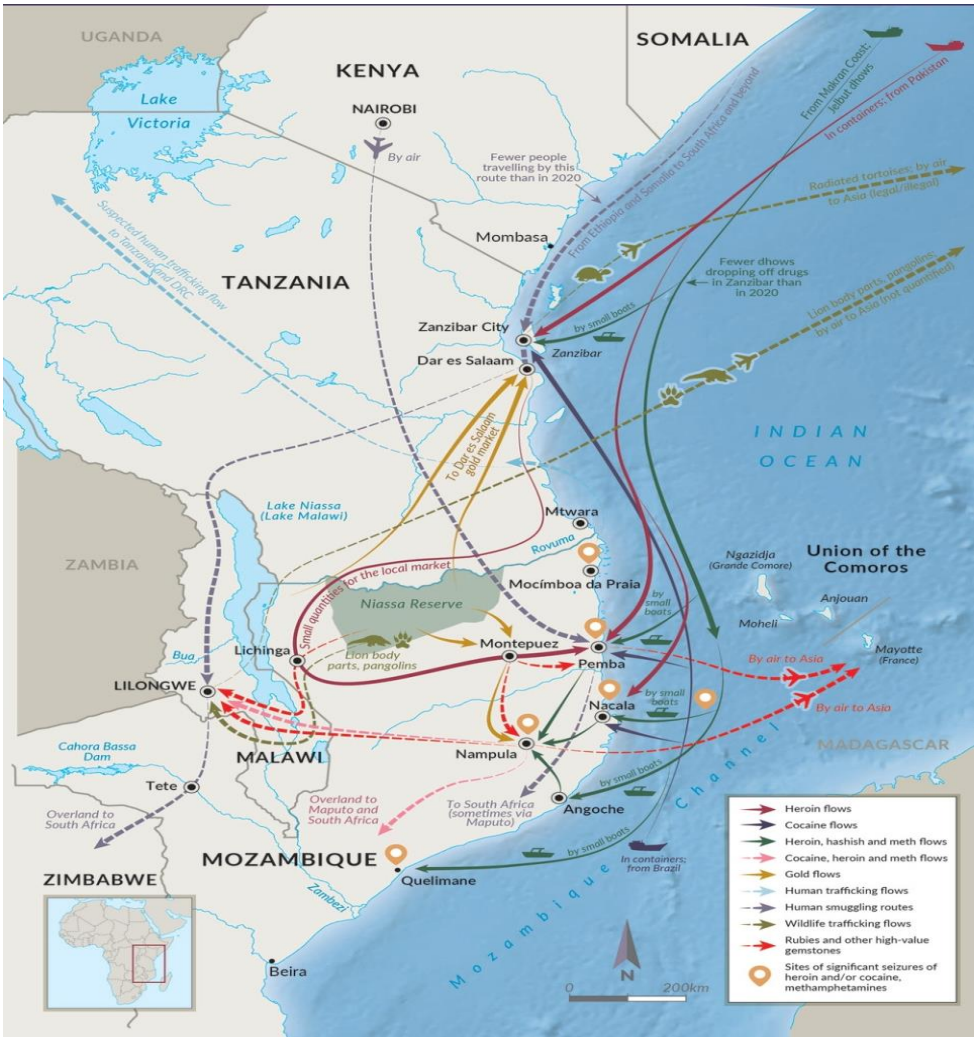
Source: From the author

Chart 9: **Mozambique resources exports chart**



Source: From the author (data from National Statistic Institute, 2023)

Figure 6: **Illicit flows through northern Mozambique map (1.3.7)**



Source: From UNODC (2021)

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