



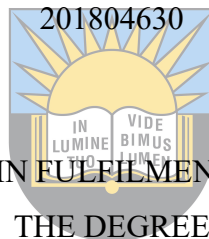
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DETERMINANTS OF FINANCIAL SECTOR DEVELOPMENT IN THE SOUTHERN
AFRICAN DEVELOPMENT COMMUNITY (SADC) REGION

BY

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ABSTRACT


The study examines the determinants of financial sector development in the SADC region for the period 2006-2020. Six models for financial sector development were estimated using the Generalized Method of Moments (GMM) estimation technique. The study focused on macroeconomic, geographic, and institutional variables. In the banking sector model, both geographic factors have a positive effect on financial sector development. However, population growth has a significant effect whilst population density has an insignificant effect on financial development. When it comes to macroeconomic factors, Foreign Direct Investment (FDI) has significant positive effect on financial development whilst GDP has insignificant positive effect on financial development. Both institutional factors show a positive effect on financial development but, the rule of law has a significant effect whereas government effectiveness has an insignificant effect on financial development. When it comes to the financial market, both geographic factors thus population growth and population density have statistically significant negative effects on financial sector development. Macroeconomic factors reveal that GDP is positively related to financial development and the effect is insignificant. Conversely, FDI has a statistically significant negative connection with financial development. Lastly, both institutional factors have significant relationships with financial development. However, political stability has a negative relationship with financial development, but the rule of law is positively related to financial development. The empirical findings underscore the importance of strengthening the rule of law to foster financial sector stability. Additionally, increasing interest rates can incentivize banks, thereby promoting financial development and economic stability.

Keywords: Financial sector development, Southern African Development Community (SADC), Banking sector, Financial markets, Generalized Method of Moments (GMM)

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I, Inga Nomandla, student number 201804630, hereby declare that the dissertation is my original work and that it has not been submitted and will not be presented in any other university for a similar or any other degree award.

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DEDICATION

Dedicated to my mother, Nokhanyo Phikiwe Nomandla, whose support and love have been my guiding light throughout my academic journey. Her strength, encouragement, and endless sacrifices have been the foundation of my success. This thesis is a tribute to her immeasurable influence and inspiration she continues to provide.



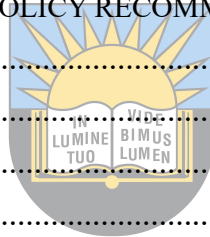
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CHAPTER 1

INTRODUCTION AND BACKGROUND

1.1 Introduction

Examining the determinants of financial sector development has attracted much attention (Abubakar & Kasim, 2018; Ibrahim & Sare, 2018; Ehigiamusoe et al., 2020; Kiarie, 2020; Muhammad & Ruqaiyat, 2021; Derbali, 2021; Lenka, 2022; Bekana, 2023). However, conclusions have been varied. Alawi et al. (2022) describe financial development as factors, policies, and establishments that improve the effectiveness and efficiency of intermediation in the financial sector.

Okonkwo et al. (2022) opine that the financial system is vital for the progress of a nation since it mobilises savings and channelling them for investment purposes. The expansion of this segment determines how successfully and effectively it will be able to carry out its primary function in the mobilization of capital from where it is available in large quantity to where it is needed the most in the economy. Okonkwo et al. (2022) further indicate that banks used to fund organized trade, commerce, and industry in emerging countries, but today they also finance agricultural, small-case businesses, and small borrowers. The industry has also aided in the facilitation of individual and organizational commercial transactions, as well as the improvement of economic growth.

Puatwoe and Piabuo (2017) concurs with the point that the development of the financial system is fundamental for various nations. The expansion of the financial sector is vital in many emerging nations; hence policymakers generally feel that financial development boosts productivity, which encourages growth. Guru and Yadav (2018) document that an economy's expansion requires the expansion of its financial industry. The creation, as well as expansion of organizations, resources, and markets that allow enormous investments and development that contribute to the eradication of poverty, enables financial development. Financial development therefore promotes the efficient allocation of funds and enhances information about potentially rewarding projects.

The available literature does also indicate that there are several variables that influence the growth of the financial system. Ellahi et al. (2021) argue that institutions and legal frameworks contribute to the progress of the financial system. Therefore, a strong legal framework and high-quality institutions provide legal protection for investments as well as the stability of the entire financial system. However, Kiarie (2020) shows that monetary policy and economic

growth have favourable effects on financial sector development. Among the key factors that have been noted to influence financial development is trade openness (Badeeb & Lean, 2017; Ibrahim & Sare, 2018; Najimu, 2019; Asratie, 2021; Muhammad & Ruqaiyat, 2021).

Çetin et al. (2023) also state that the availability of natural resources is an important element in determining the advancement of the financial sector development. Atil et al. (2020) supports the argument that there is a positive association between plentiful supply of natural resource and financial advancement, as the process of purchase of machinery, extraction, and disposal of the resources does involve the financial system. Aluko and Ajayi (2017) on the other hand suggest that remittance inflow are another factor that encourages the advancement of the financial industry, particularly in developing nations with few accesses to financial services. These payments are sent from one nation to another using banking systems, enabling receivers to request or obtain access to alternate financial services and goods.

Adekunle et al. (2021) highlight that the African financial intermediaries as well as financial markets are heterogeneous, with some nations with well-developed financial sectors. Conversely, there are nations with illiquid and less developed financial systems. This is despite the general consensus of the important role of the financial sector in the development of the country and poverty alleviation. Okafor et al. (2023) indicate that generally, the advancement of the financial sector can result in the reduction of restrictions that impede redistribution of capital, enabling impoverished individuals to get financial resources for productive endeavours, hence mitigating disparities in income. Thus, understanding the factors that determine the advancement of the financial sector becomes imperative.

In SADC countries, similar to other developing regions, financial sector development is a significant and ongoing concern, with much work needing to be accomplished. Kapingura et al. (2022) argue that SADC countries have undertaken financial sector reforms aimed at fostering its development. These reforms include liberalizing credit allocation within member states and easing restrictions on current and capital accounts, permitting individuals to hold offshore accounts. Kapingura et al. (2022) further state that additional measures such as reorganising the banking industry and easing admission criteria have been implemented. As a result, the financial sectors of member states have shown development, with some, like South Africa, being comparable to those of developed countries, even though the majority of the countries still lag behind. The study therefore seeks to analyse the aspects that determine the development of the financial sector.

1.2 Problem statement

Mbuyi and Mulumba (2022) noted that legislative and institutional restrictions in the SADC region are some of the challenges causing low financial development. These restrictions have hampered the development of financial activities that is vital for the mobilization of financial resources. A well-developed institutional environment contributes to the development of the financial sector. Mahlangu and Matsai (2016) highlight that despite changes and improved profitability in the banking industry in the region, the financial sector in the majority of the countries are yet to develop. The sector also has low and ineffective intermediation. Additionally, intrinsic problems like non-performing loans, closing of banks, political instability and many others, have been affecting banks' potential to favourably impact investment, causing sustained economic progress difficult.

Tempo and Makina (2017) argue that capital markets will only function to a certain extent when financial markets are underdeveloped. The SADC region is also experiencing this, this is because only South Africa has established bond and securities exchanges. In addition, the only developed bond markets in the region in addition to South Africa are Namibia, Botswana, Tanzania, and Mauritius, with other nations' markets either in the development stage or non-existent. In the same vein, Tempo (2017) documents that financial market activities in SADC remain restricted, with little capitalization and insufficient liquidity. The vast majority of financial instruments remain concentrated at the short end of the term structure. As a result, loan rates continue to be extremely high, and spreads are wide.

The 2019 Ease of Doing Business Rankings that were shown by the World Bank indicate that SADC performs badly, with an average position of 12th. The Democratic Republic of the Congo is the least productive, coming in at 184th place, whereas Mauritius took first place among the 16 SADC countries, coming in at 20th place. It is now commonly understood that the expansion of the financial sector is essential to the expansion of any nation and that the creation of inclusive financial structures is also essential (Otchere et al., 2017).

Although the majority of the countries implemented financial liberalization, not all countries in the region have witnessed sufficient development in their financial sector. Countries such as Angola, Madagascar, and Malawi have witnessed improvements in access to finance. However, in several SADC nations, inflation has remained high (Angola, DRC, Malawi, Zimbabwe). These countries have inflation rates above the regional average of 3 – 7 percent in 2021. Also, there are huge disparities as far as economic growth is concerned, with only 2 countries Malawi

and Tanzania recording positive growth rates in 2020 (SADC, 2022). This has also been the case with institutional elements such as the rule of law, governance, property rights amongst others which are varied as one compares them across the region. These are other important factors determining the advancement of the financial sector. Moreover, it should also be noted that the different degrees of financial development in the SADC, with South Africa at the top and the majority of the nations at the bottom, clearly indicate the region's financial development being concentrated in certain areas (Bara et al., 2017). To this end, the financial sector in SADC is underdeveloped. There are countries with a well-developed sector as compared to others. The study therefore seeks to examine the elements that determine the growth of this important sector.

1.3 Objectives of the study

The primary goal is to investigate the determinants of financial sector development in the Southern African Development Community (SADC) from 2006 to 2020.

The specific objectives of this research are stated below:

- To provide an overview of financial sector development in the SADC region.
- To econometrically investigate the determinants of financial sector development (both the banking sector and financial markets) in the SADC region.
- To make policy recommendations for the SADC region basing on the findings.

1.4 Hypothesis

The variables which are employed as determinants of both the banking sector and financial markets will be discussed in the methodology chapter. In this section the hypotheses are stated based on these variables:

H₀: Gross domestic product, government effectiveness, foreign direct investment, political stability, population density, population growth, real interest rate and rule of law do not significantly affect financial sector development in SADC.

H₁: Gross domestic product, government effectiveness, foreign direct investment, political stability, population density, population growth, real interest rate and rule of law significantly affect financial sector development in SADC.

1.5 Significance of the study

The SADC's primary goal is to promote regional political and security unity among its 16 member states, as well as socioeconomic integration and collaboration. Financial development is crucial because it lessens poverty and inequality by improving the accessibility of financial services for everyone in the economy. Identifying what determines financial development in the SADC region will make it easier to see the areas that need more focus and development in the financial sector for all members (World Bank, 2019).

Several studies that have been done in relation to the financial sector development of the SADC region mostly examine its impact on economic growth (Bara et al, 2016; Otchere et al., 2017; Ibrahim & Sare 2018; Asratie 2021) financial sector and macroeconomic volatility (Kapingura et al. 2022) financial sector development and income inequality and poverty (Leve & Kapingura 2019). The studies available are Mbulawa (2015) which has largely focused on the role of institutions as well as Tsauroi (2018) which focused on the determinants of the banking sector, not necessarily the entire financial sector. What is still unknown or not yet agreed upon is what drives the development of the banking system and financial markets in the SADC region. Although few papers tried to answer that question, the SADC area was overlooked. This research aims to contribute to the ongoing discussion about the determinants of financial sector growth, with a special emphasis on macroeconomic variables.

1.6 Organisation of the study

The study comprises of the following.

Chapter 1: Introduction and background

Chapter 2: Overview of the study

Chapter 3: Literature review (Theoretical and Empirical views)

Chapter 4: Methodology

Chapter 5: Estimation, interpretation, and presentation of results

Chapter 6: Summary, conclusions, and recommendations.

CHAPTER 2

OVERVIEW OF FINANCIAL SECTOR DEVELOPMENT IN THE SADC REGION

2.1 Introduction

The chapter gives an overview of financial sector development in the SADC region. The chapter has six sections. Following the introduction, the second section shows the background of SADC. This is then followed by the third section which looks at the banking sector development in the SADC region. The fourth section provides ways of banking sector development. The fifth section indicates financial markets development in the SADC region and the last section is the conclusion.

2.2 Background of the Southern African Development Community (SADC)

The Southern African Development Community (SADC) is a bloc comprising 16 countries. The organisation was created on 17 August 1992 in Namibia, with the signing of the SADC Treaty, which turned the formerly informal organization into a legally binding union. It was founded on 1 April 1980 as the Southern African Development Coordinating Conference (SADCC) before becoming SADC (Edyegu, 2020).

A number of institutional adjustments to the SADC organization were approved by the Presidents of SADC nations at an extraordinary summit held in Namibia. The most important of them was the implementation of a new, more centralized strategy, with the SADC Secretariat moving immediately to its current location in Gaborone, Botswana. The ambitious integration objective of the SADC was recognized by SADC leaders as being ineffectively supported by the decentralized cooperation framework inherited from the SADCC (Barlow, 2015).

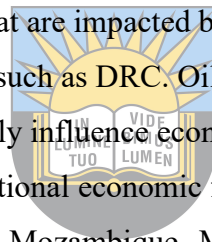
Too frequently and too readily, national interests overrode SADC objectives since there was no centralized structure under the control of a rules-based process that policy directors were required to act within. The policy organs, represented by the Summit and Council, took on the dual responsibility of being both participants and overseers in the process of integration. To ensure that regional goals were met, centralization was required (Barlow, 2015).

The SADC's vision seeks to establish a region characterized by extensive harmonization and rationalization, allowing for the consolidation of resources to attain collective self-sufficiency. The goal of SADC is to establish a common future that ensures economic growth, better living conditions, freedom and social justice, as well as peace and security for those who are part of Southern Africa (TTTFP, 2019).

Edyegu (2020) asserted that the primary aims of SADC include fostering development, promoting peace and security, and achieving economic expansion. These goals aim to promote poverty alleviation, better the standard of living for Southern Africans, and support marginalized communities. This will be achieved through the process of regional integration, which is rooted in democratic principles and promotes fair and sustainable development. However, SADC has encountered difficulties in achieving these goals, and it is currently facing a number of extremely challenging issues.

Kopeledi (2020) maintained that SADC nations are divided into four distinct sub-groups. Middle-income nations, fragile nations, oil exporters, and non-fragile low-income nations are among these classifications. Middle-income nations are classified using the World Bank's economic classification system, which takes into account both institutional quality and per capita GDP. Namibia, South Africa and amongst other nations are in this group, with South Africa having the highest GDP.

Fragile nations are defined as those that are impacted by non-economic issues like outbreak of a civil war. This category has nations such as DRC. Oil exporter nations are those in which oil is sold to other nations and significantly influence economic growth. Angola stands as the sole member of this group presently. Traditional economic forces drive the economic development of non-fragile low-income countries. Mozambique, Malawi, Madagascar, and Tanzania are included in this group (Kopeledi, 2020).



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2.3 Banking sector development in the SADC region

Bara et al. (2016) opine that other than South Africa, the SADC countries are mostly financially underdeveloped and have high levels of financial marginalisation. Furthermore, the enhanced collaboration among SADC member nations concerning banking oversight, monetary policies, and financial matters underscores the significance of finance in the advancement of the local economy. The transition from wholesale to retail finance throughout the last 20 years has been crucial to the growth of small and medium-sized enterprises. The SADC has witnessed how financial service innovations impact national economies. This includes increased trade volumes, remittances, and the facilitation of efficient financial transactions.

2.4 Measures of banking sector development in SADC

2.4.1 Financial inclusion in the banking sector

Financial inclusion involves providing financial services and products in a manner that is accessible, available, and affordable to all demographic groups (SADC, 2016). An inclusive

financial system facilitates reaching segments of society that are currently unbanked and stimulates business growth. Financial services like payments, transfers, savings, and credit play a crucial role in facilitating both personal and business transactions, thereby promoting economic expansion. Holding a bank account from banking institutions enables individuals and companies to securely store, transfer, and receive money at minimal costs (Jima & Makoni, 2023).

Financial inclusion comprises three dimensions: access, use, and quality. Access refers to the availability and suitability of financial products and services, while usage pertains to the frequency with which financial products and services are adopted or used. The quality dimension encompasses factors such as product suitability, value addition, convenience, and risk mitigation (Nyamazunzu, 2019).

Figure 2.1 shows the trends in Automated Teller Machines (ATMs) per 100 000 adults. Seychelles, Namibia, and South Africa have high numbers, others such as Botswana, Mauritius and Swaziland have fairly increased number of ATMs per 100 000. Conversely, countries like Madagascar, Malawi, Comoros and Zimbabwe have lowest number of ATMs per 100 000 adults.

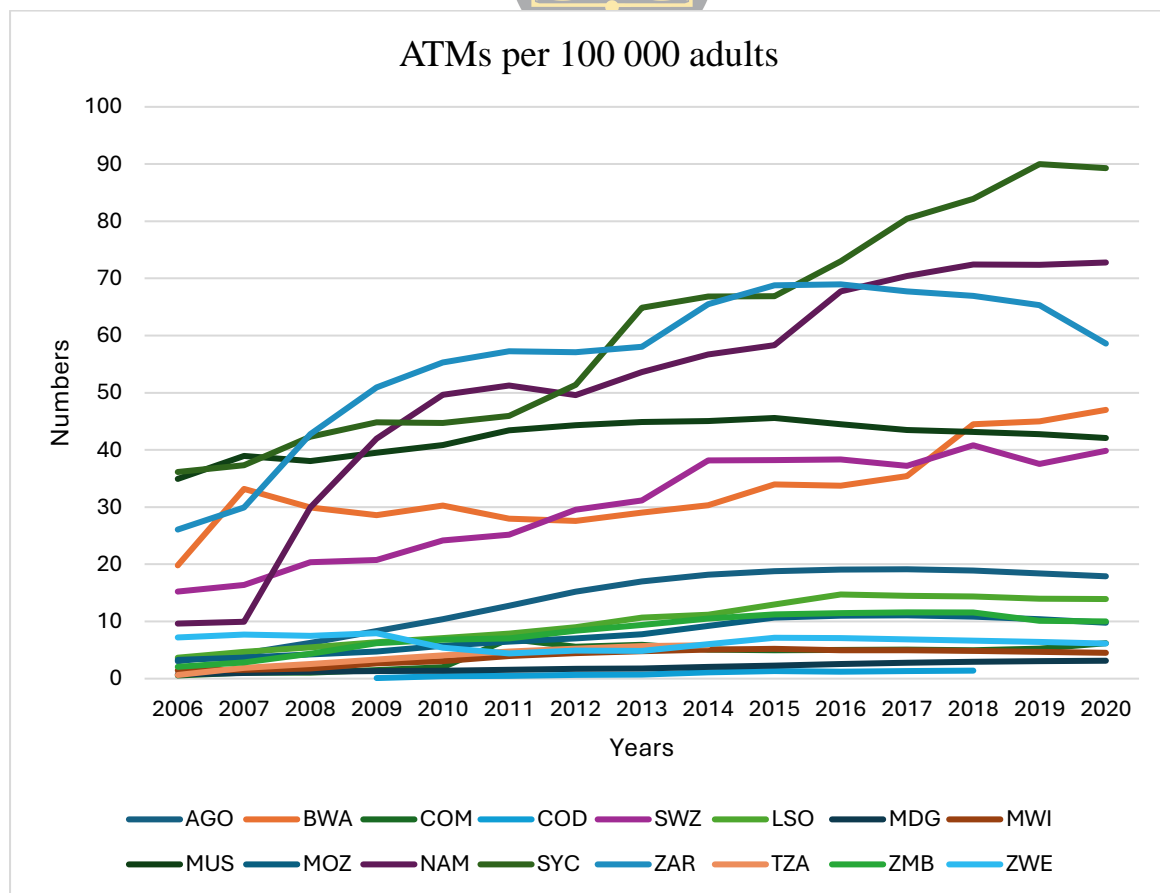
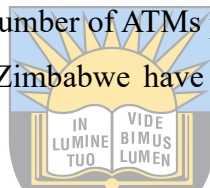


Figure 2. 1 ATMs per 100 000 adults in SADC for the period 2006 to 2020

Source: Author's graph using data from World Development Indicators (2023)

Another measure of financial inclusion is the number of commercial bank branches per 100 000. As shown by figure 2.2 below. Seychelles exceeds the other nations in the period under review (2006-2020), followed by Mauritius. As noted by (Nyamazunzu, 2019), both of these countries are relatively small when it comes to population and surface area. This shows the significant role of the geographical area and population in financial sector development.

For example, South Africa has a dispersed geographical layout, coupled with a relatively high population (over 52 million) compared to other SADC countries. Consequently, such economies tend to record lower values.

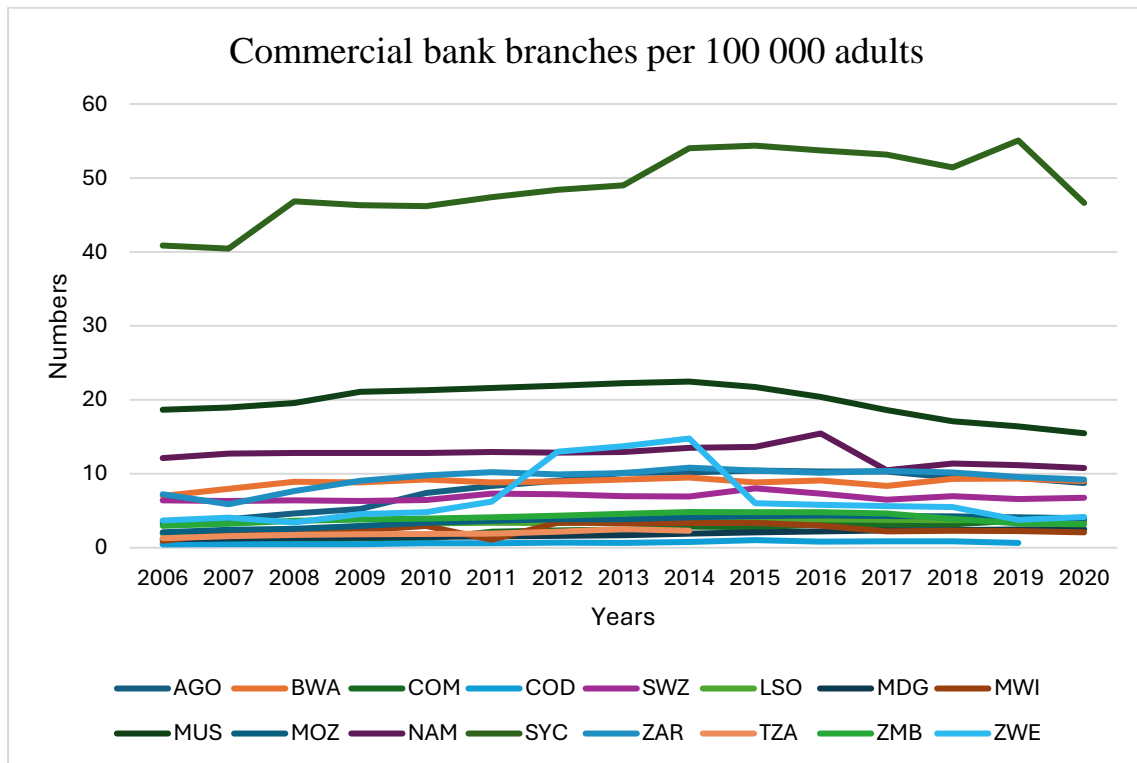


Figure 2. 2 Commercial bank branches per 100 000 adults in SADC for the period 2006 to 2020

Source: Author's graph using data from World Development Indicators (2023)

Moreover, another measure is borrowers per commercial banks per 1000 adults. As indicated by figure 2.3 below, Seychelles, Namibia and Mauritius have many borrowers from commercial banks. However, other nations such as Comoros, Malawi and Democratic Republic of Congo have lower levels of borrowers from commercial banks.

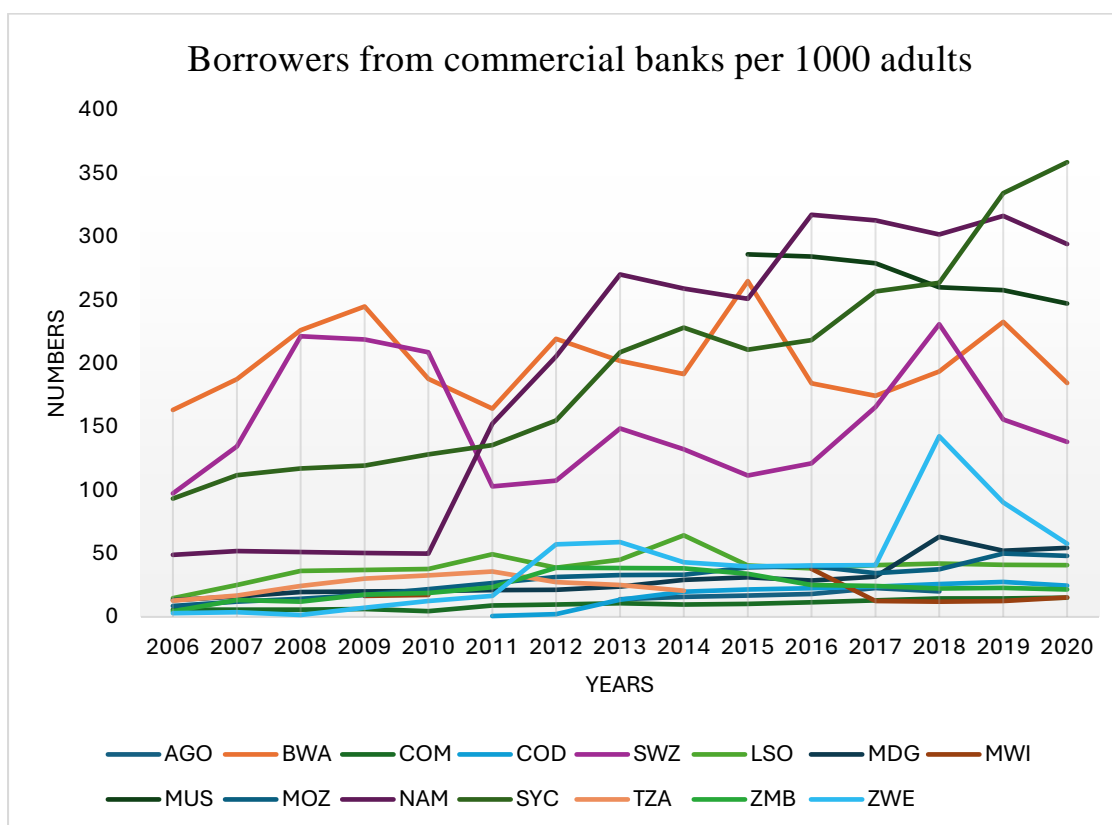


Figure 2.3 Borrowers from commercial banks per 1000 adults in SADC for the period 2006 to 2020

Source: Author's graph using data from World Development Indicators (2023)

Furthermore, the degree of financial inclusion is illustrated in table format using the average numbers for the period 2006 to 2020 as shown in table 2.1 below.

Table 2.1 Measures of access and use of banking services in the SADC region for the period 2006 to 2020.

Country	Access/Availability		Usage	
	ATMs per 100 000 adults	Commercial bank branches per 100 000 adults	Deposits with commercial banks per 1000 adults	Borrowers from Commercial banks Per 1000 adults
Angola	13.85	8.07	N/A	10.49
Botswana	33.09	8.83	595.99	201.46
Comoros	4.08	2.29	96.77	9.78
Dem. Rep. Congo	0.58	0.63	21.56	12.18
Eswatini	30.19	6.83	469.29	153.06

Lesotho	10.03	3.21	324.80	39.53
Madagascar	1.97	1.82	64.89	29.79
Malawi	3.86	2.45	129.43	9.47
Mauritius	42.11	19.83	759.93	107.63
Mozambique	7.73	3.61	N/A	29.89
Namibia	51.09	12.56	652.09	195.57
Seychelles	61.19	48.93	1342.95	195.99
South Africa	55.95	9.37	N/A	N/A
Tanzania	2.27	1.14	N/A	15.09
Zambia	8.23	4.01	188.21	23.76
Zimbabwe	6.42	6.60	270.97	41.07

Source: Author's graph using data from World Development Indicators (2023)

As indicated by Table 2.1 above, in terms of access/availability of financial services in SADC, Seychelles exhibits the highest level of financial inclusion, boasting more than 61 ATMs per 1000 adults. Other nations that follow with larger numbers are South Africa, Namibia, Mauritius, and Botswana with more than 55, 51, 42, and 33 amongst others respectively. Other nations like Tanzania, Madagascar, and the DRC have low numbers of ATMs per 1000 adults. When it comes to commercial bank branches per 100 000 adults, Seychelles has the highest number which is 48. This is followed by Mauritius, Namibia, and South Africa amongst others with over 19, 12, and 9 commercial bank branches per 100 000 adults respectively. On the other hand, nations like Tanzania, Madagascar, and the Democratic Republic of Congo have low numbers of commercial bank branches.

In terms of financial services usage, Seychelles has the highest number of deposits with commercial banks per 1000 adults which is more than 1000. This is followed by Mauritius, Namibia, Botswana with more than 700, 600, 500 deposits with commercial banks per 1000 adults respectively. Countries like Madagascar and the Democratic Republic of Congo have low numbers. Unfortunately, data for deposits with commercial banks per 1000 adults for countries such as South Africa, Angola, Mozambique, and Tanzania is not available for the period.

In addition, in terms of borrowers from commercial banks per 1000 adults, Botswana has the highest number which is more than 200. This is followed by Seychelles and Namibia both having more than 190 borrowers from commercial banks per 1000 adults. Other countries such

as Malawi and Comoros have the lowest number. However, data for borrowers from commercial banks per 1000 adults in South Africa is unavailable for the period under review.

2.4.2 Financial depth of the banking sector

Financial deepening is the expansion of financial services, encompassing a variety of services that target all groups of people. It has major attraction to experts in economic development (Nyamazunzu, 2019). Multiple indicators are used to measure financial deepening. Several of these indicators involve domestic credit to the private sector as a percentage of GDP and the ratio of liquid liabilities to GDP.

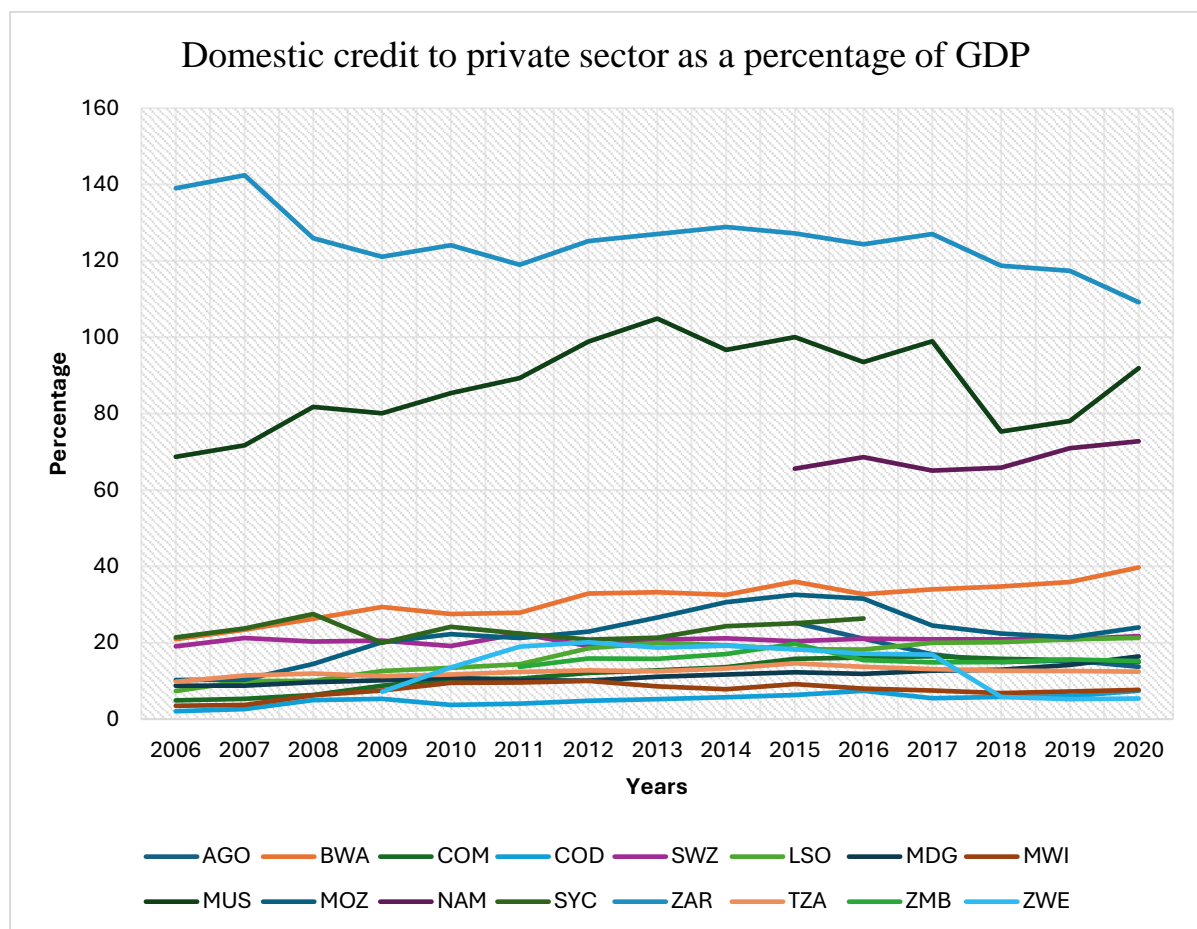


Figure 2. 4 Domestic credit to private sector to GDP in SADC for the period 2006 to 2020

Source: Author's graph using data from World Development Indicators (2023)

The ratio of domestic credit to the private sector to GDP is commonly utilized as a gauge of banking sector depth. Additionally, it reflects the extent of financing accessible to the private sector for expansion and its contribution to overall economic performance. A higher value of this metric signifies a stronger economy, empowering the private sector to play a more significant role in the national economy due to increased financial resources being available to

it. Figure 2.4 above shows that for the period under review, South Africa, Mauritius and Namibia, respectively, attained the greatest level of financial depth in terms of domestic credit to private sector. However, during the same time, Tanzania, Democratic Republic of Congo, Malawi and Zimbabwe attained the least financially depth amongst the SADC nations.

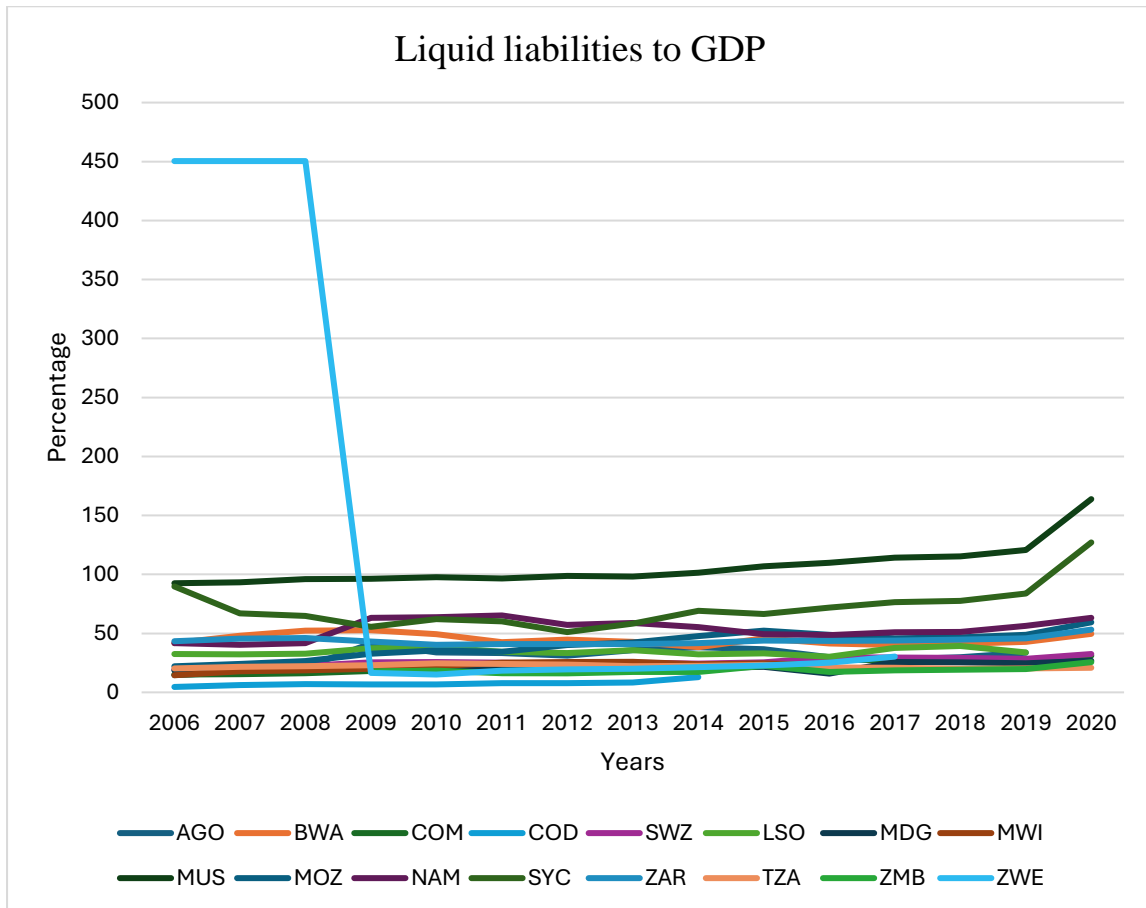


Figure 2. 5 The ratio of liquidity liabilities to GDP in SADC for the period 2006 to 2020

Source: Author's graph using data from FRED (2023)

Another gauge of financial depth is the ratio of liquid liabilities to GDP. As indicated by Figure 2.5 above, Mauritius distinguishes itself with its ratio of liquid liabilities to GDP. This was followed by Seychelles with a quite similar trend. In addition, before 2009, Zimbabwe had a very high percentage exceed 400%, however declined sharply in 2008. Other nations such as Namibia, Mozambique, and South Africa have a fairly ratio of liquid liabilities to GDP. On the other hand, countries such as Tanzania and Zambia have low liquidity liabilities to GDP ratio.

2.4.3 Efficiency in the banking sector

The interest rate spread assesses the extent of intermediary costs within a competitive financial system. This indicator serves as an indicator not only for evaluating the progress of the banking

system and the efficiency level within it but also for evaluating the effectiveness of the financial system (Mahawiya, 2016).

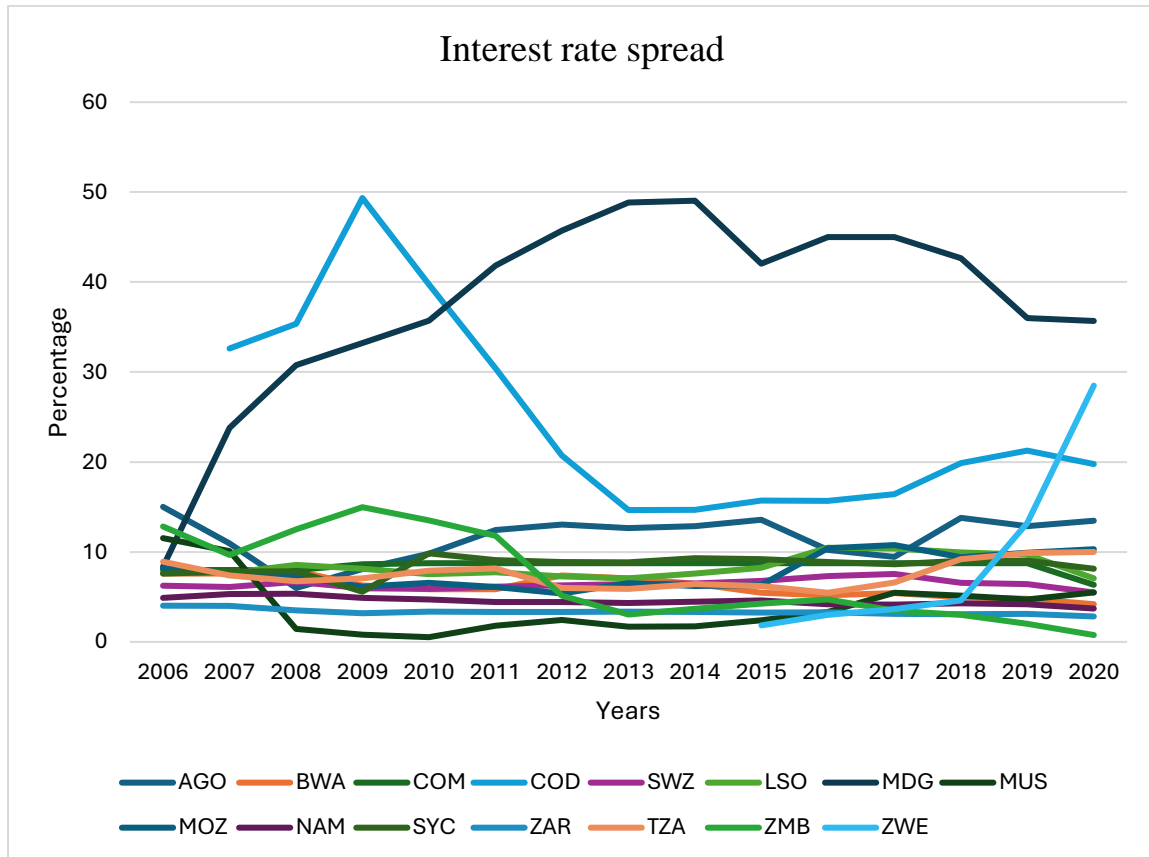


Figure 2. 6 Interest rate spread in SADC for the period 2006 to 2020.

Source: Author's graph using data from World Development Indicators (2023)

As depicted in Figure 2.6 above, this indicator suggests that South Africa's financial sector exhibits greater competitiveness within the region. In theory, interest rate spread should decrease as financial sectors improves. Therefore, it is unsurprising that South Africa, with its developed financial sector, maintains low interest rates. Similarly, Zambia and most member states indicate a relatively competitive financial environment due to their low interest rate spreads. However, Madagascar and Zimbabwe exhibit notably high interest rate spreads. Other nations with elevated interest rate spreads are Angola and DRC. The higher interest rate spread in these nations may be attributed to inefficiencies in the banking systems.

Table 2. 2 Banking sector development in the SADC region for the period 2006 to 2020.

Country	Average domestic credit to private sector (% of GDP)	Average bank capital to assets ratio (%)	Average interest rate spread. (lending rate minus deposit rate, %)
Angola	7.16	7.53	11.6
Botswana	31.14	5.15	6.13
Comoros	11.99	8.81	8.43
Dem. Rep. Congo	5.13	1.35	23.08
Eswatini	20.66	8.62	6.42
Lesotho	16.29	6.08	8.33
Madagascar	11.45	7.75	37.58
Malawi	7.52	3.79	N/A
Mauritius	87.68	6.39	3.91
Mozambique	22.36	5.37	7.82
Namibia	27.26	6.60	4.53
Seychelles	17.15	7.43	8.52
South Africa	125	6.26	3.34
Tanzania	12.42	8.21	7.46
Zambia	10.56	10.52	7.02
Zimbabwe	11.10	N/A	3.65

Source: Author's table using data from World Development Indicators (2023)

As illustrated in Table 2.2 above, the banking sector variables across most SADC countries indicate significant developments within the sector during the period under review. South Africa stands out with the highest average domestic credit to the private sector as a percentage of GDP (125%). Zambia has the highest percentage of bank capital to assets ratio (10.52%). When it comes to interest rate spread, South Africa has the narrow interest rate spread (3.34%) in relation to other countries in the region. This means that the banking sector is efficiently converting deposits into loans and enabling the transfer of money from savers to borrowers, also this narrow interest rate spread entails that there is increased competition among banks as they compete to attract both depositors and borrowers with favourable rates. Madagascar boasts the region's highest interest rate spread in the region (37.58%), indicating that its financial institutions exhibit a higher level of profitability. However, this may mean that their banking

sector is less competitive. Also, a widespread might mean that there are inefficiencies in financial intermediation, as banks are not able to convert deposits into loans as effectively.

2.5 Financial markets development in the SADC region

SADC member states have money and capital markets, which are in different development phases. Moreover, the level of liquidity in these markets, as measured by trading volumes and activity, differs across different locations. It has been discovered that certain markets in SADC nations have higher levels of liquidity compared to others (SARB, 2014). Also, concerning capital and current account constraints, the majority of SADC economies have implemented measures to make these transactions more open, with certain nations that have already done so and others that have only just begun. This is indicated by Table 2.3 below.

Table 2. 3 Restrictions on current and capital account transactions in the SADC region.

Country	Exchange control on current account (CA) transactions	Restrictions on capital account Transactions
Angola	The majority of CA transactions have undergone liberalisation.	Investment restrictions in sectors like defence and security
Botswana	Exchange regulations were removed in February 1999.	Full capital account convertibility
DRC	Current account transactions are unrestricted. Forms are required only for record purposes.	Capital account transactions are unrestricted; however, transactions exceeding US\$ 10 million require a justification.
Lesotho	No controls on current account transactions	Since June 2003, there have been only a few reforms on capital account transactions.
Malawi	The current account has no exchange control.	Prior approval is required for both inward and outward

		direct and portfolio investments.
Mauritius	Current account is fully convertible.	Current account transactions are unrestricted.
Mozambique	There are no constraints on exports of goods.	The central bank must approve all capital transactions.
Namibia	The current account has no restrictions.	No restriction on capital from non-residents for Investments
Seychelles	All restrictions on current account transactions were removed	There are no restrictions on capital account transactions
South Africa	No restrictions on current account transactions	No limitations on inward investment and dis-investment by non-residents
Tanzania	No constraints	There is restricted movement to and from the nation
Zambia	Liberalised since 1992	Repeal of the Exchange Control Act in 1994
Zimbabwe	Completely liberalized	Partially liberalized

Source: Chiwira et al. (2016)

Abel et al. (2021) documented that an integral component of the SADC regional financial system, capital markets hold significant importance within the region. The requirements for finances in the region are massive, primarily for long-term infrastructure projects and social development initiatives. Typically, these funds are sourced through capital markets via stocks, bonds, and other investment opportunities. Securing financing for such projects and programs within SADC is crucial as the bloc aims to achieve the status of a modern and integrated economy. This necessitates member countries to attract private sector investments, leading to the inclusion of the finance and investment protocol among the bloc's various protocols. SADC aims to create standardised securities markets across the region to attract investments and enable the regional economy to compete globally. To achieve this goal, the region has agreed

upon harmonizing listing requirements for stock markets, sharing research, and information management for market surveillance, regulation, and investor promotion (Abel et al., 2021).

Bara et al. (2016) indicated that financial advancement varies among SADC countries, with South Africa standing out as the most advanced. According to Mahawiya (2016), SADC possesses relatively developed stock markets, with South Africa boasting a highly advanced market, standing 17th globally when it comes to market capitalization. In addition, Mauritius has also a developed stock market, however, other states, thus Namibia, Seychelles, and Zambia have fairly developed financial markets and others such as Eswatini, and Tanzania have the least developed financial markets.

Table 2. 4 Stock market development in the SADC region for the period 2006 to 2020.

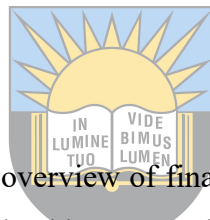
Country	Average market capitalization of listed domestic companies (% of GDP)	Average stocks traded, total value (% of GDP)	Average stocks traded, turnover ratio of domestic shares (%)
Angola	N/A	N/A	N/A
Botswana	N/A	N/A	N/A
Comoros	N/A	N/A	N/A
Dem. Rep. Congo	N/A	N/A	N/A
Eswatini	0.85	0.001	0.10
Lesotho	N/A	N/A	N/A
Madagascar	N/A	N/A	N/A
Malawi	N/A	N/A	N/A
Mauritius	67.02	3.29	4.97
Mozambique	N/A	N/A	N/A
Namibia	7.05	0.24	197.85
Seychelles	4.61	0.76	0.06
South Africa	239.14	72.50	30.02
Tanzania	0.65	0.001	0.02
Zambia	2.45	0.02	0.07
Zimbabwe	N/A	N/A	N/A

Source: Author's table using data from World Development Indicators (2023)

As indicated by table 2.4 above, South Africa is well advanced when it comes to the stock market. This is shown by the average market capitalization of listed domestic companies as a percentage of GDP which is 239.14%. This is then followed by Mauritius with 67.02%, Namibia with 7.05%, Seychelles with 4.61%, Zambia with 2.45%. Eswatini and Tanzania have the least percentages which is 0.85 and 0.65 respectively. Moreover, when it comes to the total value of stocks traded to GDP, South Africa has the highest percentage which is 72.50%. This is followed by Mauritius with 3.79%. Seychelles and Namibia have 0.76% and 0.24% respectively. Zambia, Tanzania and Eswatini have the lowest percentage, which is 0.02, 0.001 and 0.001 respectively. Within the same period, Namibia has the highest percentage of stocks traded turnover to GDP which is 197.85%. This is followed by South Africa and Mauritius with 30.02% and 4.97% respectively. Other countries such as Eswatini, Zambia, Seychelles, and Tanzania have low stock turnover to GDP percentages, which are 0.10, 0.07, 0.06, and 0.02 respectively. Unfortunately, it should be noted that data for other nations like the Democratic Republic of Congo, Malawi, and Zimbabwe amongst others is not available as shown in Table 2.4.

2.6 Conclusion

This chapter focused on providing an overview of financial sector development in the SADC region. Trends reviewed show that the banking sector dominates in comparison to the financial markets in the region. Furthermore, the development of the financial sector varies in the region, with nations such as South Africa, Namibia, and Mauritius having well-advanced systems and others such as Malawi and Mozambique having low levels of financial development. That being said, it becomes very important to also look at empirical investigations as well as theoretical views on what determines financial sector development hence the subsequent chapter will concentrate on the literature review.



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CHAPTER 3

LITERATURE REVIEW

3.1 Introduction

This chapter gives a discussion of different theoretical perspectives and empirical research that explain the factors determining financial sector development. The chapter has four sections. After the introduction, the subsequent section is the theoretical literature which discusses theories related to financial sector development. This is then followed by the third section which evaluates empirical studies which are grouped into time series and cross country studies, and these were done in different nations. Lastly, the fourth section is the analyses of the literature and conclusion.

3.2 Theoretical literature

3.2.1 Financial liberalization theory

McKinnon and Shaw developed the Financial liberalization theory in 1973. It implies that financial liberalization is needed for financial system advancement, which eventually results in economic progress. According to the concept, real interest rates that are high and positive would lead to more domestic savings and more loanable money available for investment. According to this hypothesis, the financial sector's development is hampered by financial repression. Market disequilibrium is brought on by financial repression, which also restricts the financial market's ability to allocate resources efficiently. Because of restricted access to external funding and credit regulations, businesses in a financially depressed economy are prone to have financing difficulties (Aluko & Ajayi, 2017).

Financial liberalization is a way of reforming the financial industry. It is the mechanism through which markets decide who acquires and gives credit and at what cost. The eight major elements of financial liberalization are as follows: a) The abolition of credit restrictions b) the loosening up of interest rates; c) unlimited entrance into the banking industry; d) bank independence; e) individual ownership of financial institutions; f) the accessibility of the country's financial markets to global investments; g) the abolition of exchange restrictions (Odhiambo, 2010).

The primary goal of financial deregulation is to create a more effective, strong, and deep financial structure capable of supporting the expansion of the private sector. Generally, financial liberalization is anticipated to promote growth over the long term and encourage development. Financial liberalization advocates assert that by utilizing a variety of institutions,

mechanisms, and products, the liberalization of financial markets enables a more diversified and specialized intermediation between savers and borrowers. It also enables a freer movement of capital to areas where it may be invested more effectively (Odhiambo, 2010).

A country with a robust financial system may create higher production through effective capital allocation. Yet, numerous economies, particularly developing nations, have traditionally limited competition in the banking industry through government involvement and regulation. They identified two ways in which financial repression might impair the economy: financial repression reduces the efficiency of investment savings, and it also affects savings and investment equilibrium through changing savings and investment returns (Godza, 2013).

According to this financial liberalization theory, higher real interest rates also help finance the most productive businesses and promote technological advancement. Also, charging interest rates beyond the investment's marginal efficiency might encourage some business owners to shift their investments from antiquated technologies to more advanced ones and profitable ventures. As a result, fresh positive net savings are created, which is crucial for lowering foreign dependency and encouraging additional investment, which in turn spurs growth (Orji et al., 2015).

According to McKinnon and Shaw, financial deregulation establishes elevated interest rates that balance the supply and demand for savings. According to McKinnon, savings will rise as a result of more social and personal time. Shaw conveys the opinion that those with savings could overlook a potentially temporary rise in rates of return for instance from 4% to 6%, but they are less likely to keep their consumption-saving trends when rates of return shift, in a context of economic changes, from negative values to positive 10% or 15%. This is despite acknowledging the opposing income and substitution effects of rises in interest rates on money saved (Balassa, 1990).

Shaw goes on to say that genuine financial firms' expansion gives individuals greater access to borrowing opportunities as well as incentives to save money and build up the equity that lowers the cost of borrowing. The greater appeal of maintaining cash balances, in turn, lowers the opportunity cost of internal saving for a potential external acquisition of capital goods (Balassa, 1990).

3.2.2 Law and finance theory

Several significant studies addressing the link between legislation (concerning investment protection) and financial development were written in the 1990s by US-based economists.

These people looked back in time for an element that would enable them to evaluate the pattern of causality since financial development can influence law, and law can also influence financial development. The law and finance theory was therefore established (Musacchio & Turner, 2013). It was developed in 1997 and 1998 by La Porta, Lopez-de Silanes, Shleifer, and Vishny. The two main studies from 1997 and 1998 examined an important question: Is law important? They looked at differences in legal origins and their effect on economic success. Assessing the impact of legal protection for investors on three critical areas—corporate management, ownership structure, and management and purpose of the financial system—was their main goal. Their work received several citations from other academics and is now considered as a new finance theory (Boughanmi & Nirjhar, 2021).

The distinctions between the two significant legal systems, British Common law, and French Civil law, are the subject of law and finance theory. This idea posits that British common law originated to defend private property owners from the monarchy. This improved private property owners' capacity to deal confidently, which had a favourable effect on financial development. On the contrary, French Civil law was designed to strengthen authority over the state and prevent courts from meddling with government policy (Beck et al., 2002).

Aluko and Ajayi (2017) emphasized that the financial industry is more established in nations with legal systems that give creditor rights and effective contract enforcement top priority. Common law-based nations possess more sophisticated financial systems than those that follow the civil law tradition. According to Schnyder (2018), for economic accomplishments, law is important. Important aspects of firms' and nations' corporate governance systems, such as ownership concentration, corporate financing options, and the size of nations' stock markets, are determined by the nation's business law's quality, which is characterized in terms of the level of minority shareholder security. This suggests that laws affect economic expansion by enhancing business growth chances.

The law and finance idea argues that the establishment of free, competitive financial systems would be hindered by a strong state and an active legal framework because it will be capable and incentivized to direct the resource circulation from preferred goals away from the optimal ones. Thus, the law and finance hypothesis asserts that nations with a French Civil law would often reduce the focus on safeguarding the rights to private property and will consequently experience reduced levels of financial growth than those with a British Common law custom (Beck et al., 2003)

Graff (2006) asserted that the legal framework that nations have retained from the past is crucial to understanding economic growth since it either supports or obstructs financial progress in a variety of ways. The legal system is considered to be a driver of economic expansion since it is considered to be a primary driving force of financial development, which is also seen as a key component in propelling economic growth. Judicial framework, financial system advancement, and economic expansion are the three steps in the theorized sequence of events in the literature.

Contrary to what is commonly believed in the literature, law is more vital to modern finance. The legislation grants jurisdiction to both public and private regulators, grants legitimacy to both private and public financial instruments, and, if applicable, certifies financial instruments resulting from private contracts. With the shift from relational finance to entity-based finance, and finally market-based finance, it may be said that the importance of law to finance has grown: Without first checking the ability to repay of the borrower, or middleman, the flexible nature of financial instruments in anonymous markets depends on legally enforceable contractual agreements that are trustworthy (Sarpong & Deodutt, 2019).

3.2.3 Endowment theory

Acemoglu, Johnson, and Robinson established the endowment theory, which is also referred to as the settler mortality concept in 2001. The hypothesis pinpoints the significance of geography and institutions in the growth of the financial system. According to the endowment hypothesis, variations in original endowments may have influenced the creation of early institutions that have had a lasting impact on the defence of private property rights and the growth of the finance industry (Aluko & Ajayi, 2017). Three principles underpin the idea. First, it notes that numerous sorts of colonisation methods were used by Europeans. The second aspect of the theory states that the practicality of settlement substantially affected the sort of colonization technique. In certain areas, mortality rates were astonishingly high. The third component of the theory of institutional development emphasizes the persistence of institutions established by European conquerors after liberation (Beck et al., 2002).

Endowment theory is applicable to the financial sector even though it focuses mostly on institutional growth in general. Because competitive markets might undermine the extractors' position, colonialists are reluctant to create institutions that support the growth of free and robust financial markets inside an extractive environment. However, colonisers in settler colonies are much more inclined to create organisations that safeguard private property rights,

which promotes economic expansion. According to the endowment theory, differences in endowments impacted the founding of the first organisations, which had long-term effects on the protection of private property rights and the progress of financial growth (Beck et al., 2003). The theory thus suggest that the state of institutions do matter when it comes to the state of the financial sector in a state. Where institutional framework are pro-development, the financial sector is likely to be well developed. On the other hand, where institutions are weak, other important segments of the financial sector may not be present, hence a less developed financial sector.

3.2.4 Demand pull hypothesis.

The concept was introduced by Robinson in 1952. This perspective posits the existence of a direct cause-and-effect link between the expansion of financial systems and the growth of a nation . Based on this argument, the financial sector is growing because of the demand for financial services from enterprises that are looking for external finance. Real economic development in this case results in the rise of the banking sector (Al-Naif, 2012). According to the principle of demand-following, economic expansion leads to financial development. The economic advancement stimulates a rise in the need for financial goods and services, resulting in the creation of new markets and financial organisations to cater to this growing need (Acaravci et al., 2009). This claim was further supported by Friedman and Schwartz (1963). Nevertheless, it is now more universally acknowledged that the expansion of the financial industry should benefit economic expansion (Halicioglu, 2007).

Financial deepening is contingent upon economic growth. The notion of demand-led or growth-led finance is based on this position. According to this hypothesis, when a country develops, its financial sector also rises in order to meet the growing need for financial services. The expansion of the economy results in heightened macroeconomic activity, which in turn stimulates more progress in the financial sector. Patrick (1966) introduced a further dimension to the connection between financial depth and economic expansion thus, the stage of development theory which has both the supply-leading and demand-following perspectives. The assertion posits that as the country expands, there is a shift in the cause-and-effect connection between financial development and economic growth. Patrick (1966) maintained that the demand-following hypothesis becomes more prevalent as an economy grows, whereas the supply-leading notion is only applicable in the early stages of economic development (Adeyeye et al., 2015).

Patrick (1966) posits that when a nation undergoes development, there is a corresponding surge in the need for financial services. As a result, there is an increase in supply and the expansion of the financial industry. According to this perspective, the absence of banking organisations in poor nations is because of a decline in the demand for their services. Modern financial institutions were created to meet the need for services from people who invest and save in the real economy, which includes financial assets and responsibilities. The relationship between the expansion of banking and economic development may exhibit temporal variation. The initial influence on economic expansion is propelled by the advancement of the banking industry. However, when real progress takes place, the significance of this link diminishes, leading to an increased desire for enhanced banking expansion.

3.3 Empirical literature

The available literature on the determinants of financial sector development incorporates research conducted at the country level (Badeeb & Lean 2017; Kiarie 2020; Asratie 2021; Muhammad & Ruqaiyat 2021). On the other hand, there are other research that have been conducted at the cross-country level (Tsaourai 2018; Ibrahim & Sare 2018; Asongu et al., 2021; Alawi et al., 2022) to just name a few. A critical review of these studies highlights that on average, the findings from either of the approach are the same. This may suggest that the approach chosen does not really influence the findings. Another important issue is that the focus has largely been on the financial sector broadly, mostly focusing on the banking sector given that the financial markets are thin in most of the member states. As highlighted in the overview chapter, except for countries such as South Africa, Mauritius, and a few other countries, the financial markets are non-existent in the majority of the countries. Still, another factor which has been raised by the majority of the studies is the aspect of endogeneity between the variables of interest. This is important as overlooking this may result in biased results. The review will start with time series studies and followed by the cross-country studies.

3.3.1 Time series studies

Badeeb and Lean (2017) assessed the primary drivers impacting the growth of Yemen's financial industry using yearly data covering the years 1980 to 2012. Using the ARDL approach, the research found that trade openness, rising prices, reliance on natural resources, and economic expansion are the main factors influencing Yemen's financial growth. Trade openness and economic expansion have a beneficial effect on the rate of financial development, but dependence on natural resources has a negative effect. These findings are consistent with

Najimu's (2019) study on Ghana, which found that trade liberalisation and economic growth have a significant influence in determining the development of the banking industry.

Kiarie (2020) analysed the elements that have led to the growth of the financial industry in South Africa using quarterly data. The results indicate a sustained and beneficial relationship between monetary policy, foreign investment, stock market capitalization, economic growth, legal frameworks, and financial development. The research highlights the importance of institutions as determinants of financial sector development, and it supports the law and finance theory. Similarly, in terms of institutional variables, these results align with research conducted by Aluko and Ajayi (2017) which determined that institutional aspects had a favourable influence on the extent of development in the banking systems.

The studies which have been done in Nigeria include Adedokun et al. (2020) who explored the macroeconomic factors of financial development. Several macroeconomic variables which include GDP, poverty, exchange rate, oil price, money supply, inflation, and interest rates were employed as the possible determinants. The outcome indicated that, with the exception of interest rates, all factors had a negative influence on banking sector expansion. These findings were found to be consistent in part with Muhammad and Ruqaiyat (2021). In addition to the macroeconomic variables, the authors found that quality of life, FDI, and debt servicing had a favourable influence on financial development. These findings may imply that the extent to which economic agencies and the general public access the financial system, contributes to its expansion.

In their study, Guan et al. (2020) highlight that a state's financial expansion is a crucial component of its development and is necessary to foster economic activity. The goal the study was to examine the resource curse theory in the context of globalization, human capital, and economic expansion in China between 1971 and 2017. ARDL technique was used in the analysis. The outcome supports the theory that China has a resource curse because natural resources hurt financial development, whereas globalization, human capital, and economic growth positively affect the nation's financial expansion. On the other hand, this is not in line with the findings of Atil et al. (2020) who argued that natural resources are beneficial for financial development. Also, the findings do not agree with Adedokun et al. (2020) who documented that financial expansion is influenced adversely by a nation's output.

Asratie (2021) and Gezae (2015) conducted a study in Ethiopia to examine the factors contributing to the growth of the financial industry in the country. The former analysed annual

data from 1980 to 2019 using the ARDL technique. The explanatory variables included were foreign debt, requirements for reserves, real exchange rate, interest rates, price increases, the political liberty measure, openness to trade, and economic expansion. The political liberty measure, economic expansion, and openness to trade positively impact broad money supply, a measure of financial system development. Nevertheless, the requirement for reserves and interest rates have an adverse effect. Real exchange rate have negligible short-term impacts and adverse long-term impacts. Furthermore, rising prices, rights in politics, industrial advancement, and openness to trade all have a positive impact on the credit extended to the private sector. Foreign debt, requirement for reserves, and interest rates have a negative effect. The latter study used the OLS technique. The author stated that the expansion and progress of the banking sector are greatly impacted by factors such as openness to trade, real interest rate, increasing population, and government spending. These variables have a significant impact on the amount of credit extended by banks to the private sector. Moreover, macroeconomic variables like as the remittance to GDP ratio, real interest rate, and GDP growth rate have a substantial impact on the broad money supply.

Lenka (2022) explored the connection between financial inclusion and financial expansion in India. The research created a financial inclusion indicator and a financial expansion indicator using principal component analysis (PCA). These indicators assessed the accessibility and depth of financial resources, accordingly. Utilizing several characteristics linked to financial inclusion and financial expansion, the outcome suggested that financial inclusion is critical for the advancement of the financial sector, particularly in emerging countries like India.

3.3.2 Panel data studies

Regarding cross-country studies, the Generalized Methods of Moments (GMM) was utilized by Mbulawa (2015) in the investigation of the factors influencing financial development in the SADC. To carry out the research, 11 SADC nations' yearly panel data from 1996 to 2010 were employed. The paper analysed the factors influencing financial development in the SADC area using both static and dynamic models. The per capita GDP, inflation rate, real interest rate, lending to the public sector, and institutional factors all had an impact on financial development, according to the fixed-effects framework. Also, except for inflation and political unrest, all the variables showed the anticipated signs. The findings point to a specific model for financial development in SADC utilizing the fixed effects model. Findings are presented based on this framework since all the relevant parameters found using the static model were also found using the dynamic model. Similarly, Tsaurai (2018) conducted a study in SADC that

used GMM to explore the factors of banking sector advancement in SADC nations. The conclusion was that GDP positively affects banking sector development. Trade openness had a detrimental and huge effect on banking sector growth, whereas inflation had a somewhat beneficial impact. There was a small negative effect on banking sector development from government spending and unemployment.

To add empirical literature, Sanderson and Le Roux (2016), Menicucci and Paolucci (2016) and Derbali (2021) looked at factors influencing banking profitability in Zimbabwe, European banking sector and Morocco respectively. Following Zimbabwe's adoption of a multicurrency framework Sanderson and Le Roux (2016) analysis covered the period 2009 to 2014. The findings imply that the Zimbabwean banking industry's profitability is enhanced by raising asset quality, enhancing expenditure management, and boosting liquidity and capital level. On the other hand, Menicucci and Paolucci (2016) used a panel data of 35 major European banks spanning the years 2009 to 2013. The findings indicate that company size and capital ratio are significant predictors of bank profitability in Europe, while higher loan loss provisions are associated with lower profitability. Furthermore, Derbali (2021) used six Moroccan banks from 1997 to 2018 by employing a fixed individual effect approach. The empirical evidence indicated that Moroccan banks respond to their size to improve their performance.

To examine the elements that caused financial development, Zainudin and Nordin (2017) utilized panel datasets of 4 chosen ASEAN nations, including Philippines, Malaysia, Singapore and Thailand. They employed Pooled Ordinary Least Square (POLS) and Seemingly Unrelated Regression (SUR) System. The necessary data collection involved a panel of information for four chosen ASEAN nations over the years 1987 to 2013. The POLS model's Durbin-Watson test revealed that there is evidence of positive autocorrelation among the residuals. Given this conclusion and a key flaw with the POLS approach, which hides any heterogeneity that may exist between nations, the second estimating approach, the SUR framework, was employed to provide better outcomes. According to the findings of the SUR framework, real income is the most essential indicator of financial development for Singapore and Thailand, whereas trade openness is the crucial factor of financial development for Malaysia and the Philippines. The results of income and financial development concur with the findings of Abubakar and Kasim (2018) and Asratie (2021) who showed that income and trade openness favourably impact financial development respectively.

Research by Bara et al. (2017) centres on a series of empirical experiments undertaken on the subject of bank concentration in the SADC area. The study used yearly data for 15 SADC nations from 1985 to 2014. The results imply that expanding and diversifying banking industries might boost financial development in SADC nations. Concerning bank concentration, a study by Asongu et al. (2021) also concluded that bank concentration together with bank overhead expenses, net internet margin, return on equity, cost-to-income ratio, financial stability, non-resident bank loans, offshore bank deposits and remittances have varying effects on financial development.

To add empirical literature, Aluko and Ajayi (2017) used a panel of 25 nations from 1997 to 2014 to assess the drivers of banking sector development in Sub-Saharan African nations. It utilized the system's dynamic panel model estimator based on the GMM. The findings, utilizing a composite measure of banking sector growth, reveal that financial liberalization hinders banking sector development, whereas population density and simultaneous trade and capital openness boost it. According to this analysis, the depth of the banking industry is shaped by these variables: institutional quality, population density, and trade openness. It also shows that law, inflation, and religion all contribute to an efficient banking sector, whereas latitude, trade openness, income level, and ethnic diversity all have the opposite effect. Furthermore, it demonstrates that legislation and simultaneous openness to trade and capital improve banking sector stability, but land area, financial liberalisation, economic progress, and inflation have a negative effect on banking system stability. The influence of trade openness on financial development, agrees with Badeeb and Lean (2017) who discovered that trade openness has a beneficial effect on the rate of financial development.

Abubakar and Kasim (2018) study examined the institutional and macroeconomic factors that influenced financial development in 50 Organisation of Islamic Cooperation member nations between 2003 and 2011. System-GMM method was used. The findings showed that the general amount of income favourably impacts financial development and that the exchange rate promotes lending and financial depth. It has been discovered that financial openness simply encourages financial depth, whereas institutional quality encourages lending activity. While decreasing the depth of the finance industry, inflation increases bank private credit. In the same vein, the study by Zainudin and Nordin (2017) revealed that income is the most essential indicator of financial development.

Alawi et al. (2022) used 17 emerging economies from 1990 to 2020. Pedroni Integration tests completely modified ordinary least squares, and panel unit root were used in this work to examine the data. The study discovered financial innovation and institutional quality are strongly correlated with financial development. Improved financial innovation and institutional quality foster financial development, but poor institutional standards in emerging markets might hinder it. These results correspond with Bekana (2023) who utilized empirical panel data from 45 African nations for the years 1996 to 2018. The research findings indicated that the creation of institutions encourages the growth of the financial industry.

There is a large number of factors affecting financial development and the available literature group them in different ways. These are macroeconomic, institutional, geographic and other factors. This section provides a review of these studies.

3.4 Determinants of financial sector development

3.4.1 Macroeconomic factors

Adelakun et al. (2020) claimed that macroeconomic variables, which are macroeconomic indicators, are the primary factors influencing the development of the banking sector. This suggests that fluctuations in these indicators, which are often challenging to manage, can have significant impacts on economic units, including the banking sector. Adekunle et al. (2021) noted that macroeconomic policies play a crucial role in financial development, whether through the demand or supply side. Factors such as hyperinflation, fluctuations in macroeconomic conditions, low investment levels, capital restrictions policy, and strategies for outsourcing capital, categorized broadly as de jure and de facto measures, serve as significant barriers to the growth of financial markets. Studies by (Zainudin & Nordin, 2017; Ibrahim & Sare, 2018; Ellahi et al., 2021) concluded trade openness has a positive effect on financial sector development.

3.4.2 Institutional factors

Advocates of neo-institutional concept concur that "institutions matter" as they establish fair conditions in financial markets, set up economic incentives, and facilitate effective resource mobilization and allocation, thereby impacting financial market advancement and economic progress. Bekana (2023) proposed that essential institutions for economic growth include those facilitating the capital allocation to its most efficient and effective usages. These institutions are responsible for establishing and upholding robust property rights, ensuring an effective legal framework, and maintaining an intact and efficient financial system.

law and finance concept stated that in countries where the legal framework enables the formation of agreements between private entities and safeguards property and investor rights, individuals are more likely to invest in firms, thereby fostering the growth of financial markets. On the other hand, in systems offering inadequate protection of property and investor rights, financial development tends to be impeded. Additionally, the theory highlights the significance of the legal origin of judicial systems in explaining differences among nations in protecting investor rights, contractual agreements, and the level of financial development. From this viewpoint, the theory suggests that civil law systems typically provide less protection for property rights compared to common law systems, thus elucidating why countries adopting common law tend to exhibit more developed financial systems (Kombo & Koumou, 2021).

Studies by (Aluko and Ajayi, 2017; Kiarie, 2020; Ellahi, et al., 2021; Alawi et al., 2022) stated that institutional factors such as institutional quality have a positive influence on financial improvement. Effective corruption control and adherence to laws and regulations positively affect financial development (Kombo & Koumou, 2021).

3.4.3 Geographic factors

The Endowment theory highlights the significance of geography and institutions in the growth of the financial system. Landlocked nations or those situated in tropical climates due to their proximity to the equator often experience hindered productive activities, resulting in lower levels of economic and financial development. Regions or nations that can avoid the resource curse hypothesis often experience significant financial benefits from their abundant and active natural resource endowments (Adekunle et al., 2021). The empirical evidence from the study by Atil et al. (2020) suggests that there is a favourable connection between the abundance of natural resources and financial development, meaning that natural resources are advantageous for the development of financial systems. However, the investigation carried out by Guan et al. (2020) suggests that natural resources and financial development have an adverse connection, thereby providing empirical support for the resources curse hypothesis.

3.4.4 Other factors

Adelakun et al. (2020) stated that the banking sector can be influenced by internal microeconomic indicators. Banks have control over various bank-specific features, including property rights, liquidity, size, risks, and efficiency. Sanderson and Le Roux (2016) study pointed out that the banking industry's profitability is enhanced by raising asset quality, enhancing expenditure management, and boosting liquidity and capital levels. The analysis

indicates that bank executives play a most important part in defining the financial industry's profitability. Also, Chikuba (2016) study argued that the profits retained from the previous year have a favourable and substantial influence on financial performance, while the adequacy of capital and the effectiveness of management have an unfavourable and substantial impact on the development of the financial sector. Furthermore, Varga et al. (2021) concluded that money fraud and cyber-threats affect the advancement of the financial sector negatively.

3.5 Assessment of the literature and conclusion

The theories examined in this study suggested that a variety of factors influence the financial sector development. In reference to the Financial liberalization hypothesis, financial liberalization is a requirement for the development of the financial sector. The Law and Finance theory claimed that the financial sector would advance provided the appropriate laws and institutions were in place, while the Endowment theory identified the importance of institutions and geography in the development of the financial sector. Also, different researchers throughout the world used different methodologies to conduct empirical investigations. For other studies (Kiarie, 2017; Zainudin and Nordin, 2017; Ellahi et al., 2021) economic growth and trade openness have positive effect on financial sector development whilst inflation has negative impacts. However, studies by Tsauroi concluded that trade openness negatively impacted the banking sector. Studies by (Tedika and Asongu, 2015; Ibrahim and Sare, 2018) claimed that human capital is very critical for the development of the financial sector. On the other hand, Derbali (2021) documented that variations in the rate of economic expansion and the progression of inflation rate have no noticeable influence on banks. In addition, Asiratie (2021) found out that credit to private sector is positively affected by inflation. As far as the author knows, it is worth mentioning that there is a gap in empirical research on the factors determining the financial sector in the SADC region that looked at both the banking sector and financial markets. The study available is Mbulawa (2015) which has predominantly concentrated on the role of institutions. Studies in SADC were concentrating on analysing the effect of financial sector development on economic growth (Mahlangu and Matsai, 2016; Moyo and Roux, 2020; Sulemana and Dramani, 2022) others focused on determinants of banking sector (Aluko and Ajayi, 2017; Tsiurai, 2018). Therefore, there is a need to empirically investigate the determinants of financial sector development in SADC region looking at the banking sector as well as the financial markets. In addition, the large number of factors affecting financial development are grouped in different ways by the

literature. These are macroeconomic factors, geographic factors, institutional factors and other factors. Methods for conducting this study are detailed in the next chapter.



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CHAPTER 4

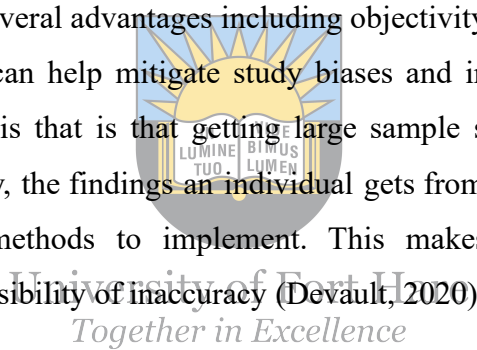
METHODOLOGY

4.1 Introduction

This chapter outlines the methodology that will be utilized to investigate the determinants of financial sector development in SADC. The chapter used existing literature as a basis for establishing the analytical framework used in this study. here are seven sections in this chapter. Following the introduction is the second section which is the research approach. The third section indicates the model specification. The fourth section defines variables and anticipated outcomes, which is then followed by the fifth section which is data sources. The sixth section discusses the estimation technique for this study and the last section is the conclusion.

4.2 Research Approach

The study is quantitative in nature given that the variables of interest are quantitative. The quantitative approach has several advantages including objectivity. It uses fewer elements and more precise values. This can help mitigate study biases and improve the accuracy of the results. Another advantage is that is that getting large sample sizes is often more feasible (Indeed, 2023). Additionally, the findings an individual gets from gathering quantitative data shows the best statistical methods to implement. This makes it simple to understand the data and reduces the possibility of inaccuracy (Devault, 2020).



4.3 Model specification

The research is underpinned by the Financial Liberalization concept, which states that financial liberalisation is a requirement for financial sector development, and it results in increased economic activity. As a result, many governments, especially developing ones, have embraced financial deregulation as a method of attaining both financial development and economic progress. Derived from the research done by Almarzoqi et al. (2015), the following model was estimated:

$$FDit = \alpha FDit - 1 + S'it \beta + P'it \gamma + uit \dots \dots \dots 4.1$$

Where:

FD is an indicator of financial development.

S indicates vector of structural variables.

P indicates vector of policy variables.

u is the error term.

In this study, the six models were specified. The first three models focus on the banking sector. The first model analyses the role which is played by geographic factors. The second model focuses on macroeconomic variables and the last model captures the role of institutions.

The models are as follows:

The first three models represent the banking sector

$$DMCPit = \beta_0 + \beta_1 PDNit + \beta_2 POPGit + uit \dots\dots\dots 4.2$$

$$DMCPit = \beta_0 + \beta_1 GDPit + \beta_2 FDIit + uit \dots\dots\dots 4.3$$

$$DMCPit = \beta_0 + \beta_1 GVEit + \beta_2 RLEit + uit \dots\dots\dots 4.4$$

The last three models represent financial markets

$$SMCit = \beta_0 + \beta_1 PDNit + \beta_2 POPGit + uit \dots\dots\dots 4.5$$

$$SMCit = \beta_0 + \beta_1 GDPit + \beta_2 FDIit + uit \dots\dots\dots 4.6$$

$$SMCit = \beta_0 + \beta_1 POLSit + \beta_2 RLEit + uit \dots\dots\dots 4.7$$

Where:



DMCP is domestic credit to private sector.

SMC is stock market capitalization.

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GDP is gross domestic product.

GVE is government effectiveness.

FDI is foreign direct investment

PDN is population density.

POPG is population growth.

POLS is political stability.

RLE is rule of law.

u is the error term.

β_0 is the intercept.

β_1 to β_3 are coefficients for the independent variables.

4.4 Definition of variables and A prior expectations

4.4.1 Domestic Credit to Private Sector (DMCP)

The studies commonly use domestic credit to the private sector as a share of GDP, which is considered one of the more reliable indices of financial development. It compares the credit supplied to the private sector by commercial banks to the overall economy's magnitude. This variable correctly captures the importance of financial intermediation in channelling funds to non-government entities. A larger ratio means more financial services hence, as a result, increased financial development (Badeeb & Lean, 2017). In this study, DMCP serves as a measure for financial sector development.

4.4.2 Stock Market Capitalization (SMC)

Stock market capitalization measures the value of publicly traded domestic shares in relation to GDP (Huang, 2010). An aggregate market stock's valuation in relation to a historical average is assessed using this to evaluate if it is undervalued or overpriced. In other terms, this ratio is employed to measure market depth. As a result, it is anticipated that a developed capital market will enhance any country's economic progress (Ayewumi & Amaju, 2021). In this study, SMC serves as another proxy for financial development.

4.4.3 Gross Domestic Product (GDP)

GDP calculates the monetary value of final goods and services, representing those purchased by end-users and produced domestically within a specified timeframe. It aggregates all production occurring within a country's boundaries (Callen, 2023). A positive connection is anticipated between GDP and financial sector development.

4.4.4 Government effectiveness (GVE)

Government effectiveness refers to the perceived standard of public services and the extent of their independence from political influence (Akinbode et al., 2020). A favourable association is anticipated between government effectiveness and financial sector development.

4.4.5 Foreign Direct Investment (FDI)

Foreign direct investment is the infusion of capital from one country into another country's company or enterprise, intending to establish a long-term ownership interest. Two examples of foreign direct investment include purchasing a long-term stake in a company overseas and

expanding a company's operations abroad (CFI, 2023). FDI is presumed to be positively related with financial sector development.

4.4.6 Population Density (PDN)

Population density, as defined by Aluko and Ajayi (2017), denotes the number of individuals per square kilometre of geographical area. The study by Aluko and Ajayi (2017) concluded that the particular geographic element that both accelerates and develops the banking industry is population density. According to this conclusion, Sub-Saharan African nations with larger population densities have more established banking systems. To this end, a positive link is anticipated between population density and financial sector development.

4.4.7 Population growth (POPG)

Population growth refers to the rise in the number of individuals (UGC, 2023). According to literature, there is a positive relationship between population growth and financial sector development as indicated by Bodenhorn and Cuberes (2010) who asserted that population growth in an area leads to heightened demand for a larger number of bank branches, hence promoting financial development.



4.4.8 Political stability (POLS)

The level of peace and stability in a nation is referred to as political stability. In order to promote consistent growth across all sectors and facilitate a nation's economic prosperity, political stability is a critical component. There cannot be economic stability in a nation without political stability (Munawer, 2022). There is an anticipated positive link between political stability and financial development.

4.4.10 Rule of law (RLE)

The concept of the rule of law consists of a strong framework that includes rules, organisations and standards which adhere to four key values: accountability, fairness, transparent government, and accessible and impartial justice (WJP, 2019). A positive correlation is anticipated between the rule of law and financial advancement

4.5 Data sources

The research is quantitative. As a result, it relies on yearly panel data from 2006 to 2020. The reason for choosing this period is because most SADC nations had implemented a variety of initiatives directed at the growth of the financial sector. The data is taken from the World Bank and FRED websites.

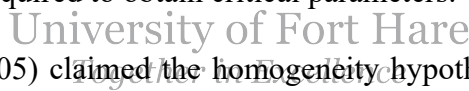
4.6 Estimation technique

4.6.1 Panel Unit root test

In empirical investigations, it is currently standard procedure to check for unit roots in time series. Since the biggest advancements in nonstationary panel models began in the middle of the 1990s, checking for unit roots in panels, nevertheless, is a relatively new technique. Micro panels with many cross-sections and short time series are no longer the norm for panel data purposes; instead, macro panels with many cross-sections and long-time series are now the norm (Barreira and Rodrigues, 2005). This investigation started by analysing Panel unit root tests which are the Im-Pesaran-Shin test and Augmented Dickey Fuller and Phillips Perron test.

4.6.1.1 Im-Pesaran-Shin (IPS) test

Maddala and Wu (1999) argued that under H_1 , IPS relaxes the assumption that $p_1 = p_2 = \dots = p_N$. The test's core concept is straightforward. Although the IPS test is referred to as an extension of the Levin and Lin tests, it is crucial to emphasize that the IPS test is a method of aggregating data on the unit root hypothesis from the N unit root checks done on the N cross-section units. It is vital to emphasize that the test implicitly assumes that T is identical for all cross-sectional components, which means that $E(t_{i,T})$ and $V(t_{i,T})$ are the identical for all i . As a result, it exclusively examines the balanced panel data is examined. However, if uneven data is utilized, additional simulations are required to obtain critical parameters.



Barreira and Rodrigues (2005) claimed the homogeneity hypothesis may be overly limiting because panel data might be made of several cross-sections with distinct autoregressive coefficients. The fundamental reason is that the same convergence rate across nations might skew panel unit root tests given the alternative hypothesis. When there is coefficient variability in cross-section data, enforcing homogeneity might lead to incorrect findings. However, the IPS test, provides a way to circumvent this limitation. IPS proposes taking an average of the ADF tests to consider the issue when data is serially correlated, and the correlation qualities change over cross sections. Relaxing the *iid* assumption of the u_{it} may be noticed when:

$$u_{it} = \sum_{j=1}^p \phi_{ij} u_{it-j} + \varepsilon_{it} \dots \dots \dots 4.8$$

For the purpose of determining if unit roots occur in panel data, the regression model shown below should be considered:

$$y_{it} = \rho_i y_{i,t-1} + \sum_{j=1}^p \phi_{ij} \Delta y_{it-j} + z_{ij} \gamma + \varepsilon_{it} \dots \dots \dots 4.9$$

The null hypothesis is shown as $H_0 : \rho_i = 1$ for all i , whilst the alternative hypothesis is indicated as $H_a : \rho_i < 1$, for at least one i .

4.6.1.2 Augmented Dickey Fuller and Phillips Perron test

Maddala and Wu (1999) used an approach derived from Fisher's (1932) test to address panel unit root problem difficulties. The Fisher test is non-parametric. Furthermore, this test may be utilized with any unit root test, and despite the use the ADF test, the lag time for each sample can be computed independently. Furthermore, there are no restrictions on sample sizes for various samples. According to Hurlin and Mignon (2007), panel unit root tests utilizing a heterogeneous framework include determining the significance of the findings from N separate, independent tests. Although an alternate testing approach that involves integrating the observed significant levels from the separate tests exists, IPS in this scenario employ an average statistic. There is a lengthy history of using this p-value-based method in meta-analysis. Such an approach, which is centred on Fisher (1932) type evaluations, was prominently employed in panel unit root testing by Maddala and Wu (1999) and Choi (2001).

4.6.2 Generalized Methods of Moments (GMM)

Hansen (1982) established GMM for the first time. According to Hansen (2010), GMM is a set of estimators built from the sample moment equivalents of the population moment parameters of the data-generating framework (also known as orthogonality requirements). GMM estimators are now often employed because of the following:

1. GMM estimators have huge sample characteristics that are simple to define. It is possible to compare the asymptotic efficiency of a family of such estimators while studying them all at once.
2. The ability to generate GMM estimators without describing the entire data generation process (which is necessary to formulate the maximum likelihood estimator) is valuable to researchers in practice. This trait has been used in the analysis of incompletely described economic models, the investigation of potentially incorrectly stated dynamic models created to meet target moments, and the development of stochastic discount factor models that connect asset price to macroeconomic risk sources.

Ullah et al. (2018) suggested that in the event of several endogeneity sources, including unobserved variation among others, the GMM consistently produces accurate findings. Also, through internal data transformation, the GMM eliminates endogeneity. As GMM estimation tools, first difference and second-order transformation are two different types of transformation

techniques. Nevertheless, the first-difference transformation has certain limits. For instance, the first-difference transformation may lose excess observations if a variable's current value is absent. Therefore, the implementation of a second order transformation is advised to prevent any possible loss of data. Dinc (2009) stated that the rationale to use GMM is because utilizing panel data considers the relationships of variables over time by considering the time-series aspect's variation. Another reason is that utilizing a panel allows researchers to adjust for unseen country-specific effects, which become part of the error term and bias coefficient estimations. The GMM technique can account for these impacts, resulting in lower biases in the predicted values.

4.6.2.1 Difference-GMM Estimation

The first difference GMM estimator is a dynamic panel approach proposed by Arellano and Bond (1991) that uses first difference series as instruments. Arellano-Bond estimation employs the GMM after first converting all regressors, often through differencing (Roodman, 2009). The first difference GMM means determining the initial difference of the equation to be evaluated for each period so as to exclude each of the specific effects (Mtiraoui, 2019). This estimator resembles the Anderson-Hsiao estimator, but it takes advantage of extra moment conditions, which expands the collection of instruments available. This estimator is transformed into a GMM estimator by the addition of additional moment criteria (Mertens, 2017). One statistical limitation of the difference estimator is that lagged values of explanatory variables are not effective tools for estimating differences in the regression equation, particularly if these values are persistent. Hence, this fact leads to an asymptotic increase in the variance of the coefficients, potentially resulting in biased coefficients, as demonstrated by Monte Carlo small-sample experiments (Dinc, 2009).

4.6.2.2 System-GMM Estimation

This is another dynamic panel approach that is an extension of the difference estimator. Arellano and Bover (1995) and Blundell and Bond (1998) expanded it to include level and first difference series as instruments, and it is now known as the system GMM estimator. The Arellano-Bover/Blundell-Bond estimator extends Arellano-Bond by assuming that the initial differences of instrumenting variables are uncorrelated with the fixed effects. This enables the adoption of additional instruments and has the potential to significantly enhance efficiency (Roodman, 2009).

It is well accepted that utilizing a large number of instruments can increase the efficiency of certain GMM estimators. As a result, in dynamic panel data scenarios, the system GMM estimator outperforms the first difference GMM estimator. Despite the significant efficiency benefit, utilizing a large number of instruments has two major disadvantages: more bias and erroneous conclusion (Jung et al., 2015). When instruments are weak, the difference estimator is considered to be inefficient since it solely uses the information found in the differences. Blundell and Bond's 1998 work suggests using extra level information in addition to the discrepancies. The GMM system estimator is the outcome of a mix of moment limitations for differences and levels (Behr, 2003).

4.6.3 The choice of weighting matrix

Some weighting matrices W generate exact estimates in the GMM criteria function, whilst others produce poor estimates with huge variations. It is preferable to select the ideal weighting matrix W with the minimum asymptotic variance. This is an efficient and optimum GMM estimator (Evans, 2018).

4.6.4 The selection of instruments

Ndlovu (2021) argued that the selection of instrument significantly influences the characteristics of GMM estimators. While great asymptotic efficiency may be achieved by using several instruments, limited sample sizes may result in significant bias and variation. When evaluating conditional moment restriction models, it is crucial to select the instrumental variables properly.



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4.7 The Generalised Method of Moments diagnostic tests

There are two tests involved namely:

4.7.1 Testing for instrument validity

This study utilized the Hansen (1982) and Sargan (1985) test for overidentifying restrictions. This tests for null hypothesis of overall validity of the instrument employed. Failing to reject the null hypothesis validates the instrument selection. According to Miteza (2012), the Sargan test of overidentifying limitations determines if the instruments are uncorrelated with the error term, which is required for their validity. The instruments' exogeneity is a critical presumption for GMM validity. If the model is precisely specified, it is hard to discover incorrect instruments since the estimator will pick β so that $\hat{Z}' \hat{E} = \mathbf{0}$ precisely even when $E(z\varepsilon) \neq 0$. However, if the model is overidentified, the GMM framework automatically excludes a test statistic for the combined validity of the moment criteria (Roodman, 2009).

4.7.2 Test for autocorrelation/ serial correlation of the error term

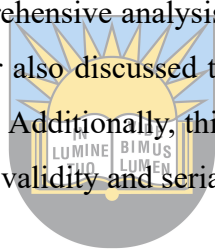
Labra and Torrecillas (2018) documented that the requirement of no correlation is introduced in the error term by dynamic panel data. The Arellano and Bond test is used to verify this. At 5%, we should anticipate the likelihood of AR (2) ($pr > z$) to be insignificant. This will demonstrate that errors have no serial autocorrelation. AR (1) should be statistically significant at 5% (AR (1) $pr > z 0.05$). This test's interpretation will be shown as:

Null hypothesis: H_0 : No Autocorrelation.

AR (2) is utilized in rejecting the null hypothesis. This rejection occurs when the probability $pr > z$ is greater than 0.05, indicating that the error term is not serially linked.

4.8 Conclusions

The chapter primarily focused on discussing the chosen methodology. An explanation was provided regarding a model that links the development of the financial sector with its determinants. Following this, a comprehensive analysis of the relevant variables employed in the study was conducted. The chapter also discussed the estimation technique which will be presented in chapter five of this study. Additionally, this section discussed the diagnostic tests that will be done to check the model's validity and serial correlation.



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CHAPTER 5

ESTIMATION, INTERPRETATION AND PRESENTATION OF RESULTS

5.1 Introduction

The chapter aims to analyse and present the findings of the panel data technique explained in chapter four. This is the most important chapter since it shows the empirical results of this research. This chapter has various sections. After the introduction, descriptive statistics is presented and is followed by the correlation matrix. The panel unit root tests are also demonstrated, this then followed by the outcome of GMM models, and the last section is the conclusion.

5.2 Descriptive statistics

Table 5.1 gives the summarised figures for each variable employed in this research. Domestic credit to private sector (DMCP) has a mean value which is 94,44 and this shows a moderate level of development of the financial sector in the SADC region. The median is 97.79 which means that the distribution is not heavily skewed. The maximum is 142.42 meaning some nations in the SADC region are highly developed than others and the minimum is 13.69 which is above zero indicating that even the least developed nations in the region have a certain degree of development in the financial sector. The standard deviation of 32.23 is showing moderate variability around the mean. Skewness is negative 0.79, showing a slight leftward tail but generally symmetric distribution. Kurtosis is 3.24, showing a distribution with heavier tails than a normal distribution. To conclude, the Jarque-Bera test suggests that the distribution of DMCP is not perfectly normal, with a p-value of 0.1351 and this exceeds the significance level of 10%.

When it comes to the Stock Market Capitalization (SMC), the average value is 124.20 which is showing a moderate to high average degree of the advancement of the financial sector in the SADC region. The median is 71.57 which is showing potential skewness to the right because of higher mean. The maximum is 322.71 indicating that some countries in the region are developed. Also, the minimum is 6.01 which is above zero meaning that least developed SADC nations have some level of financial development. Standard deviation is 100.57 which is showing high variability around the meaning. Skewness is 0.545 which is positive, this is demonstrating a rightward skewness, which aligns with the higher mean. Also, kurtosis is 1.80, implying a distribution closer to normal compared to DMCP. Finally, the Jarque-Bera test

implies that the distribution of SMC is not perfectly normal, with a p-value of 0.1242 and this exceeds the significance level of 10%.

Looking at the financial sector development proxies (DMCP and SMC), it appears that the SADC region exhibits a certain degree of financial sector development. Both DMCP and SMC show positive means, indicating that, on average, the financial sector is generally well-established throughout the region. However, there is variability in the data, with some nations having higher levels of development (evidenced by the higher maximum values). It should be noted that while the average values suggest development, the presence of skewness, kurtosis, and non-normality indicated by the Jarque-Bera test could imply some level of instability or non-uniform distribution in the development across the region.

Additionally, when it comes to the analysis of explanatory elements, as shown in Table 5.1 below, skewness and kurtosis are the two measures of normality. In a normally distributed series, the desirable skewness and kurtosis values are 0 and 3, respectively. FDI, GDP, GVE, POLS, and RLE have long left tail since they have negative skewness. However, PDN, POPG have a long right tail because they have positive skewness. Furthermore, all the variables in this study are platykurtic because their skewness values are less than 3. In addition, POPG, GDP have kurtosis values that are more than 3 hence they are mesokurtic distribution, unlike PDN, FDI, GVE, POLS, and RLE with values less than 3 which are platykurtic. When it comes to Jarque-Bera for FDI, RIR, GVE, POLS, and RLE we fail to reject the null hypothesis of normal distribution since their probability values are greater than the 10% significance level, however for PDN, POPG and GDP we reject the null hypothesis because their probability values are statistically significant at 10%.

Table 5. 1 Descriptive statistics

	DMCP	SMC	PDN	POPG	FDI	GDP	GVE	POLS	RLE
Mean	94.4441	124.1979	265.9181	0.9049	2.1312	1.9235	0.4216	0.3935	0.3523
Median	97.7867	71.5739	47.5755	0.9678	2.0156	3.1798	0.2979	0.5296	0.3252
Maximum	142.4220	322.7110	623.6522	3.3771	5.04789	5.9922	1.1609	1.0132	1.0240
Minimum	13.6930	6.0061	2.8220	0.0023	-1.4189	-14.5974	-0.6856	-0.2776	-0.6946
Std. Dev	32.2328	100.5674	288.9606	0.7475	1.5304	4.0885	0.4778	0.4714	0.48176
Skewness	-0.7860	0.5452	0.4226	0.9311	-0.2542	-2.3094	-0.3096	-0.1414	-0.2692
Kurtosis	3.2398	1.7974	1.1910	4.1377	2.7768	9.0354	2.6021	1.3711	2.0810

Jarque-Bera	4.0028	4.1723	6.3126	7.5401	0.4881	91.4513	0.8579	4.3279	1.7963
Probability	0.1351	0.1242	0.0426	0.0231	0.7834	0.0000	0.6512	0.1149	0.4073
Sum	3588.875	4719.522	10104.89	34.3861	80.9841	73.0913	16.0206	14.9545	13.3882
Sum Sq.Dev.	38441.23	374210.4	3089434	20.6736	86.6619	618.4952	8.44932	8.2227	8.5874
Observations	224	224	224	224	224	224	224	224	224

Source: Author's compilation using EViews 10

5.3 Correlation Matrix

In a correlation matrix, each variable is denoted by a row and a column, with the cells indicating the correlation between the variables. Positive values represent positive correlations, where an increase in one variable causes an increase in the other factor. On the contrary, negative values indicate negative correlations, where a rise in one factor is associated with a decline in the other factor. Table 5.2 below provides the values of correlation obtained from the study.

Table 5.2 Correlation Matrix

Correlation	PDN	POPG	FDI	GDP	GVE	POLS	RLE
PDN	1.000						
POPG	-0.436	1.000					
FDI	-0.042	0.045	1.000				
GDP	-0.061	0.205	0.131	1.000			
GVE	0.284	-0.561	0.160	-0.091	1.000		
POLS	0.255	-0.407	0.0802	-0.031	0.802	1.000	
RLE	0.350	-0.515	0.056	-0.111	0.928	0.857	1.000

Source: Author's compilation using EViews 10

According to Mlambo, Maredza, and Sibanda (2013), the rule of thumb is that when the correlation between the two variables is greater than 80%, multicollinearity may be severe and pose a serious problem. The results from Table 5.2 above indicated that many correlations between independent variables are below 0.8 except for a few correlations between POLS and GVE; RLE and GVE and RLE and POLS. On that note, all other independent variables are weakly correlated with each other. Nonetheless, these preliminary findings are insufficient to conclude. Additional tests will be examined in the subsequent sections.

5.4 Panel unit root tests

Table 5.3 Level series panel unit root test

Variable	Im Pesaran and Shin		Fisher ADF		Fisher PP	
	Intercept	Intercept and Trend	Intercept	Intercept and Trend	Intercept	Intercept and Trend
DMCP	-1.24173	-0.26335	39.3138*	36.0129	70.0546***	54.0464***
SMC	-1.80267**	-2.71711***	16.1850**	29.6221***	15.6383**	35.7204***
PDN	7.59146	2.18410	7.89304	37.6838	22.8793	63.2243***
POPG	-1.08534	-2.04314**	47.4941**	56.5823***	45.0907**	38.1543
GDP	0.34852	0.06928	37.3798	32.2146	39.7078	37.0565
FDI	-0.98781	-1.33005*	38.2272	43.6064*	74.4010***	80.9587***
GVE	-1.28846*	0.47835	41.8026	28.7216	44.6927*	46.3678**
POLS	-2.40240***	-2.43501***	55.3300***	57.9710***	55.3300***	67.2837***
RLE	0.39233	0.82834	28.3837	25.7454	19.7055	32.4678

Note: ***indicates significance at 1%; ** significance at 5% and * significance at 10%

Source: Author's compilation using EViews 10

DMCP is stationary at 1% level of significance using the Fisher PP test, stationary at 10% level of significance using the Fisher ADF test at intercept and non-stationary using the Im-Pesaran-Shin test and the Fisher ADF test at Intercept and Trend. SMC is stationary at 5% significant level at Intercept using all tests, additionally, it is significant at 1% significant level at Intercept and Trend using all tests. PDN is only stationary using Fisher PP test at 1% significant level. Moreover, POPG is only stationary at 5%, 10% at both Intercept and Trend and Intercept using the Fisher PP test. GDP and RLE are not stationary in all tests. FDI is not stationary in the Im-Pesaran-Shin test and Fisher ADF test at Intercept, nevertheless, it is stationary at 10% significant level in the same tests. On the other hand, it is also stationary at 1% in both in Fisher PP tests. POLS is stationary at 1% in all tests. Lastly, GVE is stationary at 10% level of significance using Im-Pesaran-Shin and Fisher ADF tests at Intercept and it is stationary at 5% using the Fisher PP tests. Furthermore, GVE is not stationary using Im-Pesaran-Shin at Intercept and Trend and Fisher tests at in both Intercept and Trend and Intercept. The results at levels series were differenced so as to come up with better conclusions as shown by table 5.4 below.

Table 5. 4 First difference panel unit root test

	Im Pesaran and Shin	Fisher ADF	Fisher PP

Variable	Intercept	Intercept and Trend	Intercept	Intercept and Trend	Intercept	Intercept and Trend
DMCP	-4.09065***	-2.48416***	68.1576***	57.7175***	115.325***	119.150***
SMC	-5.83524***	-5.97960***	42.0433***	28.5597***	58.8397***	53.7211***
PDN	0.40836	-1.36692*	32.2612	47.9127**	59.5557***	31.2690
POPG	-4.09608***	-2.92570***	73.4651***	58.6779***	79.7980***	60.9154***
GDP	-4.82257***	-2.23963***	83.6955***	55.7900***	166.719***	138.675***
FDI	-8.58474***	-6.09269***	130.374***	97.0078***	281.617***	244.306***
GVE	-5.17242***	-3.37103***	86.3120***	67.1192***	179.614***	169.511***
POLS	-5.88619***	-3.70098***	93.9191***	67.6474***	188.212***	171.665***
RLE	-3.81058***	-1.30887*	67.3807***	43.7578*	121.364***	100.711***

Note: ***indicates significance at 1%; ** significance at 5% and * significance at 10%

Source: Author's compilation using EViews 10

As shown by table 5.4 above, after the first differencing, the dependent variables (DMCP and SMC are all stationary at 1% significant level using all tests. Independent variables, such as POPG, GDP, FDI, GVE and POLS are all stationary at 1% significant level using all tests. However, PDN is not stationary using Im-Pesaran-Shin unit-root and Fisher ADF tests at Intercept. Also, it is not stationary using Fisher PP test at Intercept and Trend. However, it is stationary at 10% and 5% significant level using Im-Pesaran-Shin unit-root and Fisher tests respectively at Intercept and Trend. Also, PDN is stationary at a 1% significant level using Fisher PP at Intercept. Lastly, RLE is significant at 10% using the Im-Pesaran-Shin unit-root test and Fisher ADF at Intercept and Trend. In addition, RLE is significant at 1% using Im-Pesaran-Shin unit-root and Fisher ADF tests at Intercept as well as using Fisher PP at both Intercept and Trend and Intercept. With the stationarity of the variables established, the subsequent segment will present the results of the GMM model.

5.5 Presentation and discussion of The Generalised Method of Moments (GMM) results: Banking sector model.

Table 5.5 GMM results: Banking sector model.

Dependent variable: Domestic credit to private sector (DMCP).

Variables	Model 1 <i>Geographic factors</i>	Model 2 <i>Macroeconomic factors</i>	Model 3 <i>Institutional factors</i>
DMCP (-1)	0.595717***	0.568402***	0.570188***

	0.0000	0.0000	0.0000
POPG	0.528795*** 0.0000		
PDN	0.011060 0.3029		
GDP		0.001249 0.9065	
FDI		0.037686** 0.0174	
RLE			5.541123 0.0004***
GVE			0.109371 0.9321
J-statistic	14.99958	12.24127	12.49143
Prob(J-statistic)	0.307379	0.507966	0.487816
Arellano-Bond test for AR(2)	0.4570	0.6453	0.6743
Observations	178	178	178
Countries	16	16	16

Source: Author's compilation using EViews 10

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Table 5.5 above outlines the empirical findings of three different models discussed in chapter four by using the dynamic difference GMM in analysing the effects of different determinants of financial sector development as represented by domestic credit to private sector (banking sector model) in the SADC region. As illustrated by table 5.5, the lagged value of the dependent variable (domestic credit to private sector) is statistically significant at 1% in all models since the probability is 0.0000. Starting with model 1 which shows geographical factors, there is a positive relationship between population growth and the development of financial sector. Holding other things equal, a one unit increase in population growth leads to 0.528795 rise in financial sector development. This relationship is statistically significant at 1% given that the probability is 0.0000. Therefore, population growth positively impact financial sector development. This is consistent with *a-priori* expectations since more population entails more use of financial services. Moreover, this positive relationship also concur with literature as indicated by Bodenhorn and Cuberes (2010) who asserted that population growth in an area places greater demand for an increased number of bank branches, hence promoting financial

development. Their study found a strong connection between population growth and financial development.

Additionally, a positive connection can be observed between population density and financial sector development. Holding other things equal, a one unit increase in population density increases the financial sector development by 0.011060. This also entails that population density has a favourable effect on financial development. However, due to the probability value exceeding the 10% level of significance, this relationship is statistically insignificant. In addition, the positive relationship is consistent with the results of Aluko and Ajayi (2021) who highlighted that population density serves as a geographical factor that not only fosters the development of the banking sector but also contributes to its deepening. As noted by David et al. (2014) who argued that since financial services are provided more efficiently in densely populated nations than in poorly populated ones, higher population densities have a favourable impact on financial development due to scale and networking impacts.

As shown in model 2 which indicates macroeconomic factors, there is a positive association between GDP and financial sector development. This is because a one unit increase in GDP causes a 0.001249 rise in financial development ceteris paribus. This then means that GDP positively impact the development of the financial sector. However, this positive relationship is not statistically significant since the probability is above 10% significant level. This positive relationship conforms to *a-priori* expectations, and it agrees with literature. On that note, this is in line with the results of Deltuvaitė and Sinevičienė (2014) who asserted that the level of growth in the banking sector tends to be higher in countries with elevated GDP levels. This is because higher GDP nations are more likely to have financial inclusion frameworks. These nations have a higher level of banking literacy, save more, and can supply more securities. As a result, markets for financial services are more likely to thrive.

FDI positively impact financial sector development, this is because a one unit increase in FDI increases financial sector development by 0.037686, ceteris paribus. This means that there is a positive relationship between the two variables. This relationship is statistically significant as shown by the probability value 0.0174 which is below 5% significant level. This positive relationship aligns with prior expectations and literature. In the same vein, a study by Kiarie (2020) concluded that there is a positive relationship between FDI and financial sector development. Irandoust (2021) documented that multinational corporations are more likely to participate in the financial system when there is more foreign investment. Moreover, foreign

direct investment inflows encourage developing nations to enact policies that are conducive to the market, particularly those that enhance investor protection and governance. Consequently, this propels the growth of the domestic financial sector.

As indicated by table 5.5, model 3 shows institutional factors and there exists a positive relationship between rule of law and development of financial. A one unit rise in rule of law increases the financial development by 5.541123, *ceteris paribus*. This positive relationship is statistically significant at 1% significance level as shown by the probability value of 0.0004. Additionally, this shows that rule of law positively influences the development of the financial sector. These findings provide evidence that agrees with the Law and Finance theory which argued that if there are appropriate institutions and rules in place, a financial industry develops. This is consistent with anticipated outcomes. This also agrees with the results of Ellahi et al. (2021) who found that institutional variables positively affect financial development. Additionally, these results concur with Moyo and Le Roux (2021) who contended that improving institutional quality is necessary for financial development. Saver confidence and the health of the financial sector are positively related in nations with legislative frameworks that protect the rights of private property, promote private contracts, and protect investors' legal rights.

Lastly, other things being equal, a one unit rise in government effectiveness increases the financial sector development by 0.109371. This entails a presence of a favourable relationship between government effectiveness and financial development. However, this relationship is statistically insignificant due to the probability of 0.932 exceeding the 10% significant level. These findings concur with Bekana (2023) who concluded that development in governance institutions contributes to financial sector development. This is because to create and carry out successful policies that can support and better the financial industry, governance is essential. Therefore, a key factor in determining the level of quality of the financial sector is excellent governance.

5.6 Diagnostic test results

Each of the three models underwent diagnostic testing. The Hansen J-test was used to assess the validity of the instruments. Based on the null hypothesis of the Hansen J-test, the instruments are deemed valid. Instruments are deemed valid if the probabilities of the Hansen J-statistic surpass 10%. Model 1 has a J-probability of 0.307379, Model 2 has a J-probability of 0.507966 and Model 3 has a J-probability of 0.487816. All of these numbers are above the

10% level of significance, suggesting that the instruments are valid. Furthermore, the findings of the Arellano and Bond test demonstrate the lack of second-order autocorrelation. Since the AR (2) values are all greater than 0.05 in all models, we cannot reject the null hypothesis. Therefore, we may infer that the residuals do not show second-order autocorrelation.

5.7 Presentation and discussion of The Generalised Method of Moments (GMM) results: Financial markets model

Table 5. 6 GMM results: Financial markets model.

Dependent variable: Stock Market Capitalization (SMC).

Variables	Model 1 <i>Geographic factors</i>	Model 2 <i>Macroeconomic factors</i>	Model 3 <i>Institutional factors</i>
POPG	-131.4046 0.0213**		
PDN	-6.367666 0.0967*		
GDP		13.63053 0.2167	
FDI		-45.26965 0.0063***	
POLS			-266.5100 0.0000***
RLE			116.6470 0.0001***
J-statistic	9.459800	8.497576	12.80529
Prob(J-statistic)	0.395957	0.203867	0.118727
Arellano-Bond test for AR(2)	0.2342	0.1801	0.0707
Observations	35	40	40
Countries	3	5	5

Source: Author's compilation using EViews 10

Table 5.6 above shows the findings of three models discussed in chapter four by using the GMM technique as represented by stock market capitalization (financial markets model) in the SADC region. Starting with model 1 which shows geographic factors, other things constant, a negative relationship is indicated between population growth and financial development. A one

unit rise in population growth leads to a 131.4046 decrease in financial development. This relationship is statistically significant at 1%. This finding does not agree with the findings of Yusuf et al. (2021) who identified a positive relationship between population growth and stock market capitalization. Additionally, their study concluded that a rapid population increase in the country provides the needed impetus to drive the stock market. Furthermore, a one unit increase in population density leads to a 6.367666 decrease in financial development hence there is a negative relationship between the two variables *ceteris paribus*. This negative relationship is statistically significant as shown by the probability value 0.0967 that is above the 10% significant level.

Model 2 shows macroeconomic factors and there is a positive relationship between GDP and financial development hence, other things equal, a one unit rise in GDP causes a 13.63053 increase in financial development. However, this association is insignificant. The positive relationship concurs with literature as mentioned by Chikwira (2023) who argued that GDP growth creates more chances for investment, which boosts stock markets. Optimism and confidence among investors may be fostered by positive GDP growth, which can stimulate buying activity in the stock market. In contrast, negative GDP growth might cause investors to lose confidence and even cause stock market falls as they become more concerned about the state of the economy.

Furthermore, a one unit rise in FDI causes a 45.26965 decline in financial sector development *ceteris paribus*. Therefore, this shows that FDI negatively impacts the development of the financial sector and this negative relationship is significant at 1% as indicated by the probability value 0.0063. On the other hand, this is not consistent with literature as mentioned by the study of Irandoust (2021) who suggested that FDI stimulates the local market and market forces the financial sector to increase its efficiency in order to fulfil consumer demands. Local stock markets are developed by FDI through the impacts of investment spillover. This is because it is more probable for multinational corporations to engage in local stock markets in response to a rise in foreign investment. Additionally, FDI inflows encourage developing nations to enact laws that support their markets, particularly those that enhance investor protection and governance. These laws ultimately support the growth of the regional stock market.

Lastly, model 3 indicates institutional factors. A one unit increase in rule of law leads to 116.6470 increase in financial development and this entails a positive effect of rule of law on financial sector development. Also, this positive relationship is statistically significant because

the probability 0.0001 is below the 1% significant level. This is consistent with the *a-priori* expectations and echo same sentiments with the study of Dima et al. (2018) who found a positive and significant relationship between the rule of law and capital market development. The rule of law helps to establish a stable financial climate that protects property rights and inspires investor confidence in the business environment, which in turn boosts stock market activity.

Lastly, a negative relationship is shown between political stability and financial development. This is because a one unit rise in political stability results in a 266.5100 reduction in financial development *ceteris paribus*. This negative relationship is significant at 1% as shown by the probability value 0.0000. On the contrary, this does not agree with *a priori* expectations and literature. Mai et al. (2023) found political stability positively affect the development of the stock market. This is because when a country is politically stable, investors are motivated to buy shares in different companies hence improving the performance of stock markets.

5.8 Diagnostic test results

Each of the three models underwent diagnostic testing. The Hansen J-test was used to assess the validity of the instruments. Based on the null hypothesis of the Hansen J-test, the instruments are deemed valid. An instrument is deemed valid if the probability of the Hansen J-statistic surpasses 10%. Model 1 has a J-probability of 0.395957, Model 2 has a J-probability of 0.203867, and Model 3 has a J-probability of 0.118727. All of these numbers are above the 10% level of significance, suggesting that the instruments are valid. Furthermore, the Arellano and Bond test outcomes demonstrate the absence of second-order autocorrelation. Since the AR (2) values are all greater than 0.05 in all models, we cannot reject the null hypothesis. Therefore, we may infer that the residuals do not show second-order autocorrelation.

5.9 Conclusion

The chapter concentrated on providing results of the methodology discussed in chapter four. Descriptive statistics were used to start the analysis, revealing variations in financial sector development in the SADC region. Also, the correlation matrix was done which indicates different correlations between the variables of interest. Since unbalanced panel data was used, the study employed the Im, Pesaran, and ADF - Fisher Chi-square and the PP - Fisher Chi-square. These unit root tests were also performed to determine the time-series characteristics of the data used. Even with the estimation of the panel data model, the time series element of the data could still be susceptible to non-stationarity. Subsequently, the GMM model was used

to investigate the determinants of financial sector development in the SADC region. In the banking sector model, both geographic factors have positive relationships with financial sector development, however, population growth has a significant relationship whilst population density has an insignificant relationship with financial development. When it comes to macroeconomic factors, FDI has significant positive relationship with financial development whilst GDP which has insignificant positive relationship with financial development. Both institutional factors show a positive relationship with financial development but, the rule of law has a significant relationship whereas government effectiveness has an insignificant relationship with financial development. When it comes to the financial market, both geographic factors thus population growth and population density have statistically significant negative relationships with financial sector development. Macroeconomic factors reveal that GDP is positively related with financial development and the relationship is insignificant. Conversely, FDI has a statistically significant negative connection with financial development. Lastly, both institutional factors have significant relationships with financial development. However, political stability has negative relationship with financial development, but rule of law is positively related with financial development.



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CHAPTER 6

SUMMARY, CONCLUSIONS AND POLICY RECOMMENDATIONS

6.1 Introduction

This chapter has five sections. After the introduction, the second part is the summary of the study. The third part is an overview of the findings. The fourth section provides policy recommendations, and the fifth section is the last section which indicates the study's shortcomings and potential avenues for future research.

6.2 Summary of the study

The research investigated the determinants of financial sector development in the SADC region. Chapter one served as an introductory section and provided background information for this study, mainly including the introduction, problem statement followed by the objectives, hypotheses and the significance of the study. Chapter two was focusing on the overview of financial sector development in the SADC region. Trends reviewed indicate that the banking sector dominates relative to the financial markets within the region. Furthermore, development of the financial sector varies in the region, with nations such as South Africa, Namibia and Mauritius having well advanced financial systems and others such as Malawi and Mozambique having low levels of financial development. Chapter three focused on theoretical and empirical views. The theories examined in this study suggested that a variety of factors influence the development of the financial sector. The Financial liberalization hypothesis asserts that financial liberalization is a requirement for the development of the financial sector. The Law and Finance theory claimed that the financial sector would develop provided the appropriate regulations and institutions were in place, while the Endowment theory identified the importance of institutions and geography in the advancement of the financial sector. Regarding the empirical part, cross country as well as country level research came up with different conclusions on the factors influencing financial development hence these studies fail to achieve consensus on the factors of financial development. The determinants mainly depend on the methodologies as well as the proxies used for financial development. Literature also grouped the determinants into macroeconomics, institutional, geographic, and other factors.

Chapter four discusses the methodology that was employed to investigate the determinants of financial sector development in the SADC region. This was consistent with the second objective stated in Chapter one. The study is quantitative in nature given that the variables of interest are quantitative.

The study was also underpinned by the financial liberalization hypothesis. Also, six models which link determinants of financial development were estimated based on Almarzoqi, Naceur, and Kotak's (2015) model. To find the determinants of financial sector development, the study used macroeconomic, institutional, and geographic factors. This study used data taken from World Development Indicators and FRED websites. The study discussed the GMM estimation technique, this was appropriate since the number of observations exceeds the time period ($N > T$). Also, the GMM eliminates endogeneity. For the GMM diagnostic tests, the study explained the instrument validity using the Hansen (1982) and Sargan (1985) test for overidentifying restrictions and the Arrellano-Bond test for autocorrelation/serial correlation.

6.3 Overview of findings

The analysis began with descriptive statistics which indicated that financial sector development in the SADC region varies. Also, the correlation matrix was done which indicates different correlations between the variables of interest. Since unbalanced panel data was used, the research employed the Im, Pesaran, and ADF and PP - Fisher Chi-square tests. The GMM model was later estimated and in the banking sector model, both geographic factors have positive relationships with financial sector development, however, population growth has a significant relationship whilst population density has an insignificant relationship with financial development. When it comes to macroeconomic factors, FDI has a positive significant relationship with financial development. However, GDP has an insignificant positive relationship with financial sector development. Both institutional factors show a positive relationship with the development of the financial sector but, the rule of law has a significant relationship whereas government effectiveness has an insignificant relationship with financial development. When it comes to the financial market, both geographic factors thus population growth and population density have statistically significant negative relationships with financial sector development. Macroeconomic factors reveal that GDP is positively related to financial development and the relationship is insignificant. Conversely, FDI has a statistically significant negative connection with financial development. Lastly, both institutional factors have significant relationships with financial development. However, political stability has negative relationship with financial development, but rule of law is positively related with financial development.

6.4 Policy recommendations

The empirical findings indicate that rule of law has a statistically notable and favourable impact on both the banking sector and the development of the stock market. This entails that rule of law is the primary factor influencing financial sector development in SADC. The recommendation is that policy makers in SADC nations should establish sound and strong judicial systems with clear laws since this will contribute to the creation of stable financial environments.

The study found a significant positive effect of FDI on banking sector development. This means that FDI causes financial development in the SADC region. The policy recommendation is that policy makers should put policies that attract inflows of foreign companies. This may be done by creating a conducive environment through schemes such as tax holidays, increasing investor property rights and amongst others.

Furthermore, FDIs operating in SADC host nations may need to import their products or involved in international trade, so the recommendation is that the government/policy makers should reduce import restrictions such as import duties and import quotas.

6.5 Limitations of the study and areas of further research

The research assessed the determinants of financial sector development in the SADC region. The study primarily examined the period from 2006 to 2020, indicating that factors occurring outside this timeframe were not addressed in the research. Also, the study only used quantitative data, which means qualitative data was excluded even though it may have contributed to the analysis of the study. Furthermore, data for some variables was not available and the study focused only on a few variables yet there are many factors that might potentially impact financial sector development. Further research could analyse the factors that influence the growth of the financial sector using another estimation technique such as random and fixed effect than using GMM. Also, there is a need to research the factors influencing the financial sector development in SADC and ECOWAS making a comparison between the two.

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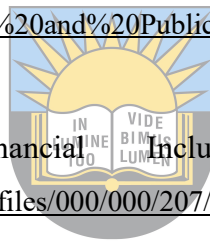
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APPENDICES

Covariance Analysis: Ordinary

Date: 02/21/25 Time: 17:22

Sample: 2006 2020

Included observations: 240



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Correlation	PDN	POPG	FDI	GDP	GVE	POLS	RLE
PDN	1.000000						
POPG	-0.436417	1.000000					
FDI	-0.042393	0.044524	1.000000				
GDP	-0.060688	0.204805	0.131405	1.000000			
GVE	0.284374	-0.561595	0.159718	-0.091443	1.000000		
POLS	0.255356	-0.407030	0.080166	-0.030543	0.802211	1.000000	
RLE	0.350424	-0.515049	0.055930	-0.111199	0.928387	0.857407	1.000000

DMCP

Geographic factors

Dependent Variable: DMCP

Method: Panel Generalized Method of Moments

Transformation: First Differences
 Date: 12/10/23 Time: 16:13
 Sample (adjusted): 2008 2020
 Periods included: 13
 Cross-sections included: 16
 Total panel (unbalanced) observations: 178
 White period instrument weighting matrix
 White period standard errors & covariance (d.f. corrected)
 Instrument specification: @DYN(DMCP,-2) POPG(-1) PDN(-1)x
 Constant added to instrument list

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DMCP(-1)	0.595717	0.006008	99.14872	0.0000
POPG	0.528795	0.031600	16.73397	0.0000
PDN	0.011060	0.010704	1.033294	0.3029

Effects Specification

Cross-section fixed (first differences)

Mean dependent var	0.367079	S.D. dependent var	3.536750
S.E. of regression	4.354853	Sum squared resid	3318.830
J-statistic	14.99958	Instrument rank	16
Prob(J-statistic)	0.307379		



Arellano-Bond Serial Correlation Test

Equation: Untitled

Date: 12/10/23 Time: 16:14

Sample: 2006 2020

Included observations: 178

Test order	m-Statistic	rho	SE(rho)	Prob.
AR(1)	-1.580684	1451.015441	917.966865	0.1140
AR(2)	0.743745	211.166352	283.922988	0.4570

Macroeconomic factors

Dependent Variable: DMCP

Method: Panel Generalized Method of Moments

Transformation: First Differences

Date: 02/21/25 Time: 14:12

Sample (adjusted): 2008 2020

Periods included: 13

Cross-sections included: 16

Total panel (unbalanced) observations: 178

White period instrument weighting matrix

White period standard errors & covariance (d.f. corrected)

Instrument specification: @DYN(DMCP,-2) FDI (-1) GDP(-1)

Constant added to instrument list

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DMCP(-1)	0.568402	0.010827	52.49948	0.0000
FDI	0.037686	0.015701	2.400286	0.0174
GDP	0.001249	0.010621	0.117626	0.9065

Effects Specification

Cross-section fixed (first differences)

Mean dependent var	0.367079	S.D. dependent var	3.536750
S.E. of regression	4.344576	Sum squared resid	3303.184
J-statistic	12.24127	Instrument rank	16
Prob(J-statistic)	0.507966		



Arellano-Bond Serial Correlation Test

Equation: Untitled

Date: 02/21/25 Time: 15:05

Sample: 2006 2020

Included observations: 178

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Test order	m-Statistic	rho	SE(rho)	Prob.
AR(1)	NA	-	1435.324248 NA	NA
AR(2)	0.460327	224.840906	488.437565	0.6453

*Standard errors could not be computed. Try different covariance matrix options

Institutional factors

Dependent Variable: DMCP

Method: Panel Generalized Method of Moments

Transformation: First Differences

Date: 12/10/23 Time: 17:18

Sample (adjusted): 2008 2020

Periods included: 13

Cross-sections included: 16

Total panel (unbalanced) observations: 178

White period instrument weighting matrix

White period standard errors & covariance (d.f. corrected)
Instrument specification: @DYN(DMCP,-2) GVE(-1) RLE(-1)
Constant added to instrument list

Variable	Coefficient	Std. Error	t-Statistic	Prob.
DMCP(-1)	0.570188	0.050903	11.20146	0.0000
GVE	0.109371	1.282507	0.085279	0.9321
RLE	5.541123	1.527854	3.626735	0.0004

Effects Specification

Cross-section fixed (first differences)

Mean dependent var	0.367079	S.D. dependent var	3.536750
S.E. of regression	4.318162	Sum squared resid	3263.141
J-statistic	12.49143	Instrument rank	16
Prob(J-statistic)	0.487816		

Arellano-Bond Serial Correlation Test

Equation: Untitled

Date: 12/10/23 Time: 17:19

Sample: 2006 2020

Included observations: 178

Test order	m-Statistic	rho ^m	SE(rho) ^m	Prob.
AR(1)	-0.620352	1455.322321	2345.963103	0.5350
AR(2)	0.420310	270.943995	644.629413	0.6743



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SMC

Geographic factors

Dependent Variable: SMC

Method: Panel Generalized Method of Moments

Transformation: First Differences

Date: 12/10/23 Time: 17:59

Sample (adjusted): 2008 2020

Periods included: 13

Cross-sections included: 3

Total panel (unbalanced) observations: 35

Difference specification instrument weighting matrix

Instrument specification: PDN(-1) POPG(-1) FDI(-1) GDP (-1) COCE(-1)

GCF(-1) GVE(-1) INF(-1) EXCH(-1) POLS(-1) REQE(-1)

Constant added to instrument list

Variable	Coefficient	Std. Error	t-Statistic	Prob.
PDN	-6.367666	3.724396	-1.709718	0.0967
POPG	-131.4046	54.33531	-2.418402	0.0213

Effects Specification

Cross-section fixed (first differences)

Mean dependent var	1.128595	S.D. dependent var	39.00757
S.E. of regression	36.53956	Sum squared resid	44059.60
J-statistic	9.459800	Instrument rank	11
Prob(J-statistic)	0.395957		

Arellano-Bond Serial Correlation Test

Equation: Untitled

Date: 12/10/23 Time: 17:59

Sample: 2006 2020

Included observations: 35

Test order	m-Statistic	rho	SE(rho)	Prob.
AR(1)	-0.447067	3522.007734	7878.026821	0.6548
AR(2)	-1.189626	10371.29404	1 8718.110225	0.2342

Macroeconomic factors

Dependent Variable: SMC

Method: Panel Generalized Method of Moments

Date: 12/10/23 Time: 19:11

Sample (adjusted): 2007 2020

Periods included: 14

Cross-sections included: 5

Total panel (unbalanced) observations: 40

2SLS instrument weighting matrix

Instrument specification: C PDN(-1) POPG(-1) COCE(+1) EXCH(-1) GDP(-1)

GVE(-1) RLE(-1) RIR(-1)

Constant added to instrument list



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Variable	Coefficient	Std. Error	t-Statistic	Prob.
FDI	-45.26965	15.62786	-2.896728	0.0063
GDP	13.63053	10.84513	1.256835	0.2167
C	208.9500	35.15702	5.943336	0.0000

R-squared	-0.094113	Mean dependent var	110.2951
Adjusted R-squared	-0.153254	S.D. dependent var	103.0271
S.E. of regression	110.6405	Sum squared resid	452928.8
Durbin-Watson stat	0.950783	J-statistic	8.497576
Instrument rank	9	Prob(J-statistic)	0.203867

Arellano-Bond Serial Correlation Test

Equation: Untitled

Date: 12/10/23 Time: 19:12

Sample: 2006 2020

Included observations: 35

Test order	m-Statistic	rho	SE(rho)	Prob.
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			-		
		17728.27929	12760.53894		
AR(1)	-1.389305	1	5		0.1647
			-		
		15191.98532	11333.19861		
AR(2)	-1.340485	1	4		0.1801

Institutional factors

Dependent Variable: SMC
Method: Panel Generalized Method of Moments
Date: 12/11/23 Time: 10:22
Sample (adjusted): 2007 2020
Periods included: 14
Cross-sections included: 5
Total panel (unbalanced) observations: 40
2SLS instrument weighting matrix
Instrument specification: C POLS(-1) RLE(-1) COCE(-1) COCN(-1) GDP(-1)
GVE(-1) GVN(-1) FDI(-1) INF(-1) PDN(-1)
Constant added to instrument list

Variable	Coefficient	Std. Error	t-Statistic	Prob.
POLS	-266.5100	24.42507	-10.91133	0.0000
RLE	116.6470	26.67872	4.372286	0.0001
C	197.5032	10.87500	18.16122	0.0000
R-squared	0.798574	Mean dependent var		110.2951
Adjusted R-squared	0.787686	S.D. dependent var		103.0271
S.E. of regression	47.47237	Sum squared resid		83384.15
Durbin-Watson stat	1.070339	J-statistic		12.80529
Instrument rank	11	Prob(J-statistic)		0.118727

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Arellano-Bond Serial Correlation Test
Equation: Untitled
Date: 12/11/23 Time: 10:25
Sample: 2006 2020
Included observations: 35

Test order	m-Statistic	rho	SE(rho)	"Prob.
		-		
		18639.75954	11642.75528	
AR(1)	-1.600975	3	8	0.1094
			-	
		17287.44220		
AR(2)	-1.807202	4	9565.863121	0.0707