THE RELATIONSHIP BETWEEN BANKING SECTOR AND STOCK MARKET DEVELOPMENT IN SELECTED SOUTHERN AFRICAN COUNTRIES: A PANEL DATA APPROACH (1995-2017)

by

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ABSTRACT

The study investigated the relationship between banking sector development and stock market development in Southern Africa, with special focus on the Southern Africa Development Community (SADC). Using the Seemingly Unrelated Regression (SUR) and System Generalised Methods of Moments (SGMM) on data from nine SADC countries, study results show that banks and stock markets complement each other in funding economic growth in the region. The results also show that regional integration through the trade protocol (TP) and the finance and investment protocol (FIP) improves the complementary effect of banks and stock markets on economic growth. The growth model outlined shows that stepping up efforts to promote regional integration improves the complementarity between the expansion of the banking industry and the growth of the stock market in terms of financing economic growth. The study also looked at how institutional settings affected how the banking industry and stock market development interacted. The findings demonstrate that the rule of law does not change the nature of the relationship, but it does lessen the complimentary impact of stock market and banking sector expansion on economic growth. The study used the banking sector development and stock market development models to test the validity of the findings and determine whether the association holds. Therefore, the study further investigated the determinants of banking sector and stock market development where stock market and banking sector indicators were included as regressors. Stock market development was found to have a positive impact on banking sector development while stock market capitalisation positively impacted credit extended by deposit money banks. This result confirmed the

complementary relationship shown by the growth model. Urbanisation had a positive effect on banking sector development, private credit extension and banking sector efficiency but it negatively impacted banking sector stability. Population density had a positive impact on private credit extension and banking sector stability while inequality positively influenced banking sector development and banking sector stability. The results also reveal that banking sector development positively influences stock market development and stock market capitalisation while private credit by deposit money banks enhanced stock market development, stock market size, stock market liquidity and stock market efficiency. This conclusion also supported the notion that the growth of the banking sector and the stock market, as well as the size of the stock market and the credit extended by banks, all contribute to the development of the stock market in terms of its size, liquidity and efficiency. This result showed that banking sector development contributed more to the development of stock markets compared to the effect of stock markets on banks. Press freedom was found to positively affect stock market size and stock market liquidity. Industrialisation on the other hand had a negative effect on stock market size while capital flight negatively impacted stock market development, stock market size and stock market liquidity. The study also uncovered the positive effect of pegged exchange rate regime on stock market development and stock market capitalisation while the crawling and managed regimes positively influenced stock market size. On the contrary, the floating regime had a detrimental effect on stock market development and stock market capitalisation. The findings also show that the banking sector in SADC is still underdeveloped characterised by low credit extension and high inefficiency though it is stable. Stock markets were also found to be underdeveloped

characterised by small size, low liquidity and low levels of efficiency. These findings suggest that the rise of the banking industry and the stock market complement one another in providing capital for economic expansion, and that regional integration strengthens this complementary relationship. The rule of law, however, lessens this complimentary effect. To improve the complementarity between the growth of the banking sector and the growth of the stock market in providing financing for economic growth, policymakers should concentrate on fostering regional integration and enhancing the rule of law. The expansion of the banking sector has been found to have a higher positive impact on stock market development than vice versa. Therefore, they should focus their efforts on improving loan extension and efficiency in this area.

Keywords: Banking sector development; Stock market development; Complementarity; Substitutability; SADC; Pegged exchange rate; Liquidity; Press freedom; Stock market capitalisation; Urbanisation; Industrialisation.

UBUDLELWANE PHAKATHI KOMKHAKHA WAMABHANGE KANYE NOKUTHUTHUKISWA KWEZIMAKETHE ZAMASHEYA EMAZWENI AKHETHIWE ASENINGIZIMU NE-AFRICA: INDLELA YEMININGWANE YAMATHULISI EZOMNOTHO (1995–2017)

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2022

OKUCASHUNIWE

Lolu cwaningo luphenye ubudlelwano phakathi kokuthuthukiswa komkhakha wamabhange kanye nokuthuthukiswa kwezimakethe zamasheya e-Afrika eseNingizimu, kugxilwe ngokukhethekile eMphakathini oThuthukayo oseNingizimu ne-Afrika (SADC). Kusetshenziswa ukwehla okubonakala kungahlobene (i-SUR) kanye nendlela yezikhathi ezijwayelekile zohlelo (i-SGMM) emininingwaneni evela emazweni ayisishiyagalolunye e-SADC, imiphumela yocwaningo ikhombisa ukuthi amabhange nezimakethe zamasheya kuyahambisana ekuxhaseni ngezimali ukukhula komnotho esifundeni. Imiphumela iphinde ikhombise ukuthi ukuhlanganiswa kwesifunda ngenqubo esemthethweni yokuhweba (TP) kanye nezezimali nenqubo esemthethweni yokutshalwa kwezimali (FIP) kuthuthukisa umphumela ohambisanayo wamabhange nezimakethe zamasheya ekukhuleni komnotho. Isifanekiso sokukhula esiveziwe sikhombisa ukuthi ukuqinisa imizamo yokukhuthaza ukuhlanganiswa kwesifunda kuthuthukisa ukuhambisana phakathi kokunwetshwa kwemboni yamabhange kanye nokukhula kwemakethe yamasheya mayelana nokuxhasa ukukhula komnotho ngezimali. Lolu cwaningo luphinde lwabheka ukuthi izilungiselelo zesikhungo ziyithinta kanjani indlela imboni yamabhange kanye nokuthuthukiswa kwezimakethe zamasheya. Okutholakele kukhombisa ukuthi umthetho awushintshi uhlobo lobudlelwano, kodwa wehlisa umthelela ohambisanayo wezimakethe zamasheya kanye nokwanda komkhakha wamabhange ekukhuleni komnotho. Ucwaningo lusebenzise ukuthuthukiswa komkhakha wamabhange kanye nezindlela zokuthuthukiswa kwezimakethe zamasheya ukuze kuvivinywe ukufaneleka kokutholiwe kanye nokunquma ukuthi inhlangano iphethe. Ngakho-ke, ucwaningo luqhube lwaphenya ngezinqumo zomkhakha wamabhange kanye nokuthuthukiswa

kwezimakethe zamasheya lapho izinkomba zemboni yamasheya kanye nezamabhange zafakwa khona njengezihlehlayo. Ukuthuthukiswa kwezimakethe zamasheya kutholwe kunomthelela omuhle ekuthuthukisweni komkhakha wamabhange kuyilapho ukutholwa kwezimali ezimakethe zamasheya kunomthelela omuhle emalini yezikweletu enwetshwe amabhange emali efakwa ebhange. Lo mphumela uqinisekisa ubudlelwano obuhambisanayo obuboniswa isifanekiso sokukhula. Ukufudukela emadolobheni kunomphumela omuhle ekuthuthukisweni komkhakha wamabhange, ukwandiswa kwezikweletu ezizimele kanye nokusebenza kahle komkhakha wamabhange kodwa kunomthelela omubi ekuzinzeni komkhakha wamabhange. Ukuminyana kwabantu kunomthelela omuhle ekwandiseni izikweletu ezizimele kanye nokuzinza komkhakha wamabhange kuyilapho ukungalingani kunomthelela omuhle ekuthuthukisweni komkhakha wamabhange kanye nokuzinza komkhakha wamabhange. Imiphumela iphinde iveze ukuthi ukuthuthukiswa komkhakha wamabhange kuba nomthelela omuhle ekuthuthukisweni kwezimakethe zamasheya kanye nokufakwa kwemali ezimakethe zamasheya, kuyilapho izikweletu ezizimele ngamabhange emali efakwayo zithuthukisa ukuthuthukiswa kwezimakethe zamasheya, ubukhulu bezimakethe zamasheya, ukutholakala kwezimali kwezimakethe zamasheya kanye nokusebenza kahle kwezimakethe zamasheya. Lesi siphetho siphinde sisekele umbono wokuthi ukukhula komkhakha wamabhange kanye nemakethe yamasheya, kanye nobukhulu bemakethe yamasheya kanye nesikweletu esinwetshiwe ngamabhange, konke kunomthelela ekuthuthukisweni kwemakethe yamasheya ngokobukhulu bayo, umthamo omkhulu womsebenzi emakethe kanye nokusebenza kahle. Lo mphumela ukhombisa ukuthi ukuthuthukiswa komkhakha wamabhange kufaka isandla kakhulu ekuthuthukisweni

kwezimakethe zamasheya uma kuqhathaniswa nomthelela wezimakethe zamasheya emabhange. Inkululeko yabezindaba itholwe inomthelela omuhle kusayizi wemakethe yamasheya kanye nokuqina kwemakethe yamasheya. Ukuthuthukiswa kwezimboni ngakolunye uhlangothi kunomphumela ongemuhle kusayizi wemakethe yamasheya kuyilapho ukuphuma ngokushesha kwemali ezweni kunomthelela ongemuhle ekuthuthukisweni kwezimakethe zamasheya, ubukhulu bezimakethe zamasheya kanye nokuqina kwemakethe yamasheya. Ucwaningo luphinde lwembula umthelela omuhle wezinga lokushintshana elingaguquki elikhonjiwe ekuthuthukisweni kwezimakethe zamasheya kanye nokusetshenziswa kwemali kwezimakethe zamasheya, kuyilapho lubonisa ukuthi ukukhasa nokuphathwa kwemibuso kunomthelela omuhle kubukhulu bemakethe yamasheya. Ngokuphambene nalokho, umbuso lapho imali yesizwe ihlelwe yimakethe yokuhwabelana kolunye uhlobo lwemali kwenye ngokuhlinzekwa nokufunwa unomthelela omubi ekuthuthukisweni kwezimakethe zamasheya kanye nokufakwa kwemali ezimakethe zamasheya. Okutholakele futhi kukhombisa ukuthi umkhakha wamabhange ku-SADC, nakuba uzinzile, usengakathuthukiswa ngokugcwele futhi ubonakala ngokwandiswa okuphansi kwezikweletu kanye nokungasebenzi kahle. Izimakethe zamasheya nazo zitholwe zingathuthukisiwe ngokugcwele zibonakala ngosayizi omncane, ukuthengwa kwezimali okuphansi kanye namazinga aphansi okusebenza kahle. Lokhu okutholakele kuphakamisa ukuthi ukukhula kwemboni yamabhange kanye nemakethe yamasheya kuyahambisana ekuhlinzekeni ngemali yokwandisa umnotho, nokuthi ukuhlanganiswa kwesifunda kuqinisa lobu budlelwano obuhambisanayo. Umthetho, nokho, uyawunciphisa lo mphumela ohambisanayo. Ukwenza ngcono ukuhambisana phakathi kokukhula komkhakha wamabhange kanye

nokukhula kwemakethe yamasheya ekuhlinzekeni ngezimali zokukhula komnotho, abakhi benqubomgomo kufanele bagxile ekukhuthazeni ukuhlanganiswa kwesifunda kanye nokuthuthukisa umthetho. Ukwandiswa komkhakha wamabhange kutholakale ukuthi kunomthelela omuhle kakhulu ekuthuthukisweni kwezimakethe zamasheya kunangokuphambene. Ngakho-ke, kufanele bagxilise imizamo yabo ekuthuthukiseni ukwandiswa kwemali mboleko nokusebenza kahle kule ndawo.

Amagama asemqoka: Ukuthuthikiswa komkhakha wamabhange; Ukuthuthukiswa kwemakethe yamasheya; ukuhambisana; ukuzinza; Umphakathi oThuthukayo oseNingizimu ne-Afrika; Izinga lokushintshisana elingaguquki; umthamo omkhulu womsebenzi emakethe; Inkululeko yabezindaba; Imali yemakethe yamasheya; Ukufudukela emadolobheni; Ukuthuthukiswa kwezimboni.

KAMANO PAKENG TSA LEKAKA LA DIBANKA LE NTSHETSOPELE YA MMARAKA WA SETOKO DINAHENG TSE KGETHILWENG TSA BORWA BA AFRIKA: MOKGWA WA PHANELE WA DATA (1995–2017)

ka

CHIKEYA KUMBIRAI CLOUDIO

E rometswe ho latela ditlhoko bakeng sa dikri ya

NGAKA YA FILOSOFI

thutong ya

DITHUTO TSA BOTSAMAISI

YUNIVESITHI YA AFRIKA BORWA

Mookamedi: Prof R.T. Mpofu

2022

KGUTSUFATSO

Thuto e batlisisitse tswalano mahareng a ntshetsopele ya lekala la dibanka le ntshetsopele ya mebaraka ya setoko tsa Borwa ba Afrika, ho tsepamisitswe haholo ho Ditjhaba tse Ntshetswangpele tsa Borwa ba Afrika (SADC). Ho sebediswa mokgwa o bonahalang o sa amaneng (SUR) le mokgwa o akaretsang wa nako (SGMM) mabapi le dintlha tsa pokello tse tswang dinaheng tse robong tsa SADC, diphetho tsa thuto di bontsha hore dibanka le mebaraka ya matsete di a tlatsana ho tshehetsa kgolo ya moruo sebakeng seo.Diphetho di boetse di bontsha hore kopanyo ya dibaka ka prothokholo ya kgwebo (TP) le prothokholo ya ditjhelete le matsete (FIP) e ntlafatsa bokgoni ba ho tlisa sephetho se tlatselletsang sa dibanka le dimmaraka tsa thekiso kgolong ya moruo. Mohlala wa kgolo o bontshitsweng o bontsha hore ho matlafatsa matsapa a ho kgothaletsa kopanyo ya lebatowa ho ntlafatsa tlatsetso dipakeng tsa katoloso ya indasteri ya dibanka le kgolo ya mmaraka wa setoko mabapi le ho tshehetsa kgolo ya moruo ka ditjhelete. Thuto ena e boetse ya sheba hore na maemo a mekgatlo a ama jwang indasteri ya dibanka le ntshetsopele ya mmaraka wa matsete. Diphumano di bontsha hore molao ha o fetole sebopeho sa dikamano, empa o fokotsa tshusumetso e tlatsanang ya mmaraka wa thekiso le keketseho ya lekala la dibanka kgolong ya moruo. Thuto e sebedisitse ntshetsopele ya lekala la dibanka le mehlala ya ntshetsopele ya mmaraka wa setoko ho leka bonnete ba diphumano le ho fumana hore na ho kopana ho a tsamaelana. Ka hona, thuto e ile ya tswela pele ho batlisisa dintlha tse kgethollang lekala la dibanka le ntshetsopele ya mmaraka wa setoko moo matshwao a mmaraka a setoko le a dibanka a kenyelleditsweng e le phetoho e hlalosang.

Ntshetsopele ya mmaraka wa setoko e fumanwe e na le tshusumetso e ntle ho ntshetsopele ya lekala la dibanka ha ho tsetelwa kgwebong ho mmaraka wa setoko e fumanwa e e na le tshusumetso e ntle ho mokitlane o atolositsweng ke dibanka tsa ditjhelete tsa depositi. Sephetho sena se tiisa kamano e tlatsanang e bontshitsweng ke mohlala wa kgolo.Ho aha ditoropong ho na le bokgoni ba ho tlisa sephetho se setle ntshetsopeleng ya lekala la dibanka, katoloso ya mekitlane ya poraefete le katleho ya lekala la dibanka empa e na le tshusumetso e mpe botsitsong ba lekala la dibanka. Palo ya baahi e na le tshusumetso e ntle katolosong ya mekitlane ya poraefete le botsitsong ba lekala la dlibanka ha ho se lekane ho susumetsa ntshetsopele ya lekala la dibanka le botsitso ba lekala la dibanka. Diphetho di boetse di senola hore ntshetsopele ya lekala la dibanka e na le tshusumetso e ntle ho ntshetsopele ya mmaraka wa setoko le ho tsetela mmarakeng wa setoko, ha mekitlane ya poraefete ka dibanka tsa depositi e matlafatsa ntshetsopele ya mmaraka wa setoko, boholo ba mmaraka wa setoko,thekiso ya setoko le katleho ya mmaraka wa setoko.Qeto ena e boetse e tshehetsa mohopolo wa hore kgolo ya lefapha la dibanka le mmaraka wa setoko, hammoho le boholo ba mmaraka wa setoko le mekitlane e atolositsweng ke dibanka, kaofela di kenya letsoho ntshetsopeleng ya mmaraka wa setoko ho latela boholo ba ona, thekiso ya setoko le bokgoni. Sephetho sena se bontsha hore ntshetsopele ya lekala la dibanka e kenya letsoho haholo ntshetsopeleng ya mebaraka ya thekiso ha e bapiswa le bokgoni ba ho tlisa sephetho ya mmaraka wa setoko dibankeng.Tokoloho ya baphatlalatsi e ile ya fumanwa e ama boholo ba mmaraka wa setoko le thekiso ya mmaraka wa setoko. Ntshetsopele ya diindasteri ka lehlakoreng le leng e na le bokgoni ba ho tlisa sephetho se sebe ho boholo ba mmaraka wa setoko ha ho tswa ha tjhelete naheng ho na le tshusumetso e mpe ho ntshetsopele

ya mmaraka wa setoko, boholo ba mmaraka le ho rekiswa ha maraka wa setoko.Thuto ena e boetse bo sibollotse bokgoni ba ho tlisa sephetho se setle sa puso ya sekgahla sa phapanyetsano ho ntshetsopele ya mmaraka wa setoko le ho tsetela mmarakeng wa setoko, ha e ntse e bontsha hore mebuso e kgasang le e laolwang e na le tshusumetso e ntle ho boholo ba mmaraka wa setoko. Ho fapana le hoo, puso e phaphametseng e na le bokgoni ba ho tlisa sephetho se sebe ho ntshetsopele ya mmaraka wa setoko le ho tsetela mmarakeng. Diphumano di boetse di bontsha hore lekala la dibanka ka hara SADC, leha le tsitsitse, le ntse le fokola mme le tsebahala ka katoloso e tlase ya mekitlane le ho se sebetse hantle ho hoholo. Dimmaraka tsa disetoko le tsona di ile tsa fumanwa di sa ntlafatswe tse kgethollwang ka boholo bo fokolang, thekiso ya thepa le maemo a tlaase a tshebetso.Diphumano tsena di fana ka maikutlo a hore ho phahama ha indasteri ya dibanka le mmaraka wa setoko di a tlatselletsana ka ho fana ka tjhelete bakeng sa katoloso ya moruo, le hore kopanyo ya dibaka e matlafatsa kamano ena e tlatselletsang. Molao, leha ho le jwalo, o fokotsa bokgoni ba ho tlisa sephetho sena se tlatsetsang. Ho ntlafatsa tlatsetso dipakeng tsa kgolo ya lekala la dibanka le kgolo ya mmaraka wa setoko molemong wa ho fana ka ditjhelete bakeng sa kgolo ya moruo, baetsi ba melawana ba lokela ho tsepamisa maikutlo ho kgothaletseng kopanyo ya dibaka le ho matlafatsa molao.Katoloso ya lekala la dibanka e fumanwe e na le kgahlamelo e hodimo e ntle ntshetsopeleng ya mmaraka wa setoko ho feta ka tsela e fapaneng. Ka hona, ba lokela ho tsepamisa boiteko ba bona ho ntlafatsa katoloso ya mokoloto le katleho sebakeng sena.

Mantswe a bohlokwa: Ntshetsopele ya lekala la dibanka; Ntshetsopele ya mmaraka ya setoko; Ho tlatsana; Phaphanyetsano; SADC; Sekgahla sa phapanyetsano e tsitsitseng sa tjhelete; Tokoloho ya baphatlalatsi; Tjhelete ya matsete ya mmaraka wa setoko; Ho fallela ditoropong; Boikemisetso ba indasteri.

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DEDICATION

I dedicate this thesis to those who believed in me when it was more difficult to do so.

DECLARATION

Name:	Cloudio Kumbirai Chikeya
Student number:	61970239
Degree:	Doctor of Philosophy in Management Studies
Title:	The relationship between banking sector and stock market development in selected Southern African countries: A Panel Data Approach (1995-2017).

I hereby certify that this thesis, which is submitted to the University of South Africa, Pretoria, is my own work and that all sources that I have used or cited have been indicated and acknowledged by means of complete references.

Signed  Date 17 October 2022

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1 CHAPTER 1: INTRODUCTION AND BACKGROUND

"It is not by augmenting the capital of the country, but by rendering a greater part of that capital active and productive than would otherwise be so, that the most judicious operations of banking can increase the industry of the country." (Adam Smith, Wealth of Nations, 1776, Pg. 419.)

1.1 Introduction

The positive effects of financial depth on economic growth, particularly for developing and low-income countries, are well documented (IMF, 2016), but what decides financial development and ways to develop financial markets is still a grey area (Huang, 2010). This study is motivated by existence of conflicting results and lack of consensus on factors that affect banking sector and stock market development, and how these components of financial markets relate. Most studies have failed to produce conclusive results, instead, just as before, researchers have piled more conflicting outcomes on the existing stock, leaving pertinent issues unresolved.

Studies that have tried to examine the relationship between banking sector and stock market development (Arize, Kalu, and Nkwor, 2018; Hassan & Kalim, 2017; Nyasha & Odhiambo, 2015; Odhiambo, 2010) suffer from several methodological limitations. These limitations include failure to consider a broad range of dimensions of banking sector and stock market development, ignoring the endogeneity problem, focusing on individual countries and failure to consider the impact of regional integration. The results from these studies cannot be generalised and cannot be applied to countries in regional economic block such as the Southern Africa Development Community (SADC). SADC as a region

has prioritised regional integration as a means of promoting peace and stability, reducing poverty and promoting economic growth among member states. This has seen the signing of 26 protocols with the latest to enter into force on 13 January 2022 being the protocol on trade in services of 2012 (SADC, 2022). These protocols include ones on trade, finance and investment, mining, energy, science technology and innovation, and transport, communications and meteorology. However, despite all these efforts, the Africa Regional Integration Index (2019) award the lowest score of overall regional integration to SADC despite more than 60% of intra-African trade in goods happening among SADC members and Southern African Customs Union (SACU) being highly integrated in respect of trade in services (Erasmus, 2021). Therefore, SADC provides a unique context that warrants examining how regional integration impacts the relationship between banking sector development and stock market development in the SADC region.

Besides policy initiatives that have been put in place to foster regional integration, SADC as a region has also made efforts to promote and uphold the rule of law in respective member states and the region at large. This culminated in the signing of the Protocol on Tribunal of 2000 by member states. The setting up of the tribunal was motivated by the need to put in place a conflict resolution mechanism between member states, individuals and states and between individuals who reside in the SADC region. This allowed citizen of any SADC country to approach the Tribunal in instances where they failed to obtain relief in local courts. However, in 2014 SADC member states amended the treaty and adopted another Tribunal which abolished the locus standi of SADC citizens thereby severely undermining the right to access to justice. A report by the World Justice Project (2020) shows that most SADC countries are not performing well on the rule of law

rankings. For instance, DRC is the least ranked at 126 out of 128 in the world, Zimbabwe is raked 119, Mozambique 113, Angola 110, Madagascar 105, Zambia 97 and Tanzania 93. The highest ranked member is Namibia at 35 followed by Mauritius and Botswana at 38 and 43 respectively. As a result, it is important to establish how the rule of law in SADC is impacting the interaction between banking sector development and stock market development.

In this context, the study makes a broad definition of banking sector and stock market development by considering different dimensions left out by previous studies. Banking sector development is taken to include the amount of credit extended by banks, banking sector stability and efficiency while stock market development covers stock market capitalisation, liquidity and efficiency.

The debate about finance and growth has received much attention, focusing on the role that finance plays in stimulating economic growth and vice versa, for countries at various levels of development. The supporting view, Schumpeter's (1911) supply leading hypothesis suggests that financial sector development positively affects economic growth through facilitating easy transacting, risk management, savings mobilisation, efficient resource allocation, funding start-ups and employment creation (International Monetary Fund (IMF), 2016; King & Levine, 1993; McKinnon, 1973; Rad & Etemadmoghaddam, 2014; Shaw, 1973). This positive effect should be more pronounced for countries in lower income bracket (IMF, 2016). Other benefits include product innovation, reducing information asymmetry, consumption smoothing, reducing poverty and better monitoring of management actions (Beck, Munzde, Faye, & Triki, 2011; Chenery, Robinson & Syrqun, 1986; IMF, 2016; Naceur & Ghazouani, 2007). Funding supplied by the financial

sector stimulates and supports economic growth such that countries with developed financial markets should have higher and sustainable growth rates. However, when it comes to the SADC region, earlier studies by Abel, Nyamutowa, Mutonhori and Le Roux (2019) and Bara, Mugano and Le Roux (2016) show that the financial sector is not contributing to economic growth as expected.

Contrary to this view, Roubini and Sala-i-Martin (1995) highlight the detrimental effects of finance on growth. They argue that restrictions put in place by regulators discourage savings and reduce productivity of capital. Also, volatility in financial markets drives away investors from participating in the financial markets while at the same time causing instability in economic growth (Lucas, 1988). Other theorists on the other hand believe economic growth leads financial development not vice versa. For instance, Robinson (1952) and later Lucas (1988) were of the view that institutions like banks respond passively to economic growth. Their view is that banks develop because of growth in the real sector owing to the demand of financial services from firms and citizens. This view is regarded as the demand follow hypothesis (Patrick, 1966).

Whilst focusing on the role of the financial sector in stimulating growth, other authors tried to find that which is more important between banks and stock exchanges in supporting economic growth (Levine & Zervos, 1996; Neceur & Ghazouani, 2007; Odhiambo; 2011; Saci, Giorgioni & Holden, 2009). Earlier on, Boyd and Prescott (1986) postulated that banks improve allocation of resources and reduce information asymmetry. While Allen and Gale (1999) assert that stock markets on the other hand reduce monopoly power of banks and improve innovations that enhance growth compared to banks that are usually conservative. Summers (1999) and Feldstein (1999) credit stock markets for quick

technology adoption in United States compared to other countries. However, Porter (1992) suggests that relying on stock markets by the United States economy was threatening the countries' long-term growth and its competitiveness among other industrialised countries. In the same vein, Ojoma (2017), Porter (1992), Singh (1999, 2008), South Africa Reserve Bank (2014), and Summers (1999) propound those developing countries do not need sophisticated markets, such that efforts to develop stock markets might be a waste of resources. Resources should be devoted to developing banks than stock markets. These suggestions were based on the notion that banks are better placed to flourish and contribute to growth in low-income countries. Summers (1999) further avers that stock price bubble bursts sometimes caused by excessive credit, expanded depressed stock prices and short-termism hurt growth.

Contrary to pronouncements by the foregoing authors, Bhide (1993) and Stiglitz (1985) opined that the desirable scenario is that banks and stock markets should coexist with each other in supporting growth since they offer different services. In support of this argument, Lee (2001) suggests that it is neither banks nor stock markets that handle development of financial markets and the economy; a combination of the two reduces information asymmetry, transaction costs and cost of capital. However, despite these pronouncements, the classification of financial systems as either bank or market based, indicating whether a country relies more on stock markets or banks for mobilisation and allocation of resources to various users (Dermiguc-Kunt & Levine, 2001; Goldsmith, 1969) indicate that countries have failed to facilitate balanced existence between banks and stock markets such that countries have to rely on one sector than the other. This scenario could be explained by policies put in place in different countries, which favour or promote

the development of one sector at the expense of the other or by the very nature of these two sectors such that they are not capable of coexisting as suggested prescribed by Bhide (1993), Lee (2001) and Stiglitz (1985).

The key research point is driven by suggestions that banks and stock markets act as substitutes or compliments in funding growth (Bhide, 1993; Gubler, 2011; Stiglitz, 1985; World Bank, 1989). Boyd and Smith (1996), Demirguc-Kunt and Levine (1996), Garcia and Liu (1999) and Odhiambo (2010) suggest banks and stock markets are complements since they supply different services. Demirguc-Kunt and Levine (1993) further argue that a developed stock market helps risk diversification resulting in higher debt to equity ratios though they did not clarify whether developments in the stock market lead to use of debt from banks or through issuing bonds on the stock market.

World Bank (1989) on the other hand prescribed setting up stock exchanges in emerging economies as competitors to direct financial institutions (banks) that were not performing expected roles. The motivation of this prescription was that stock markets could give similar services being offered by banks though in the form of a different product, thereby providing an alternative source of funding for firms. This substitutability notion stems from debt and equity being substitutes whereby firms alter their capital structure opting for one form of capital in place of another (Seward, 1990). As such banks and capital markets can be taken to be substitutes since they take away business from each other. Similarly, investors can alternate between banks and stock markets, shifting their funds depending on changes in their wealthy, risk aversion and economic forecast (Biswas, Hossain, Podder, & Hossain, 2018; Steward, 1990). Since investment opportunities are limited,

better developed stock markets could take away business from banks as they compete to fund the same projects (Demirgüc-Kunt & Maksimovic, 1996; Ho, 2017; Lee, 2012).

Yartey (2008) posits that the relationship could be dynamic and non-linear, changing from being complementary to substitution as financial markets develop. The level of competition or complementarity seems to be influenced by the country's level of economic development and therefore development of stock markets. In developed countries for instance, there seem to be dominance of the substitution effect while in developing countries banks could complement stock markets (Demirgüc-Kunt & Maksimovic, 1996). This suggest that when both banks and stock markets are more developed, which is usually the case in most developed countries, they tend to be competitors in funding the different segments of the economy. However, in less developed countries where banks dominate while at the same time banks and markets are less developed, the two tends to be complementary.

Clearly, there is no agreement on the nature of relationship between banking sector and stock markets, be it in developing or developed countries owing to conflicting theoretical explanations. Similarly, studies conducted in different countries and regions show different results as well. In the SADC region, there is no study that has examined this relationship either. However, considering the extent of under development of the banking sector and stock markets in the SADC region and the failure of financial markets to fund economic growth as expected, it is important to identify factors that influence the development of banking sector and stock markets and how they interact. Furthermore, even though levels of banking sector development and stock market development in SADC are low by global standards, the SADC region has more countries with developed

stock markets relative to other African countries. For instance, SADC countries have bigger stock markets as shown by their dominance in the top 16 countries in the region. Out of the top 10 countries, the SADC region contributes five countries while SADC countries make up 50% of the top 16 countries. In terms of percentage contribution, SADC countries contribute 79.92% out of the 99.63% constituted by individual countries (Schiereck, Kiesel, & Kolaric, 2018). Economy wise, SADC is a significant part of Africa. As at 27 January 2011, SADC was ranked as the largest regional economic community in Africa by GDP and gross income, making it the 19th largest economy in the world (Zongwe, 2011). Currently, SADC accounts for 28% of Africa's nominal GDP (IMF, 2021). Therefore, the SADC region provides an ideal context of (1) examining how banking sector development is contributing to stock market development, (2) how these two components are interacting in supporting economic growth and (3) determining factors that explain the development of the stock market and banking sector.

1.2 Background to the study

In the SADC region, Bara et al. (2016) found that financial markets were not contributing to economic growth. Similarly, Abel et al. (2019) found that the banking sector was detrimental to economic growth, contrary to expectations of the supply leading hypothesis. Some of the reasons attributable to these results were an underdeveloped financial sector characterised by weaknesses in distribution of credit as well as the structure of the credit and high incidences of bad loans. These findings show that financial markets have not been operating at their optimum level because of relying on one segment of financial markets (banks) or equity markets and banks are not coexisting efficiently to fund growth. One critical observation is that most of SADC countries are

heavily dominated by banks except Mauritius, South Africa and Zimbabwe that have better developed stock markets and other non-banking institutions as shown in Table 1-1. However even for these countries, the banking sector remains dominant in funding majority of firms, which are mostly small to medium enterprises. This calls for the need to examine how this dominance of banking sector is affecting stock markets in funding economic growth. At the same time, despite dominance of the banking sector, the sector remains underdeveloped as highlighted by Bara et al. (2016) and Abel et al. (2019) As such, there is need to identify factors that affect the development of this sector as measured by credit extension, stability and efficiency.

The debate about development of banks and stock markets lies at the heart of the finance – growth matrix, in particular the supply leading hypothesis. How banks and markets relate could have an impact on the capability of markets to fund growth. For instance, the dominance of banks could be crowding out development of stock markets in the process reducing the efficiency of financial markets in funding growth. In instances where banks and markets should complement each other, underdeveloped equity markets result in a weaker financial sector that is incapable of funding long-term projects. If both banks and stock markets are underdeveloped, their complementary effect could still fail to stimulate economic growth. How banking sector development and stock market development relate to each other could explain why financial markets have remained underdeveloped in the region while at the same time the availability of finance has not stimulated growth as expected.

Growth in the SADC region has lagged behind other developing regions though it has outperformed developed countries such as the European Union in the recent past. For

example, between 2003 and 2013, growth in SADC averaged 4.7% compared to 7.4% registered in the ASEAN region during the same period (World Bank, 2014). All countries in SADC averaged growth rates below 7% except Angola, thereby failing to meet the minimum target of 7% set in the Regional Indicative Strategic Development Plan (RISDP) of 2003. Instead of rising, the growth rate actually fell from 4% registered in 2010 to a paltry 1.2% in 2018. Factors attributable to such sluggish growth include huge external debt, high inflation, soft commodity price and slower growth in South Africa, which account for two-thirds of SADC's GDP (African Development Bank (ADB), 2019). Dependence on external debt hints at lack of capacity to mobilise local resources, usually a consequence of underdeveloped markets characterised by low savings and high financial exclusion.

Figure 1-1 shows GDP growth rate trends across the SADC countries for the period 1995 to 2020. It shows that growth rates in majority of SADC countries have been volatile, demonstrating weaknesses inherent in these countries. For most SADC countries, the growth rates have either moved sideways or gone downwards. IMF (2016) highlights that when financial markets are not properly developed, growth rate will exhibit high volatility as the country lacks capacity to absorb shocks caused by endogenous and exogenous factors. In relation to banking sector development, World Bank (2012) notes that credit extension to the private sector in SADC has been lower than sub–Saharan Africa (SSA) average, Latin America and East Asia and Pacific for the period 1990 to 2012. In 2016, most SADC countries were still lagging behind the 100% average recorded in developed countries in 2009 (Andrianaivo & Yartey, 2009). As shown in Table 1-1, all SADC

countries fall below 35% except South Africa (144%), Mauritius (96.3%) and Namibia (65%) for the same ratio in 2016.

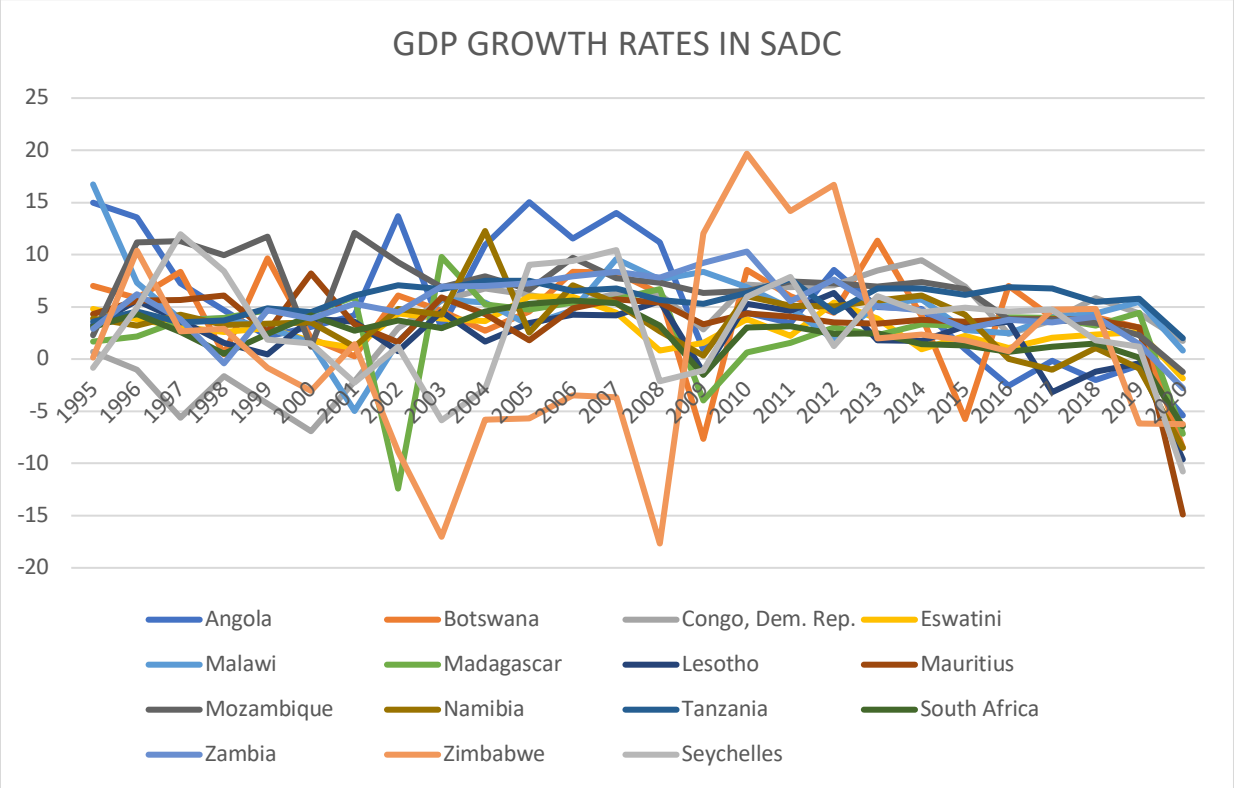


***Figure* 1- 1: SADC growth rates** (Author compilation)

Therefore, it is pertinent for this study to identify the factors that explain the development of both the banking sector and stock markets in SADC. This is particularly important considering that recent research by Anchang (2016), Mbulawa (2015) and Tsaurai (2018) show that what decides banking sector and stock market development remain unknown.

The bank sector is oligopolistic, characterised by high concentration ratios close to 100 for most countries. Despite the dominance of banks, SADC ranks among regions with the largest number of adults without bank accounts, resulting in extremely low gross savings. A considerable number of the population remain financially excluded from the formal financial markets, forcing them to rely on informal markets that charge usurious interest

rate, offer smaller loans and a limited number of services. Coupled with lower growth rates, financial exclusion has perpetuated poverty in Madagascar, Malawi, Lesotho, and Zambia where more than 60% of the population survive on less than $1.90 a day (ADB, 2019). This could suggest that lack of competition in the banking sector could be discouraging banks from investing in infrastructure and put in place strategies to offer services to the financially excluded residents. Financial exclusion also promotes inequality that has militated against efforts of reducing poverty in several countries. Botswana, Namibia and South Africa for example, make up the list of five of the world's most unequal countries between 2010 and 2017 using the Gini coefficient and the Palma ratio (ADB, 2019).

Country	Financial Systems Deposits (% of GDP)	Credit to Private Sector (% of GDP	Stock Market Capitalisation (% of GDP)	Number of Firms Listed on the Stock Exchange (SE)	Bank Z-score	5-Bank Concentration Ratio	Boone Indicator	Foreign Banks to Total Banks
Angola	32	21.1	…	No SE	9.6	77.9	-0.03	46
Botswana	39.6	31.5	28.5	35	84	89.7	-0.08	60
Lesotho	27	16.8	…	0	11.0	…	-0.16	…
Madagascar	17.4	13.1	….	No SE	84	98.4	-0.01	100
Malawi	17.7	10.5	13.7	13	13.5	100	-0.11	25
Mauritius	98.6	96.3	66.6	75	7.8	66.8	-0.01	60
Mozambique	45.5	34.5	6*	6	4.3	89.3	-0.06	85
Namibia	51.1	65.0	9.0	8	8.5	98	-0.01	43
South Africa	59.5	144.3	328.1	303	14.7	98.8	-0.02	24
eSwatini	25.8	21.6	31.56*	6	10.4	…	-0.23	60
Zambia	19.1	15.4	13.8	25	9.2	74.8	-0.07	94
Zimbabwe	31.6	…	154*	63	…	78.6	-0.08	38
… not available * 2015 figures								

***Table* 1- 1: SADC banking and stock market development indicator** (ADB, 2019; African Securities Exchanges Association, 2015)

Stock markets in the region, except for South Africa are characterised by illiquidity, low capitalisation and smaller number of listed firms just as it is in most developing countries in Africa (African Growth Institute, 2017). Table 1-1 shows a stark difference in market capitalisation across the SADC region for those member states that have a stock market. Market capitalisation measures the size of the stock market compared to economic size as measured by GDP. South Africa has the largest markets with a capitalisation of 328.1% followed by Zimbabwe at 154% of GDP. Contrastingly, Malawi, Zambia and Mozambique have ratios below 14% of GDP. Some of the notable constrains to growth include manual trading systems, lack of currency convertibility among SADC countries, less than 3% of residents taking part on the exchanges and exchange controls in some member countries (Benimadhu, 2012). Despite the challenges, these markets have showed growth that is higher than banking sector in terms of capitalisation (Association of Certified Chartered Accountants, 2012). Although this signals improvement in policy initiatives towards stock markets, improvement in economic stability and greater usage of such markets, it also shows movement from a lower base. Companies in SADC still rely on bank credit to fund their operations despite existence of stock markets. As a result, these markets register little activity owing to a few numbers of listed firms as shown in Table 1-1, thereby not attracting investors owing to low level of liquidity. This scenario is a cause for concern among policy makers in the SADC region since such underdevelopment of capital markets could be retarding economic growth through driving away investors thereby starving companies much needed capital. What is not clear up to date is whether the dominance of banking sector in the region is responsible for stifling development of these stock markets through taking away business activity. At the same time, policy initiatives

that have been put in place have failed to promote development of these stock markets, indicating that there could be other factors that have been missed by past research and policy makers alike. Considering this, the current study endeavours to identify those factors that affect stock market capitalisation, stock market liquidity and efficiency in SADC.

In a bid to address some of the challenges highlighted above, SADC have directed considerable effort towards developing financial markets to fund growth efficiently. Such efforts include setting up the Protocol on Finance and Investment of 2006 to facilitate development of capital markets and increase cooperation among member states. Specifically, the protocol required countries to share information on regulation, surveillance, and policies to encourage participation, harmonise listing requirements and cooperation in training and development of technical staff. As a result, SADC is only second to East African Community among other regional economic communities (REC) in putting in place measures that deepen regional integration (ADB, 2019).

At country level, policies such as removing credit controls, privatising banking institutions and liberalising interest rates and exchange rates have been pursued (Mahayiwa, 2015). However, majority of countries have not succeeded in developing financial markets that can fund sustainable and inclusive growth. As a result, there is need to examine and unpack peculiarities that decide the development trajectory of banking, stock markets and countries in SADC (Fafchamps, 2004). As noted by Anchang (2016), Mbulawa (2015) and Tsaurai (2018) what decides financial sector development remain unknown and research on the same in SADC remain scant. This informs the need to fill this gap through examining: (1) the interaction between banking sector and stock market development in

funding economic growth, and (2) factors that explain development of banks and stock markets in SADC.

Seleteng (2012) and Sarel (1996) highlight that owing to differences in the level of economic development, industrialisation and resource endowment, relationships obtained in other regions might differ from those in SADC. Such structural differences and policy initiatives, new financial innovations, technology advancement, changing investor needs and new risks could alter relationships among components of financial markets and their interaction with economic growth. As such paths taken by developed countries towards development might differ from the ones that should be pursued by developing countries (Allen, Carletti, Qian & Senbet, 2016). When countries develop, customer needs change, new risks appear and institutions evolve while technology alters the design and delivery of financial services. However, the capability to mobilise capital and distribute it efficiently remains central to the growth and development of nations to the extent that debate that focuses on size of markets only is inadequate. As a result, designing policies that foster development of financial markets and economic growth should capture interaction of its components and the dynamism of the financial landscape (Bara et al., 2016), influenced by changes in economic variables, institutions and human beings. Therefore, this study aimed to decide factors that promote banking sector and stock market development as well as the relationship between these two components of the financial system in the SADC region.

1.3 Problem Statement

The study sought to examine the nature of relationship that exists between banking sector development and stock market development in funding economic growth in SADC. The

focus is on determining if the banking sector and stock markets act as compliments or substitutes in funding economic growth in the presence of regional integration. The study was necessitated by the observation that past studies have :(1) neglected to measure the impact of regional integration on the relationship between banking sector development and stock market development, (2) failed to examine the effect of factors such as press freedom, inequality, urbanisation, industrialisation, exchange rate regimes and capital flight on banking sector and stock market development, and (3) measured banking sector development and stock market development using single dimension measures such as credit extension to the private sector and stock market capitalisation. These studies have failed to consider other important dimensions such as banking sector stability, banking sector efficiency, stock market liquidity and stock market efficiency. In this regard, the current study measures banking sector development using a combination of credit extended to the private sector by deposit money banks (size), Z-score (stability) and net interest margin (efficiency) as single dimension measures. Stock market capitalisation will measure the size of stock markets while stock market turnover ratio and value of stocks traded will depict stock market liquidity and efficiency respectively. Composite indexes that capture the three dimensions of each sector will be created to measure banking sector development and stock market development. Also, the study sought provide solutions to challenges that have faced countries in the SADC such as low growth rates and underdeveloped financial sector.

SADC countries have failed to raise growth levels to a minimum of 7% as espoused by the Regional Indicative Strategic Development Plan (RISDP). Where growth has been achieved, it has been unsustainable and less inclusive, driven by export in natural

resources such as gold, diamond and oil. This has worsened volatility in the economies and financial markets alike. Lack of sustainable and robust growth has been attributed to underdeveloped financial markets that have failed to mobilise and distribute resources efficiently to the most productive sectors. Not only are underdeveloped markets affecting growth, they are also blamed for perpetuating poverty and inequality through excluding many people from accessing services such as insurance, savings, investment, and payment systems.

The financial sector in the SADC stays underdeveloped despite measures established to develop markets that efficiently fund industrialisation and economic development (Kalui, 2018; Mahayiwa, 2015; Singh, 1999). These measures have produced less than desired outcomes and reasons for such remain unaccounted for. Even in countries that have seemingly established markets, they remain underdeveloped compared to standards in other developing continents (Allen et al., 2016; Green, 2013), yet the importance of banking sector and stock market development to economic growth and inclusive development is well documented and understood (Levine, 1997; Levine, 2004; Park & Mercado, 2015).This is supported by the World map in Figure 1-2 showing countries in SADC having low levels of financial development compared to other regions in world.

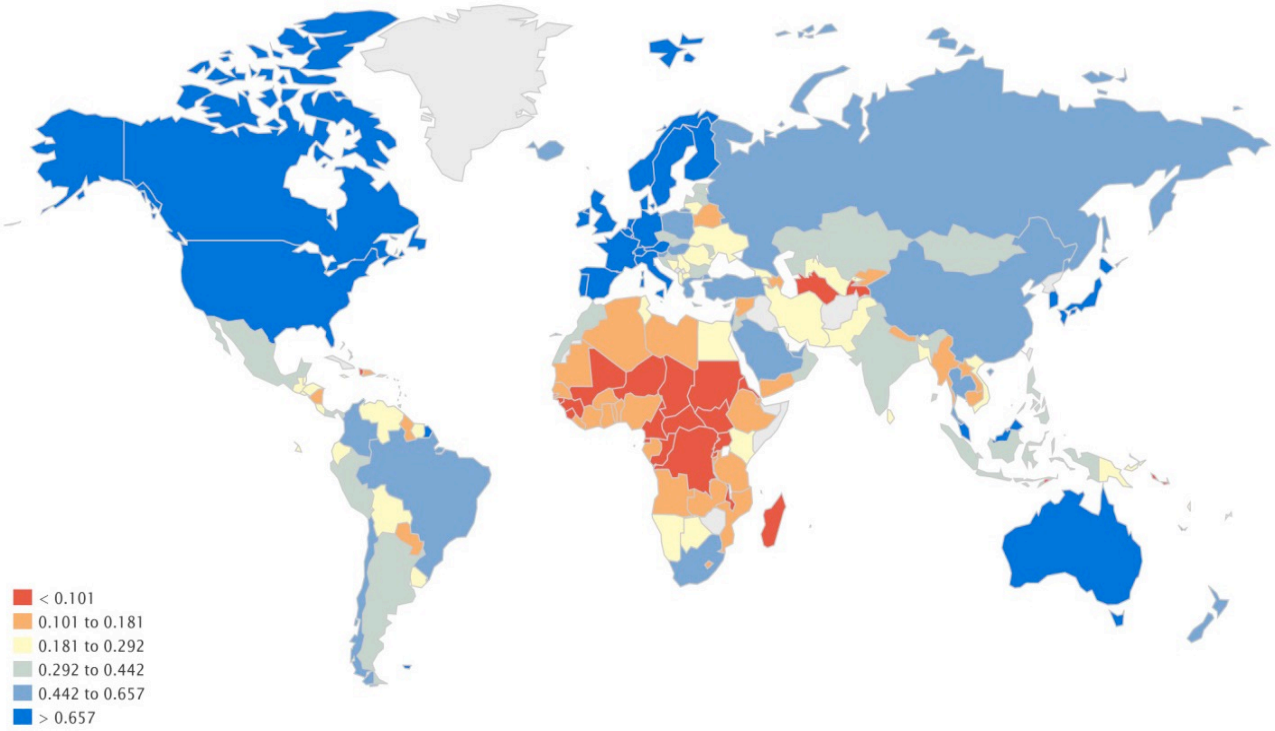


***Figure* 1- 2: Financial development world map** (IMF Estimates in Svirydzenka, 2016)

Low levels of trading activity, small number of listed firms, low capitalisation, illiquidity, huge financial inclusion gaps, small banking sector and low intermediation efficiency characterise these financial markets (Afful, 2018; Kalui, 2018; Otchere, Senbert & Simbanegavi, 2017). The noble conclusion then becomes policy initiatives and measures established have missed factors that handle the development of financial markets in SADC.

The debate on determinants of financial sector development and how the major components relate to each other is still ongoing. This is showed by recent research in the area by Afful (2018), Biswas et al. (2018), Bundoo (2017), Ho (2017), IMF (2016), Kalui (2018), Karikari, Mensah, and Marvey (2016), Lee (2012) and Otchere et al. (2017) but there remain unanswered questions. Specifically, Mbulawa (2015) suggests that there is

still no agreement on the factors that decide development of financial markets in SADC as a regional economic community (REC). This stems from the observation that financial markets are ever evolving, becoming sensitive to new variables that were not previously important. No single study can be able to address these pertinent issues in their totality considering availability of many variables to consider, various estimation techniques and peculiarities found in different countries or regions. In the same vein, Neal (2016) also notes that the future evolution of stock markets stays uncertain mainly because new innovations in technology, policy initiatives and external developments in the global world continue to affect financial markets though differently.

While studies have been done mostly in developed countries, developing regions such as SADC have received very limited attention (Anchang ,2016; Seleteng, 2012; Tsaurai, 2018). In instances where research has been conducted elsewhere, on the relationship between banks and stock markets and the determinants of their development, results have been conflicting and inconclusive (Afful, 2018; Biswas et al., 2018; Bundoo, 2017; Demirguc-Kunt & Levine, 1996; Garcia & Liu, 1999; Ho, 2017; Kalui, 2018; Lee, 2012, Odhiambo, 2010; Yartey, 2008). So, Neil (2016) notes that reconciling the conflicting motives between banks and stock markets has always been a challenge for financial markets, researchers and policy makers alike.

Apart from Aluko and Ajay (2018), no earlier study has combined the different dimensions of banking sector development, namely; depth, stability and efficiency in examining its development. As such, earlier studies have considered a narrow view of banking sector development and where they have used an array of measures, they have neglected banking sector stability and efficiency. However, the study by Aluko and Ajay (2018)

differs from the current study in that it concentrated on SSA as opposed to SADC as a REC and it did not empirically examine the effects of urbanisation and inequality on banking sector development which are the subject of this current study. In terms of stock market development, no earlier studies have examined the impact of exchange rate regimes, press freedom, industrialisation, and capital flight on stock market development despite their potential effect in explaining development of stock markets. Therefore, the current study aspires to fill these research gaps.

Regardless of increases in the number of RECs being set up, no research has focused on how they affect the interaction between banking sector and stock market development. Economic liberalisation and integration can adversely affect financial markets through the contagion effect, a classic example being the recent global financial crisis (Etudaiye-Muhtar, Ahmed, Azeez, & Abdulmumin, 2017). The benefits from integration have been observed in countries that have strong institutional framework and are financially developed (Demetriades & Law, 2006; Osada & Saito, 2010). Also, the impact of economic integration has been seen to impact banks and stock markets differently (Boako & Alagidede, 2017). As a result, there is a need to inform policy through evaluating earlier strides towards regionalisation as a solution to financial market development. Of particular significance to SADC is examining how regional integration arrangements such as the finance and investment and TPs affect development of banking sector and stock markets, the relationship between them and their contribution to economic growth. Though there is a single study by Tembo and Makina (2020) that examined the impact of these protocols on financial sector development in SADC, this current study goes further to examine how regional integration affects the relationship between banking sector

development and stock market development in funding economic growth. Therefore, this study contributes by examining how regional integration measured by trade and FIPs and institutional settings proxied by the rule of law impact the interaction of banking sector development and stock market development. Considering that SADC has entered into 26 protocols that promote regional integration and rule of law and no previous studies have examined this phenomenon, these unique features of the region contribute to new literature.

1.4 Objectives of the study

The aim of the study is to meet the following aims:

1.4.1 To examine the determinants and status of stock market development.

1.4.2 To examine the determinants and status of banking sector development.

1.4.3 To decide the relationship between stock market development and banking sector development in funding economic growth in selected SADC countries.

1.4.4 To determine the impact of regional integration of the relationship between banking sector development and stock market development.

1.4.5 To examine the impact of rule of law on the relationship between banking sector development and stock market development.

1.5 Hypotheses of the study

In line with Yartey (2008) who suggested that the relationship between banking sector development and stock market development could be dynamic and nonlinear, changing from complementary to substitution depending with the level of financial development, we hypothesise that banking sector development and stock market development in SADC are complements in funding economic growth. The complementary relationship is a result

of underdeveloped banking sector and stock markets that are not capable of completely substituting each other in providing financial services to economic agents. Demirgüc-Kunt and Maksimovic (1996) indicate that the substitution effect is dominant in developed countries while in developing countries banks could complement stock markets. These pronouncements point to the fact that there are factors that moderate the nature of the relationship between banking sector development and stock market development which are inherent in countries characterised by high levels of economic development and financial development or in less developed countries. This study posits that, apart from economic growth, there are factors such as institutional quality and the regional integration that have impact on the interaction of banks and stock markets in SADC.

Rodrik, Subramanian and Trebbi (2004) identified institutional arrangements or characteristics that are peculiar to developing countries. These include weak institutions, low levels of trust in the rule of law, poor contract enforcement mechanisms and weak property rights. Specifically, SADC countries such as Zambia, Lesotho, Malawi, Mozambique, Zimbabwe and eSwatini have not achieved substantive levels of democracy therefore have weak institutions (Anchang, 201; Landsberg, 2004). As a result, the study endeavours to investigate how these weak institutions in particular the rule of law affect the relationship between banking sector development and economic growth as well as the development of the two sectors. La Porta, Lopez-de-Silanes, Sheiler and Vishny (1998) and Rajan and Zingales (2003) show that presence of rule of law positively affects banking sector development and stock market development since it attracts foreign capital and local capital. Therefore, the study posits that lower levels of rule of law depresses development of the banking sector and stock markets and owing to

this lower level of development, they interact as complements in funding economic growth.

Financial integration on the other hand has been found to have varying effects on banking sector development and stock market development (Akpo & Chuku, 2017; Allen & Gale, 2004; Bundoo, 2017; Mlachila, 2017). It can positively impact banking sector development and stock market development through increasing competition therefore efficiency, transferring technology and innovation from developed markets and attracting foreign capital. At the same time, it can bring instability through transmission of shocks' intense competition. The implication is that regional integration can have positive and negative effects on developments of banks and stock markets. There is evidence showing that the effect of regional integration is determined by the level of development of financial markets in general and of the specific components of the financial markets in particular. For example, Beck, De Jonghe and Schepens (2013) show that the severity of the negative impact of integration on bank fragility can be influenced by the state of development of stock markets. At the same time, the impact of the transmission of shocks could have a disproportionate effect on financial markets, and its various components (Agca, Nicolo & Detragiache, 2015; Bae, Bailey, & Mao, 2006; Boako & Alagidede, 2017; Zhang, 2011). The implication is that integration can tilt the land scape in favour of one component against the other, resulting in the sector at an advantage displacing the one negatively affected. At the same time, regional integration can enhance the development of both the banking sector and stock market though with different magnitude. Therefore, this study hypothesises that regional interaction can enhance the development of banks and stock markets resulting in them being substitutes in funding the same economic units

(Demirgüc-Kunt & Maksimovic 1996; Yartey (2008). The substitution effect could be increased by the dipropionate effect of regional integration on banking sector development and stock market development.

To achieve the objectives of the thesis, the following hypotheses are tested:

1. Banking sector development and stock market development are complements in funding economic growth in SADC.
2. Rule of law depresses banking sector and stock market development thereby promoting a complementary relationship.
3. Regional integration has disproportionate effects on banking sector development and stock market development thereby promoting substitutability between the two.

1.6 Justification of the study

Owing to the size of the variance in results obtained both in terms of numbers and conclusions, no single study can resolve these conflicts because even that new attempt suffers from some if not all the factors affecting earlier results. This calls for diverse ways of approaching the research problem. Since results from earlier studies are proving to be proxy sensitive (Nyasha & Odhiambo, 2014), the current study helps by utilising different proxies as well as composite indexes to provide comprehensive results on the subject matter. The current study differs from previous studies in the following ways: (1) it measures banking sector development using four proxies namely broad-based index, private credit extended by banks (size), net interest margin (banking efficiency) and z-score (banking stability). These proxies are important because the study takes a broad

definition of banking sector development than previous studies. For instance, a stable banking sector is important because it reinforces trust, manages financial risks, maintains employment levels close to the natural rate and ensures price stability. At the same time, banking sector efficiency promotes optimal allocation of resources at the least cost thereby increasing productivity (Cihak & Hesse, 2010). This does not only make the study unique but also comprehensive. The composite index is created using (1) different dimensions as opposed to previous studies that combined similar dimensions to create a single index; (2) the study uses a broad-based stock market development index, stock market capitalisation (size), stock market value trade (liquidity) and stock market turnover ratio (efficiency) to measure stock market development; (3) the study addresses the weaknesses of previous studies that have used indexes only by using the broad-based indexes in conjunction with single dimension measures in order to facilitate easy policy making through targeting specific variables; and lastly, the study examines the impact of institutional settings namely regional integration and rule of law on the relationship between banking sector development and stock market development.

Understanding the relationship between banking sector development and stock market development is important for SADC countries and other developing countries alike. Firstly, banks and stock markets are the largest and most important components of financial markets in SADC countries. Secondly, most countries are bank- based but of late there has been spirited efforts towards developing stock markets to provide support in funding growth. Considering these initiatives, it becomes important to examine how banking sector development and stock market development relate especially considering conflicting theoretical explanations and empirical evidence from research. This helps to

shed light on how these two components will exist together in funding economic growth and inform policies that need to be established to achieve a best mix of these two components. Also, with the increase in the number of Regional Economic Communities in Africa and other regions, results from SADC may help to shed light on how these economic groupings affect financial markets and the interaction among its components in the respective regions and individual countries (Bundoo, 2017). The study is therefore important because it helps to inform policy formulation on how countries in the SADC can develop the banking sector and stock markets as well as how to determine the appropriate mix of banks and stock markets in order to effectively fund economic growth in the region. Also, the study helps to evaluate the impact of regional integration and rule of law on funding economic growth thereby providing evidence that can be used by the SADC region in designing future protocols as well as revising the current ones.

Otchere et al. (2017) gave insight into factors that justify carrying out a study in the SADC as a region. Firstly, there are few research studies conducted in financial markets in the SADC compared to Latin America and Asian. There is no earlier research that has looked at the relationship between banking sector development and stock market development in SADC as a whole. Secondly, experiences and characteristics such as regional integration and rule of law of SADC differ with other regions, signalling the possibility of different relationships. To date, evidence shows that results on relationships between liberalisation, financial integration, financial sector development, firm financing and economic growth vary according to countries and regions (Adam & Tweneboah, 2009; Bundoo, 2017; Demirguc-Kunt, Beck & Honoham**,** 2008; IMF, 2016; Lucey & Zhang, 2011; Njikam, 2017). For instance, the SADC has been pursuing policies such as regional

integration through signing of various protocols and industrialisation through coming up with the Industrialisation Strategy and Roadmap 2015-2063. Moreover, the SADC as a region is characterised by high levels of inequality among citizens, substantial levels of capital flight, mixed levels of press freedom, and significant levels of urban to rural migration as citizens seek greater economic opportunities. Lastly, the recent global fiscal crisis introduced different risks from those usually faced by countries and institutions within them. Behaviour of investors, products developed and regulations by policy makers are changing to reflect these developments. Considering these changes, Neal (2016) confirms earlier assertions by Cuyvers (2005) on time variability of returns and economic relationships, bolstering the need to continuously carry out research to capture this dynamism.

To the benefit of this study, SADC supplies a unique sample characterised by differences in policy frameworks, level of economic and financial development, protocol declarations, charters, and geographical proximity (Chiwira, Bakwena, Mupimplila, & Tlhalefang, 2016). Bundoo (2017) asserts that SADC can be used as a pilot case to inform policy that focuses on regulatory, technological and operational changes meant to promote inter-region trading, portfolio investments and inter-regional company funding. SADC is important for Africa and the world at large for the following reasons: Bank development and penetration is higher in Southern Africa than in any other part of Africa, with South Africa leading the pack (Dermiguc-Kunt & Klapper, 2012; Maredza, 2015). As a block, it has three times the average per capita income of SSA, it accounts for half of SSA GDP and it has the most developed stock markets in the region though most economies are bank-based (Chiwira et al., 2016; World Bank, 2012). In the whole of Africa, SADC has

the highest number of international financial centres compared to any other regional grouping (Global Financial Centres Index, 2015). As such, SADC can serve as a conduit for channelling investment into Africa since it provides greater diversification benefits (Otchere et al., 2017).

Differences between developing and developed countries and among developing countries in terms of economic activity, legal frameworks, political risk, access to information and individual investor activity are likely to have a material impact on results such that results obtained in other regions might differ from those in SADC. A distinct set of proxies will be used and variables such as capital flight, population density, industrialisation, urbanisation, inequality, exchange rate regimes, press freedom will be tested on banking sector and stock market development, a departure from earlier studies.

1.7 Organisation of the study

Having looked at the introduction and background to the study in chapter 1, the rest of the study will be organised as follows:

Chapter 2: Overview of Southern African Development Community (SADC)

The chapter supplies an overview of the SADC regions in terms of the various dimensions that reflect its state of development. It highlights the characteristics of banks, stock markets and other financial institutions found in the region. Also, policy initiatives put in place are brought to the fore and the behaviours of a variety of economic indicators such as inflation, growth in income and economic growth are also examined.

Chapter 3: Banking sector development, stock market development and economic growth

The relationship between financial institutions, markets, financial structure, and economic growth is discussed in this chapter and looks at the theoretical and empirical reviews. It also looks at the connections between the banking industry and the stock market. The literature on the growth of the banking industry and stock markets is also examined in this chapter. It examines the theories that underpin the growth of financial markets as well as theoretical literature and empirical data on the factors that influence the development of the banking industry and the stock market. The chapter continues by examining the relationship between economic integration and the growth of the financial sector, with a focus on how banks and stock markets operate specifically.

Chapter 4: Research methodology

The methodological decisions used in this study are covered in detail and justified in this chapter. It provides a summary of the methodological concerns involved in the present study. The emphasis is on demonstrating the suitability of techniques employed, the thinking behind decisions, and the countermeasures taken to weak points identified. It provides a thorough justification of the estimation methods used, the research design chosen, and the various tests that were carried out. The chapter discusses the various models that were tested in the study and their specifications.

Chapter 5: Analysis and interpretation of findings

The results from the estimated models are presented and explained in this chapter. It also explains the steps taken to create the indexes and measures the growth of the banking industry and stock market. Additionally presented and analysed are the results of endogeneity tests, correlation analysis, descriptive statistics, and unit root tests.

Chapter 6: Discussion of findings, conclusions and recommendations

The chapter summarises the findings from the earlier chapter and draws conclusions consistent with the study's goals. Additionally, recommendations are given in accordance with the findings. The chapter concludes by pointing out the shortcomings of the present research and areas that need more investigation.

2 CHAPTER 2: OVERVIEW OF THE SOUTHERN AFRICAN DEVELOPMENT COMMUNITY (SADC)

2.1 Introduction

Having looked at the introductory chapter that brought out the research gap and the need to study the relationship that exists between banks and stock markets in SADC, this chapter gives a microscopic view of the socio-economic development indicators in the region. The focus of the chapter is to highlight the characteristics of the financial sector in SADC countries and the how the same have evolved over time. It dwells on shedding light on challenges and gaps that still exist despite initiatives taken by member states to address the same. To achieve this, the chapter gives an outline of policies that have been pursued to date and how macroeconomic indicators have performed over years.

2.1.1 SADC Objectives and Policy Initiatives

The Southern African Development Community (SADC) was formed in 1992, as a successor to the Southern African Development Community Conference (SADCC) set up in 1980 by Frontline States that include Zambia, Mozambique, Tanzania, Angola, and Botswana. Currently, SADC consists of 16 member states, namely Angola, Botswana, Comoros, Democratic Republic of Congo, Lesotho, Namibia, Tanzania, South Africa, Madagascar, Seychelles, eSwatini, Malawi, Mauritius, Mozambique, Zambia, and Zimbabwe. The current study however will not include Comoros data as it was only admitted into SADC in 2017. The formation of SADC was informed by a common desire among member states to improve the economic wellbeing, promote social justice, improve standard of living and quality of life, ensure peace and security, and guarantee

freedom and a quality life for citizens. Specifically, the region aimed at shaping a common future that is driven by self-sustaining development based on collective self-reliance and interdependence among countries (SADC, 2009).

To achieve these aims, SADC produced policy prescriptions with the aim of driving region development and integration. Some of these initiatives are discussed next.

2.1.2 Committee of SADC Stock Exchanges (CoSSE)

Recognising the centrality of stock markets in achieving SADC aims and the limitations inherent in small markets found in individual countries, the Committee of SADC Stock Exchanges (CoSSE) was formed in 1997. COSSE was formed with the aim of promoting the development of stock markets that appeal to local and international investors through increasing cooperation among member stock exchanges, transfer of ability, harmonisation of policies and increasing market liquidity. The thrust was to develop a regional stock market through interconnectivity, which could attract much needed capital into the SADC region. CoSSE membership is currently made of 13 countries with functional stock markets in SADC namely Angola, Botswana, eSwatini, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Tanzania, Zambia, and Zimbabwe (Shipalana & Moshoeshoe, 2019). Notwithstanding more effort needed and the challenges still existing, CoSSE has made progress in improving connectivity and setting up the SADC Brookers' Network. The Brokers' Network is meant to ease sharing of information, improve data gathering and increase cross boarder trading of shares. Such an initiative is expected to increase the liquidity of local markets through attracting local and international investors. At the same time availability of information improves efficiency

while increase in trading activity and competition among individual exchanges should reduce transaction costs.

2.1.3 Regional Indicative Strategic Development Plan (RISDP)

The SADC RISDP was developed as a roadmap to supply strategic direction to member states concerning political, economic and social goals to be achieved within the region. Therefore, it is a policy document that sets out indications in terms of targets and timeframes that should be met in order to achieve SADC goals and objectives (SADC, 2003). The RISDP recognises positive economic progress registered in the 1990s but observe that such progress is not enough especially considering that a number of countries were dogged by decreasing per capita income, low levels of growth, excessive budget deficit and external debt and low savings and investment among other challenges. The RISDP acknowledges that limitations in terms of type of financial intermediaries, instruments traded, few market participants and low capitalisation were an obstacle to attract savings and foreign direct investment (FDI). As such, the strategy was to use CoSSE to improve liquidity of derivatives, equities and bond markets in the region. In the social arena notable challenges range from decreasing life expectancy, extreme poverty levels, increase in HIV infections and shortage of skilled labour in some critical sectors of the economy.

To improve integration and achieve macro-economic convergence, SADC member countries agreed to enter a variety of protocols that will promote corporation in areas of economic and social development. These initiatives were aimed at creating a conducive environment to support sustainable economic growth and stability that guarantee poverty

eradication and income equality among SADC citizens. To check progress, the RISDP set targets against which performance will be measured. Some of the set targets are presented in Table 2.1

	2008	2012	2018
Level of savings	25% of GDP	30% of GDP	
Domestic investment	30% of GDP		
Current account deficit	9% of GDP	9% of GDP	9% of GDP
Annual Inflation	Single digit	5%	3%
Public debt	60% of GDP	60% of GDP	60% of GDP
Credit to SMEs and woman	5% of total private credit		

***Table* 2- 1: RISDP targets and time frames** (SADC, 2003)

SADC countries also undertook to diversify their industrial structures and export composition by 2015 with the intention of fostering inclusive growth and reduce vulnerability to external shocks. Member states were to focus on value addition as well as increasing the contribution of manufacturing sector as percentage of GDP to 2015 by 2015. All these measures were supposed to support a minimum growth rate of 7% per annum going forward (ADB, 2019). According to the ADB, the region set quantitative targets that were supposed to be used to assess progress. These targets were set for 2008, 2012 and 2018. After assessments on these set dates and targets, SADC will then put in place other plans for the future. Countries in SADC have registered various levels

of success in terms of achieving these targets owing to various reasons that range from political instability, vulnerability to external shocks to poor economic policies.

2.1.4 SADC Industrialisation Strategy and Roadmap 2015-2063

Having realised that intra-SADC trade constituted 17% of total SADC trade, dominated by unprocessed primary goods from the extractive and agriculture sector despite past efforts and strategies that were put in place, SADC member states agreed in 2015 to produce an industrialisation strategy that seeks to boost productivity, develop infrastructure and promote technology development. Cognisant of the problem of lack of funding, industrialisation strategy was anchored on establishing a region development fund, public private partnerships and funding from international partners (SADC, 2015). It recognises the need for financial deepening as well as strengthening regional integration as the cornerstone of the industrialisation and modernisation strategy. The following quantitative objectives were specifically spelt out in the strategy:

- “To lift the regional growth rate of real GDP from 4 % annually (since 2000) to a minimum of 7 % a year.”
- “To double the share of manufacturing value added (MVA) in GDP to 30 % by 2030 and to 40 % by 2050, including the share of industry-related services.”
- “To increase the share of medium-and-high-technology production in total MVA from less than 15 % at present to 30% by 2030 and 50 % by 2050.”
- “To increase manufactured exports to at least 50% of total exports by 2030 from less than 20% at present.”

- “To build market share in the global market for the export of intermediate products to East Asian levels of around 60% of total manufactured exports.”
- “To increase the share of industrial employment to 40% of total employment by 2030.”

The strategy targets economic stability in the region through fostering economic diversification, deeper regional integration, inclusive growth, enhanced competitiveness and reversing the deindustrialisation trend (SADC, 2015). Considering these targets and other initiatives put in place, the next section gives an account of how member states have performed with respect to benchmarks set in the RISDP and the industrialisation roadmap.

2.2 Macroeconomic indicators in Southern African Development Community

Countries in in SADC exhibit varied characteristics in terms of economic infrastructure, political stability, economic size, resource endowment and financial openness. These differences affect economic performance as well as contributions to the region’s economic performance. Angola, South Africa, and Zambia are the largest economies, contributing 81.9% of the region’s GDP whereas Comoros, Lesotho and eSwatini contribute a paltry 1.2%. Owing to political instability and poor economic performance Madagascar, Mozambique and Zimbabwe are considered fragile states while on the other side of the spectrum Botswana, Mauritius, Namibia, South Africa and eSwatini are ranked as middle-income countries (ADB, 2019).

2.2.1 Economic growth

In terms of economic significance, SADC contributes half of SSA GDP, making it the largest regional economic grouping in SSA, with the highest per capita income in the region (Burgess, 2009). Growth in SADC has been driven by the extractive sector and to some extent by the service sector (tourism) mostly in smaller countries of the region. Except South Africa and Zimbabwe that have capacity to produce capital and intermediate goods, 90% of SADC exports are made of primary goods (minerals and agriculture produce). This has weighed down the region's capacity to grow although in the last decade growth has been witnessed even in non-resources rich countries. Inability to generate savings has also been another hindrance to growth in the region. For example, from 1980 to 1999, regional Gross Domestic Savings fell short of Gross Domestic Investment by 2.7 %. With little savings, financial institutions are not able to extend funding to the most productive sector. Also, such shortages in savings put upside pressure on interest rates, making investments dearer (African Economic Outlook, 2013; SADC, 2003).

Growth has been subdued by developments in international markets owing to reliance on exports of primary goods as the main foreign currency earner. Huge external debts have also made countries in the region more susceptible to changes that impact interest rates and the value of local currencies. During the global fiscal crisis, growth in SADC fell from 5.1% in 2008 to 0.5% in 2009 and ever since the region has been growing at a decreasing rate (see Figure 2-1). GDP per capita rose from $1847 in 2007 to reach a peak of $2440 in 2011. Thereafter, it has been decreasing owing to pressure from depreciating currencies of member countries (SADC, 2016). Off late growth in SADC fell from 4%

recorded in 2010 to 1.2% in 2018 because of rising government debt, high inflation and soft commodity prices. The trend is expected to change with growth rising to 2.2% in 2019 and 2.8% in 2020 (ADB, 2019). SADC's performance in terms of economic growth and income levels has been on a downward trend owing to a variety of risks ranging from susceptibility to external shocks, government debt, rising inflation, soft commodity prices and exchange rate depreciation. These factors do not only reflect weaknesses inherent in the economic structures of SADC countries, but also risks that can severely stifle development of the financial system. Relying on exports from mineral revenue reflects economies that are not diversified well enough to sustain growth even when commodity prices are falling. When financial markets are well developed, they should increase the ability of countries to absorb risk from events like the global fiscal crisis at the same time they will be deep enough to allow government to raise capital without crowding out private investment.

SADC has prioritised the manufacturing sector as the key driver of industrialisation, economic growth and poverty reduction. The thrust is to grow the manufacturing sector as a way of diversifying the economies and reduce unemployment (SADC, 2016). Despite such prioritisation, the contribution of manufacturing sector to GDP has been decreasing over the years (see Figure 2-1). During the same period, the manufacturing sector has grown at a steady rate, except in 2009 (SADC, 2016). Despite this past growth, GDP growth rate and manufacturing sector output took a sharp decrease in 2020, reflecting the devastating effects of the COVID 19 pandemic. Globally, the contribution of manufacturing sector to GDP has fallen by 6 % over the past two decades. At the same time, the share of services in GDP has increased by 10% (World Bank, 2017). Important

to uncover is how such developments impact financial markets in SADC. This becomes pertinent considering Afful's (2018) suggestion that stock market capitalisation is less sensitive to industrial sector than the service sector. If this assertion holds true for SADC, then prioritising manufacturing sector's contribution to growth could have no or negligible impact on stock markets in the region.

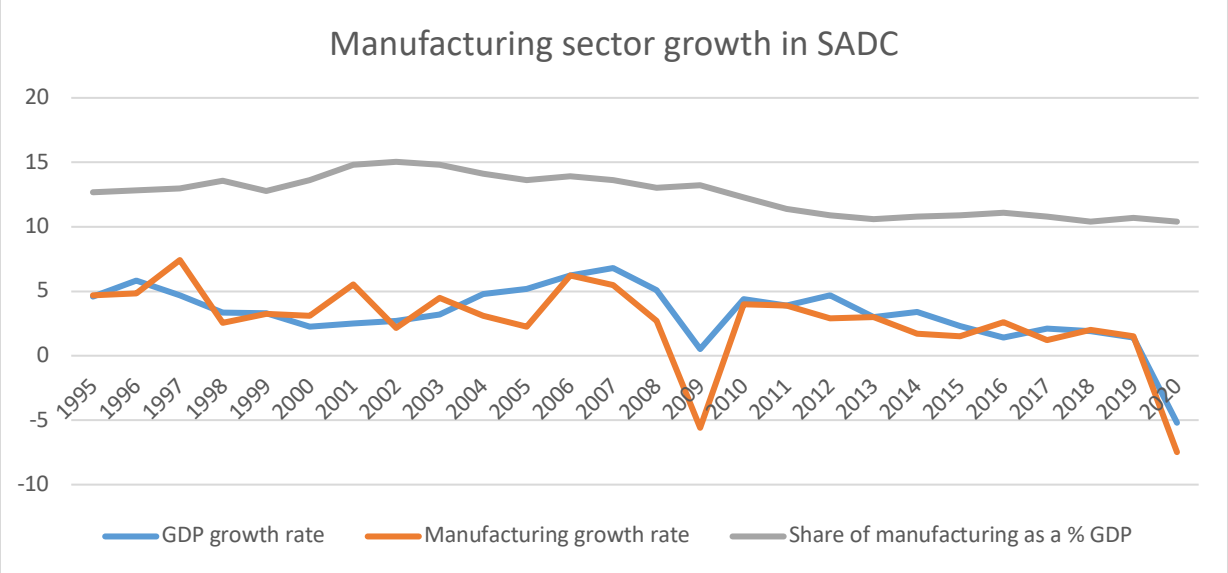


***Figure* 2- 1: Manufacturing sector growth in SADC** (Author compilation)

As firms grow or expand their output, they require capital in the form of debt and equity to fund their operations. Such demand can have a positive effect on the growth and development of financial markets if the demand following hypothesis by Patrick (1966) is anything to go by. For example, Lowry (2003) found Initial Public Offer (IPO) patterns to follow business cycles, economic trends, investor optimism and emergence of new industries. Dimson, Marsh and Staunton (2016) and Neal (2016) attribute early development of financial markets to the boom in railroad construction (railroad age) in 1830 and huge demand for resources to fund wars between the British and the French Revolutionary armies after 1793. In the UK alone, railroad companies accounted for 50%

of stock market value while it as 63% in the USA. The observations show that economic structure could have a bearing on the development of financial markets.

Figure 2-2 brings out significant disparities in average income levels among SADC countries for the period 1995 to 2020. Notable differences exist between Seychelles, Mauritius, Botswana, and South Africa on the upper end while Malawi, DRC, Madagascar, and Mozambique occupy the bottom end. Insightful as it is, Figure 2-2 does not show how the income is distributed among citizens. South Africa, the most developed economy in SADC, tops the list of income inequality in the region and among the most unequal societies in the world (ADB, 2019).

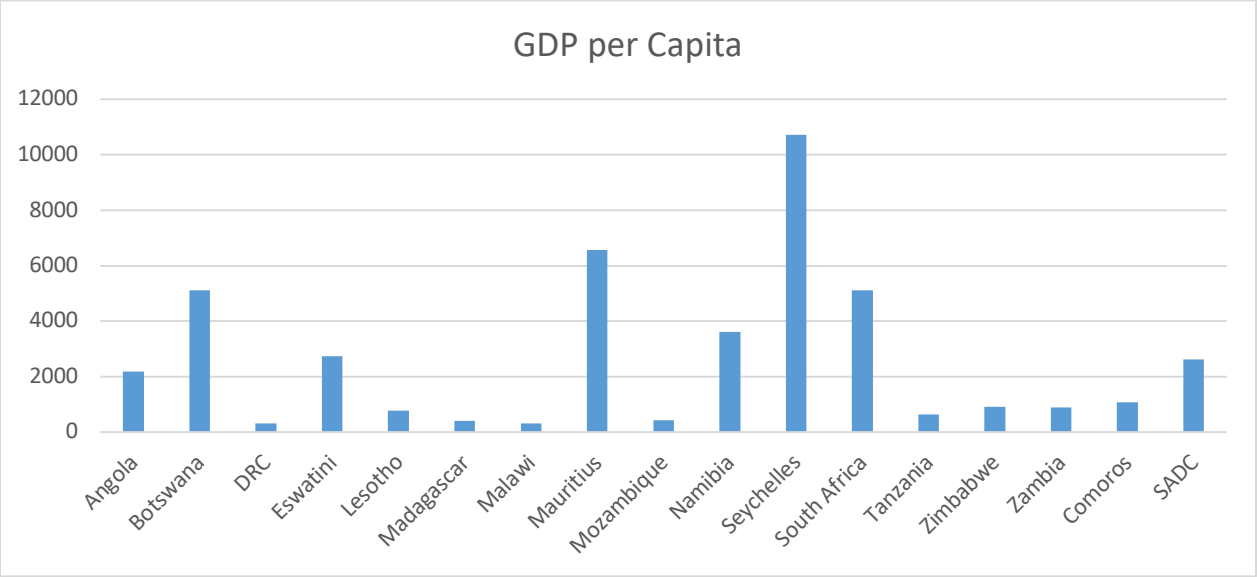


Figure 2- 2: Average GDP per capita (Market Price) in SADC (US $) (1995-2020)

(Author Compilation)

Looking at GDP per capita levels and GDP growth rate joint shows that income levels were increasing at a higher rate in countries with lower income than in higher income countries as shown in Figure 2-3. Mozambique, Tanzania, Mauritius, and Zambia

recorded higher income growth rates, suggesting positive impact of natural resources and better economic policies compared to the past.

However, Madagascar and Zimbabwe tell a different story. Prolonged economic crisis and political instability in Zimbabwe over the past decade has hit hard on the country's productive ability, levels of unemployment and poverty, showed by a negative per capita growth rate. Madagascar has been dogged by political, social and governance challenges that ended after democratic elections in 2014.

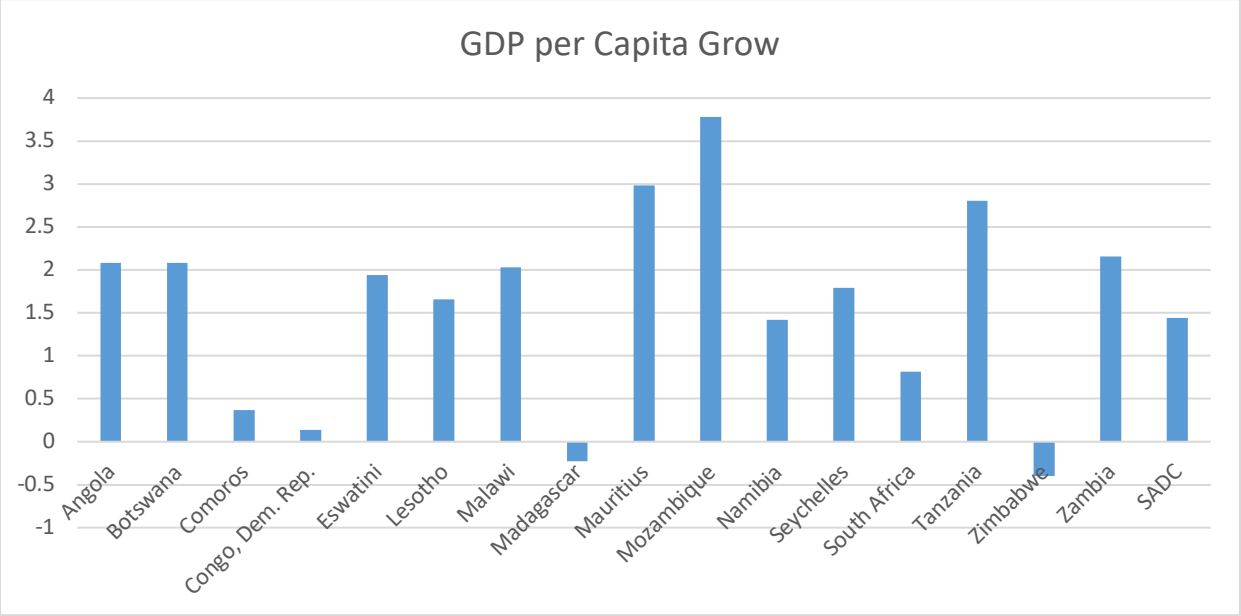


Figure 2- 3: Average GDP per capita growth rate in SADC Countries (1995-2020)

(Author compilation)

In 2018 growth in SADC was led by Madagascar which grew by 5%, followed by Botswana at 4.2% and Zambia 4%. On the other hand, least growth rates were recorded in Angola at –0.7 %, eSwatini –0.5 %, Namibia –0.1%, South Africa 0.7 %, and Lesotho 0.9 %. These figures indicate that SADC countries have failed to meet the minimum 7%

benchmarks set in the RISDP and the industrialisation strategy, though countries such as Angola have occasionally surpassed this target. Resultantly, countries have failed to reduce poverty and inequality levels. SADC has not only underperformed against targets set in RISDP, but the region has lagged behind other regions in Africa as shown in Figure 2-4. Southern Africa only managed to surpass Central Africa in 2017 and 2018 but in 2019 it was outperformed by all regions. In the year 2020, all regions recorded negative growth rates owing to depressed economic activity caused by the COVID-19 pandemic. Nonetheless, it worth noting that Southern Africa was only second North Africa in recording worst contraction in economic activity during the same years.

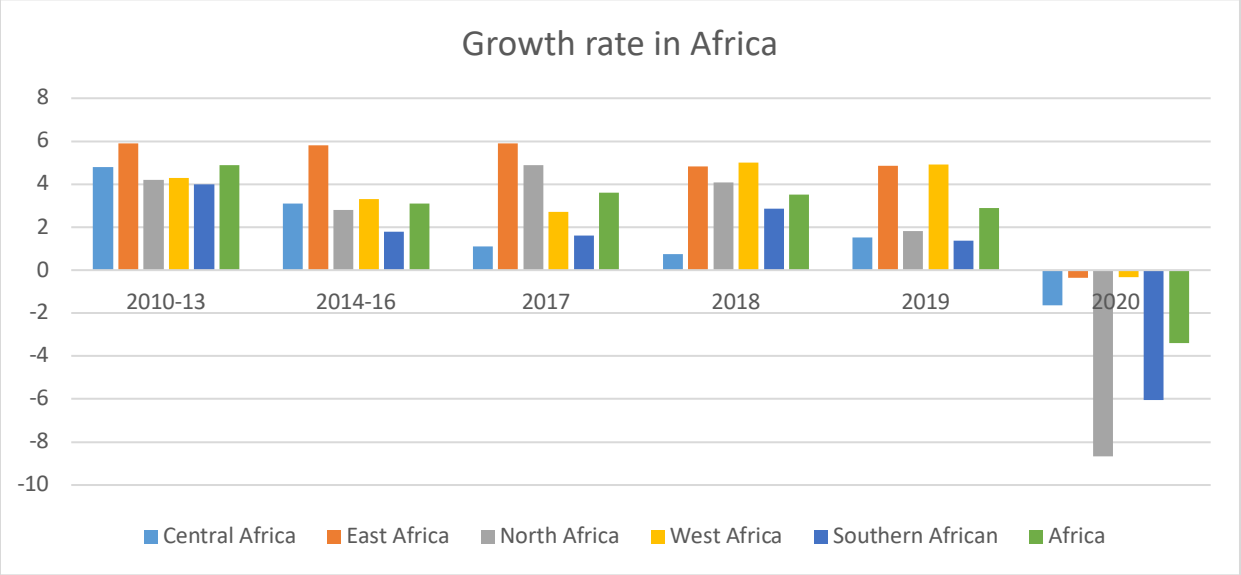


Figure 2- 4: Growth rates in African regions (Author compilation)

Relative to other regions, growth in SADC resembles higher levels of volatility, further indicating weaknesses inherent in the economic structures. This clearly highlights the need for corrective action driven by evidence-based policies to improve growth and reduce poverty in the region.

2.2.2 Inflation

Inflation remains one of the greatest threats to SADC efforts towards economic development, regional integration and poverty reduction. Positive strides have been made in stabilising inflation from the 1980s up to early 1990s. This has been attributed to sound economic policies and inflation targeting prioritised by member states. In 2002 the SADC region registered average inflation rate of 25% with the only outliers being Angola and Zimbabwe that had inflation figures above 100% (SADC, 2003). The greatest threat to progress in stabilising inflation in these countries emanated from civil wars and political instability. Higher rates of inflation beyond a certain threshold are detrimental to economic growth and the general welfare of citizens. Specifically for the SADC region, inflation levels beyond 14.5% supress development of the financial sector (Mahayiwa, 2015). Owing to elevated levels of economic instability that result in uncertainty as well as high interest rates, demand for deposits and loans from banks declines. Companies become reluctant to invest thereby reducing the country's productive capacity. The rate of unemployment starts to rise while at the same time consumer incomes are eroded, reducing demand for goods and services (Makuria, 2013). Noting the centrality of inflation to economic stability and poverty eradication, SADC countries put targets for single digit inflation in member states by 2008, 5% by 2012 and 3% by 2018. Owing to disparity among countries in terms of economic policies, political conditions and economic structures, performance in terms of inflation has also been different.

Countries such as Lesotho, Mauritius, South Africa, Botswana, Namibia, eSwatini, and Zimbabwe were able to keep single digit inflation rates for the period 2009 to 2012. DRC, Malawi and Tanzania have experienced more inflationary pressures compared to other

regional countries. Only Mauritius, Mozambique and Zimbabwe were able to meet the 2012 target of below 5% while the 2018 target of 3% was only met by Comoros that recorded 1.7%. Mauritius and Botswana missed the 2018 benchmark by 0.2% after recording a 3.2% inflation (SADC, 2018). There is notable positive inflationary development in SADC as most countries maintained single digit inflation figures beside missing on the RISDP targets. The major risk of inflation remains rising oil prices for most oil importing countries, droughts, food prices and instability in exchange rates (ADB, 2019; SADC, 2012). Going forward Angola and Zimbabwe remain at risk of being overwhelmed by inflationary pressures. In Zimbabwe, the liquidity crisis continues to exert upside pressure on prices while in Angola the major driver is exchange rate devaluations that are meant to reduce overvaluation of the exchange rate (ADB, 2019). These differences in inflation performance among member countries poses risks to efforts towards economic convergence and regional integration.

2.2.3 Regional Economic Integration and Trade

The region has been driving towards regional integration to mitigate the effects of illiquid, fragmented markets that are limited in depth and access. This effort has been spearheaded by signing of the Trade Protocol of 1996 and the Finance and Investment Protocol of 2010, among others. The aim of these policy initiatives was to create an integrated region in which capital, labour, goods, and services are freely mobile across-borders. These targets are envisaged to help develop the region by harnessing capital from the region and outside through FDIs, create stable financial markets characterised by breadth and depth as well as increase industrial ability through trade. SADC lined up several initiatives such as launching Free Trade Area in 2008, Customs Union in 2010,

Common Market in 2015, Monetary Union in 2016 and Common Currency to be introduced in 2018 (Zyuulu, 2010). Within the region, Lesotho, Namibia, South Africa, and eSwatini belong to a Common Monetary Union (CMU) and the addition of Botswana to the CMU created the Southern Africa Customs Union (SACU) (Motelle, 2013).

SADC was successful in setting up a Free Trade Area (FTA) in 2008 but few progress has been registered in establishing a Customs Union, Common Market, Monetary Union, and Common Currency. For instance, only seven countries have applied the Protocol on Free Movement of Persons (SADC, 2020). This has necessitated SADC countries to produce SADC RISDP 2020–2030 that seeks to achieve these failed aims.

Using a single currency allows adoption of a single monetary policy, ease competition among banks, reduce margins, enhance arbitraging and mergers and acquisitions in the financial sector (Duisenberg, 2000). Therefore, a broader customs and monetary union is expected to bring in stability in the monetary front and increase cross-border transactions among union members. It creates a bigger market there by attracting more capital from outside the region. Some of the protocols are discussed below:

2.2.3.1 Protocol on Trade

The Trade protocol was entered into in 1996 and ratified in 2003 with the endeavour to promote trade in goods and services among member countries. The motivation emanated from the realisation that enhancing trade in goods and services is important in attracting cross-border investments thereby promoting economic integration. Considering the small size of most of the SADC economies, economic integration is expected to create opportunities for growth through promoting investment, industrial development and

productivity (SADC, 2016). Introduction of the TP was expected to cut duty on imports and exports, promote unhindered movement of people, good and service and remove all other non-tariff barriers. To promote full corporation in areas of trade and investment, the TP set the following aims:

- To liberalise intra-regional trade in goods and services based on fair, mutually fair and beneficial trade arrangements.
- To ensure production efficiency anchored by comparative advantages of member states.
- To improve the climate for domestic, cross-border and foreign investment.
- To promote economic development through industrialisation and diversification.
- To set up a Free Trade Area in the region.

The positive impact of this policy initiative is showed by higher concentration of inter-regional trade in Southern African than the rest of SSA. SACU and SADC accounts for 50% and 70% of total SSA trade respectively (Arizala, Bellon & MacDonald, 2018). In line with evidence by Garali and Othmani (2015) who showed that trade openness is a major determinant of financial integration, this TP and later increase in trade is expected to foster financial integration through cross-border flow of funds and provision of other services such as risk management and insurance. At the same time, opening to trade attracts foreign investors that bring in foreign capital as well as increasing the exposure of local market players to international risk factors (Bekaert & Harvey, 2000). As a result, trade integration is expected to positively affect financial development through attracting

foreign investment, diversifying risks, increase economic of scale, and promote global integration.

2.2.3.2 Protocol on Finance and Investment (PFI)

The protocol looked to harmonise finance and investment policies of member states such that they are consistent with SADC objectives. This was to be achieved through economic integration, cooperation and coordination in areas of finance and investment to diversify and expand the productive sectors of the economy and promote trade in the region. The PFI situated harmonisation at the centre of its regional integration agenda. The underlying notion was that SADC could derive economies of scale from a large market that could easily attract foreign investment and ease regional trade. Competition among stock markets promotes efficiency that enhances SADC's capacity to accumulate savings, help innovation, stimulate investment, and fund long-term infrastructure developments (Shipalana & Moshoeshoe, 2019). Among other specific targets, the protocol looked to achieve regional development and poverty eradication through:

1. Creating an environment conducive to attract foreign investment.
2. Achieving economic convergence and stability in the region.
3. Cooperation among Central Banks in information and technology.
4. Promoting development of capital markets in the region.
5. Establishing a regional stock market.
6. Cooperate on bank supervision and checking of non-banking institutions.
7. Cooperation among Central Banks on facilitating payment, clearing and settlement of funds.

These initiatives towards harmonisation of operations among member states can reduce constrains faced by markets in SADC. Firstly, costs are reduced through eliminating duplication of processes thereby promoting development of financial markets. Secondly, an integrated market improves the market status through providing efficiency and flexibility required by investors. Thirdly, liquidity is enhanced through improvements in market activity (Shipalana & Moshoeshoe, 2019).

However, these policies face several challenges that include but not limited to lack of economic convergence, different economic policies and characteristics, lack of depth and liquidity of financial markets, difference in trading, settlement and clearing procedures. Other challenges come from failure to fully harmonise foreign investment policies, legal and regulatory regimes, and internal political instability in countries such as Zimbabwe, Angola, and Democratic Republic of Congo (African Financial Market Initiative, 2018). Lack of political will to give up sovereignty in policy making has also seen countries dragging their feet towards full integration. Another challenge emanates from the "spaghetti-bowl effect"[1] where a single country subscribes to multiple blocks that have different aims and protocols. This tends to delay trade instead of facilitating it (Kalenga, 2012). Currently, 13 countries in SADC belong to more than one regional economic grouping hence harmonising regional arrangements among these groupings can enhance trade through easing smooth flow of goods and services.

[1] "Spaghetti-bowl effect" is a phenomenon where a single country belongs to many trading blocks that have different trade agreements and protocols. This result in slow movement of goods and service between countries.

Countries such as Zimbabwe, Zambia, Angola, and Democratic Republic of Congo are members of both SADC and COMESA; Tanzania is a member of both SADC and East African Community while eSwatini subscribes to SADC, COMESA and SACU (Warin, Wunnava, Tengia, & Wandschneider, 2009). SADC (2014) attributes the failure to integrate to the desired level to this "spaghetti-bowl effect". However, there is considerable level of integration in five SADC countries that belong to the SACU (Aziakpono, 2006). This suggests that countries in the SACU were not only deriving benefits from the five-member customs union but also from the Common Monetary Authority (CMA). This has seen intraregional trade in SACU increasing from a paltry 4.5% of the union's total world trade recorded in 2009 to 14.7% in 2010 and above 13% thereafter. According to latest rankings by the Africa Region Integration Index (ARII) (2019) on trade integration, five SADC countries occupy position 1 to 5, namely, Eswatini (1), Namibia (2), Lesotho (3), South Africa (4) and Zimbabwe (5) while Botswana and Zambia occupy seventh and 17th place respectively. The ranking reflects the positive effect of SACU in liberalising trade thereby making member states highly interdependent. Though Zimbabwe is not a SACU member, it enjoys favourable tariff rates from the region. However, other SADC countries such as Madagascar, Tanzania, Mauritius, Angola, and DRC are classified as low performers with a score below 0.333.

In SADC intraregional trade rose from 19% of total world trade in 2008 to 22% in 2016 before sliding down to 20.4% in 2017 (ADB, 2019). Intraregional trade in SADC is higher than COMESA with 21 members and above the other eight regional economic communities except the EAC (ADB, 2019). However, in terms of regional integration rankings, SADC score lowest while EAC is ranked top (Africa Regional Integration Index,

2019). Following South Africa in terms of infrastructure integration are the Seychelles and Mauritius, whereas Eswatini, Namibia and Lesotho take the top spots for trade integration, as shown in Figure 2-5. Lesotho, Eswatini and Mozambique are the three nations with the lowest macroeconomic integration rankings, followed by Mauritius, the DRC and South Africa. South Africa and Mauritius consistently rank highly across all metrics, and their stock markets and banking systems are the most developed in the area. This pattern seems to point to a beneficial effect of regional integration on the growth of the banking industry and stock markets in the area. However, SADC is lagging behind the East African Community in each of the three categories. More effort needs to be directed towards increasing infrastructure and trade integration to increase size, competition and efficiency in financial markets.

Trade integration and sharing of regional infrastructure might influence financial integration and development of financial markets through increase in the number of transactions and activities underwritten by banks as trade increases. As countries trade there is increase in demand for services such as funding, cross-border payments, exchange rate risk management and correspondent bank. Trade leads to growth as companies exploit new opportunities in foreign countries and new entities will also appear. These firms are likely to demand more capital from banks and capital markets as they seek alternative sources of long-term capital to fund operations in a competitive manner. Such growth that usually result from more trade and sharing of regional infrastructure will positively influence development of financial market through higher demand of financial services as suggested by Patrick (1966). Kim, Lin and Suen (2010) collaborate these

assertions by finding complementarity between financial development and trade in 87 countries they studied over the period 1960 to 2005.

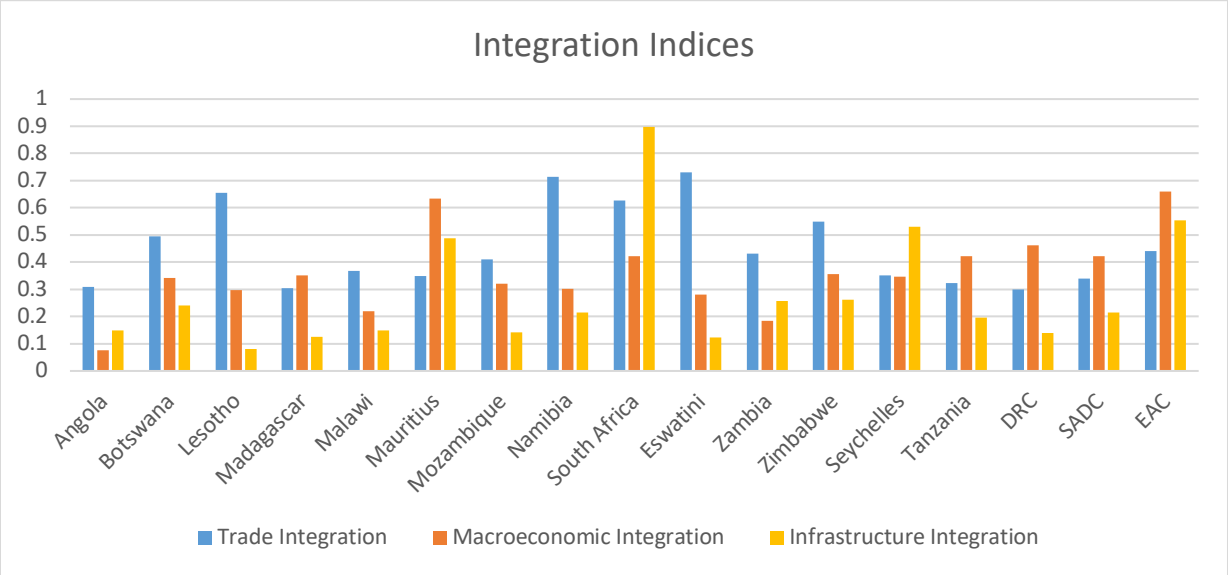


***Figure* 2- 5: SADC integration indices (2019)** (Author compilation)

Despite the well documented positive effects of financial integration, most countries in SADC are not connected to international markets resulting in low private capital and FDIs inflows (Bara & Le Roux, 2017). However, the desire to reverse this unhealthy economic quagmire through integration should not be followed blindly. Evidence on the ground seems to question the wisdom of integrating with international markets without internal policies that foster stability in local markets particularly considering the recent global financial crisis.

De Haas and van Leylveld (2014) and World Bank (2018) note that integration is not helpful if not complimented by internal policies as it leads to exposure to systematic risk in the form of shocks transition by international banks. Despite these warnings, the number of Regional Economic Communities (REC) continues to increase reflecting the

desire to open economies to regional and international markets. The 2008 global financial crisis confirmed fears expressed by De Haas and van Leylveld (2014) though it had less direct impact on African banks except for countries that are highly integrated with developed markets. Nyantakyi and Sy (2015) attribute Africa's high resilience to less integration. More integrated countries such as Nigeria and South Africa suffered from capital flight, depressed stock prices, decrease in credit extension, stringent lending conditions, and weak fiscal positions (Massa, 2009; Yabara, Mlachila, & Park, 2013). Banks came under pressure indirectly through decrease in exports, reduction in manufacturing output, and subdued domestic growth that increased nonperforming loans. Though there are notable risks that comes with integrating with international markets, Bundoo (2017), De Haas and van Leylveld (2014), and World Bank (2018) concur that the benefits far outweigh the costs. There is evidence of rising intraregional trade since 2007 owing to increases in regional integration efforts in SADC create hope that integration can insulate countries from effects of future global crises while at the same time pushing growth through increased demand and transfer of technology within the region.

The South African Reserve Bank (2014) also found evidence that regional integration had a positive impact on economic activity, this, especially, given the lack of economic diversification in most of the individual countries. With higher levels of reliance on single sectors such as mining, services and agriculture, the increase in intra trade can allow diversification at regional level. This route seems easier than trying to diversify the economies at country level. However, the benefits of regional trade are not completely

harnessed partly because countries produce primary raw materials while few countries have industrial ability to convert them into manufactured goods.

The most industrially developed and diversified country in the region (South Africa) dominates exports and imports of goods followed by Angola and DRC. Also, these countries that dominate trade also account for the largest population sizes in the SADC region with DRC leading the pack at 26.6% followed by South Africa at 17.1%, Tanzania 15.3% and Angola at 8.5%. The same countries registered higher growth rates in the manufacturing sector (DRC 8.6%, Tanzania 7.8%, and Angola 6.9%) compared to regional counter parties (SADC, 2016). This emerging trend in SADC seems to be making a compelling case for a positive relationship between population size, trade and manufacturing sector growth. However, the effects of these variable on financial sector development remain ambiguous.

2.3 Financial sector development in Southern African Development Community

The financial sector in SADC is made up of a variety of institutions that include insurance companies, pension funds, commercial banks, investment banks, asset management firms, microfinance institutions, bond exchanges and equity markets. The composition is tilted towards banks that account for most of credit extended to the private and public sector in SADC region though stock markets also to play a significant role in some countries such as Mauritius, South Africa and Zimbabwe. Countries with relatively higher incomes, Botswana, South Africa, Mauritius and Seychelles have International Financial Centres (IFC) and among these South Africa and Mauritius are ranked as global financial centres, making them two of the only three ranked centres in Africa (Global Financial

Centres Index, 2015).These centres benefit banking systems in the region but not all countries are deriving the spill over effects as expected (Bara & Le Roux, 2017; Naidoo, 2017; Nyantakyi & Sy, 2015). South Africa has the most developed financial sector in the region, made up of more sophisticated bond, equity and derivative markets as well as banking institutions (Mahawiya, 2015). The other SADC countries have recorded improvements owing to economic stability, increase in regulatory standards as well as efforts towards financial integration. However, financial markets in countries such as DRC, Zimbabwe and Madagascar have been affected by political instability that translated into policy inconsistence, high inflation levels and increased country risk.

2.3.1 Banking sector development

The dominance of banking sector or stock market vary across countries, regions and income levels. Countries in SADC as it is in most African countries have financial systems dominated by banks in terms of total assets and services as opposed to higher income countries that rely more on stock markets (Demirguc-Kunt & Levine, 1999; KPMG, 2015; Zajc, 2013). Though South Africa, Botswana, Mauritius, and Seychelles are classified as upper middle-income countries still banks are dominant players in these markets (World Bank, 2013). Similarly, Japan and Germany are considered bank based while United Kingdom (UK) and United States of America (USA) are classified as market based (Lee, 2012). As such, the level of income or development does not seem to explain differences in dominance of banks or stock markets suggesting existence of other crucial factors that explain the structure of financial markets.

The banking sector in SADC is still underdeveloped as seen by higher levels of financial exclusion and lower credit extension. Table 2-2 shows banking sector depth, stability and efficiency indicators in SADC countries. Banking sector depth as measured by credit extension to private sector as a percentage of GDP is the highest in Mauritius at 75.91% followed by South Africa and Namibia at 60.66% and 47.56% respectively. These higher figures compared to regional counterparts show that these countries have banking institutions that can intermediate savings. Extending more credit to the private sector is more desirable since this sector is more productive than the public sector (Akinboade, 1998). Therefore, this shows more allocative efficiency. This is a sign of availability of more investment opportunities in these countries compared to neighbouring countries (Tembo & Makina, 2020). Stable macroeconomic environment owing to low inflation and strong legal and judiciary systems prevalent in these countries might explain these high credit figures. Banks are more willing to extend credit to firms when there is high probability of repayment, and this is high in stable economies. In the same vein, when the rights of creditors are protected by the law and there is strong enforcement mechanisms, financial institutions extend more credit owing to easiness of seeking recourse in case of default or dispute.

The other remaining SADC countries have average credit to the private sector ratios below 25%, showing that little credit is being directed to the private entities. This could be a result of smaller banking institutions; more credit being directed to the public sector thereby crowding out private firms or fewer investment opportunities available. Another plausible explanation is restrictive loan conditions by credit institutions. In Madagascar, Malawi, and Zambia for instance, a third of companies in these countries report excessive

challenges in accessing credit while in Malawi, eSwatini, Zambia, and Zimbabwe, companies must provide collateral that is twice the value of the loan compared to Mauritius where only 60% of loan value is required (ADB, 2019). Such restrictions show elevated levels of inefficiency that could be emanating from lack of competition in the banking sector.

The sector is oligopolistic, characterised by dominance of a few international banks. This result in inefficiencies owing to collusion and other non-competitive behaviours. Such behaviour result in wide interest rate spreads, lower savings and expensive loans. Owing to elevated risk aversion that characterise banks in such markets, more credit is given to the government since it is considered less risk compared to the private sector. Contrary to expectations, competition levels are high in eSwatini, Lesotho and Malawi as shown by lower Boone indicators of -23, -0.16 and -0.11 respectively (see Table 2-2). Countries with the most developed systems, South Africa and Mauritius, are showing lower levels of competition. Such a scenario could be explained by the contestable market theory which postulates that even a highly concentrated market can still be competitive (Baumol, 1982). However, high interest spread in Angola, Malawi and Madagascar reflect high cost of intermediation owing to inefficiencies usually associated with higher concentration levels (ADB, 2019). What remains to be seen is whether the rapid development of stock markets in SADC countries could help to increase efficiency through providing competition to banks as an alternative source of funding.

The broad money measure as a percentage of GDP show that Mauritius has the most developed sector followed by Seychelles, South Africa and Namibia. The broad money measure reflects the liquidity of the bank sector, hence countries with a higher ratio have

bigger and deeper banking sectors. The other countries in the region have smaller banking sectors characterised by less liquidity as shown by broad money ratios that are below 45%. Despite this low level of liquidity, the banking sectors of most SADC countries stay sound and stable as shown by higher Z-scores. This suggests presence of high profitability, capital adequacy and conservatism in expending credit as shown by lower levels of lending to the private sector in most countries. Only Mozambique and Zimbabwe reflect high probability of insolvency, a manifestation of fragile legal framework. Several banks in the Mozambique such as Nosso Banco, Caixa Cooperativa De Credito and Micro Banco Fides Mocambique went through liquidation while in 2016 the Central Bank of Mozambique had to intervene in Moa Banco (ADB, 2019). In Zimbabwe, high levels of inflation and economic instability has resulted in a fragile banking sector characterised by closures of mostly indigenous banks over the past two decades.

Financial integration has seen South African banks setting up branches in countries in the SADC region except in Madagascar. Similarly banks from Zimbabwe (BancABC), Togo (Ecobank) and Mauritius (FMBcapital) have also penetrated markets in SADC. Such developments are expected to improve quality and reduce cost of financial services owing to competition. However, this development alone will not counter other weaknesses inherent in these banking systems. For instance, Madagascar and Zambia have the highest dominance of foreign banks but they still rank low in terms of credit extension, suggesting negative effects of relying on external financial institutions.

Country	Credit to private sector as a % of GDP (1995-2020)	Broad money as a % of GDP (1995-2020)	Bank Z–score (1995-2017)	Boone Indicator (2016)
Angola	11.16	27.88	10	-0.03
Botswana	24.23	40.86	8.11	-0.08
DRC	3.88	8.36		
Lesotho	14.84	33.06	8.47	-0.16
Madagascar	9.87	20.59	6.26	-0.01
Malawi	7.66	18.25	14.49	-0.11
Mauritius	75.91	96.29	17.27	-0.01
Mozambique	16.80	31.46	4.27	-0.06
Namibia	47.56	48.73		-0.01
Seychelles	23.49	80.74		
South Africa	60.66	60.60	21.34	0.02
eSwatini	17.39	23.06	9.17	-0.23
Tanzania	8.75	20.27	11.92	
Zambia	9.39	19.56	8.13	-0.07
Zimbabwe	21.67	33.27	3.34	-0.08

***Table* 2-2 : SADC banking sector development indicators** (Author compilation)

Though banks are better developed and more resilient compared to stock markets in SADC, the sector is characterised by inefficient intermediation, high concentration, small size, foreign domination, low financial literacy, large informal sectors, weak contractual mechanisms and poor judicial enforcement frameworks (Andrianaivo & Yartey, 2010; Beck et al., 2011; McDonald & Schumacher, 2007; Mlachila, Dykes & Ncube, 2013; Yabata et al., 2013). Underdevelopment is exacerbated by lack of consumer information, corruption, policy uncertainty, lack of physical infrastructure, and limited skills (Dyke, 2013).

Though credit extension has gradually improved from 2000 to 2012 and the decade before, the levels still are below global standards and the gap seems to be widening (KPMG, 2016; 2015). As a result of an underdeveloped banking sector, a considerable number of low income and rural residents in SADC countries stay financially excluded

despite constituting a larger percentage of the total population. This leaves them without crucial services such as health and life insurance, affordable loans, and savings accounts for storing wealth and making payments. One pertinent issue coming out is that foreign domiciled banks might not have the capacity to swiftly respond to needs of low-income consumers found in less developed countries. As such, microfinance institutions have come in to bridge this gap even though most of the products they offer seem not to reflect peculiarities of African countries particularly in rural areas. Instead, they have also followed traditional banks in trying to condition users to meet their product design rather than designing products that meet the needs of citizens who have low and seasonal income.

The following section gives an account of the level of financial inclusion and the impact of microfinance institutions in SADC.

2.3.2 Microfinance institutions and financial inclusion

Karim, Hanouch, Ketley, and Sibanda (2011) contend that the largest driver of poverty and inequality is lack of access to credit. The SADC financial inclusion Access Strand shows that inclusion is low with 34% being excluded, 12% using informal sources, and 18% using other non-bank formal channels while 36% are banked (SADC, 2016). Access varies across countries within the region, with Namibia, South Africa, Botswana, and Mauritius topping the rankings while low-income countries dominate the bottom as shown in Table 2-3.

Despite having 50% of residents using banking institutions in Botswana, the number of people using informal services are still highest at 39%. Lesotho and Zambia have a

significant number of people that rely on informal service as well. Usually, these services are usurious, and loans extended from these sources are small and short-term in nature. As such, they create a vicious cycle of poverty. Owing to lack of credit bureaus in most SADC countries, there is shortage of information about creditworthiness of clients. As a result, banks shy away from lending to individuals and micro small to medium enterprise because of perceived riskiness (Bayai, 2017).

Country (%)	Banked (%)	Other Formal (%)	Informal (%)	Financially Excluded (%)
Mauritius	85	3	2	10
South Africa	75	5	6	14
Namibia[2013 BS]	62	3	4	31
Namibia [2011 FS]	62	8	3	27
eSwatini	54	10	9	27
Botswana	50	18	39	24
Zimbabwe	30	39	8	23
Lesotho [2013 BS]	30	39	8	23
Lesotho [2011 FM]	38	20	23	19
Malawi	27	7	15	51
Zambia [2015 FM]	25	13	21	41
Tanzania[2013 FM]	14	43	16	27
Mozambique	20	4	16	60
DRC	12	24	12	52

***Table* 2- 3: Access strand statistics for selected SADC countries (2014)** (BankSeta (2013:10); FinMark Trust (2016:27-82))

The substantial number of people use informal and other non-banking channels to meet their financial needs prove that those excluded (usually rural and low income) people need financial services. To bridge this gap, innovations such as credit cooperatives, burial societies and microfinance have been developed to meet the same needs catered for by banks and insurance companies in urban cities.

Financial inclusion has taken centre stage owing to its impact on poverty, job creation, establishment of new firms, and supporting growth of existing companies (Aveh, Dadzie,

& Krah, 2013; Bredberg & Ek, 2011; Johnson, 2015). In a bid to reduce poverty and increase economic growth as espoused in the SADC RISDP, countries in the region have vigorously pursued policies aimed at reducing financial exclusion. Table 2-4 shows the state of financial inclusion in the SADC region. The most bank penetration is found in Seychelles, followed by Namibia and Mauritius. With 2424.76, 1914.48 and 1154.45 bank accounts per 1000 adults respectively, these nations have the highest bank account density. For every 100,000 residents, Seychelles has 89.99 automated teller machines (ATMs) and 42.36 bank branches. With 18.14 branches per 100,000 residents, Mauritius is second in terms of branch outreach, behind Namibia and Eswatini. Seychelles shows higher levels of automation at 89.99 ATMs per 100 000 people, a sign of high technology adoption compared to regional peers. Namibia comes second with 72.37 while South Africa takes third position. Besides Seychelles, SACU member countries seem to be performing better compared to non-SACU members. This suggests that these countries could be receiving help from stable financial systems because of the CMA in which they belong to. However, it is worth noting that the good performance by recorded by Seychelles is a result of a small population of 100 000 people with 95% of these citizens residing in the main island of Mahe, with an area of 157.3 square kilometres.

On the other hand, DRC, Madagascar and Malawi show lower levels of financial inclusion using all the three measures. Similarly, the other SADC countries have low financial inclusion levels, proving weaknesses inherent in their respective financial systems. Reasons attributable to such high levels of exclusion include low or irregular income, poor infrastructure, low population density, low financial literacy and weak legal institutions (World Bank, 2010). Evidently, the SADC state of financial exclusion remain undesirable,

though there is positive movement as shown by changes that have happened from 2004 up to 2019 (see Table 2-4). This positive trajectory is also expected to be propelled by increase in the number and growth of microfinance institutions.

Country	**Bank account per 1000 adults**		**Bank branch per 100 000 adults**		**ATMs per 100 000 adults**	
	2004	**2019**	**2004**	**2019**	**2004**	**2019**
Angola	---	----	1.81	9.45	0.85	18.40
Botswana	361.71	777.72	7.00	9.33	15.62	45.02
DRC	2.89	----	0.47	1.1	----	1.29
Lesotho	214.05	401.09	2.40	3.76	2.64	14.00
Madagascar	18.29	-----	1.12	-----	0.28	----
Malawi	----	169.67	1.00	2.27	0.76	4.71
Mauritius	----	1914.48	18.14	16.42	30.93	42.78
Mozambique	----	-----	1.82	4.36	1.91	11.01
Namibia	103.32	1154.45	11.26	11.18	9.63	72.37
Seychelles	277.04	2424.76	42.36	55.07	34.21	89.99
South Africa	-----	-----	4.69	9.59	29.25	65.31
Eswatini	361.12	-----	6.17	---	7.34	---
Tanzania	---	272.67	1.20	2.55	---	----
Zambia	12.77	233.04	3.03	3.29	0.88	10.14
Zimbabwe	518.42	641.01	2.88	3.73	--	6.4

***Table* 2- 4: Financial inclusion in SADC** (Global Financial Development Database, 2021)

The rapid increase in microfinance institutions suggests traditional banking models (European and American) either did not capture conditions in most Africa countries, are incapable of evolving as expected or are not effective in encompassing peculiarities in Africa. Shen and Lee (2006) suggest that more local lending authority result in more credit being extended to small and medium enterprises, implying local banks and MFIs are better placed to cater for the needs of smaller firms and low-income earners as well. However, aggressive credit extension to low-income earners in unstable economies coupled with poor credit risk practices increase non-performing loans, thereby destabilising financial markets. IMF (2016) warns that financial depth magnifies effects of

shocks particularly in markets where regulation standards are low and implementation capacity is constrained. However, Ndlovu (2017) found positive association between financial inclusion and financial stability in SSA, showing that when properly regulated, financial inclusion has positive effects on the financial sector.

The presence of MFIs is also increasing competition in the financial sector, thereby increasing efficiency and service extension to the general populace. Competition between banks and MFIs emanate from their source of funding. Both banks and MFIs are funded from deposits, equity and retained earnings. Particularly in SADC, savings (deposits) serve as an important source of funding, as such banks and MFIs compete to attract these deposits. Besides deposits, equity for MFIs also comes from owners of commercial banks; therefore, their performance should generate returns that can attract capital from these shareholders (Bayai, 2017; Lafourcade, Isem, Mwangi, & Brown, 2006). On the other hand, MFIs start to compete for the same customers once they grow into micro-banks. Campion and White (1999) observe that small MFIs do transform into large institutions by meeting prescribed regulatory standards in local markets. For example, in Angola, DRC and Mozambique, there are former MFIs currently operating as fully fledged banks (Bayai, 2017). In Lesotho, Namibia and eSwatini non-bank MFIs offer loans to individuals and micro enterprises for education and working capital purposes respectively. These markets are also being targeted by banks that are scaling down as a way of growing their revenue base. Micro banks and deposit taking MFIs through scaling up, take away business from traditional banks especially when they further develop into commercial banks. In Madagascar, for instance, Baraton and Leon (2018) found evidence of competition between banks and MFIs.

2.3.3 Stock market development

Fohlin (2016) traces establishment of the first exchange in London to 1698, New York Stock Exchange to 1792 in America. In Africa stock markets in South Africa and Egypt were set up in 1887 and the Zimbabwe Stock Exchange was first opened in 1896 in Bulawayo then closed and later on in 1946 in the then Salisbury (Chiwira et al., 2016). Stock markets around the world have increased by 112% from 89 on the eve of the World War 1 to 189 in 2015 (Neal, 2016). The SADC region has also seen growth in the number of stock exchanges over years though many remain underdeveloped and countries such as Madagascar and Angola have no established markets. Notable improvements have been seen in Malawi, Zambia and eSwatini that have showed growth in market capitalisation than regional counterparts (Yartey & Ajasi, 2007). Similar improvements have also been recorder in Tanzania and Zambia that recorded 400% and 100% in number of listed firms respectively during the period 2006 to 2015 (Mahabirsingh, 2016).

South Africa has by far the most developed stock market in the region as measured by the number of listed firms, capitalisation and stock turnover. Currently, it helps trading in equities, bonds and derivative instruments such as futures and options on commodities and interest rates. Many listed firms in South Africa at 303 shows more reliance on equity finance. Mauritius and Zimbabwe come up second and third in terms of listings as shown in Table 2-5 but none of the two has half the number of firms listed in South Africa. At the bottom end is Seychelles and Mozambique with four listed firms followed by eSwatini with seven firms. eSwatini and Mozambique have young exchanges that were set up in 1990 and 1999 respectively as such they are illiquid and inefficient hence very few firms rely on raising capital on these markets. Khamfula (2005) notes that few listed companies;

small size, illiquidity and low levels of trading activity are manifestations of poverty, poor regulation and unstable economies. A comparison with other developing countries across the world shows that all SADC countries except South Africa have underdeveloped markets. As at 2016 Indonesia had 518 listed firms, Chile 321, Malaysia 811, and Philippines 314 (Bayai, 2017).

Country	Number of listed firms	Capitalisation as a % of GDP	Stock turnover ratio (%)	Founded
Botswana	32	34.3	6.2	1995
Malawi	14	19.44	7.81	1996
Mauritius	95	65	8	1988
Mozambique	4	9.43	27	1999
Namibia	41	19.91	1.49	1992
Seychelles	4	3.22	0.07	2012
South Africa	303	233.95	31.79	1887
eSwatini	7	31.56	1	1990
Tanzania	17	1.86	6	1998
Zambia	22	3.42	0.76	1994
Zimbabwe	64	22.13	7.44	1946

***Table* 2- 5: SADC stock market development indicators (2015)** (African Securities Exchanges Association, 2016)

Stock market liquidity as measured by the stock turnover ratio is high in South Africa with a ratio of 31.79% followed by Mozambique's 27% and lastly Malawi with 7.81%. The rest of SADC countries have turnover ratios below 7.5% showing that the markets are inactive, characterised by low levels of efficiency. Also, the ratio shows that size is not a guarantee of liquidity and efficiency. In a bid to correct the scenario, SADC prioritised increasing participation of domestic investors under the RISDP after realising that only 10% of local investors were active on local exchanges. Such low participation of domestic and individual investors affects consumption smoothing, savings mobilisation, wealth creation, market efficiency and liquidity (Benimadhu, 2013). This result in smaller markets that have little intermediation ability thereby compromising economic growth.

In terms of stock market capitalisation, the SADC region has been dominating other countries in Africa though there are some SADC countries that have been falling behind even by regional standards. Table 2-6 rank stock markets in Africa in descending order according to capitalisation (billion USD) for the period 2011 to 2017.

Table 2-6 shows that South Africa is by far the largest stock market in Africa at $1,038.90 billion, constituting 63.92% of the total capitalisation followed by Namibia that constitute 9.02%. The next highest capitalised market is Nigeria with a capitalisation of $28.6 million in 2017, contributing 7.52% to total capitalisation followed by Morocco that constitutes 3.61%. SADC countries have bigger stock markets as shown by their dominance in the top 16 countries in the region. Out of the top 10 countries, the SADC region contributes five countries while SADC countries make up 50% of the top 16 countries. In terms of percentage contribution, SADC countries contribute 79.92% out of the 99.63% constituted by individual countries. However, this growth in size is not universal across countries in region while at the same time it does not reflect on other important dimensions of development such as liquidity and efficiency.

The trend of predominance over other African regions is also the same when it comes to banking sector development. The important question that arises from these trends is whether proximity to South African markets is helping other markets in the SADC region. Could this scenario be explained by the concentration of international financial centres in the region? How does the development of stock markets affect banks in the region and vice versa? Goldsmith (1969) postulates that stock markets do not always grow with banks as shown by underdeveloped stock markets that are sometimes found in countries

with stable banking sector. Even with less developed banks, capital flows from developed markets impact stock markets (Benimadhu, 2013).

#	Country	Region	2011	2012	2013	2015	2017	% Of Total
1	South Africa	South	845.6	998.3	970.5	735.9	1,038.6	63.92 %
2	Namibia	South	137.9	144.2	136.9	88.9	97.5	9.02%
3	Nigeria	West	43.1	57.8	82.8	49.9	28.6	7.52%
4	Morocco	North	60.2	52.8	54.8	45.9	58.5	3.61%
5	Egypt	North	51.7	60.1	54.3	55.2	35.7	3.58%
6	Botswana	South	54.7	53.0	54.1	46	18.6	3.56%
7	Ghana	West	28.5	30.5	28.2	18.9	11.3	1.86%
8	Kenya	East	10.3	15.9	20.6	25.0	18.5	1.36%
9	Tanzania	South	7.4	8.4	14.8	9.5	9.0	0.97%
10	Malawi	South	16.4	10.6	13.0	11.3	13.3	0.86%
11	BRVM	West	7.0	8.1	10.5	15.0	12.1	0.69%
12	Zambia	South	9.4	9.4	10.2	5.8	11.2	0.67%
13	Mauritius	South	7.7	7.1	8.5	7.2	10.5	0.56%
14	Tunisia	North	9.6	8.9	8.5	---	---	0.56%
15	Uganda	East	4.1	5.9	8.3	9.6	5.7	0.55%
16	Zimbabwe	South	3.7	4.0	5.4	2.7	3.8	0.36%
17	Other	Multiple	5.7	5.3	5.6	---	---	0.37%
	Total	Africa	1,303.00	1,480.30	1,518.40	1,126.80	1,372.90	100

***Table* 2- 6: Ranking of African stock markets by capitalisation** (Schiereck et al., 2018).

The above noted contradictions in expectations and actual movement across regions and time raise questions of whether growth in stock markets is a leading factor in the development of banks or rather stock markets are responding more to growth than banks. Lastly, what are the factors that explain this level of development of stock markets within the SADC region? These are the pertinent questions interrogated in the current study.

2.4 Chapter summary

From the discussion, financial markets in SADC remain underdeveloped except for South Africa that has vibrant markets. Countries in the region display huge disparity in terms of

size and efficiency of financial markets. Notable differences exist in terms of credit extended to the private sector and stock market capitalisation as measures of banking sector and stock market development respectively. Though there seems to be a pattern where countries with elevated levels of income have better developed financial markets, exceptional cases also exist. Financial systems are still dominated by banks as major suppliers of capital while stock markets play a cameo role in most of the countries. Stock markets are still underdeveloped shown by volatility, illiquidity and small size. Fewer companies listed on the stock markets show that companies rely on credit from the banking sector to fund operations. This is despite deliberate efforts to develop stock markets as alternative suppliers of capital. Such overreliance on banks has left countries vulnerable to shocks that affect the banking sector as well exposed to inefficiencies in the sector. Companies in most SADC countries report excessive constrains in accessing credit that is usually accessible at usurious interest rates. At the same time banking sector is dominated by few large institutions, resulting in huge interest spreads, low savings, and intermediation inefficiency. Financial exclusion, poverty and inequality remain high and gaps in the financial sector seem to be worsening these social ills. As a result of these weaknesses inherent in these financial markets, economic growth has been weak and unsustainable, not reaching benchmarks set in the RISDP.

3 CHAPTER 3: BANKING SECTOR DEVELOPMENT, STOCK MARKET DEVELOPMENT AND ECONOMIC GROWTH: THEORY AND EVIDENCE

3.1 Introduction

There has been enormous debate on whether financial markets are a necessity for any modern economy that looks to prosper economically for the benefit of all those who leave in it. There is agreement on the need to set up a well-functioning financial system that helps to fund economic growth. As such, developing efficient and complete markets that mobilise and optimally allocate resources to the most productive uses has been a desire for both developed and developing countries (King & Levine, 1993). However, many countries, particularly those in SADC have failed to develop their markets to standards found in developed countries and other regions. This has weighed down on efforts to promote economic development and reduce poverty. The financial markets in SADC are largely dominated by the banking sector, with underdeveloped stock markets that are still at infancy in most countries. Even the dominant banking sector remains underdeveloped compared to Europe, South America and Asia. The current state of financial markets in SADC have failed to spur economic growth, raising questions on the importance of structure of financial markets in funding economic growth.

Levine (2002) acknowledges existence of unsettled debate on merits of bank based against market-based economies while Drucker and Puri (2007) highlight unanswered questions on complementarity and substitutability of banking sector development and stock market development. The causes of the growth of the banking industry and stock markets are still a matter of debate among researchers and decision-makers. The

situation is made worse by the constantly shifting economic climate and new developments hitting the financial markets. It is challenging to understand both facts and theory owing to the diversity of nations around the world in terms of level of economic development, kind and calibre of institutions, as well as geographic location. Conflicting views and evidence make up the bulky of past studies such that even questions asked centuries ago are still unanswered today. Despite past studies on the finance growth nexus, there is still no consensus on the relationship between banking sector development and stock market development in funding economic growth. How these two segments of financial markets relate is central in unpacking why finance has failed to promote economic growth in SADC. As suggested by Merton and Boddie (2004), transaction costs and financial behaviour cause prices and risk valuation to alter but also markets and institutions evolve through changes in infrastructure, rules and regulations. As such, financial markets and the interaction between their segments are likely to respond in ways that require continuous examination. Therefore, the purpose of this chapter is to give an in-depth review of literature both theoretical and empirical on the link between finance, financial structure and economic growth. It also provides a review on linkages between the banking sector and stock markets and the factors that affect their development.

3.2 Theoretical Review

3.2.1 Finance and economic growth

Financing growth has been one of the most pertinent issues for policy makers and researchers. At the centre of the debate is showing whether financial development is a prerequisite for economic growth. The supply leading hypothesis posits that supply of

financial resource to the productive sector result in higher levels of growth. The other view, demand following hypothesis, suggests that it is financial sector development that depends on economic growth through demand for financial services from the real sector. The feedback hypothesis, on the other hand, suggests finance and growth depend on each other. Therefore, there is a bidirectional relationship. Lastly, there is the suggestion that there exists no relationship at all between finance and growth (Apergis, Filippidis & Economidou, 2007; Graff, 1999). This section brings out different views on the interaction between finance and growth. Since the focus of the study is on understanding the interaction between banking sector development and stock market development in supporting growth, the supply leading hypothesis and financial structure growth theories will be reviewed in detail.

3.2.1.1 Supply leading hypothesis

The supply of financial services is strongly linked to development through enhancing capability to invest in risky projects that generate high returns (Nyantakyi & Sy, 2015). Early pronouncements by Bagehot (1873) and Hicks (1969) situate financial markets at the centre of technological innovation, industrialisation and economic growth in England. Schumpeter (1912) focused on innovation, citing that banks channel funding to innovative entrepreneurs with excellent ideas that can succeed in supporting production processes. According to Patrick's (1966) supply leading hypothesis, financial institutions and the instruments they trade develop first in anticipation of demand from firms and individuals. These financial markets, intermediaries and instruments serve to attract savings from the surplus units through providing a return to investors. Instruments such as loans, bonds

and shares are utilised to avail funding to firms, resulting in increased productivity through investment thereby stimulating growth (Levine & Zervos, 1998).

The positive influence of finance on economic growth is through providing resources that are utilised to buy equipment, modern technology, spend on research and development, and attract skilled labour. Brown, Martinnson and Petersen (2017) show that developed stock markets facilitate growth in the high technology sector. The channel of growth is through increasing productivity of firms and high growth of modern technology firms. In this case, the capability of firms to access equity capital from stock markets result in more productivity and growth of high technology firms. Credit markets on the other hand supply funding to firms that want to buy more physical capital, which in turn increase their output and profitability. In Swan's (1956) view, banks support growth through pooling savings, reducing cost of allocating savings and boosting productivity of capital through providing services such as capital budgeting advice. This theory's application is predicated on the idea that stock markets and banks are both sufficiently developed to enable frictionless provision of financial services. A closer examination of the SADC region's stock markets reveals that they are unpredictable, tiny and illiquid, which denies businesses access to the capital they require to finance long-term initiatives and technological advances. On the other hand, the banking industry does not adequately support the micro, small and medium-sized businesses that account for most businesses in the area. Even when financing is given to larger companies, it is frequently short-term and extremely expensive. Consequently, the supply-led hypothesis has failed to hold in the majority of SADC countries.

Gulley and Shaw (1955) found financial capacity as the most important determining factor between the interaction of financial markets and the economy. They defined financial capacity as the borrower's ability to contract debt without reducing their total expenditure to avoid default. Financial markets play a significant role in increasing financial capacity among economic players and in turn affect aggregate demand, strengthen balance sheets and magnify business cycles (Gulley & Shaw, 1955).

McKinnon (1973) and Shaw (1973) advance that the financial sector help to reduce transaction cost, monitoring costs and information asymmetry thereby ensuring that resources are optimally allocated to the most productive use. When transaction costs are low, firms easily access capital at lower costs which increases their competitiveness against international players. Low monitoring costs and information asymmetry reduce incidences of moral hazard and adverse selection. This compels borrowers to utilise credit in the most productive manner thereby positively impacting growth. Lowering transaction cost and information asymmetry also stimulate savings and investment thereby increasing innovation and economic growth (Levine, 1997). The premise that both banks and stock markets are fully developed and capable of offering financial services without resistance is the foundation for this theory's applicability. A detailed examination of the SADC setting reveals that stock markets are unpredictable, limited in size and illiquid, depriving businesses of the capital required to finance long-term projects and technological advances. Most businesses in the region—micro, small, and medium enterprises—are not completely served by the banking industry. Even when larger companies receive financing, it is frequently short-term and extortionate. As a result, the supply-led hypothesis has been disproven in the majority of SADC nations.

Contemporary authors such as Levine (1997), Park and Mercado (2015), and Senbet and Otchere (2010) agree that financial markets foster inclusive growth though evidence from less developed regions in Africa is weak. Levine (1997) found risk management, price discovery, provision of information and provision of liquidity as the major roles performed by financial markets. Figure 3-1 shows that capital markets and banks affect the growth process through the above-mentioned functions. These facilitate efficient savings mobilisation, allocation of capital, innovation, and capital accumulation (Levine, 1997). When transaction costs are low, entrepreneurs can use financial markets to diversify risks after utilising technology or a production process that heightens risk (Saint-Paul, 1992). Investors on the other hand can share and diversify risk through investing in collective schemes and portfolio of assets (Pagano, 1993). The easiness of managing risk attracts more savings and borrowers, thereby increases investment at a less cost.

Diverse types of transaction costs and information asymmetry influence the nature of markets, institutions and contracts that in turn develop to manage these frictions (Levine, 1997). He further notes that technological innovation and capital accumulation are in turn determined by the development of these financial institutions and markets. Therefore, financial development can affect the pattern and rate of economic development through influencing innovation and capital accumulation in different industries and firms within countries (ibid, 1997).

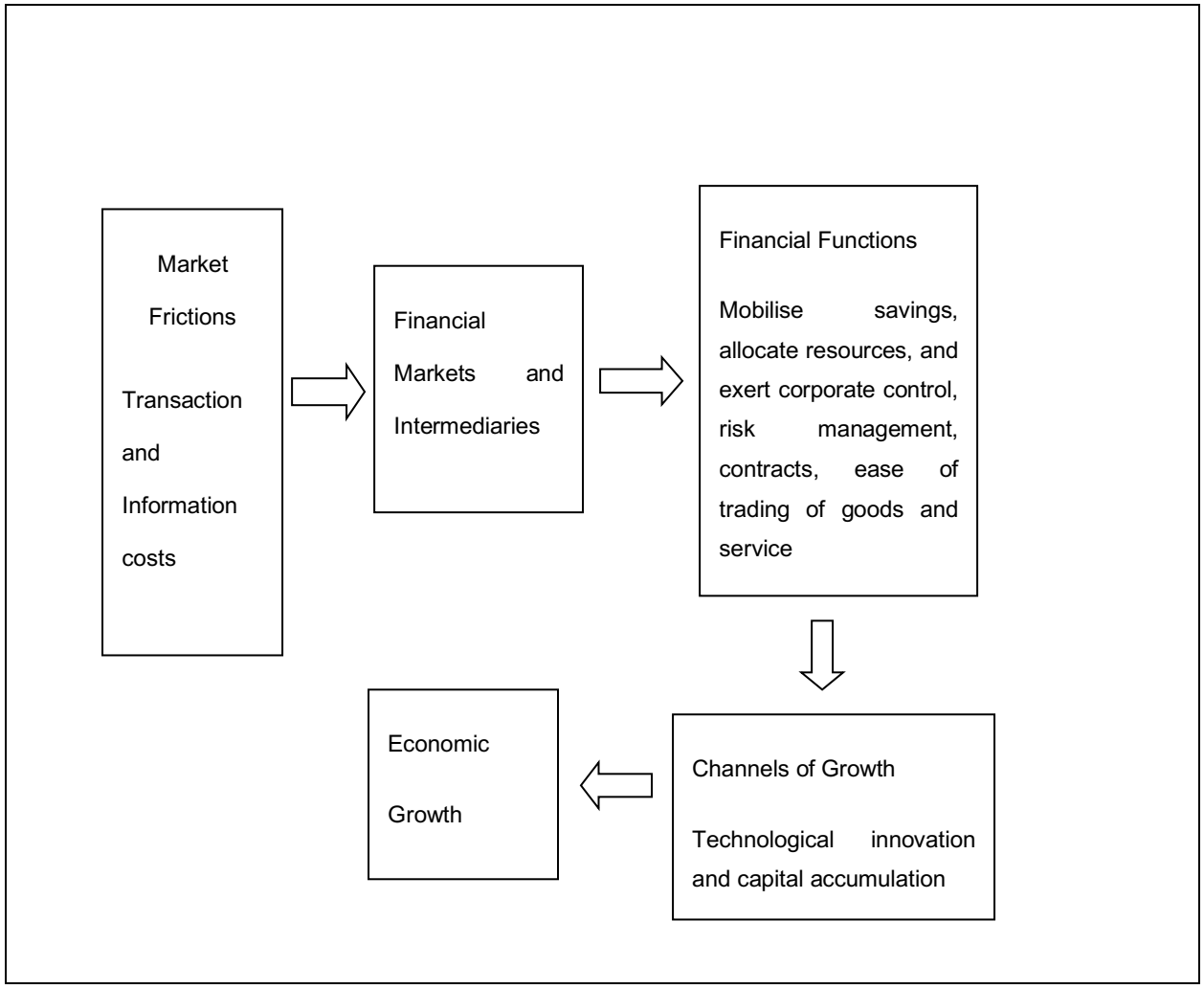


***Figure* 3- 1: A theoretical approach to finance and growth** (Levine, 1997)

The supply leading hypothesis is important for the current study as it situates the development of the banking sector and stock market at the centre of economic growth. It brings out the key role of providing financial resources to economic participants through well-functioning stock markets and banking sector. However, the theory does not provide a link between the banking sector and stock markets. It presents the two segments as independent components that are not interlinked; hence it falls short in explaining the role of banking sector and stock markets in funding economic growth. Moreover, its applicability in the SADC region is in doubt owing to underdeveloped markets

characterised by information asymmetry, high transaction costs, few market participants and high volatility.

3.2.1.2 Other hypothesises

There are other competing theories that suggest different relationships between financial development and growth. There is the demand following hypothesis which suggests that financial markets do not cause growth but it is financial markets that respond to changes in economic growth. Financial markets and institutions respond to increase in the demand of financial services they offer as the economy grows. Real economic activity result in individuals and companies changing their demand for financial services depending on the level of income, profits and investment opportunities available (Patrick, 1966). Consequently, poorly developed financial markets found in SADC could be a result of low economic growth. Countries in SADC have failed to meet the growth targets set in the RISDP strategy and most of them are classified as low-income countries. The volatility in economic growth owing to susceptibility to external and internal shocks could also be militating against development of banks and stock markets. Wicksell (1906) put forward that bank lending and in turn money supply increases during times of economic boom and directly opposite when the economy is expected to deteriorate. During times of economic boom, firms demand more credit to meet expected profitable investments while at the same time banks will be confident about the capability of firms to repay. In a sense, credit extension increases owing to increase in economic activity that usually result in profitability and growth of financial institutions offering services.

The feedback or bidirectional hypothesis advance that economic growth and financial development are interdependent. Greenwood and Jovanovic (1990) note that economic growth led to development of financial markets which in turn facilitate economic growth. As the economy grows, it increases the wealth of companies and individuals which will allow them to demand more financial services. On the other hand, the financial sector will promote growth by way of increasing return on investment (Khan, 2001).

According to the fourth hypothesis, there is no relationship between financial development and economic growth. The activities that happen in the financial markets do not in any way impact developments in the economy. At the same time, the growth of the economy does not have a material impact on the state of financial markets in any economy. Lucas (1988) alleges that there is an overemphasis on the effect of financial sector development on economic growth.

Roubini and Sala-i-Martin (1995) argue along the views expressed by McKinnon (1973) and Shaw (1973), suggesting that financial markets can retard growth if policy makers are imposing restrictions on interest rates, movement of capital and free allocation of credit. These types of restrictions can drive away savings, discourage financial institutions from taking risks and result in distortions that militate against efficient allocation of resources. The result will be a decrease in the level of economic activity. Excessive credit during economic booms can have detrimental effects on economic growth if such excessive credit results in huge bad loans after an economic downturn. The cyclical nature of financial markets as postulated by Wicksell (1906) was echoed by Fisher (1933) who noted that economic crises are a result of over borrowing when there is expected future growth. This can result in a rapid decrease in credit extension, severely impacting

liquidity of financial markets which result in retarded growth. Keynes (1936) suggests that the “state of confidence” when investors expect high yields while lenders are confident with borrowers leads to growth in provision of financial services. The loss in confidence of either party can have a dampening effect on the economy (Keynes, 1936). Cecchetti and Kharroubi (2015) and Genberg (2015) opined that beyond a certain level of growth, the marginal contribution of the financial sector to growth become negative. However, Botev, Egert, and Jawadi (2019) did not find evidence of the too much finance is bad hypothesis.

Theories do not agree on the relationship between finance and economic growth. As a result, there is no universal agreement on the effect of banking sector development and stock market development (major providers of finance) and economic growth. Notwithstanding the different views on the direction of causality between finance and economic growth, there is considerable evidence in support of the key role played by finance in stimulating economic growth especially in developed countries. However, the applicability of these theories in developing countries are still questionable, considering the extent of underdevelopment of financial markets in these economies.

The major limitation of these theories and past studies alike is that they have ignored the structure of financial markets in funding economic growth. Does the dominance of one segment over another i.e., banking sector over stock markets affect the role of financial markets? Or does dependence on one sector more than the other impact the financing function? As such, it becomes worthwhile examining how the structure of financial markets impact on the role of lubricating the growth process. Under financial structure, the debate shifts from importance of finance in the growth process to the relative

importance of the different components of the system. Chu (2019) notes that there is disagreement in terms of theory and evidence on the importance of financial structure on economic growth. Earlier on Stiglitz (1985) expressed support for banks while Greenwood and Javanovic (1990) put their weight behind stock markets. Others suggest the importance of the financial system not its individual components (Boyd, Prescot & Smith, 1998).

3.2.2 Financial structure and economic growth

Chu (2019) notes that recent research shows that financial structure is also important for growth. This refers to whether an economy is dominated by banks or capital markets. There are three competing theories currently dominating literature on financial structure and economic growth. These include the market-based view, bank-based view and financial services view (Chu, 2019). Bank-based systems are those in which banks are the dominant intermediaries where bank deposits and loan make up the bulk of financial assets and liabilities. On the other hand, market-based systems are dominated by tradable financial assets such as share, bonds and derivatives (Vitols, 2001).

3.2.2.1 Bank based view

Financial intermediaries affect economic growth through risk diversification, savings mobilisation, distributing resources efficiently and reducing the cost of getting information (Afonso, Furceri, & Gomes, 2012). Furthermore, Levine (1997) posits that banks gather information that can be used to evaluate projects thereby reducing the need to duplicate the efforts hence lower costs of transacting. In a sense, other firms and market players do not need to repeat the same process, supplied banks can execute this role better than

other players. This process of evaluation help banks to select profitable projects thereby allocating resources to where they are utilised efficiently. Owing to the proximity between banks and companies, banks are better placed to gather correct information (Sharpe, 1990) though this proximity can lead to selection of risky projects that would not otherwise be funded (Tsuru, 2000). However, Tsuru (2000) suggests that when properly utilised, proximity can lead to lower cost of capital.

In line with proximity comes the monitoring advantages that are bolstered by the special nature of the relationship between banks and borrowers (Afonso, Ferreira, Freitas, Nóbrega, & Pinheiro, 2002). Since banks are closer to companies, they can easily monitor their operations. Dewatripont and Maslan (1995) suggest that the monitoring role is less demanding when done by banks compared to stock markets. When borrowers are monitored, they strive to make their projects profitable so that they can repay the loans and this reduces the moral hazard problem (Blackburn & Hung, 1998; Morales, 2003).

DeGregorio and Kim (2000) emphasise the role of intermediaries in supporting human capital development through provision of educational loans. This will allow workers to get specialised skills that are critical for economic development. The effect is more pronounced for those specialist areas where training and education are expensive to get. Damir and Hall (2017) cite facilitating settlements for firms as the reason many authors support banks. Settlements and payments are very crucial in any modern economy to facilitate business transactions between internal and external players including those trading on the stock market.

The bank-based view reveals that stock markets could be detrimental to the economy through promoting short-termism and not long-term sustainability of companies. Equity markets promotes speculative tendencies that could be worsened by behaviours such as herding. This could result in misallocation of capital to unproductive sectors (Christopher & Zemsky, 1998; Graham, Campbell, & Rajgopal, 2006).

The theory explains why developing nations might be persuaded to favour the growth of banks over stock markets, but it does not explain whether banks' dominance is a result of policymakers giving them preferential treatment or whether banks naturally grow first due to the conditions in developing nations. Moreover, this theory highlights the crucial part that the banking industry plays in fostering economic expansion. It clarifies the rationale behind why policymakers in many economies, particularly those with lower levels of development, have implemented measures to support the growth of the banking sector first. This causes hesitation and scepticism about aiding the growth of stock markets in less developed nations. The theory, however, does not explain how the preference for the banking industry over the stock market affects or relates to the growth of stock markets. Additionally, it does not offer a pathway for the two components to connect in the financial markets.

3.2.2.2 Market-based view

Grossman (1976) posits that stock markets help to mobilise savings, channelling them to the most productive sectors of the economy. This avails capital to the most innovative firms at a less cost thereby stimulating investment and economic growth. With the provision of a secondary market, stock markets provide liquidity of real assets, making it

less risky for surplus units to contribute towards a country's productive stock of capital. When shares are liquid, they become acceptable as collateral by banks, therefore easing credit provision and capital formation (Osinubi, 1998).

According to Allen and Gale (1995), stock markets give participants an opportunity for portfolio diversification through investing in a variety of assets that are less correlated. This allows them to create portfolios that match their levels of risk aversion. Saint-Paul (1992) emphasises that entrepreneurs that invest in risky technology usually found in new firms can utilise financial markets to manage the risk. Capital markets facilitate the financing of these new sectors and high-risk industries such as technology, telecommunication and media (Allen & Gale, 2000; Thiel, 2001). Brown et al. (2017) argue that markets are more suitable for funding high technology companies than banks. This is owing to more information asymmetry in high tech industries than other sectors. Hall (2002) notes that high prevalence of frictions in the high technology sector owing to the following reasons: (1) investors have limited understanding of modern technology, (2) lack of collateral owing to intangible nature of research and development in high technology industries, (3) high possibility and cost of financial distress since much of the value of high-tech firms is based on future growth. Therefore, equity markets are ideal for projects with high potential of failure where there is no collateral and finance from capital markets it does not increase chances of bankruptcy (Brown, Fazzari, & Petersen, 2009). By supporting emergence of new firms in the technology sector, they support innovation and therefore the knowledge economy that tend to ensure high productivity and sustainable economic growth.

The market-based perspective also aids in reflecting the expectations of various investors regarding a specific asset to which they are neither linked nor connected. This makes the process of assigning risk more effective compared to transaction when there is an established relationship (Afonso, Furceri, & Gomes, 2012). These expectations create a link between company performance and compensation of management which helps to monitor management activities. Markets also facilitate mergers, acquisitions and corporate takeovers that are especially useful in ensuring that societal resources are not put to waste (Afonso et al., 2012). Jensen and Meckling (1976), Scharfstein (1998) and Stein (1988) acknowledge that markets ensure corporate control through the threat of takeovers. This ensures that company resources are deployed in the most efficient manner. Stock markets also reduce the agency problem through linking company performance, stock price and performance by managers (Jensen & Murphy, 1990). This can help to align management and shareholder objectives. When markets are liquid, investors are willing to meet the cost of getting and processing information in anticipation of returns from trading in the markets (Holmstrom & Tirol, 1983). In addition, Bats and Houben (2017) focused on roles of stock markets and banks in relation to systematic risk. They advanced that equity markets are better placed to manage systematic risk compared to banks such that if countries want to reduce susceptibility to systematic risk, they should substitute the share of bank-based financing with market-based financing.

Evidently, stock markets play a crucial role in financing the development of new technologies, risk management, minimising the agency problem, and ensuring the effective use of resources to support economic growth. Their low levels of development in SADC nations may account for the absence of innovation and technological

advancement, the existence of significant information asymmetry, and the slow rates of economic growth. The theory does not, however, address the risks associated with stock markets, such as the encouragement of speculation and short-termism, the transmission of economic shocks, and the failure to provide funding for start-ups and small to medium-sized businesses. Owing to these flaws, developing nations should not rely solely on them to finance economic growth. The theory ought to have demonstrated how stock markets interact with the banking industry and other sectors to finance economic expansion. It was crucial to understand the role that banks and stock markets play in tandem with one another given that most nations have both in their economies.

3.2.2.3 Financial function view

The proponents of this view argue that whether financial markets are bank-based or stock market-based is not of paramount importance, what matters is the role of the financial system in supporting growth (Merton, 1992; Merton & Bodie, 2005). Markets are viewed as complimentary to banks in funding growth specifically by providing an alternative means of raising funding to support growth enhancing investments (Levine, 2004). Levine (2004) further maintains that competition provided by stock markets reduces the negative effect of powerful banks, hence increasing the efficiency of financial systems. However, the process of reducing the market power of banks signal that services given by banks can be substituted directly by services offered by capital markets.

The financial services view agrees with the co-evolving model by Song and Thakor (2009) who posit that combining banks and markets cover for the weaknesses of each part. Sawyer (2013) critiques the bank-based and market-based view by highlighting important

omissions in the classification. First, it negates the money creation role by banks. Secondly, it does not consider a variety of banks found in the financial system such as savings bank, commercial banks, clearing banks and investment banks. Thirdly, the neglect of the amount of credit extended to government and households. It focuses only on credit extended to firms despite credit to individuals being an important part of the financialisation process. Saywer (2013) concludes that despite some elements of substitutability between banks and markets, defining them as substitutes do not capture significant differences that exist between them.

The financial function view, which recognises the significance of both banks and stock markets in a functional economy, is crucial in explaining how finance supports economic growth. Instead of grouping these elements into unrelated silos, it acknowledges their interactions and the complementary nature of their relationships. The SADC countries can benefit from the financial function view because it highlights the various contributions that banks and stock markets make to fostering economic expansion. The implication is that because they serve various sectors of the economy in different ways, they cannot compete with one another but can only enhance one another. As a result, it reflects how banks and stock markets operate in most developing nations. The theory, however, has a flaw in that it ignores the fact that neither stock markets nor banks continue to operate at the basic stages of development where they can only provide a few unique services. Banks and stock markets tend to offer a variety of services that put them in competition with one another as they develop and become more sophisticated. Innovations enhance product offerings in terms of quality and nature because of increased competition in each sector, removing the barrier between banks and stock markets. This study aimed to fill

the gap left by the theory's failure to consider this possibility, which prevented it from correctly identifying the variables that might moderate the relationship between the growth of the banking sector and the growth of the stock market. The theory also fails to clearly explain how banks influence stock market growth and vice versa, as well as what other factors influence these markets.

3.3 Theories of banking sector development and stock market development

Several theories tried to explain the process through which financial markets and their components develop but they differ in their focus and the channels thereof. The differences are explained by differences in time periods when the theory was put forward, the geographical location it was issued for and factors the researchers assumed are central in explaining development of both the banking sector and stock markets. This section reviews theories that explain the development of banks and stock markets.

3.3.1 Demand following hypothesis

The demand-following hypothesis postulates that economic growth fosters financial development. Demand for financial products increases when the economy grows. Robinson (1952) avers that, financial markets responded to increased demand created by rising GDP. To meet the needs of market participants, new financial markets and institutions start to develop (Demetriades & Hussein, 1996; Gurley & Shaw, 1967; Jung, 1986; Patrick, 1966; Robinson, 1952). As the real sector expands, demand for financial services causes the development of new sophisticated financial products and institutions in response to growing needs. As such, deepening of financial markets becomes a function of the expansion of the real sector. From another angle, Patrick (1966) highlights that development in financial markets positively influence growth at lower levels of

income, but growth begins to affect more on financial development as the economy develops further.

The theory brings out the significant role of economic growth in explaining development of both the banking sector and stock markets. In the SADC context, volatile and low economic growth rate coupled by low levels of income could be militating against banking sector development and stock market development. However, the evidence on the demand following hypothesis show mixed results, showing lack of consensus of the applicability of this theory in different countries. For instance, high rates of financial exclusion and the cost of obtaining financial services, particularly for the underprivileged and those living in rural areas, may be reducing demand for financial services in the SADC region.

3.3.2 McKinnon-Shaw model

The McKinnon–Shaw (1973) model postulates that government policies such as credit restrictions, ceilings on interest rates and high reserve ratios retard development in the financial sector in terms of both quality and quantity of savings in the economy. According to the debt intermediary hypothesis by Shaw (1973), liberalised intermediation results in higher interest rates that will attract savings from the surplus units in the economy. Owing to an attractive return on their money (higher interest rates), they are prepared to save more thereby increasing the supply for money (deposits) that can be used for on lending to institutions with profitable investment opportunities. This will not only raise the quantum of investments but also the efficiency of the same. These markets should be open to competition from new entrants as a requirement for efficient intermediation. McKinnon

(1973) and Shaw (1973) highlight the following as major impediments to growth enhancing intermediation: ceilings on interest rates (lending and deposit), restrictions on new market entrants, foreign capital transaction restrictions, high reserve requirements, and directed lending.

The model was successful in explaining only temporary growth rates and countries that adopted the model saw increase in economic growth rates but accompanied by volatile real interest rates. In Latin America for example, countries that adopted liberalisation policy in the 1970s experienced financial crises symbolised by low savings, nationalisation of institutions, government intervention and bankruptcies (Diaz-Alejandro, 1985). Other critics such as Neo Structuralists highlighted that financial liberalisation negatively impacted growth (Eschenbach, 2004). Also, Stiglitz (1989) argues that liberalisation would also result in market failures that are more harmful to the financial sector and the economy at large. These views are pertinent particularly for SADC member countries with markets that are still underdeveloped. Applicable as it might be in developed countries, the theory might leave SADC member countries vulnerable to both internal and external shock that induce volatility and market crushes.

In line with the foregoing argument, the structuralist shared a different view to that of McKinnon and Shaw. They viewed market efficiencies as the structural obstacle to growth and development of developing countries. According to Van Wijinbergen (1982), the McKinnon and Shaw model ignores the intermediation role of the informal sector that is not subjected to restrictions such as reserve requirements. Hence the assumption that higher interest rates attract deposits into the formal sector do not recognise the potential of the informal sector which is large in developing countries. Later, Campbell and Mankiw

(1990) conceptualised a model of heterogeneous households which showed that not all households had access to financial markets such that increases in interest rates might not result in higher savings as assumed. Ostry and Reinhart's (1992) subsistence consumption hypothesis brought out that people's saving and consumption responses to interest rate changes is based on their level of income. Changes in interest rates have no impact on consumption or savings in nations where most households are in the subsistence consumption category, such as those in the SADC region. This is the case because the majority of these households do not have extra money lying around to put in savings because it is mostly used to meet their consumption needs. However, in higher income countries consumption decreases and savings increase when interest rates increase. As such, liberalising the markets with the hope of increasing savings, investment and then growth might not work well for less developed countries such that governments might still need to intervene in markets to protect against adverse effects of capital reversals, volatile interest rates and lending to less priority sectors.

The theory purported to explain financial development but instead it focused on banking sector development while neglecting stock market development. The notion of financial liberalisation promoting savings, investment and economic growth through increase in interest rates does not consider the impact of high interest rates on stock market development. Increase in interest rates reduces consumption and demand for investment thereby reducing company profitability, depressing share prices and reducing stock market capitalisation. As suggested by Eschenbach (2004), liberalising interest rates retards economic growth and results in volatile interest rates, all of which hamper development of stock markets.

3.3.3 Law based theories

The law and finance theory find channels through which political differences and therefore laws can explain cross country differences in financial development. Lopez-de-Silanes, Shleifer, and Vishny (1997) contend that protection of property and investor rights by the traditional legal system and treatment of outside investor are major determinants of financial development. In relation to variations in terms of contract enforcements and protection of property rights, La Porta et al. (1998) opined that, countries that use English common law protect private property rights than French Civil Law countries hence their stock markets, English law countries tend to be more developed (Demirguc-Kunt & Levine, 2001). English law emphasises enforcing private contracts and protection from government while French law cemented the role of government in the judiciary system. These differences impact entering of financial contracts among individuals and how they are enforced particularly when central government is involved (Mahoney, 2000; North & Weingast, 1989). This may help to explain why SADC nations, which primarily speak Saxophone and use English law, have more developed stock markets and financial institutions than other Francophone nations in Africa. These SADC nations, though, continue to lag behind other Francophone nations in other regions. It is important to consider how the rule of law affects the growth of SADC's stock markets and banks, as well as how they are related.

Adaptability of the legal systems to changes in the economic and political environment has been sighted as a major determinant of development in financial markets as well. The type of contracts and sophistication of the same is likely to change as economies develop further. This could be owing to changes in education, social practices and exposure to

different norms and societal values. Hence differences in adaptability to changing conditions in the commercial sector and ability to minimise differences between needs of economic agents and legal system capabilities influence financial development (Beck, et al., 2001). For example, English law is viewed as more flexible and adaptable since it addresses each case in relation to obtaining financial environment compared to French law that is legislature based. As such, cross-country differences found in modern financial markets are explained by differences in origin of legal systems (Levine, 2001).

However, according to Rajan and Zangales' (2001) politics and finance theory, it is the actions of politicians that impact financial markets than the legal origins. Politicians put in place policies hence their actions have a bearing on the development of institutions, regulations and the administration of the judiciary system (Oslon, 1993). In instances where the ruling elite want to abuse public funds, they stifle development of financial markets so that they channel funds using public institutions and parastatals that are under their influence (Levine, 2001). Politicians are powerful, especially in nations with low levels of democracy, but when the rule of law is upheld, strong institutions resist their influence.

Another important aspect affected by politics is democracy and the civil rights of ordinary citizens through their participation in politics. Degryse, Lambert and Schwenbacher (2016) show that suffrage (voting rights) affects the structure of financial markets by either promoting banking sector at the expense of stock markets or vice versa. When voting rights are a preserve of the elite, stock markets tend to be more developed as the wealthy vote for policies that protect interest of private investors, capital invested on stock markets and protection against risks that erode returns. On the other hand, more voting rights give

power to middle and low-class citizens that rely on bank finance and income from labour. Haber (2012) brings out that in United States, Brazil and Mexico restrictive suffrage policies inhibited the competitiveness of banking institutions by granting more political power to the elite. Benmelech and Maskowitz (2010) and North and Weingast (1989) contend that broadening voting rights reduce the capture of regulatory institutions by the elite sector of society, in the process increasing credit provision to the generality of the population including the private sector. Hence which intermediaries develop in an economy is decided by the risk-return preferences of the voters over time (Degryse et al., 2016).

Mayer and Sussman (2001) emphasise that financial development is materially affected by disclosure requirements, regulation of banking practice, accounting standards and deposit insurance. These features tend to be lacking in most developing countries, particularly SSA (Andrianaivo & Yartey, 2009; Beck et al., 2011; McDonald & Schumacher, 2007) as cited in Yabata et al. (2013), a phenomenon that could explain low level of development in this region.

3.3.4 Natural resources endowment theories

In recent years developing countries with abundant natural resources have underperformed economically compared to those without natural resources (Ranis, 1991; Sachs & Warner, 1995) despite the expectation that natural resources should provide capital to fund development. These resources should generate much needed foreign currency that will allow these countries to industrialise rapidly through importing sophisticated machinery that cannot be produced locally. Theorist such as Keefer and

Knack (1997) and Pack (1994) have showed corruption, weak institutions, poor contract enforcement mechanisms, protection of property rights and social instability as some of the major cause attributable to under performance of resource rich countries. Baland and Francois (2000) and Ross (1999) point out weak legal and political institutions that fail to arrest rent seeking behaviour, corruption and myopia.

Barbier (2005) cites three hypotheses that try to explain this phenomenon, namely, the resource curse hypothesis, direct access exploitation hypothesis and the factor endowment hypothesis. The resource curse hypothesis suggests that relying on natural resources inhibit economy wide development that is sustainable. Development in the extractive industry might draw away resources from innovative and dynamic sectors such as manufacturing and services thereby limiting their growth potential. Resultantly, resource rich countries end up with over specialised economies that rely on export of primary products from the extractive sector (Matsuyama, 1992; Sachs & Warner, 1995). Another phenomenon attributable to natural resources is the “Dutch disease” that occurs after the discovery of new reserves of natural resources or a boom in prices of natural resources. The huge inflow of foreign currency result in an overvalued currency, making exports from other non-resource sector expensive. This will slow the growth of the economy. Furthermore, increases in revenue from exports can result in government increasing expenditure in anticipation of a continued rise in resources prices. This results in over-expenditure when resources price falls in the future, particularly considering that these products have very volatile prices (Auty, 1997; Matsuyama, 1992; Ross, 1999). Resources usually associated with this behaviour are minerals, energy and forest (Ross, 1999).

The direct access exploitation hypothesis attributes deficient performance of resources endowed countries to poor property rights that lead to over-extraction of resources with little benefit to the broader economy. On the other hand, the factor endowment hypothesis attributes success of economies to availability of natural resources mentioning countries such as Australia, Canada, USA, and New Zealand. Factors responsible for success in these countries are geography, type of institutions and climatic conditions as compared countries in Africa, Latin America and Asia that are tropical plantation-based countries (Acemoglu, Simon, & James, 2001; Sokoloff & Engerman, 2000).

The theoretical explanations advanced by these hypotheses provide strong basis for linking resources endowment and performance of both the banking sector and stock markets directly and indirectly in SADC. Firstly, when natural resources booms drive away resources from manufacturing companies to mining entities, companies listed on the stock exchange are affected negatively as investors shift their funds to protect themselves against this shift in economic activity. Mining companies are usually headquartered in developed countries, and they raise much of their capital from these markets on countries where their operations are based. Secondly, weak legal and political institutions that result in rent seeking, lack of property rights and corruption directly affect the proper functioning of banks and stock markets. These factors scare away investors resulting in markets with little local and international investor participation. Thirdly, through shocks on the exchange rate and economic growth, financial markets are likely to be affected negatively. Considering that early theorist such as Patrick (1966) and later supporting evidence put weight behind the demand follow hypothesis, a decrease in economic growth reduces demand credit and equity capital.

The majority of SADC nations have abundant mineral resources, such as those found in South Africa (platinum, gold and diamonds), Zimbabwe (platinum, gold, diamonds, and coal), Botswana (diamonds), Zambia (copper and cobalt), Namibia (diamonds, uranium and copper), Mozambique (coal, natural gas and gold), the DRC (gold, cobalt and diamonds), Tanzania (gold, iron ore and nickel. The underdeveloped state of the financial markets in SADC might be substantially explained by the natural endowment theories. As a result of their endowment in natural resources, several of these nations have weak institutions and lower degrees of democracy (Landsberg, 2004). While Namibia and Botswana have stable and developing economies and are regarded higher in terms of rule of law, other nations, like South Africa and Mauritius, have more developed financial markets despite the presence of natural resources (World Justice Project, 2020). This also suggests that the factor endowment theory might be applicable in the SADC region, necessitating a study of how natural resource endowments influence the growth of the banking industry and the stock market in SADC. As a result, by analysing this association, the current study will add more knowledge to the literature.

The theories reviewed in this section show that there are a variety of factors that affect banking sector development and stock market development. Though these theories are not exhaustive, they bring out conditions that should be put in place to foster development of financial markets. These theories were put forward at different time periods starting with theories such as the Demand following hypothesis, McKinnon-Shaw Model, Law based theories and more recently natural resources endowment theories. This brings to the fore the idea that varied factors become important at different periods of time in general and in a country's development trajectory. The dynamism of financial markets

makes them responsive to new variables as countries become exposed to new factors and risks. The theories also omitted or did not consider other key factors such as urbanisation, inequality, industrialisation, capital flight, press freedom, exchange rate regimes and regional integration. This could explain why past policy initiatives put in place in SADC countries have failed to develop the banking sector and stock markets. As a result, the current study intends to decide how these factors affect banking sector development and stock market development. Considering the above, the following section reviews literature that pertains to determinants of stock market development.

3.4 Stock market development

The definition of a developed stock market is still elusive and controversial despite many studies on stock market development. Some authors and practitioners have insinuated development to mean huge in size, others have showed it as a liquid market while others have defined it as efficient, stable and high performing market. There is no precise definition of a developed stock market and as a result, different dimensions have been used to measure development. The major dimensions that have been utilised are market size, liquidity and to a lesser extent efficiency. El-Wassal (2013) notes that stock market development is a long-term process that is multi-faceted and complex such that a single measure or dimension might fail to capture the whole concept. So, El-Wassal (2013) suggests that development of stock market can better be defined as the ability of a stock market to perform its major functions through meeting the needs of economic players. This entails that development should be reflected by the quality of services given to market participants rather than being measured by size, liquidity, volatility, or index performance alone. However, it is not to say that these characteristics or dimensions are

not important but, combined, their presence in various forms can enhance the stock market's ability to provide quality service. For instance, Greenwood and Smith (1997) prove that a large stock market measured by capitalisation helps investment in productive technologies through reducing savings mobilisation costs. On the other hand, liquidity attract long-term investors by guaranteeing them an exit avenue. At the same time, liquidity incentivises extraction of information about companies thereby fostering corporate governance (Holmstrom & Tirole, 1993; Levine, 1991). Huge market size and liquidity can foster development of stock markets by lowering cost of transacting, reducing price jumps, attracting more market participants, and reducing cost of capital, all of which are important for promoting efficiency and reducing market volatility. Therefore, stock market development is defined as the presence of a combination of liquidity, high capitalisation, low volatility, and efficiency that help stock markets to mobilise savings and channel them into the most productive sectors of the economy.

3.4.1 Determinants of stock market development

Development of equity markets is still at its infancy and the trajectory is proving to be complex and dynamic to understand (El-Wassal, 2013). El-Wassal (ibid) classified determinants of stock market into supply factor, institutional factors, demand factors, and supply factors. Supply and demand factors provide the foundation for development while institutional and economic factors work as supporting blocks. The following section examines the varied factors that were neglected by theory and past studies.

3.4.1.1 Press freedom

Press freedom increases the flow of information between citizens and government, arrests corruption, reduces extremism, increases participation in politics and positively affects economic growth (Anam, 2002; Besley, Burgess, & Prat, 2002; Djankov, McLiesh, Nenova, & Shleifer, 2002; Leeson, 2008; Roll & Talbott, 2003). Apart from democracy and quality institutions, free press promotes economic development through FDI. When the press is perceived to be free, it reduces the riskiness of FDI through providing accurate information to international investors.

The importance of media to local and international investors was brought out by the media dependency theory put forward by Sandra Ball-Rokeach and Malvin DeFleur in 1976. They advance that people learn more from the media than they do in their real lives such that they tend to depend on the media for the most critical issues. This results in people changing their attitudes, behaviour and society wide beliefs (Ball-Rokeach & DeFleur, 1976). The media can have far reaching effects on stock market development in SADC particularly in instances where investors and citizens in general rely heavily on information from newspaper houses. It can shape society's views in terms of benefits and risks of taking part on the stock markets, fairness, transparency of the system and beliefs about the future of the economy. All this can affect investor's appetite for risk and the desire to take part on stock markets, especially for new entrants.

When the media is not state captured, it serves to increase transparency by encouraging more corporate disclosure, hence increasing the accuracy of analysts' forecasts (Brunetti & Weder, 2003). Kim, Zhang and Li (2017) hypothesise that independent media positively

impact analysts forecast because of capability to generate more firm specific information (additional information hypothesis). They also note that independent media can ensure accuracy by acting as a watchdog through exposing analysts who continuously make inaccurate forecasts (monitoring hypothesis). Owing to the additional information and monitoring roles, independent media facilitates provision of accurate information to market participants who rely on analysts' recommendations to make buy or sell decisions in capital markets. Through constant exposure to the public, analysts making wrong forecast will end up being driven away from the sector, leaving analysts capable of making correct predictions. By raising interest in stock markets and consequently increasing stock market participation, press freedom can help the SADC stock market to develop. Gumbo and Sandada (2018) note that stock market participation in Zimbabwe is extremely low, a condition that is typical of most SADC nations, and they attempted to investigate the causes. Their research demonstrated that some of the key factors influencing stock market involvement included awareness, perception and transaction costs. Acquaah (2015) discovered that a key factor influencing whether corporations list on Ghanaian stock exchanges was stock market knowledge. Press freedom can thereby increase awareness and trust in the stock markets in the SADC, in addition to boosting analyst predictions and promoting efficiency through company disclosures.

3.4.1.2 Exchange rate regime

There is agreement, at least among a substantial number of researchers and policy makers that a link exists between exchange rate and growth through productivity, trade and investment (Petreski, 2009). However, the prevailing exchange rate is a function of the exchange rate regime adopted by a country.

Christmann (2002) found seven distinct regimes, namely, floating (flexible), managed floating, target bands, crawling pegs, conventional pegs, currency boards and monetary unions. Flexible exchange regime allows the currency value to freely fluctuate in response to market forces. Closer to that is the managed float where monetary authorities regularly intervene in the market to limit the short-term volatility of the currency. Under targeted bands, the thrust is to keep the exchange rate within some predetermined bands or range. Whereas the focus is on keeping a given level of flexibility in the previously mentioned regimes, the conventional pegs are meant to keep the exchange rate at the fixed level. A deviation from this model is the crawling peg system where there is systematic adjustment of the exchange rate in a certain direction by the monetary authorities. Then there is a currency board system, which aim to keep a fixed rate against a set currency or basket of currencies. Lastly, a monetary union involves several countries agreeing to use a single currency. Christmann (2002) classified a monitory union as synonymous with dollarisation where a country adopts another country's currency for use though the setup could be different like in the case of the European Union where a new currency is issued out for use by member states.

Controversy still surrounds the right regime, but views have been evolving over years owing to past experiences and changing domestic and international environment. For example, developing and emerging economies favoured pegging their exchange rates against a strong currency to ensure stability in macro-economic variables directly affected by the exchange rate movement. However, this stability was followed by capital flight and currency crises owing to collapse of most of these pegged currencies (Ghosh & Ostry, 2009). Evidence from East Asia and Latin America in 1990s currency crisis underscored

the challenges of fixed exchange rate regimes. Owing to rigidities in the system and unwillingness by policy makers to adjust for political reasons, currencies managed under this system end up being overvalued (Edwards, 2003). Dornbusch (1997) and Bruno (1995) advocated for the use of a pegged system for a brief period before which authorities should shift to a flexible system. Ghosh and Ostry (2009) and Staehr (2015) credit fixed exchange rates for improving international trade, low inflation, stable exchange rates though there might be more variability in employment and vulnerability to overvaluation. Ghosh and Ostry (2009) point out that growth prospects are high (half percentage points per capita per year) under intermediate exchange regimes because they provide a balance between a strong peg and free-floating regime.

Two theoretical models, the stock and flow-oriented models explain the relationship between exchange rates and stock market prices. According to the flow model, exchange rate movements impact stock prices of both local and international firms through the impact on company operations. A depreciation in the local exchange rate will reduce the level of profits for a multinational company, thereby reducing its balance sheet value in foreign currency terms. This will make it less attractive to investors leading to a decrease in the demand for the company's share. In the case of a local company, a change in the exchange rate has a bearing on the cost of inputs and the price of products that they produce. If the change result in an increase in the price of goods produced, then the quantity demanded is likely to reduce (Kose, Dakanya, & Hakan, 2010). The impact of exchange rate on stock prices is also dependent on whether a firm is export or import dependent (Bala & Hassan, 2018). When the entity is export oriented, an appreciation in the exchange rate will make exports dearer compared to those from competitor markets.

This will result in lower demand for the company's exports which affect profits and price of the company's shares. However, for companies that are import oriented, the effect is reverse. When the local currency appreciates, imports become cheaper hence reducing the company's cost of production and prices. Depreciation of local currencies could have a greater impact on SADC companies than appreciation. This is because, despite the fact that the majority of them sell minerals to developed nations, the pricing of these goods is fixed on global markets in foreign currencies, typically the US dollar. In the event that currencies depreciate, their imports, which primarily consist of capital goods and raw materials, could raise the cost of production and result in inflation.

To the contrary, the Stock Oriented model suggests that it is stock prices that affect the exchange rate. This is also known as the portfolio adjustment model. Increases in stock prices result in the flow of foreign capital in search of better returns. The increase in demand for the local currency or increase in foreign currency from this process result in the exchange rate appreciating. On the other hand, a decrease in stock prices result in capital outflows that cause a depreciation in the currency value. When stock prices decrease, local investors lose wealth and their demand for money decreases, in the process pushing interest rates down (Ozcelebi & Yildirim, 2016).

Mahapatra and Bhadhuri (2019) assert that volatility in exchange rates impact stock market returns through influencing investors to demand more compensation for the risk of exchange rates movements. When the uncertainty is higher, investors require compensation for the risk posed by volatile stock markets even though theories such as the modern portfolio theory suggests that such risk should not be compensated for since it is considered unsystematic risk in financially well-developed markets. Investors need

compensation for foreign exchange rate risk in less developed markets like those in SADC where countries are vulnerable to significant and unfavourable changes in exchange rates as a result of low foreign currency reserves. This could be owing to lack of hedging instruments that allow investors to protect themselves against such type of risk. There is varied evidence shown by a sizeable number of studies showing interaction between economic growth, exchange rates and stock market. However, there is a void left by earlier researchers on exploring how different exchange rate regimes can affect stock market development. This is particularly important considering that exchange rate regime is not only determination of the prevailing exchange, but it encompasses other complimentary policy such as capital controls and monetary policy (Staehr, 2015).

3.4.1.3 Industrialisation

Stock markets contribute to socio-economic growth and development of economies through channelling resources to firms with high productivity, promoting reforms and facilitating the growth and modernisation of industry (Alile, 1997; Donwa & Odia, 2010). Singh (1998) points out that international financial institutions advocate for stock market in Africa because state-controlled banks that issue directed subsidised credit to firms were not efficient hence as a country begin to industrialise it needs more sophisticated markets including the stock market. In support of these pronouncements, Rajan and Zingales (1998) found out that stock market size has a positive influence on the growth of industries that are financially dependent.

There is some understanding that stock markets drive industrialisation, but the impact of industrialisation on stock markets is not understood. Industrialisation should positively

impact stock market development as firms seek capital to fund operations. Goldmith (1969) and Robinson (1952) advances that financial systems are positively impacted by development of the real sector through creation of modern financial institutions as real sector players demand more services. As such, past levels of industrialization are expected to positively impact stock market development through liquidity and capitalization enhancement as firms raise new capital. Kominek (2003) showed that growing firms dominated the Polish stock market and contributed to its development; hence, growth of the exchange was dependent on the capital raising initiatives of the banking and construction industries.

A large body of literature focuses on the industrialisation, financial markets, and economic growth matrix but it does not shed light on the structure of the industry, capital intensity and the impact of funding decisions on financial markets. Since industrialisation is associated with a transformation from being an agriculture-based or resource-based economy to one with a growing manufacturing sector, the nature of companies that will dominate the economy become different. Manufacturing companies are usually characterised by huge sizes and more capital intensity, and this is likely to have a bearing on demand of resources to fund operations. The SADC Industrialization Strategy and Roadmap of 2015–2063 was developed by SADC with the goal of enhancing the manufacturing sector's contribution to economic growth by raising the share of production that uses medium- and high-technology. The companies should undergo this metamorphosis into large manufacturing businesses that require financing from stock markets and financial institutions.

Also, the process of transformation has a positive bearing on poverty reduction, unemployment, modernisation, external balance, and productivity (Todaro & Smith, 2011). Developments such as high-income levels and employment can also increase demand and usage of financial services such as savings, insurance and investment on stock markets. Furthermore, increase in productivity can result in demand for payment services that link consumers, producers and suppliers. Industrialisation result in labour migration as workers search of jobs and higher income in industrialised cities. When companies attract skilled personnel, their level of productivity increases. Consequentially, companies will require financial resources to compensate the skilled labour, purchase raw materials and invest in new equipment. These resources will have to be acquired from banks and stock markets in instances where internally generated funds are not enough (Shahbaz, Bhattacharya & Mahalik, 2017). This demand should spur development of stock markets as more companies list while others issue out new equity. The beneficial effects, however, can be mitigated by globalisation, which enables businesses to obtain money from other established markets. Additionally, SADC nations' low stock market participation and low-income levels may deter businesses from listing on local markets, or they may encourage them to list but still fall short of raising the necessary funding.

Shahbaz et al. (2017) conducted a comparative study on the relationship between industrialisation and financial sector development. Their results confirmed a long-term bidirectional relationship between industrialisation and financial sector development in China and India. However, the study used domestic credit to the private sector as the measure of financial development. Therefore, the study focused on banking sector

development. Some studies have concentrated on the impact of financial sector development on industrialisation or output of the manufacturing sector but without emphasis on examining how growth in manufacturing impacts stock markets. The tests on the demand following hypothesis were based on examining the impacts of economic growth on various components of the financial sector. Therefore, a gap on the impact of industrialisation on stock market development is still present up to today.

3.4.1.4 Capital flight

The impact of capital flows has been a subject for research for many years with the aim of determining how capital movements across boarders particularly private foreign capital inflows impact investments and economic growth in recipient countries. This has become important considering liberalisation policies that have been pursued by both developing and developed countries. Boyce and Ndikumana (2001) and Yalta (2010) identified significant capital outflows leaving developing countries as residents and foreign investors seek greener pastures in more advanced and stable countries. These outflows identified as capital flight create financing problems in already capital constrained countries. Capital flight which is defined as unrecorded outflows of capital by country residents can constrain growth through reducing the amount of capital available for investment in various sectors in the economy (Yalta, 2010).

When capital flows outside the country, it increases the savings-investment gap that usually exists in developing countries, thereby putting a strain on savings that should have been channelled to productive sectors of the economy (Yalta, 2010). Capital flight reduces investments through investor expectations of a higher tax rate to compensate for

a decreasing tax base. Higher tax rates in turn reduce after tax return on investments, thereby pushing away investors to destinations where they can generate better returns (Collier, Hoeffler & Pattillo, 2001).

The effect of capital flight on growth is explained through various avenues such as draining savings, reducing taxes and constrains on imports. Capital stashed abroad cannot be used for investments in the local economy and it cannot be subjected to tax by the local government. This drains funding that could be used for provision of social services such as education, health and other capital expenditure projects (Kapoor, 2007). Capital flight leaves the country in the form of foreign currency desperately need by developing countries to import raw materials, capital equipment and other essentials such as oil and electricity. This forces governments to rely on external debt to fund local requirements, exposing the country to risk of not meeting external obligations. Such developments result in a vicious cycle of debt and affecting growth negatively. Despite constraining importation of critical raw materials, huge outflows of foreign currency can put downside pressure on the exchange rate. These developments can affect the financial markets through changes in interest rates and exchange rates (Ajayi, 1997; Schneider, 2003).

Ohiaeri (2017) argues that stock market performance has an impact on capital flight and foreign portfolio investments through attracting investors to shift funds into markets that are expected to perform better. Her study in Nigeria proved the influence of capital market performance on these variables. Similarly, several studies have examined how developments in the financial sector particularly banks aid capital flight. For example, Atriy and Gupta (2017) show that beyond a certain threshold of financial sector development,

capital flight is facilitated by financial markets through increased integration with global markets and development of sophisticated financial products that can easily circumvent capital control regulations. Investors face less cost of bypassing regulatory measures when markets are more developed (Ariyoshi, et al., 2000). Financial markets help through provision of knowledge on risks and opportunities available, linkage between local and foreign firms and can utilise financial engineering to design financial instruments that easily slip through the regulation radar (Atriy & Gupta, 2017). As such, local institutions could be deriving benefits from these capital movements although in the short-term but how these capital movements impact long-term growth and development of stock markets is a grey area that needs attention. Several studies (Ariyoshi et al, 2000; Atriy & Gupta, 2017; Ohiaeri, 2017) have focused on how stock markets and banks influence capital flight but no study has examined the influence of capital flight on stock market development. The expectation is that capital flight in SADC countries hampers development of stock market through dampening activity. Money that should be invested on stock markets is taken out of the country thereby depriving companies of much needed capital. Capital flight could also reduce demand for shares as investors channel their funds to safe havens and this can dampen stock prices. As regional and international markets are increasingly integrated, this effect is magnified. Capital can easily move to SADC nations like South Africa and Mauritius, which have more developed economies, international financial centres, and are therefore more integrated with the world's financial markets. Many SADC nations continue to be vulnerable to capital flight owing to high levels of market volatility, vulnerability to economic shocks brought on by changes in

exchange rates and the development of the global economies, as well as a lack of financial instruments to handle such risks.

Another channel is the indirect link through economic growth. If capital flight negatively affects economic growth as suggested by Yalta (2010), Collier et al. (2001) and Kapoor (2007), then it could hurt stock markets by making companies trading on the stock exchange less attractive owing to lower expected future earnings.

3.5 Banking sector development

Aluko and Ajayi (2018) define banking sector development as the improvement in the banking sector's ability to carry out its main functions as highlighted by Levine (2005). These functions are (1) provision of information and allocation of capital (2) facilitating risk management, risk diversification of risk and trading (3) monitoring investment and strengthening corporate governance (4) facilitating trade in goods and services, and (5) deposit mobilisation.

3.5.1 Determinants of banking sector development

This section provides theoretical literature on factors that drive banking sector development. Extensive research has looked at banking sector development and its determinants over years but it is worth noting that such studies have not be exhaustive. This is partly because the banking sector is dynamic while at the same time new variables that did not seem to matter before are coming to the fore. Variables such as population density, urbanisation and inequality have been omitted by both theoretical and empirical literature. Other jurisdictions have received little attention before owing to unavailability of

data. In particular, researchers have spurned the SADC as a region such that evidence on this matter is scarce (Tsaurai, 2018).

3.5.1.1 Population density

Robnson (1952:86) postulates that “where enterprise leads finance follows”, implying that financial institutions set up themselves in areas where their services are needed. It is economic activity that fosters the development of financial markets such that industrial structure and population growth can play a significant role in shaping the nature and size of the banking sector. This is so because population growth can significantly affect the size and type of industries in each country as well as directly affect the demand for banking services.

The “original sin” hypothesis suggests that smaller economies particularly emerging markets will always have small and irrelevant bond markets mainly because of the size constraint (Burger, Warnock, & Warnock, 2015; Eischengreen & Hausmann, 2005). This is owing to little activity that does not call for setting up deep and liquid financial markets. Therefore, huge population sizes can generate enough economic activity that attracts big financial institutions and influences establishment of liquid financial markets. In Asia, for example, India which is the most populated dominates South Asia in terms of stock market and banking sector development while in East Asia, China account for 83% of the activity recorded in financial markets. The same applies to South Africa that dominates Southern Africa, Nigeria in West Africa, Egypt in North Africa, and Kenya in East Africa (Burger et al., 2015). This suggests that countries with large population have better developed markets owing to huge demand for services from many economic players.

More people are likely to demand services from banks while at the same time bigger firms usually found in such countries support development of banks. The “original sin” hypothesis, however, does not consider the effects of globalisation or how enticing profits and a secure investment climate might draw capital into sparsely inhabited places. For instance, despite having smaller populations, SADC nations like Botswana and Mauritius have active financial markets. Additionally, the idea ignores the detrimental impact of a large population on poverty and income per capita factors that are directly tied to demand for and actual usage of financial services. The hypothesis disregards the impact of financial exclusion, which is a common feature of developing nations. As a result, the hypothesis may not hold in the SADC setting. Instead, owing to lower levels of income per capita, financial exclusion, poverty, and population size could work against the development of the banking sector.

According to the Generation Overlapping Model put forward by Allais (1947) and Samuelson (1958), demographic changes impact financial asset prices owing to a younger generation purchasing assets while the old sell assets to fund retirement needs. The lifecycle hypothesis also notes changes in consumption and saving as individuals age (Modigliani & Miller, 1954). As the population grows and younger generation increases, asset prices increase, reflecting more demand and prospects for high returns (Brooks, 2002; Mankiw & Weil, 1989). Takats (2010) also brought out the negative impact of ageing on housing prices, suggesting that ageing in America, China and Germany among other countries will weigh down on global prices. Higgins (1998) further notes that owing to capital mobility, funds will flow to countries with younger and growing population in search of returns. SADC countries and Africa in general have younger and growing

populations compared to advanced countries, as such they should reap benefits of the demographic dividend. However, higher levels of unemployment and financial illiteracy among the young and school leavers in SADC countries are factors that can result in these countries missing on the benefits of a young population.

The cost of providing financial services is also another important consideration in the interaction between banking sector development and population density. Higher population figures usually translate into high population density which makes it cheaper for financial entities to extend their service. The cost of setting up infrastructure and other support services become less compared to the amount of business underwritten by such institutions. As a result, businesses are keener to set up in urban areas that are characterised by high population density compared to rural areas where people leave in geographically dispersed areas. In most instances, densely populated areas tend to have other support services and infrastructure in place, making it easy for financial institutions to offer their services. According to Allen et al. (2012), huge population makes it easy for financial institutions to accumulate savings owing to easy access. However, factors like unemployment, financial exclusion, poor infrastructure, power shortages, and low-income levels in some SADC countries might militate against this assertion.

Indirectly, population growth and therefore density can positively affect economic activity thereby increase demand of financial services. High population density provides crucial resources such as labour as well as huge market for goods and services. Availability of labour and a diversified skills base is crucial for the growth of the banking sector as it support supply of specialised and sophisticated services that require trained personnel. Kendrick (1977), Koduru and Tatavharthi (2019), and Simon (1981) articulates that

population foster growth through provision of human capital, economies of scale, huge goods market, creativity, diversity, new ideologies, and attitudes. Ahlburg (1998) cites technological development and demand for goods and service as benefits of a growing population.

However, higher population density because of a growing population or migration can exert a heavy burden on scarce resources, hence negatively affect economic development (Trang & Hieu, 2011). This can have a detrimental effect on the banking sector. Thomas Malthus argues that population growth has a negative impact on economic growth. Population grows at a geometric rate while food production increases at arithmetic rate resulting in the new population not getting enough food and other resources (Malthius, 1798; 1826). This results in resources being spent on keeping the population than increasing stock of capital spent on each worker (Koduru & Tatavharti, 2016). Also, population growth can result in capital dilution, lower standard of living, resource depletion and age structure (Trang & Hieu, 2011). The Solow Model (1956) weighs in by noting that population reduces both capital and steady state per worker in the process impeding productivity and growth. However, evidence on the ground seems to suggest a positive impact of population despite opposing views. For example, the biggest economies and most developed countries are highly populated as opposed to those at the lower end of the spectrum. The USA, China, Japan, India, and Germany are the biggest in terms of economic size and they have higher population figures as well. Consequentially, population density is expected to positively affect banking sector development through increasing demand for financial services, supplying critical skills and reducing the cost of providing financial services.

3.5.1.2 Inequality

Despite recording impressive growth rates over recent years, the problem of poverty and inequality in Africa remains at the centre stage. According to World Bank (2015), 45% of countries in SSA were likely to miss the target on Millennium Development Goals owing to extreme poverty levels although other regions are making progress. Income and wealth remain unequally distributed among residents, with very few individuals accounting for the larger chunk of wealth.

There is a need to examine how these extreme poverty levels and inequality impact the function of the banking sector because of the following: (1) there is a gap that exists in literature on how these levels of income inequality affects banking sector development, particularly in SADC, (2) more evidence of growing inequality in Africa situates this phenomenon at the centre of policy making to the level of being accorded the same importance as other traditional macroeconomic variables, and (3) high liquidity levels reported in African financial markets in particular banks are interpreted as a sign of inefficient intermediation (Asongu & Nwachukwu, 2015).

According to Kuznets' hypothesis (1955, 1963), countries at first stages of development are characterised by high concentration of wealth and inequality. As countries develop, inequality starts by increasing before it starts to decrease. Under such circumstances (underdevelopment), most citizens that are usually low-income earners are excluded from economic activity and financial markets alike. This scenario might result in underdeveloped banks owing to financial exclusion. Such markets lack scale benefits because of low levels of activity. Higher levels of inequality can be detrimental to the

banking sector and the economy at large through concentration risk. Most economic activity will involve very few individuals that are likely to be affected by the same economic factors. As such, financial institutions will be increasing their risk by dealing with few individuals compared to a diversified set of market participants.

Extreme poverty levels result in little investment being diverted to human development. As such, more citizens are likely to be uneducated which reduce their skills level and employability, level of financial literacy and participation in financial markets. One strand of literature documents that unequal access to financial services results in lower firm growth rates, income inequality, poor welfare gains, high corruption, and low levels of entrepreneurship (Banerjee & Duflo, 2005; Beck, Fuschs, & Uy, 2005; Claessens & Feijen, 2007). Access to financial services particularly for low-income earners could result in more economic opportunities, lower poverty and reduced inequality (Demirgüç-Kunt & Levine, 2009; Greenwood & Jovanovich, 1990). Such access might positively affect the banking sector through demand of financial services from emerging entrepreneurs, growing firms, economically empowered individuals, and general increase in economic activity. Sullar, Zikhali, and Cuevas (2022) demonstrate that SACU, which consists of Botswana, Eswatini, Lesotho, Namibia, and South Africa, is the region with the worst inequality in the world. South Africa and Namibia are the countries with the greatest inequality. For nations that are in crisis, like Zimbabwe and Eswatini, this situation is becoming more likely. These high levels of inequality significantly hamper consumption by limiting intergenerational economic mobility. Access to secondary and university education, jobs and higher wages are all still unequal (Sullar, Zikhali, & Cuevas, 2022). Such levels of poverty in SADC nations may be hindering the growth of the banking

industry by raising the danger of concentration, limiting demand for banking services and increasing financial exclusion. This will have an impact on the banking industry's profitability, stability and effectiveness.

Evidence from theory on the impact of financial development on inequality agrees on the positive effects of financial development. However, both literature and empirical evidence are dead silent on how inequality can affect banking sector development. As such, this study endeavours to test how inequality in SADC countries impact banking sector development.

3.5.1.3 Urbanisation

Following Patrick (1966)'s demand following hypothesis, financial markets grow in response to demand that emanate from economic participants as the economy grows. Similarly, Robinson (1952) posits that growth in the economy creates demand for various financial services, creating room for growth in the financial sector. The demand for services requires companies and individuals that are involved in various economic activities and mostly these are found in urban areas. In (SSA) for instance, GDP is driven by activities that are concentrated in urban areas. The world over, more than half of the population lives in urban cities with the number expected to increase to 75% by 2050 and in this matrix SSA is recording the fastest rate of urbanisation (Saghir & Santoro, 2018). Saghir and Santoro (2018) maintain that search for financial services, entrepreneurship opportunities, technology, productivity, and modernisation as the reasons for rural to urban migration. These reasons attributable to urbanisation point out to attraction from economic activity and better living standards.

One aspect of particular importance to researchers and policy makers is the impact of urbanisation on economic development. The movement of people from rural areas could affect development in several ways such that the effect can either be positive or negative. For example, the influx of people into cities could put a strain on resources especially where there is not enough investment into support infrastructure and services (Saghir & Santoro, 2018). On the other hand, agglomeration economies lead to lower cost of production allowing both private and public companies to provide services such as health care, education and banking to many people at a lower unit cost (Saghir & Santoro, 2018).

However, observations such as high unemployment, people settling in slumps, low levels of income and financial exclusion can militate against the expected positive impact particularly in SADC countries. For example, Abdel-Rahman, Safarzadeh and Bottomley (2006) found negative effects of urbanisation on growth in developing countries owing to influx of unskilled workers resulting in high unemployment and strain on infrastructure though Khan, Sarker, and Mannan (2016) found benefits of urban concentration on economic growth. Such negative effects could be increased by the high levels of wealth and income inequality in most SADC countries (Sullar et al., 2022).

Owing to urbanisation, education, banking, and health facilities reach many citizens compared to rural areas. This results in residents that are healthy and more educated thereby facilitating technology innovation and adoption (Seraphin, 2019). Urbanisation is also credited for facilitating entrepreneurship through better access to financial services, readily available market and ideas from other residents. Owing to high profitability of urban businesses compared to rural ones, urbanisation impacts poverty positively and increase standard of living (Loughran & Schultz, 2005). As more people are attracted by

these benefits found in urban centres, the migration process attracts more skilled labour resulting in increased productivity owing to interaction with other skilled peers. Rural to urban migration results in transfer of technology and remittances from urban workers to rural residents. This also facilitates development of rural areas ensuring shared development (Seraphin, 2019). Eventualities such as luring skilled labour, increase in productivity, entrepreneurship, and access to education can exert positive influence on banking sector development. Also, the transfer of technology and income to rural areas allow financial institutions like banks to spread their services to these areas thereby stimulating use of financial products; hence, diversification of income sources.

Shahbaz, Bhattacharya and Mahalik (2017) argue that migrants can positively influence financial markets through demand for finance to meet education, housing as well as supplementing their wages to smoothen consumption. However, increasing urbanisation needs to be supported by improved infrastructure, access to work, financial services, and educational opportunities. If these amenities are lacking, as they are in the majority of SADC nations, urbanisation could exacerbate poverty, accelerate the deterioration of infrastructure and slow economic growth, all of which would be detrimental to the growth of the banking industry.

3.6 Intermediary role of banks and stock markets

3.6.1 Timing of industrialisation hypothesis

The timing of industrialisation hypothesis (TOI) based on ideas expressed by Gerschenkron (1962) postulates that financial systems dominant in today's economies can be traced back to the industrial revolution. The theory suggests that differences in the

take-off phase of industrial revolution explain existence of bank-based and market-based economies. Firms that needed funding were faced with shortage of internally generated funds compared to the funding needed to catch up with early starters. At that time, market finance was difficult to raise owing to underdeveloped stock markets because investors were biased towards low-risk assets. This created a platform for banks to become the major source of funding for such huge sums of money and in turn banks were willing to take the risk and monitor the investments at the same time (Vitols, 2001). This formed the basis for developed countries to follow the bank-based model of financial structure (Aoki & Patrick, 1994).

Allen and Santomero (1998) show that insurance companies and banks have historically played a dominant role in financial markets thereby increasing their state of development. Owing to long-term relationships with clients, banks were better placed to grant better loan conditions to their clients even in times of distress. This edge is cemented by the secrecy between borrowers and lenders. Gorton and Penacchi (1990) opine that debt is less information sensitive than equity; as such, it attracts less informed investors allowing less credit worthy players. This entails that firms would first prefer to approach banks firstly because they were the most developed and secondly firms could easily access credit even if they were not credit worthy.

The theory sheds light on the emergence of banking institutions and how they became dominant in the financial markets. This theory could also explain why banks develop first in SADC countries. It shows that banks are prepared to take risk by extending credit to small start-ups and monitor these investments. Also, investors in developing countries are biased towards low-risk assets owing to low levels of income. Therefore, they invest

with banks, giving them much needed resources to extend credit. However, it does not explain how other developed economies such as USA and UK became market-based economies despite them being the pioneers of industrialisation. Therefore, the theory does not account for the emergence of the other components of the financial system like pension funds, insurance companies, bond markets and equity markets. In essence, the theory is flawed because it does not take into consideration the advent of other significant institutions like the equities markets and how they interact with the banks.

3.6.2 Financial intermediation theory

Financial intermediation theory can be traced back to the work of Gurley and Shaw (1960) who explored why intermediaries exist in financial markets. Financial intermediaries come together to provide information, achieve economies of scale by reducing the cost of transacting (Gurley & Shaw, 1960; Leland & Pyle, 1977). Strands of theory brings out that financial intermediaries exist mainly because of information asymmetry and agency problem, transaction costs and method of regulation.

The most cited reason in literature for the existence of intermediaries is the reduction of information asymmetry. This strand suggests that markets are not efficient in the mould of the Arrow-Debreu model, but information is inaccessible to every market participant and when accessible it happens at a cost. This result in the problem of adverse selection and moral hazard. When such costs are high and unresolved, they result in poorly developed markets characterised by little activity. The presence of information asymmetry results in depressed markets that are awash with poor quality assets (Akerlof, 1970). Owing to scale economies, intermediaries are better placed to reduce information

asymmetry and the associated costs of accessing information through their capability to evaluate and monitor borrowers (Diamond, 1984). Therefore, through intermediating between surplus units and deficit units, these financial units reduce cost of investing and accessing credit while simultaneously providing the required information pertaining to traders and the quality of assets being traded in the financial markets.

The second strand based on works by Benston and Smith Jr. (1976) and by Fama (1980) hinges on reduction of transaction costs. Intermediaries are better placed to reduce transaction costs owing to deployment of technology. The size and resources at the disposal of intermediaries allow them to lower transaction costs through investing in technology that improves efficiency in accessing information and monitoring entities (Diamond, 1984). This technology allows them to transfer funds, conduct research and evaluate and monitor at a less cost compared to individuals. These roles are important in the economy because when left to individuals, capital is inefficiently distributed to unproductive uses. Firstly, owing to lack of economies of scale, individuals do it at a higher cost and usually there is duplication of efforts. Secondly, individual investors do not have the ability to diversify risks across many lenders and borrowers. Thirdly, individuals lack the capability to manage liquidity risk that stems from mismatch between the times funds are needed for investment by borrowers against the time the lender is prepared to advance the same funds. Lastly, individuals face prohibitive cost in trying to monitor and control debtors after funds have been disbursed. As a result, financial intermediaries are better positioned to mobilise and distribute resources to the most productive use at a less cost (Beck, 2003).

The third strand developed by Guttentag and Lindsay (1968) and Merton (1995) argue that intermediaries appear owing to the type of regulation. The method of regulation deployed by regulators have a huge influence on the solvency and liquidity of financial intermediaries in each economy. For instance, Diamond and Rajan (2000) show that regulation on capital requirements for intermediaries affect their methods of refinancing, solvency, liquidity, credit extension and debt recovery, thereby influencing their stability and growth potential. Therefore, the aims of the regulators and instruments they deploy to regulate financial institutions do not only affect their stability and growth potential, but it also determines the type of institutions that appear.

The intermediation theory fills an important gap in this research by highlighting the major reasons why intermediaries exist and the factors that could explain the structure of financial markets. Firstly, it shows that existence and development of financial institutions is dependent on reducing information asymmetry, lowering transaction costs and the nature of regulation. A closer look at these functions show that banks are better placed to invest in technology that reduces transaction costs compared to stock markets because of the profit motive. Secondly, owing to the nature of relationships between borrowers and lenders, banks can easily evaluate and monitor activities of borrowers compared to stock markets, thereby reducing information asymmetry. Lastly, the deliberate choice by regulators to focus on developing banks first before stock markets gives the banking sector a head start. As a result, the banking sector tends to dominate the financial system to the extent of alienating stock markets.

Insightful and fundamental as it is in shedding light on the emergence and role played by intermediaries, the financial intermediation theory falls short in accounting for the modern-

day financial structure and how it functions. This is so because the theory showed financial institutions such as banks as the only intermediaries that can reduce transaction costs and information asymmetry. As a result, it negates the role played by stock markets in performing the same functions or it does not recognise the capability of capital markets in intermediating savings from surplus to deficit units. Similarly, the theory does not articulate other important roles such as risk management, which have become prominent in modern day financial markets. The theory also does not recognise how the interaction of banks and stock markets can create more efficient markets by reducing transaction cost and information asymmetry through the signalling effect.

Hondroyiannis, Lolos, and Papapetrou (2005), for example, assert that contrary to traditional views of banks intermediating only, stock markets perform the intermediation role just as banks do. Guei (2018) highlights that both banks and stock markets are now the major intermediation channels in modern economies as opposed to dominance of banks. They facilitate risk diversification, liquidity transformation and cost reduction owing to size effect. Allen and Santemero (1998) contend that boundaries between markets and intermediaries have been broken down, intermediaries have changed, assets have become complicated, and markets are now dominated by non-banking institutions such as insurance companies, stock markets and pension funds.

Allen and Santemero (1998) posit that the existence of intermediaries is not only premised on existence of information asymmetry and transaction costs as early intermediation theory suggests. Although the dominance of traditional banks has hinged on reduction in information asymmetry and transaction costs, new intermediaries, and markets for intermediaries such as options and futures have also appeared during the same time.

Though traditional theory assumes a decreasing role for intermediaries as market imperfections decrease, emergence of new functions and institutions make the theory less accurate. Modern theory should consider other functions such as risk management, risk trading and advisory services. Scholtens and van Wensveen (2003) agree with this view, suggesting that the general equilibrium model in which intermediaries are not important owing to low information asymmetry contradict evidence in developed countries. They advance that those intermediaries are still relevant despite decrease in information asymmetry owing to value creation that emanates from risk management functions.

The purpose and benefits that have been derived from intermediaries are widely understood but over time these intermediaries have been evolving and the emerging structure do not only vary across time but across geographical boundaries and legal jurisdictions. Allen and Santemero (1998) note that intermediaries are now more engaged into risk transfer through dealing with sophisticated financial assets being traded on stock markets. The changes in intermediary roles and emergence of new intermediaries are explained by many factors among them technology, investor behaviour, information availability, cost of transacting, and regulation (Andries, 2009). Apart from outside variables, internal factors such as need for growth, stability and meeting shareholder expectations also affect development of intermediaries.

Merton (1995) proposed the functional perspective that consider intermediaries as providers of pricing information, payment systems, mechanism of pooling resources, facilitating transactions, and risk management. In the eyes of Scholtens and van Wensveen (2003), functions are not changing much but how they are conducted and who

performs them is changing overtime. Merton (1995) found strong interaction between markets and intermediaries in intermediation than before as shown in Figure 3-2. Rather than a circular trend when financial products move from intermediaries to markets, Merton (1995) advances that the movement is cyclical. Financial products move back and forth from intermediaries to markets or the opposite direction. This has been caused by innovation, technology, changing needs and sophistication of transactions that have removed boundaries that traditionally existed between banks and markets.

Figure 3-2 shows how financial intermediaries, markets, lenders, and borrowers are connected in a financial system. Those with surplus resources such as the government, firms and households can lend the funds to intermediaries like banks, investment funds, pension funds and other deposit taking institutions. Alternatively, lenders (surplus units) can invest their funds in assets such as stocks, bonds, foreign exchange, and derivative instruments that are traded in the financial markets. The deficit units (borrowers) can approach banks, pensions funds and other deposit institutions to access credit (or investment) from the pooled funds. Likewise, the borrowers can also choose to access funding from financial markets through issuing equity and bonds instead of borrowing directly from banking institutions. At the same time, financial intermediaries and financial markets (for example, equity, bond markets) are interdependent since banking institutions convert liabilities (deposits) into assets like equities, bonds and money market instruments traded in financial markets. At maturity, banks and other intermediaries liquidate their investments back into cash to payback depositors on demand. There is ample evidence that banks and stock markets can equally serve as intermediaries while at the same they depend on each other for their optimal functioning.

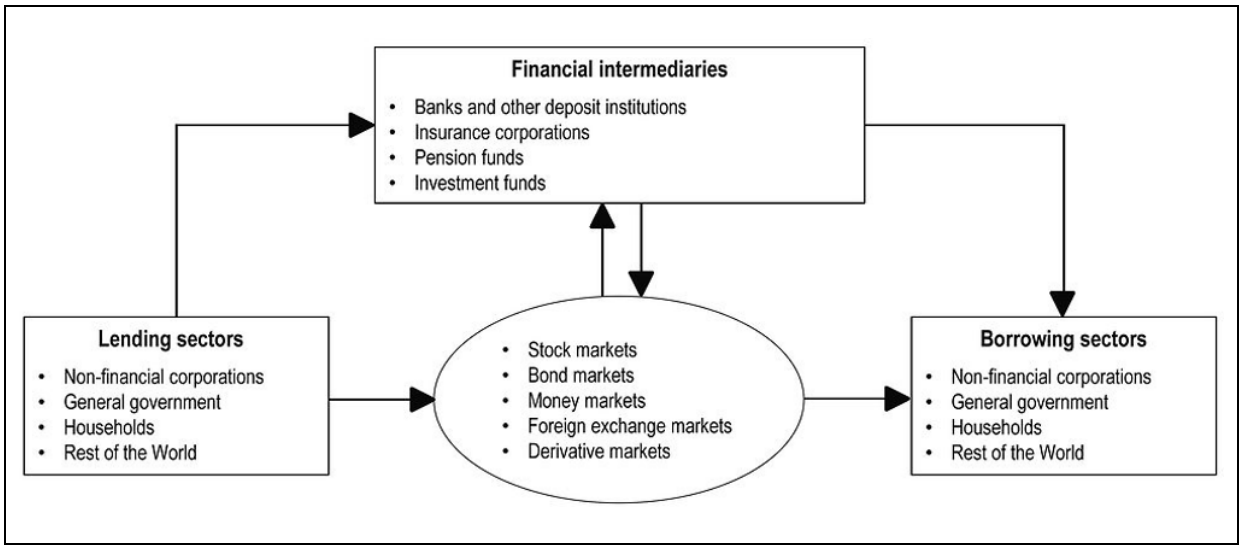


***Figure* 3- 2: Interactions in financial markets** (OECD, 2017)

Zaernjuk, Kryukova, Bokareva, and Chernikova (2014) note that transformation in activities of banking institutions, starting with the USA and Great Britain where market-based systems (stock markets) appeared first. Competition from capital markets forced banks to innovate in traditional markets and enter new markets such as insurance, asset management and underwriting services. This provided them opportunities to survive and grow even when faced with the threat of a changing environment. These changes happened at the same time when investor behaviour was also changing from use of simple banking services to sophisticated risk management tools (Zaernjuk, et al., 2014). Allen and Santemero (1998) postulate that even the risk management function is affected by existence of competition from markets. For example, in France, Germany and Japan, banks can protect their customers from risk by keeping reserves of safe low yielding assets when returns are high and draw on these reserves when returns are low. This inter-temporal smoothing is not possible in markets such as the UK and USA where there is more competition from markets that allow depositors to withdraw funds and invest

elsewhere. As a result, markets have forced intermediaries to develop new ways of managing risks thereby creating new markets for other products and services.

Banks were dominant mainly because they provided liquidity guarantee through offering services or claims with fixed liquidity (Diamond & Dybvig, 1983). Owing to the desire for liquidity, investors are willing to forgo return by holding their wealth in bank deposits (Andries & Cuza, 2009). However, stock markets are now able to attract investments into high return long-term projects through guaranteeing liquidity (Bencivenga, Smith, & Starr, 1995). In order not to forgo return in search of liquidity, investors can channel their funds in stock markets that generate higher returns. With the increase in size of stock markets, substantial number of international and local participants as well as technological innovations that are facilitating trading, stock markets become liquid to become alternatives to banks. Coupled by the benefit of diversification where investors can hold many assets with varying levels of liquidity, capital markets can guarantee liquidity and risk diversification at the same time. Stock markets also provide a platform for risk sharing by allowing investors to move funds from minimal risk to high return assets while providing diversification benefits. When well developed, stock markets provide incentives for companies to shift from long-term debt to equity (Demirguc-Kunt & Maksimovic, 1999).

However, Andries and Cuza (2009) still believed in uniqueness of intermediaries, particularly banks. They found transaction cost reduction, provision of liquidity and information and debt renegotiation as the functions that make them unique. They suggest that capital markets are not efficient in providing information because they result in high monitoring costs or sub-optimal monitoring owing to free riding as each individual investor goes through the same process. They allude to banks as natural monopolies that are

better placed to carry out the function because of access to information in addition to economies of scale. Though banks have economies of scale, consensus from various market players in stock markets provides more reliable information especially considering the negative effect of relationship lending, too powerful banks and the profit motive. Markets can also provide reliable information relevant for decision making if the markets are efficient enough. This is so because information generated by capital markets emanate from various unrelated participants as such it is likely to be more objective and accurate.

Andries and Cuza (2009) highlight centralised payment systems as a way of reducing costs instead of high verification cost when the system is not centralised. They argue that although stock markets can reduce cost of transacting by providing information and a ready market for selling securities, while at the same time online trading and regional exchanges have made it less costly for investors to trade than before, services such as providing a centralised payment system cannot be duplicated in capital markets. The uniqueness of such functions brings out the importance of having banks operating even in economies where capital markets can mimic some banking roles.

Allen and Santomero (1998) show that intermediation theories are still relevant as shown by continued existence of financial intermediaries and increasing dominants in financial systems. However, they noted changing roles owing to lower transaction costs and information asymmetry because of technology and innovation. Egert, Backe and Zumer (2007) found results that support the intermediation theory, identifying asset transformation and brokerage as the main functions carried out by intermediaries. Badum (2009) also tested the relevance of financial intermediation theory and found that over

and above traditional roles, intermediaries are relevant for risk management, capital formation, provision of liquidity, and information sharing. Despite its relevance, Dey (2003) called for theories that consider operations of stock markets, changes in technology and regulatory systems. As a result of these factors, the traditional theory of financial intermediation falls short in capturing new functions being performed by modern day intermediaries. As such, a modified theory that consider risk management, the competition or symbiotic existence of markets and banks and other essential functions are a necessity.

3.7 Complementarity and substitution between banks and stock markets

The interaction between banks and stock markets is situated at the heart of development of financial markets first because of the role they play in supporting growth and second because of the size they constitute in most financial systems. The dominance of one sector over another like is the case with banks in SADC countries could in some way interfere with how financial markets run. Having looked at theories that explain emergence and roles played by banks and stock markets, this section explores the interaction between banks and stock markets. The theories reviewed above provided a platform of understanding existence of the banking sector and stock markets but did not provide a channel through which these components interact.

3.7.1 Banks and stock markets as substitutes

Banks and stock markets have traditionally been viewed as competitors in providing funding to those in need of capital (Diamond, 1997; Jacklin, 1987; Jacklin & Bhattacharya, 1988). The notion of substitutability between banks and stock markets has its foundation

in firm capital structure decisions. This is so because firms that need to raise capital can do that by either issuing out equity or debt to fund their operations (Brogaard, Ngo, & Xia, 2019). A company's choice to include more debt and less equity in the capital structure or vice versa has a bearing on the quantity demanded for each source of capital. If many firms make these choices owing to differences in cost of capital or the signals sent by using one source against another, they can significantly alter the level of development of banking sector and stock markets (Ross, 1977). Therefore, the presence of an alternative source of capital can easily take away business or demand from one segment to the other thereby influencing development. This notion is premised on the demand following hypothesis which suggests that demand of financial services result in the development of financial markets.

3.7.1.1 Capital structure theories

Literature on corporate finance considers debt and equity to be substitutes. When stock markets develop, funding company operations using equity become cheaper compared to debt; hence, firms will raise more equity than before. This result in lower debt to equity ratios (Demiguc-Kunt & Levine, 1993). In the same vein, Baumann, Hoggarth and Pain (2005) also note that corporates tend to switch their demand for capital from capital markets to banks during periods when yield spread widens thereby propping the amount of credit issued out by banking institutions.

Modigliani and Miller (1958) put forward their capital structure irrelevance theory by suggesting that in perfect financial markets with no information asymmetry, the value of securities issued by a firm are not decided by the source of capital such that firms can

either fund their operations with credit from banks or equity from capital markets. Therefore, using debt or equity in funding company operations should not have a bearing on the value of the firm. However, this assertion is not closer to reality since markets are characterised by transaction costs and information asymmetry; therefore, they are not perfect. Garcia and Liu (1999) posit that some of distortions emanate from subsidies, taxation, regulations, and policies that might tilt the filed in favour of one capital source against another. For instance, in SADC, the cost of floatation when issuing equity as well as the costs associated with listing on local exchanges and paying taxes and fees for stock exchange trading can be prohibitive, especially for smaller businesses. As proposed by Modigliani and Miller (1958), as a result, enterprises might not be able to effortlessly transfer from one source of capital to another.

Modigliani and Miller (1963) adjusted their theory for taxes, considering the tax deductibility of interest. They recognised that a firm reduces its tax payable by employing more debt in the capital structure, thereby increasing the tax shield. As the present value of tax shield increases with higher debt to equity ratios, the value of the firm rises. This is owing to a decrease in the cost of capital as more debt is included in the capital structure. As a result, capital structure becomes relevant in determining firm value; hence, it becomes a major concern for management and shareholders. However, the theory does not explain why then firms do not fund their operations with debt only in search of the tax shield or use excessively elevated levels of debt. However, it does not capture costs such as bankruptcy costs that are associated with elevated levels of debt in the capital structure. Considering the above, Modigliani and Miller (1963) conceptualised the trade-off theory in a bid to explain how firms substitute equity for debt or vice versa in search of

benefits derived by adding more debt into the capital structure. Firms try to balance the tax deductibility benefit of debt with the cost of bankruptcy and agency costs that come with including more debt in the capital structure. These costs include legal and administrative costs, loss of market share, skilled labour turnover, deteriorating trade terms and increase in interest expense (Baxter, 1967). To maximise the value of the firm, companies look for the best debt to equity ratio through substituting one form of capital with another. The theory made four important deductions. Firstly, firms have target debt ratios that vary from company to company. Secondly, firms with high quality tangible assets will borrow more owing to less exposure to financial distress costs. Thirdly, higher tax rates result in higher debt ratios. Lastly, companies with more income and less tax-deductible expenses such as depreciation and investment credits are likely to use more debt in their capital structure. The trade-off theory explains capital decisions made by businesses that are more realistic. However, each company must decide whether to transition from one source of capital to another based on its profitability, industry-specific characteristics and potential for value-adding investments. In the end, companies will aim for different debt-to-equity ratios; therefore, the aggregate effects will cancel each other out and the decision of a corporation to invest with equity might not have an impact on the development of the banking industry. Additionally, the firm's goal debt ratio fluctuates over time rather than remaining constant (Chirinko & Singha, 2000). Therefore, there will be a back-and-forth process that leads to the sources of capital coexisting in harmony.

Ross (1977) conceptualised the signalling theory which suggests that since managers have insider information, investors and other market participants derive signals from company capital structure decisions. The belief is that managers issue out debt when

their shares are undervalued and only resort to equity after debt has been exhausted. When managers believe the company's share are under overvalued then they will issue out equity first to derive maximum benefits from the mispricing. Furthermore, Ross (1977) posits that managers resort to debt when they are confident about the company's prospects and its capability to meet future interest obligations. Therefore, they will be willing to subject the company to the scrutiny of third parties who are experts in evaluating company creditworthiness. As a result, financing with debt sends positive signals to the markets, thereby positively affecting the company share price. The signalling theory provides evidence that businesses or managers would prefer to finance activities with debt rather than stock. This explains why banks are more developed than equity markets and why most SADC enterprises are financed primarily by debt rather than equity. The positive signals that are generated when debt and preference are issued cause businesses to want more credit at the expense of equity, which slows the growth of stock markets. According to a study by Amelot and Agathee (2021), even if the majority of businesses in the SADC finance their operations with loans, idiosyncratic risk has a greater impact on their choices.

Another theory that is based on information asymmetry is the pecking order theory. Myers and Majluf (1984) aver that an important consideration in determining the use of debt or equity is the information costs as measured by the level of information asymmetry in the market. According to the theory, firms rank capital sources in a hierarchical order starting with retained earnings that are considered cheaper owing to less information asymmetry issues. Apart from retained earnings, there is high preference for short-term debt than long-term and then debt for equity (Myers & Majluf, 1984). When there is high information

asymmetry, firms prefer to use more debt than equity as issuing out equity become more expensive since they risk selling their securities under-priced (Myers & Majluf, 1984). The notion is that managers prefer to issue equity when their shares are overvalued. Therefore, where a firm issues equity investors are prepared to pay less owing to the belief that the share are overvalued. This emanates from information asymmetry between managers and investors where managers have more information about company operations than other stakeholders. So, the presence of information asymmetry in firms preferring to borrow from banks than issue out equity.

Colombage and Halabi (2012) note that in emerging markets, information needed for pricing of assets and decision-making is lacking, and it is costly for investors to gather and process the information. Therefore, the pecking order theory better explains the structure of markets in developing countries including SADC where most of the firms are funded with debt as such propping up banking sector development ahead of stock markets. This is because these countries are characterised by higher levels information asymmetry compared to developed markets. Rajan and Zingales (1995) tested the applicability of the packing order theory in seven industrialised countries. Their results confirm the theory. Yang, Chueh, and Lee (2014) tested the trade-off theory and the pecking order theory on companies listed in Taiwan and China. Using the panel KPSS and Fourier function, they found that an optimal capital structure (trade off theory) does exist for companies with more symmetrical information while companies with information asymmetry follow the pecking order theory.

The theories reviewed above show that companies do substitute one form of capital with another depending on the levels of information asymmetry, tax shield benefits,

expectations of finance distress costs, idiosyncratic risk, and how the market interprets capital structure decisions. These theories seem to agree that firms prefer to issue out debt first or at least they favour to have more debt in their capital structure than equity. This is true for developing countries where firms rely on external financing, particularly bank financing though the debt tend to be short-term (Mutenheri & Green, 2003). Such a scenario provides insights into why bank financing is more dominant, and the banking sector is more developed than equity markets in SADC than in many other developing regions.

Traditionally, banks were the main source of capital for smaller firms that could not access capital markets. The level of secrecy provided by banks and less stringent requirements makes it desirable for firms to use debt capital. In the process they create relationships that ensure repeated business going forward in the future (Peterhoff, Romeo, & Calvey, 2014). However, off late deregulation and increasing competition has seen younger firms that usually relied on banks for capital switching to equity markets and bond markets. The average age of firms going public has decreased from 40 years to five years during the period 1970 to 2000 (Berlin, 2012). Such substitutability of bank funding with equity could explain the decrease in bank assets compared to non-banking institutions observable in most financial markets. Furthermore, Berlin (2012) contends that access to equity markets by borrowers destroy lending relationships that are usually relied upon by banks. Banks can lend to young and risky firms owing to subsidies coming from profits made on larger and risky firms. At the same time, banks are likely to continue lending to these smaller firms if they are prepared to pay higher interest rates in the future. As such, if these smaller firms have access to markets where they can raise equity, banks tend to

lose this market power and reduce their desire to lend to these firms. In fact, when these firms access equity markets, they start to demand lower rates of interest from banks (Schenone, 2010). Though this competition is healthy through provision of a wide range of services at lower costs, it reduces the market power of banks which in turn lowers their capability to cross subsidies among bank customers. Banks become constrained in cross selling some of their services to customers hence reduce their volume of business, profitability and growth (Berlin, 2012).

3.7.1.2 The substitution hypothesis

The substitution hypothesis used to explain the relationship between remittances and financial development can be borrowed to explain substitutability of banks and stock markets. According to the substitution hypothesis, when credit markets are less developed, remittances come in to fill the gaps by providing alternative sources of capital for poor households to fund investments and for consumption smoothing. Under this scenario, recipients of remittances can self-finance consumption and investment thereby reduce demand for credit from banks. Therefore, remittances tend to affect growth more in countries with weak credit markets as they substitute underdeveloped markets in funding growth (Calderon, Fajnzylber, & Lopez, 2007). As a result, there is an inverse relationship between remittances and financial depth in funding growth (Giuliano & Ruiz-Arranz, 2009). Similarly, banks can act as substitutes for stock markets by providing long-term capital to firms seeking funding when stocks markets are not able to provide such funding owing to challenges such as low liquidity and high volatility, among others. On the other hand, when banks are rationing credit, levying higher charges, charging excessive interest premiums, or advancing short-term credit, firms can turn to capital

markets to fund their operations in a cost-efficient manner. This will result in less demand for bank products, effectively reducing the contribution of banking sector to economic growth.

In the same vein, surplus units that intend to save and invest can buy shares from the stock market, invest in money market instruments offered by banks or other intermediaries such as hedge funds and mutual funds (Berlin, 2012). For both firms and individuals, the choice of assets to buy depend on idiosyncratic characteristics such as risk appetite, objectives, cash flow generating capacity and type of investment projects. When the financial system is characterised by illiquidity, investors prefer to put their funds in less risky and more liquid assets provided by banking institutions. The more equity markets become liquid enough to provide guarantee against liquidity shocks, the more depositors are likely to shift their funds to the stock markets (Diamond & Dybvig, 1983). Gubler (2011) brings out that banks and stock markets also provide same risk management facilities that allow consumers to alternate between banks and stock markets. Banks have been innovative in designing insurance and risk management products that meet the needs of different customers. On their part, stock markets provide diversification benefits and derivative instruments such as futures and options that are directly used to manage risk by different investors.

In SADC countries where transaction costs are high, participation in stock markets is exceptionally low and where there is high segregation between the banking sector and equity markets, swift movement of funds from stock markets to banks and vice versa might be difficult. As Lin (2017) noted, there is a need for high stock market participation for this process to succeed. The effect could be negligible in countries where there is little

participation on stock markets. This observation could explain why the banking sector and stock markets in less developed countries have been found to be complementary yet in developed countries the two become substitutes. The substitute relationship is found when countries move to high income levels and in better developed financial markets. Therefore, this could be explained by decreasing transaction costs and information asymmetry as stock markets develop, characteristics absent in most developing markets.

3.7.1.3 Spare tyre hypothesis

Levine, Lin, and Xie (2015) conceptualised the spare tyre model where they advanced that stock markets can work as spare tyres during a banking crisis. It was developed from views expressed by Greenspan (1999) who was Chairman of the Federal Reserve System. Furthermore, Greenspan (1999) opines that stock markets could help to reduce the effect of a banking crisis by catering for firms that require capital. When firms can substitute equity for debt from banks, then the effect of a decrease in loan supply could be reduced. According to Greenspan (1999), the banking crises in Japan and East Asia could have been mitigated by well-developed stock markets supported by proper legal infrastructure. Levine et al. (2015) highlight the following three important learning points from the spare tyre hypothesis:

1. When a banking crisis become full fledge, its impact can be reduced by the availability of a stock market through substituting debt for equity.

2. The benefits of a developed stock market will materialise more for firms that rely on bank loans than those that do not rely on debt.

3. For equity to offset the effect of drying bank loans, there should be supporting legal structure before the crisis. What matters the most is the legal infrastructure than the size of the stock market.

Levine and Booth (2015) tested the spare tyre view by applying a differences-in differences- method using 3600 firms in 36 countries from 1990 to 2011. They found that laws that protect shareholders promote financing through equity, insulate against decrease in firm profitability and reduce the negative effect of a crisis on employment. They also observed that the effect of shareholder protection laws is more pronounced for firms that rely on bank loans more than those that do not. Lastly, laws put in place matter more than the size of the stock market. They confirmed the spare tyre view is subject to availability of laws and enforcement systems that promotes growth of stock markets. The spare tyre theory is less relevant in nations with weak institutions that are unable to establish regulations or a legal framework that protects shareholders. Equity markets might not be active enough to serve as a backup tyre in the case of a banking crisis because moribund SADC countries are characterised by weak enforcement mechanisms and score poorly on the application of rule of law. As a result, the relationship has a higher chance of being complimentary than substitutive. This study attempts to close this gap by examining the relationship between the development of the banking sector and the development of the stock market in light of SADC's distinctive characteristics.

Neal (2016) zeroed in on regulation, technology and properly functioning financial systems as the determinants of whether banking sector development and stock market development are complements or substitutes. For example, new regulations in the USA such as Foreign Accounts Tax Compliance Act (FATCA), Common Reporting Standards

(CPS) and Base Erosion and Profit Shifting (BEPS) requiring banks to disclose detailed account information to tax authorities, identify foreign accounts and increase intensity of bank ground checks can tilt the terrain in favour of stock markets as companies and individuals shift funds to less regulated sectors (Damgaard, 2018). Considering enforcement costs associated with these new regulations, bank bottom lines are likely to be adversely affected against little or no incremental benefits derived from these measures. Song and Thako (1999) focused on technology, propounding those developments in one sector creates competition between stock markets and banking sector as customers switch to where there is technology advancement. Customers seek convenience, safety and less costs involved with technology driven transactions. In this regard, innovations happening in SADC stock markets such as automation, online trading, setting up of alternative exchanges for micro-small to medium enterprises, and establishment of electronic security depositories could revolutionise how these markets operate and trigger an avalanche of movement into securities markets.

The traditional view of financial structure classifies markets as bank-based or markets-based and these are viewed as competing segments (Allen & Gale, 1997; Boot & Thakor, 1997; Dewatripont & Maskin, 1995). Backs (2010) and Song and Thakor (2010) submit that developed markets counterbalance dominants of huge banks, showing that as markets develop, they reduce dominance of banks through providing competition. The widely held notion that capital markets can offer intermediation services outside the banking system, on its own signal existence of competition (Osoro & Osano, 2014). Evidently, stock markets can challenge the dominance of banking institutions if—and only if—they evolve to the point where they can provide services that banks offer at

comparable prices. Most of the stock markets in SADC nations, except for South Africa, are still in their infancy and are characterised by illiquidity, volatility, a small number of listed companies and players, high transaction fees, high prices, and onerous listing criteria. Therefore, alternatives might fall short of completely replacing banking institutions. However, the push for regional integration within SADC may expand the scope of these capital markets, hasten the adoption of new technologies, draw more domestic and international investors, enhance liquidity, and boost the number of listed companies. They will be able to compete with regional banking institutions owing to such advancements. Given that this phenomenon is not covered in literature, it is crucial to investigate how regional integration might affect the relationship between banks and stock markets.

Gubler's (2011) study focused on the role of securitisation in promoting perfect substitutability between banks and stock markets. Banks can transfer from their books, assets and risks that are repackaged and traded in markets. This market migration process allows banks to free up balance sheets so as to assume new profitable risks. Owing to capital adequacy regulations, internal and external credit limits, banks will have an incentive to transfer assets into capital markets (Gubler, 2011). With the help of credit rating agencies and other credit enhancements such as trenching, banks strive to reduce the level of information asymmetry such that these assets end up being traded as stocks (Tett, 2009). As a result, banks become perfect substitutes to markets when assets on bank balance sheets can easily be standardised, transferred and traded on stock markets with ease. A classic example was the creation of Collateralised Debt Obligations through pulling and trenching thereby creating standardised assets that appeal to different

investor risk return requirements (Gorton, 2008). For this substitutability to exist, there should be no information asymmetry between banks and markets while bank products should be standardised into high volume products (Merton, 1995). Plausible as the route to substitutability appears for developed markets, its applicability in less developed markets is severely constrained by existence of information asymmetry. As it is, markets for securitised assets in SADC are still in their infancy with South Africa and Mauritius being the countries with reasonable activity in the market. Therefore, the absence of full developed markets for securitised assets can militate against full applicability of this hypothesis.

There are number of theories and hypothesises that explain the substitutability of banks and stock markets through the nature of functions they perform. However, their applicability in SADC and developing countries is interrogated by the low levels of development of financial markets that are characterised by information asymmetry, high transaction costs, illiquidity, incomplete markets and inefficiency. These theories ignored current events like regional integration as well as the conditions that exist in the developing nations that make up the SADC area. Therefore, there is a gap since no studies have been conducted in the SADC region to test this relationship considering these peculiar characteristics mentioned above.

3.7.2 Banks and stock markets as complements

3.7.2.1 Signalling hypothesis

The signalling hypothesis explain the complimentary relationship between banking sector and stock markets through transfer of signals that influence activity in both markets.

Banks partake in securities markets indirectly, by sending signals to the market participants and affecting share prices in the process. Fama (1985) theorises that a bank can gather confidential information about firms accessing credit better than other market participants. Since borrowing firms are usually depositors, banks find it cheaper to use deposit history to screen, certify and monitor borrowers. The greatest advantage emanates from their capability to gather confidential information that is not readily available to other institutions and the lower cost at which the information is gathered. Therefore, when a firm access credit from the bank, it sends positive signals to other market participants owing to more information possessed by banks.

Diamond (1991) modelled bank's advantages in funding smaller firms that are less known in the markets. Through accessing credit from banks, these smaller firms create a reputation that will allow them access to public equity and bond markets at a later stage. Also, such reputation obtained from getting access to loans helps these firms to obtain capital at a lower cost. The model suggests that banks guarantee the creditworthiness and excellent quality of the borrower to the stock markets. Fama (1985) also maintains that loans are regarded as lower priority claims so when loans are granted and renewed, lenders of high priority claims avoid repeating the process of monitoring the firm again. Drucker and Puri (2007) opine those theoretical explanations by Diamond (1991) and Fama (1985) imply that granting and renewal of loans boost stock markets through positive signals while loan sales could send negative signals to the capital markets. These assertions were confirmed by James (1987) who found evidence of a positive 1.93% abnormal return on equities around announcement of new agreements or extension of existing loan agreements.

When banks tighten credit conditions, negative signals are sent about future prospects of the broader economy, resulting in investors reducing their supply of capital on the stock markets (Bergabrant, Bradley & Hunter, 2017). This is mainly because banks obtain detailed private information from their clients (Fama, 1985). When tightening credit standards signal increased market risk, investors demand higher compensation or they move funds to less risky assets (Gorton & He, 2008). Also, suppliers of bank capital are the same suppliers of equity funds such that information on credit restrictions can have a direct effect of reducing supply for equity funds (Bergabrant et al., 2017). Furthermore, reduction in lending reduces firm debt to equity ratios such that any attempt to raise new equity can be seen as an attempt to substitute debt with equity against firm's optimal leverage ratio; hence, equity holders might not be willing to extend funds (Leary, 2009). Therefore, conditions in the bank credit market have a bearing on the functioning of stock markets through impacting supply of capital and risk-taking behaviour (Bergabrant et al., 2017).

Best and Zhang (2003) studied signals sent by loan agreements. They found excess returns on announcement day being more pronounced for troubled firms. Moreover, they found that in instances where analysts have made earnings forecast errors in the past and firms have received negative earnings revision, announcement of loan approvals produces excess returns. Slovin, Jonhson, and Glascock (1992) brought out that the effect of loan announcement is more pronounced for smaller firms than huge firms. In the same vein, Billet, Flannery and Garfinkel (1995) show that the positive effect of certification and monitoring from reputable banks have more impact. They suggest that the market pays more attention to reputable financial institutions because of more

resources that allow them to better evaluate and monitor firms. Assumed elevated levels of ability and a large following can explain significant impact from reputable and endowed firms, like herding behaviour saw among investors.

The signalling hypothesis sheds light on the way in which markets and banks might work together to fuel economic growth. The theory's main flaw is that it neglects to consider government interventions and controls on the banking industry's operations. Government intervenes with policy tools like interest rate caps and credit allocation directives when it believes the markets are not allocating capital efficiently. The government may step in with policies directing banks to extend credit to these sectors owing to their economic importance. This is especially true in SADC countries where banks may view sectors like agriculture and small to medium enterprises as riskier owing to a lack of collateral, limited trading history, susceptibility to shocks caused by climate change, and information asymmetry. The signalling hypothesis' applicability is distorted by such legislative measures. Additionally, the mechanisms for disseminating information should be very effective, including corporate voluntary information sharing. Information on loan advances may not reach equity market participants when there is information asymmetry because of lax information disclosure regulations. Banks are unable to reveal such information since they work to protect their customers' privacy. The signalling hypothesis is invalid under these conditions.

Almutair and Ibu Muhammad (2015) extended the signalling hypothesis by explaining the impact of stock prices on the demand and supply of credit. They discovered that stock price movement impacts banking lending through two channels:

1. Rising stock prices increases demand for bank loans as investors chase high returns against lower cost of borrowing.

2. A bullish stock market signal better prospects for companies and this can induce them to demand more credit from banks.

Through the supply channel, Almutair and Ibu Muhammad (2015) suggest that the surge in stock prices increase the supply of loans for the following reasons:

1. Banks are prepared to lend more owing to expectations of brighter prospects.

2. Price increases generate capital gains for banks holding equity, allowing them to cushion their assets against loses. This induces them to issue out more loans.

Kim and Moreno (1994) studied stock price movement and banking lending in Japan using monthly data from January 1970 to May 1993. They found a positive association through increase in bank lending when stock prices rise. Concurring with Almutair and Ibu Muhammad (2015), Kim and Moreno (1994) noted that results reflect information-driven policy decisions by banks.

This interaction between banks and markets hinges on efficiency of the markets. When markets are efficient enough, all the relevant information in relation to signalling through granting of loans, renewals and cancellations is instantly and fully reflected in security prices. The requirement raises important questions in relation to SADC markets that are considered less efficient. The mechanism of indirect linkage can be severely undermined by inefficiency that results from lack of access to information, high transaction costs and small number of market participants. In instances where a few large participants can

influence the market, there are prohibitive cost of transacting and accessing information and bank decisions are influenced by other factors apart from creditworthiness of loan applicants, the actions of banks and activity in stock markets might fail to have meaningful effect on each other. Secondly, the signals coming from these markets could be misleading resulting in wrong decision-making. This is true in instances where increases in stock prices could be owing to speculative trading, price jumps or hedging against inflationary pressures. This can make participants to lose confidence in the signalling mechanism. As a result, this calls for testing of this mechanism in countries that have stock markets that are less efficient and banking sector in which political decisions and other factors such as nepotism, poor credit policies can influence credit extension by banks.

3.7.2.2 Funding of investments

Demirguc-Kunt and Levine (1996) suggest that banks provide much of the project finance to firms, and this positively affects stock markets as companies raise more long-term finance. Banks and stock markets serve different segments of firms. Larger, mature and older firms use the stock markets to raise finance while smaller firms use banks to raise capital. As is the norm, smaller companies start by accessing loan financing from banks before they qualify to list on stock markets. However, as firms grow further, they need access to capital markets that can provide long-term capital (Peterhoff, Romeo, & Calvey, 2014). In this sense, banks provide a platform that facilitate growth of smaller firms so that they can graduate into stock markets. This explains the dominance of banks in economically lagging countries that are dominated by small to medium enterprises.

Since banks serve the role of mobilising savings through deposits as well as generating liquidity through provision of both long-term and short-term project finance, they affect positively the growth of stock markets through promoting the quality and quantity of investment (Ndikumane, 2005; Odhiambo, 2010). As a result, Demirguc-Kunt and Levine (1995) highlight those countries with better developed stock markets tend to have better developed banks and other non-banking financial intermediaries. Improvements in the stock market produce higher debt to equity ratio in firms, through helping investor of huge projects to price and diversify risk. In this instance, stock markets serve as a risk diversification mechanism that allow firms to raise more capital from banks to finance their projects. This will facilitate the growth of the banking sector (Demirguc- Kunt & Levine, 1993).

Chinn and Ito (2006) posit that complementarity is also observed when banks can extend more credit to firms with a strong capital base owing to equity raised from stock markets. Banks prefer to extend credit to firms that have more equity capital because they show capability to raise more capital even to repay the debt when need arises. In addition, Chinn and Ito (2006) argue that access to capital markets provides a source of fresh capital that can be taped into by firms when debt on their balance sheet is falling due. As a result of this process, equity markets provide cover for banks. Also, stock markets can facilitate the development of other risk management assets such as options, forwards and futures contracts that will facilitate the growth of intermediaries such as banks and credit rating agencies (Demirguc-Kunt & Levine, 1993). This happens as banks can generate more business through selling such assets over the counter.

3.7.2.3 The co-evolving model

Song and Thakor (2009) conceptualised the co-evolving model which postulates that stock markets and banking sector are competitors when they are looked at from a standalone point of view. When their interaction is considered, they are complements. They noted that during securitisation, banks carryout certification through analysing the credit worthiness of the client and the markets will then do the financing part. This process lowers transaction costs, cost of raising finance and improves liquidity. At the same time, it encourages investor participation which in turn leads to developed capital markets (Osoro & Osano, 2014). Using equity markets, banks on the other hand can alter their risk sensitive capital, allowing them to serve elevated risk borrowers that were previously unserved (Song & Thakor, 2009). The ability to raise more equity capital and the inclusion of high-risk borrowers pushes banks to invest in better technology meant for credit analysis. These processes create a feedback loop where markets lower financing friction while banks reduce certification friction, allowing a virtuous cycle of interdependence, hence co-evolving (Osoro & Osano, 2014; Song & Thakor, 2009). Besides trading opportunities for banks, the new products pushed to the markets by banks through securitisation create new markets and business for organised exchanges and in the process meeting the needs of firms as well as improving efficiency of stock markets (Gubler, 2011).

However, as much as the securitisation process increases interaction between banks and stock markets thereby creating more business for the two, it can also increase adverse selection and moral hazard. Though securitisation can improve liquidity and efficiency in the credit markets, it also allows them to offload default risk in security markets (Cheng,

2012). This creates the problem of “moral hazard” and “adverse selection”. The 2007 global fiscal crisis provides a perfect case that shows the complexities that emanate from the securitisation process. When assets are securitised, they become complex to analyse such that even poor-quality assets can be repackaged and presented as high-quality assets. This can depress asset prices as investors start to view them as bad lemons. Instead of propping stock markets, this process can militate against their development resulting in substitutability instead of complementarity.

The theoretical explanations pertain to markets for securitised assets, not equity markets usually used by researchers when testing the relationship. In less developed markets like those found in SADC, very few markets carry out fully fledged securitisation, thereby limiting the applicability of the Song and Thakor (2009) model. However, in markets such as South Africa and Mauritius where there is fully fledged securitisation, the channel can explain the complementary relationship between banking sector development and stock market development.

3.7.2.4 The systemic scale economies hypothesis

The systemic scale economies hypothesis advances that banks operating in economies with larger stock markets face lower cost in absorbing risk because of availability of more risk management tools. Also, the cost of reputation signalling is lower compared to banks in markets that have smaller capital markets (Bossone & Lee, 2004). Overall, banks operating in larger and more developed financial systems face lower cost of production as compared to firms operating smaller markets (Bossone & Lee, 2004). The authors highlighted three channels through which these benefits materialise:

1. Capital markets provide more information that help in screening and monitoring their investments. Also, banks can send signals that pertain to firm reputation using fewer financial resources than would otherwise be required. These banks need lower capital to asset proportion to obtain protection from monetary loss and reputational signalling effect.

2. There is a need for less non-financial resources in managing capital in instances where banks choose to increase output.

3. Large capital markets generate more quality information and investors in such markets also exhibit better capacity to interpret information signals. This makes it cheaper and more efficient for banks to send signals to the market.

There are positive information externalities that banks derive from developed stock markets but only banks that efficiently use information can benefit otherwise those less equipped are penalised by stock markets. Banks better placed to extract information and manage risk can venture into capital market related businesses where there is growing demand for cross sectional management of risk (Allen & Santemero, 2001; Bossone & Lee, 2004). Bossone, Patrick and Millard (2001) conclude that for banks and stock markets to co-evolve, there is a need for proper mechanisms and infrastructure that facilitate risk sharing, provision of information and lowering of transaction cost. These include technology, rules governing transactions and systems that allow banks to diversify revenue sources as a way of mitigating the effect of rent losses owing to competition from stock markets. For smaller markets, access to international markets through opening to foreign entities and sharing regional infrastructure can enhance exploitation of systematic

scale economies (Bossone et al., 2001). Therefore, the regional integration that SADC nations are pursuing could aid in enabling a complimentary interaction between stock markets and banks by enabling the exploitation of systematic scale economies. However, achieving consistent scale economies may be hampered by a lack of infrastructure and methods to share risk, exchange information and reduce transaction costs. The development of systems and infrastructure that can drastically reduce transaction costs through automation and online banking could benefit greatly from advancements in technology and innovation. Information is disseminated in real time and costs less at the same time.

3.7.2.5 Underwriting channel

Chung (2012) cites underwriting services provided by banks as another channel through which they complement stock markets and vice versa. Commercial banks can directly affect operations of financial markets through provision of underwriting services to participants in the bond and equity markets. Drucker and Puri (2005) noted advantages that can be derived by the market and participants alike if underwriting is done by commercial banks. Banks gather confidential information at less cost when they extend loans to firms. Owing to this first screening and later monitoring of loans, commercial banks are better placed to find the value of firms issuing securities on the stock markets. Combining lending and underwriting provides economies of scope through using the same information already gathered for various purposes (Saunders & Walter, 1994). These factors result in lower cost of intermediation (Drucker & Puri, 2005). As such, firms intending to raise equity or debt (through bonds) capital may find it cheaper, particularly smaller firms that usually avoid equity markets owing to high floatation costs. These

relationships increase access to capital markets through lower underwriting fees and yield spread at issue (Datta, Iskandar-Dattar, & Patel, 1999; Drucker & Puri, 2005).

However, this underwriting process can be severely undermined by the existence of conflict of interest in relation to other services offered by banks. Lending to a firm and underwriting securities issued by the same company can severely affect the company's capability to do its duties effectively. For instance, Puri (1999) brought up three issues of major concern. First, banks can underwrite issues that may be used to extinguish their exposure to the firm. Furthermore, banks can tie pricing and provision of credit to a company's use of its underwriting services. This can send wrong signals since banks will be lending to third parties so that they support a security issue (Drucker & Puri, 2005). A second concern relates to ownership of equity in firms that seek their underwriting services. The third issue pertains to monopoly power that can be gained by banks that have privileged information from earlier lending relationships. All these conflicts, according to Rajar (2002), can be detrimental to markets in which securities are being floated through sending wrong signals, provision of incorrect information and stifling the development of competition. It is crucial that banks participate in underwriting rather than investment management companies, especially in developing markets with significant levels of information asymmetry. For instance, in SADC, banks will benefit from the ability to collect information from businesses which request financing from them. Under-pricing of new issues as payment for adverse selection and underwriter compensation for insurance services are instances that occur in these circumstances. This should entice new businesses to list on the stock exchange, accelerating the growth of the stock market. Song (2004) uncovered evidence suggesting, in contrast to pure investment banks,

commercial banks typically work with smaller clients that have low stock rankings, less prior access to the stock market and a greater reliance on bank loans. This information is used to support Song's claim. When knowledge asymmetry is high, banks may prefer to underwrite for subpar forms rather than issuing new loans because of the resulting conflict of interest (Song, 2004). Instead of enhancing the development of the stock market, this can work against it.

The SADC stock markets' generally low activity in initial public offerings (IPOs) and seasoned public offerings (SPOs) raises questions about the underwriting channel's ability to promote a complementary relationship between banking sector development and stock market development. The underwriting channel will be virtually non-existent when interest in fresh offers is minimal. According to Price Waterhouse Coopers research from 2022, African IPOs have decreased alarmingly despite an increase in global IPOs during 2021. Particularly, South Africa, which is home to Africa's most developed market, had a 73% decline, continuing a five-year pattern. In SSA, stock markets have seen more de-listings than listings, which has been linked to high corporate costs and low values. As a result, the underwriting channel may not significantly affect how SADC banks and stock markets interact.

3.7.2.6 Firm ownership structure

Firm ownership structure has been linked to corporate governance and firm decision-making, particularly financing and investment decisions. This is so because the characteristics of shareholders and how much stake they own directly affects the quality of decisions through the choice and cost of using certain financial instruments (Tribo,

2018). For example, dominance of larger shareholders prevents management's opportunist behaviour, but it also raises serious concerns about expropriation of minority shareholders (Lins, 2003; Shleifer & Vishny, 1986). Banks are a special type of shareholder owing to distinct roles they play such as being a monitor, lender and underwriter. As such, they can hold equity in different firms for expropriation or strategic motives (Berlin, John, & Saunders, 1996; Hellmann, Lindsey, & Puri, 2004).

Expropriation motives by banks include forcing firms to borrow at harsh conditions such as punitive interest rates. These are for the benefit of the bank at the expense of other minority shareholders. As Faccio, Lang and Young (2001) argue, when this motive dominates, banks are not keen to allow firms to issue out equity to avoid public scrutiny from financial markets. When the expropriation motive is dominant, there will be a negative relationship between bank shareholding and issue of equity.

On the other hand, banks can pursue the strategic motive in a bid to become future lenders or security underwriters (Hellmann et al., 2004). In this instance, having a stake provides access to other streams of revenue in the bond and equities markets. Since the motive is to generate more business through underwriting and support services related to equity and bond markets, banks that invest for the strategic motive have more drive to facilitate issuing of shares in the equity market. This opens more business through underwriting and more lending (Antao, Ferreira, & Lacerda, 2011; Drucker & Puri, 2005). Under this scenario, the presence of banks in the shareholding structure positively impacts participation in the equities markets hence development of the same.

Considerable shareholding stakes held by banks play a certification role since they strive to keep good reputation with other investors that depend on them. More importantly, the presence of banks as shareholders reduces information asymmetry since they usually invest in good companies (Allen & Gale, 2001). Through reduction of conflict between new and old shareholders, bank shareholding increases entry by new stakeholders. This reduction in agency problem and other information asymmetries is shown by lower under-pricing of IPOs when banks hold larger stakes (Chahine & Tohme, 2009). Also, allowing banks to hold equity in firms trading on the stock market increases efficiency in markets through reduced IPO under-pricing and gross spreads at issue. Banks with a large stake and credit lines reduce securities issuing fees thereby stimulating activity on stock markets. The presence of banks in the shareholding structure reduces pressure usually exerted by markets on firms to generate profits and increase returns in the short term (Schneper & Guillen, 2004). In turn, banks also benefit from long-term investments and social projects embarked on by firms once they are free from pressure. This creates dependency between banks and markets.

Using data from 45 countries for the period 2003 to 2013, Tribo (2018) used a conditional logit estimation and fixed effect linear probability model to examine the relationship between the size of the bank shareholding and the owned firm's likelihood of issuing shares in the public markets. They found evidence of a nonlinear relationship. When the stake held by the bank is low then contemporary issues for both debt and equity are low. Conversely, larger stakes held by banks are associated with more participation in capital markets. Tribo (2018) argues that this U-shaped relationship relates to the strategic and expropriation effect. When bank stake is low, the expropriation motive is likely to dominate

since banks internalise extraordinarily little of the expropriation costs. However, when stakes are high, the costs of expropriation are large enough such that the strategic effect becomes dominant. Resultantly, banks will focus on deriving benefits from underwriting, lending and advisory services as opposed to seek benefits from expropriation. Also, Tribo (2018) found that after an IPO or a securities issue, banks tend to increase their stake in such firms with the intention of exerting more influence to properly benefit from the strategic motive. The result of a strategic effect was more pronounced in Anglo-Saxon countries than other countries. This showed strong complementarity between banks and financial markets in Anglo Saxon countries.

Though the theories examined above give insights and plausible explanations on the complementarity or substitutability between development in both the banking sector and stock market, they leave a gap that needs to be filled by further research. All the theories and studies conducted concentrated on credit extension, stock market prices, stock market capitalisation and, liquidity but they neglected important dimensions such as banking sector efficiency and stability. As such, the current study fills this gap by examining how stock market capitalisation, liquidity and efficiency is related to credit extension, banking sector stability and efficiency. Additionally, these theories presuppose frictionless markets, which are prevalent in industrialised economies with sophisticated stock markets and financial institutions and are characterised by low transaction costs and no information asymmetry. The ideas might not apply to emerging nations like those in SADC because of erroneous presumptions or unique circumstances. Examples of countries where some of the theories are applicable include those with developed stock markets and banks, strong institutions, adherence to the rule of law, and strong

institutions. Consequently, it is clear that there are research gaps that need to be filled by examining the applicability of these ideas in SADC nations that are distinguished by poor rankings for rule of law, high degrees of information asymmetry, and a location within regional economic communities. As it is, the theories reviewed here left out the impact of regional integration on the relationship between banking sector development and stock market development. For countries in regional economic communities, regional integration is an essential element that needs to be considered since theory and evidence show that it materially impacts the banking sector and stock market development. Therefore, the following section attempt to address this gap.

3.8 Regional integration and the interaction between banking sector development and stock market development

The setting up of RECs is premised on the assumed benefits that emanate from regional integration. Regional integration is expected to bring out a wide range of benefits such as: (1) prevention and resolution of conflict, (2) enhanced trade and competitiveness and (3) economic and political stability (Ndomo, 2009). In pursuant of these benefits, the African Union (AU) spearheaded the 1980 Lagos Plan of Action for the development of Africa and the subsequent Abuja Treaty of 1991 that set up a formal platform for creation of regional economic communities. Owing to coordinated policy making and legally binding protocols and treaties, RECs can facilitate harmonisation of political, economic and social policies, thereby ensuring political stability and economic prosperity. According to the United Nations Economic Commission for Africa (UNECA) (2004), RECs bring about benefits such as economies of scale, attracting domestic and foreign investment and provision of regional public goods. These benefits emanate from economic

integration that results in increased trade among member countries, growth in market size and efficiencies that result from increased competition.

Thompson (2007) describes regional integration as the process of increasing interaction socially and economically between countries in proximity. It is a process through which countries enter into written agreements to cooperate in order to achieve peace, enhance stability and create wealth (McCormick, 1999). Regional integration goes beyond removing trade barriers but "encompass harmonizing standards and regulatory frameworks; reducing restrictions on capital and labour mobility; adopting common approaches to fiscal and monetary policy; promoting peace and conflict prevention; and pooling investment in cross-border infrastructure for transport, power and, communications" (United Nations Development Programme, 2011:9). These processes increase economic interdependence among countries through harmonisation of trade rules and policies that govern movement of capital, people and the implementation of economic policies (Ravenhill, 2004).

Ravenhill (2004) unpacks regional integration by bringing out its four forms. The lowest level of integration is the free trade area (FTA) where countries agree to allow goods and services to move across countries without any barriers, either tariffs or non-tariff while keeping their own tariffs on imports from outside the area. This can be achieved through a Preferential Trade Agreement (PTA) where trading countries agree to reduce tariffs on several products (Zyuulu, 2010). Furthermore, countries can enter a customs union through putting in place similar policies with regards to imports that originate from outside the region. This entails that apart from removing all forms of trade barriers, countries agree to advance corporation by adopting similar policies when dealing with imports that

originate from other regions. The next level of integration is a common market where countries add free movement of capital and labour on top of a free trade area and a customs union. An economic union is the highest level of integration under which countries harmonise economic policies such as monetary and fiscal policies on top of the other three forms of integration (Ravenhill, 2004). The European Union, through the adoption of a single currency, harmonisation of economic policies and setting up of a European Parliament has reached this level. In its RISDP blueprint SADC adopted the Ravenhill (2004) integration process through lining up several initiatives such as launching Free Trade Area in 2008, Customs Union in 2010, Common Market in 2015, Monetary Union in 2016 and Common Currency to be introduced in 2018 (Zyuulu, 2010).

Regional integration can have a material effect on the functioning of financial markets through opening the markets to external competition, attracting new capital in the form of FDI and bringing in innovation from developed markets. One such form of regional integration is financial integration. Regional financial integration is a process aimed at increasing financial transactions within a region through eliminating cross-border investment barriers, treating foreign and local investors equally, harmonising policies and laws, cooperation in areas of technology and information systems and facilitating convergence of prices and returns (Ekpo & Chuku, 2017). According to Held, McGrew, Goldblatt, and Perraton (1999), financial integration pertains to equalisation of prices and returns of financial assets across different national markets. On the other hand, Edison, Levine, Ricci, and Slok (2002) define the same as the extent to which an economy is open to cross-border financial flows. Financial integration covers two important dimensions namely free movement of capital and equal pricing of assets across-borders through

harmonisation and synchronisation of laws, policies, and infrastructure such as payment systems and trading platforms. When investors are free to move funds across markets, arbitrage opportunities are eliminated, resulting in similar assets trading at equal prices in different markets. Fair pricing of assets attracts more capital that can promote economic growth if efficiently allocated among competing needs.

Ahmed (2011) postulates that financial integration impacts growth indirectly through developing local financial markets and products. This emanates from growth in size that reduces inefficiencies, cost of capital and increases access and liquidity (Bundoo, 2017). The neoclassical-Solow model makes a compelling case for financial integration through capital account liberalisation. It advances that integration results in the flow of capital from developed countries to capital starved developing countries, resulting in the convergence of levels of income, asset returns and technology advancement (La Marca, 2004). Capital mobility can also be beneficial if it exists among developing countries as this makes such countries attractive investment destinations for foreign investment.

In the context of SADC, countries such as South Africa and Mauritius that are classified as international financial centres can work as conduits to bring in capital into the region while at the same time work as source of investment into other countries. This will result in higher levels of intra-regional funding, intra-regional trading, and intra-regional portfolio flows (ADB, 2013). Tahari et al. (2007) note that financial integration can lead to deeper markets that are efficient, resilient to shocks and integrated to the global world. Integration with world markets facilitate adoption of advanced technology and efficient payment systems that lower cost of intermediation. At the same time, it facilitates monetary policy

efficiency through communication of price signals sent by policy makers (Mohan, 2005 & Reddy, 2003).

Ahmed (2016) modelled the relationship between financial integration, financial development and economic growth in sub-Saharan Africa region. Furthermore, Ahmed (ibid) utilised a dynamic system GMM on data from 30 countries covering the period from 1976 to 2010. The results show a negative relationship between international financial integration and economic growth and a positive association between integration and financial development. In Botswana, Ahmed and Mmolainyane (2014) found evidence of the indirect link hypothesis implying that financial integration impacts growth through developing financial markets. These studies show that integration fosters development of financial markets despite a weak relationship between integration and growth.

Financial integration is also credited for creating stability in financial markets. Regional financial integration has the effect of facilitating financial sector reforms in member countries as countries prepare for increased competition and risks of financial instability owing to openness. These reforms result in more efficient, competitive, diversified, and resilient financial markets that provide a wide range of investment opportunities to firms and households and access to funding at lower costs (Tahari et al., 2007).

Considering the small size of majority of African economies, a bigger market created through integration can benefit from economies of scale, larger pool of resources from regional infrastructure and facilities for risk sharing and diversification (Mlachila, 2017). Integration results in assimilation of international standards in areas such as bank supervision, accounting standards, securities market legislation and corporate

governance (Guiso, Jappeli ,Padula, & Pagano, 2004). Also, entry of foreign institutions fosters stability through use of advanced risk management models that lower default risk. These foreign institutions are insulated from influence of government control on lending policies that direct credit to certain sectors of the economy for political millage (Agenor, 2003). However, the benefits do not seem to be universal as other countries might suffer setbacks owing to regional financial integration. For instance, David, Mlachila and Moheeput (2015) saw that in SSA, the link between financial integration and financial development is not robust and direct as assumed by many researchers. The benefits of integrating are dependent on country specific factors such as good institutions in the form of banking regulatory and supervisory quality.

Increase in competition brought about by financial integration can have unintended outcomes such as instability in the banking sector. When faced with intense competition from international banks while at the same time under pressure to increase profits for shareholders, banks can develop high appetite for excessive risk taking resulting in more fragility. In addition, a highly competitive environment sees banks deriving little benefits from information rent owing to their close relationship with borrowers. This reduces their incentive to thoroughly screen borrowers thereby increasing risk of fragility (Allen & Gale, 1999; 2004). Resultantly, increase in competition can result in financial instability which is more detrimental than the expected benefits of efficiency.

Another channel of instability is through the contagion effect. Adverse spillbacks and spill overs present the greatest threats from financial integration (Mlachila, 2017). These concerns emanate from the transmission of adverse shocks from financial markets in developed countries in case of a financial crisis like the global financial crisis of 2007-

2008 or disturbances in neighbouring countries. According to the contagion theorists, a crash or crisis in developed country stock markets will trigger tremors that result in unsustainable sell off in less developed markets. Boako and Alagidede (2017) used conditional value-at-risk (CoVaR) and the Kolmogorov–Smirnoff (KS) bootstrap technique to examine the contagion between stock markets in Africa and developed countries. Their results show evidence of significant contagion from markets in developed countries to African stock exchanges. Similarly, Daryl and Biekpe (2002) found transmission of shocks through contagion during the Asian crisis of 1997 to Egypt, Morocco, Namibia and South Africa.

On the other hand, the pure contagion concept assumes that transmission of shocks occurs even without idiosyncratic disturbances or factors (Bekaert, Campbell, & Ng, 2005). The fundamental based theory asserts that such transmission is propagated through trade linkages, economic interdependence or macroeconomic variables. This could be more pronounced for African financial markets that are less integrated with markets in developed countries, but their economies rely on foreign currency receipts from exports to developed economies. Commodity based economies suffer from decrease in export prices and volumes while other economies are affected by deteriorating exchange rates and increase in import prices.

These theories show that regional integration has a material effect on banking sector development and stock market development though the effect varies with the level of economic development, extent of integration and level of development of the banking sector and stock markets. Regional financial integration could partly explain the state of

development of banking sector and stock markets in SADC such that past studies that neglected this variable might fail to fully explain development of these sectors.

In SADC, Motelle and Biekpe (2015) tested causality between financial integration and stability of financial markets using the feasible generalised least squares (FGLS). Their results confirm the risk of instability in financial markets caused by financial integration. Contrastingly, Banyen and Biekpe (2020) show that increase in competition owing to financial integration results in a more efficient banking sector. Using Granger causality test on data from 405 banks in 47 countries selected from five RECs, they confirmed existence of the efficient structure hypothesis in the Arab Maghreb Union and SADC. Their study reveals that competition owing to financial integration results in better use of financial resources by banks thereby lowering transaction cost while increasing profitability. However, using the Lerner index to measure competition and the Z–score to proxy bank stability, Beck, De Jonghe and Schepens (2013) show that competition increases bank fragility in countries with developed stock markets, high deposit insurance and better mechanisms of sharing credit information. They highlight that better developed stock markets proxied by high stock turnover ratio provide an alternative for firms, making it easier for them to substitute debt with equity. This flexibility on the part of firms worsens banking sector fragility.

The evidence by Beck, et al. (2013) brings an important dimension pertinent to this study. The severity of the impact of integration on bank fragility can be influenced by the state of development of stock markets. This suggests that the impact of financial integration on the banking sector is dependent on the extent of stock market development. At the same time, the impact of the transmission of shocks could have a disproportionate effect on

financial markets and its various components. During a crisis or transmission of adverse shocks, investors might shift their funds between banks and stock markets in search of better investment alternatives or mechanisms of managing risks. Stock markets in most developing countries are less developed, characterised by illiquidity, few numbers of listed firms and high volatility, investors might be forced to seek refuge in the banking sector where risk is low.

Stock markets could also be impacted through decrease in international and private portfolio inflows owing to tight credit conditions and high-risk aversion (Boako & Alagidede, 2017). Since stock markets are more inflicted by cases of adverse selection and moral hazard than banks, any increase in risk results in investors moving to safer assets. Contagion increases the correlation of returns among financial assets thereby reducing the benefits of diversification (Gulko, 2002). If this contagion is at regional level, say in SADC then it reduces the attractiveness of the region as a destination of portfolio investments owing to limited diversification benefits.

As Boako and Alagidede, (2017) assert, the contagion effect is more pronounced through stock market channels than the banking sector such that the plausibility of the banking sector channel requires further attention. However, presence of multinational banks from developed countries and Pan African banks from the region present plausible channels through which shocks could be transmitted. Therefore, dominance of foreign owned banks in most African markets results in spill over of international crisis. Parent banks in crisis ridden countries tend to withdraw capital and call back loan advances in African subsidiaries. This also affects equity investments in markets where banks advance credit for the purchase of shares on the stock exchange (Ekpo & Chuku, 2017). Within a regional

setup like SADC, the advent of Pan African banks that are setting up subsidiaries in neighbouring countries can result in the transmission of crisis through the same channel. Countries like South Africa from where most of these Pan African banks originate is highly connected to the global markets, creating another channel through which risks can be transferred to other countries. For instance, Standard Bank from South Africa had operations in over 33 African countries while Ecobank from Togo had presence in over 30 countries by 2014 (Ekpo & Chuku, 2017). Owing to the conglomerate nature of these banks, they have promoted integration not only in the banking sector but in other sectors such as capital markets, pensions, insurance, microfinance, and money transfer (Allen, Otchere, & Senbet, 2011). However, the presence of Pan African banks also brings several benefits such as technology transfer, innovation, competition, more credit, and diversification benefits (Ekpo & Chuku, 2017). Therefore, the severity of the contagion effect on these two sectors is likely to depend on which is more integrated than the other. Also, the level of resilience of each sector to international shocks will show how integration affects its operation in the advent of adverse shocks. A study by Tembo and Makina (2020) showed that the SADC FIP had mixed effect on banking sector development and no effect on stock market development. However, the FIP did not have a material effect on global integration. Evidence from the study shows that regional financial integration impacts the banking sector and stock market development differently, creating the possibility of promoting the development of one sector at the expense of another. The measures can tilt the landscape in favour of one part for example in the case of the FIP thereby promoting substitutability between the banking sector development and stock market development.

Another strand of literature brings out how financial integration affects firm financing choices (Mitton, 2006; Schmukler & Vesperoni, 2006). Financial integration can affect firm financing decisions through several channels (Lucey & Zhang, 2011). Firstly, integrating with developed markets increases the availability of debt or equity capital to firms from less developed markets, improves access to international markets and allows foreign ownership of equity. These developments broaden financing options thereby influencing capital structure (Levine, 1996; Lucey & Zhang, 2011). Secondly, the process of integration that is usually associated with simultaneous liberalisation lowers cost of capital through international risk sharing, more competition, financial markets efficiency, improved corporate governance and, reduction in information asymmetry (Bae et al., 2006; Claessens, Demirguc-Kunt, & Huizinga, 2001). These factors lower the risk of extending credit and investing in equity, resulting in investors demanding less compensation in the form of return. Increase in availability of capital and reduction in the cost of the same results in firms changing their capital structures (Lucey & Zhang, 2011). In Brazil for instance, Hillier and Loncan (2019) show that stock market integration proxied by foreign ownership significantly reduces the cost of capital and increases corporate investment.

Thirdly, exposure to international markets can alter the debt maturity structure for local firms. Lenders can increase debt maturity structure when they assume increases in efficiency owing to competition (Agca, Nicolo, & Detragiache, 2015). Also, access to liquid markets that are more mature increases access to long-term finance that would otherwise be scarce in domestic markets. Owing to better institutional infrastructure such as contract

enforcement mechanisms, borrowers can issue out long-term debt at lower cost owing to less credit risk (De la Torre & Schmukler, 2005; Schmukler & Vesperoni, 2006).

The process of firms altering capital structure to include more debt or equity results in changes in the demand of these sources finance. Borrowing from the demand follow hypothesis, such changes in demand affect the development of these sectors. If increase in the use of one source of capital for example debt results in a reduction in the employment of equity for a substantial number of firms, then factors that precipitated such changes would have promoted substitutability between the two sources of capital. Lucey and Zhang (2011) brought out that increase in equity market integration makes equity more attractive compared to debt. This will prompt firms to shift to equity from long-term debt since both are long-term sources of capital. In support of this argument, Mitton (2006) avers that when local firms open to foreign equity investment, the level of leverage in their capital structure decreases.

Credit market integration on the other hand can reduce the amount of credit available to local firms, thereby reducing leverage levels. This could be owing to increase in competition usually seen when markets become more integrated (Bae et al., 2006; Claessens et al., 2001). Elevated levels of competition can negatively affect leverage through two channels, namely, increase in financial reforms and reduction in lending relationships. Firstly, according to Tahari et al (2007), financial integration triggers financial reforms in local markets as regulators and institutions prepare for increase in competition and instability. These reforms, according to Agca, De Nicolo and Detragiache (2013), result in banks heightening risk management practices in the process increasing credit standards. The result of such increase in credit standards is limited access to credit,

forcing firms to rely on less debt in their capital structure. In instances where such reforms include protection of property rights, equity markets will benefit at the expense of banks. This is so because protection of property rights promotes the use of equity than debt since equity markets have more problems of adverse selection and moral hazard compared to debt markets. As a result, reforms related to protection of property rights are negatively related to leverage and positively related to use of equity (Gonzalez & Gonzalez, 2014). Secondly, increase in competition leads to reduction in lending relationships in markets characterised by information asymmetry. Competition reduces the benefits derived from having close relationships with borrowers; therefore, banks tend to cut such relationships (Agca, et al., 2007; Allen & Gale, 1999; 2004). This reduces firm's access to credit through relationship banking. Therefore, integration could have severe negative effects on the banking sector in developing countries where information asymmetry is rife. The implication is that firms will be discouraged from relying on credit from banks thereby reducing demand of the same owing to tightening credit standards and reduction in lending relationships.

Integration to foreign markets can increase maturity risk as lenders shift from long-term to short-term debt, thereby exposing firms to rollover challenges and interest rate volatility (Schmukler & Vesperoni, 2006). Under such a scenario, firms in need of long-term capital might be forced to seek refuge in equity markets. The explanation to such a scenario focuses on the level of information asymmetry and risk averseness of foreign lenders. When foreign lenders display higher levels of risk aversion than domestic lenders, they charge high premiums on long-term debt. Also, when international lenders are faced with information disadvantages, they opt to extend short-term credit to enhance their capability

to monitor borrowers and institute disciplinary action where possible. The frequency with which short-term debt needs to be rolled over allow lenders to review their decisions while at the same time forcing borrowers to make good business decisions (Schmukler & Vesperoni, 2006). In the same vein, Agca et al. (2007) assert that owing to more competition from foreign institutions, domestic lenders can also shorten maturities as arm's length transactions dominate while earlier lending relations are broken down. This will make credit less attractive to firms, forcing them to switch to equity as a source of long-term credit. However, this negative impact of integration on credit maturity is more pronounced for smaller firms than larger firms since these are the ones that are usually characterised by elevated levels of information opaqueness. The effect could be dominant in underdeveloped financial markets characterised by elevated level of information asymmetry. Beck, Demirguc-Kunt, and Marksimovic (2008) and Berger, Klapper and Udell (2001) note that foreign lenders tend to charge higher premiums, shorten maturities, or withhold credit to smaller firms especially in markets with poor legal and institutional setups. Therefore, in markets dominated by small firms, where there is high information asymmetry and poor institutional quality, integration to international markets can lead to shortening of maturity, prompting borrowers to substitute debt for equity.

The theoretical explanations provided here help to answer one of the study's research questions on the impact of regional integration on the relationship between banking sector development and stock market development. As it is, it appears that financial integration results in firms altering their capital structure by including less debt and more equity. This suggests that increase in demand for equity could positively influence stock market development but at the same time depresses credit extension. In instances where stock

markets are developed, such integration could also result in instability in the banking sector.

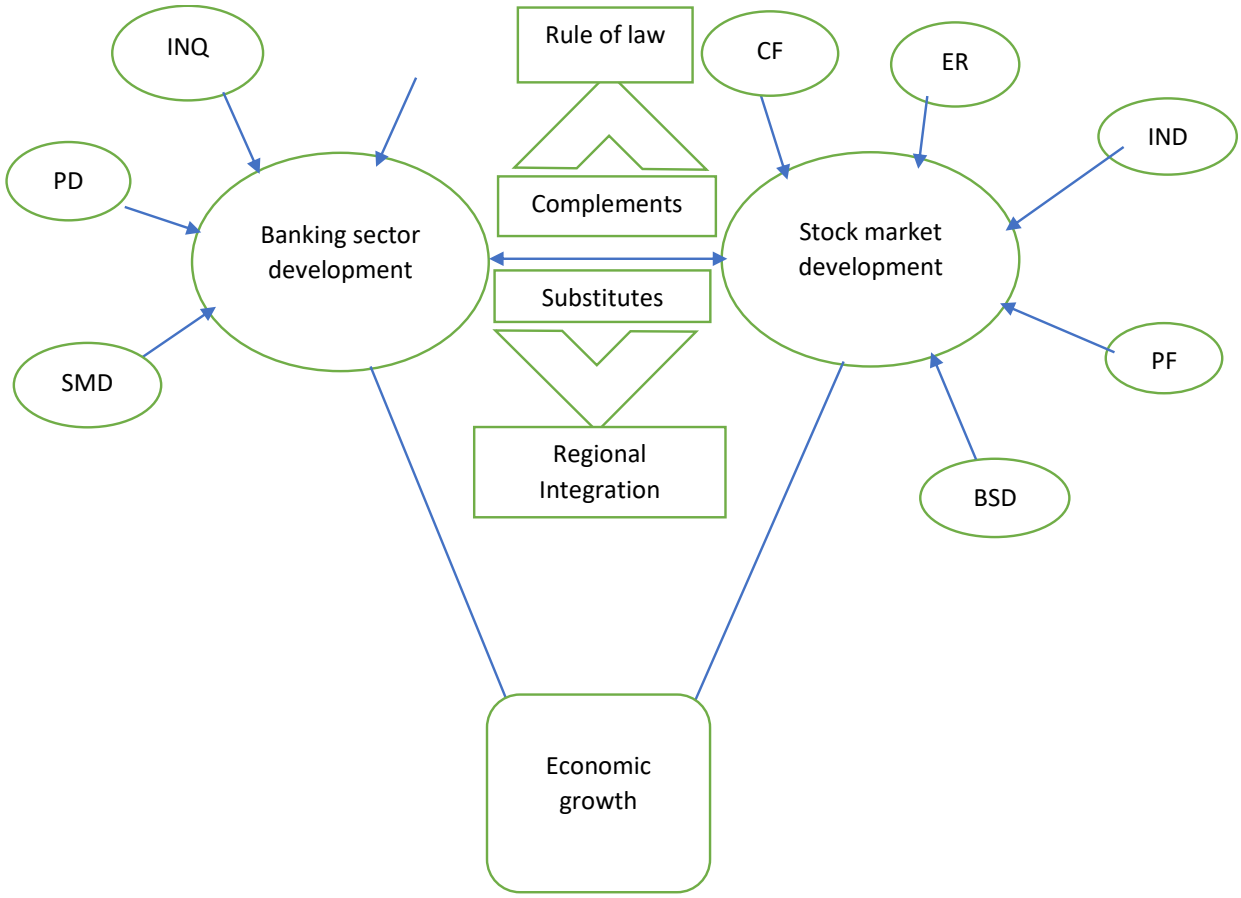
Agca et al. (2015) studied the impact of financial openness on debt maturity in 38 advanced and emerging economies. Their findings show that: (1) financial openness shortens debt maturity in emerging economies while the effect is opposite in advanced economies; (2) bank privatisation results in longer debt maturity in advanced economies and shorter maturity in emerging economies. Their study brings out the asymmetrical effect of financial integration on firms operating in economies with various levels of development in financial markets, firm size and therefore constrains in access to funding. As such, integration potentially affects the relationship between banking sector development and stock market development differently depending on the level of their development. In another study, Lucey and Zhang (2011) found that elevated levels of credit market integration increase a firm's leverage. Using pooled ordinary least squares on data from 4477 firms in 24 emerging countries for the period 1995 to 2007, they reveal that as credit integration increases, large and high growth firms tend to access more credit compared to smaller firms though the credit tend to shift from long-term debt to short-term debt. They attributed this to lower levels of institutional quality, poor protection of creditor rights and high information asymmetry in most emerging economies. Furthermore, they noted that an increase in equity market integration results in a higher use of equity and reduction in firm leverage levels and maturity structure of debt. Therefore, Lucey and Zhang (2011) confirm that substitution of debt with equity as the level of financial integration increases.

The results from the few studies highlighted reveal important learning points. First, financial integration has a material impact on the use of debt and equity, which could determine the relationship between banking sector development and stock market development. Secondly, the impact of integration on use of debt and equity is dependent upon country specific factors such as legal efficiency and levels of information asymmetry. Therefore, there is a need to examine how the rule of law affects the relationship between banking sector development and stock market development under regional integration. Thirdly, the impact of integration on financing decisions is dependent on the level of development of local financial markets. Firms operating in countries with well-developed financial markets are less sensitive to integration compared to those from less developed financial markets. This signals that the impact of regional integration could be more pronounced in SADC because of low levels of financial development compared to developed economies. Lastly, different measures put in place to promote regional and financial integration impact the banking sector and stock markets differently, thereby creating the possibility of promoting a substitutability or complementarity relationship. The effect of regional integration on financial development is ambiguous since different studies revealed different results. Similarly, the effect of regional integration on the interaction between stock market development and banking sector development is an area that is yet to be explored.

3.9 Theoretical Framework

This section presents the theoretical framework underpinning this study. The framework is informed by the theoretical and empirical literature covered in previous chapters. The framework shows that banking sector development and stock market development can

either be substitutes or complements. The complementary relationship is explained by theories such as the signalling hypothesis, systematic scale economies, co-evolution model. Other channels through which stock market development can complement stock market development are through the funding of investment, firm ownership structure and the underwriting channel. Among these theoretical explanations, the co-evolving model and firm ownership structure are found to be less applicable since the conditions they require are not available in most of the countries under study. For example, the co-evolution model requires a full functional securitisation market characterised by low levels of information efficiency. The firm ownership structure also assumes that banks will hold shareholding in firms operating on the stock exchange for the effect to be large. However, in the countries under study, banks have restrictions in owning equity in most of countries because of the illiquid nature of stock markets in these countries.



Key: SMD=Stock market development, PD = Population density, INQ = Inequality, UB = Urbanisation, CF= Capital flight, ER= Exchange rate regime, IND = Industrialisation, PF = Press freedom, BSD =Banking Sector Development.

***Figure* 3- 3**: **Theoretical Framework** (Author compilation)

The substitution effect is explained by capital structure theories, the substitution hypothesis and the spare tyre hypothesis. All these theories were found to be applicable in the countries under study; therefore, they were employed on the current study. It is worth noting however that more theories tend to favour the complementary hypothesis as opposed to the substitution hypothesis. Figure 3-3 also shows that regional integration can have a moderating effect on the relationship between banking sector development

and stock market development. Regional integration can support the complementary effect in funding growth or worsen the substitution effect. Reviewed literature shows that financial integration can result in banks lowering their debt maturity structure (Agca et al., 2015). This makes debt less attractive to borrowers. Similarly, Lucey and Zhang (2011) advance that equity becomes more attractive that debt owing to lower cost and increased liquidity. Credit market integration on the other hand can reduce the amount of credit available to local firms, thereby reducing leverage levels. This could be owing to increase in competition usually seen when markets become more integrated (Bae et al., 2006; Claessens et al., 2001).

Financial integration can also improve the size of both stock markets and the banking sector resulting in reduced inefficiencies, lower cost of capital, increased liquidity, and accessibility (Bundoo, 2017). The result will be stock markets and banking sector that grow together and funding growth in a more efficient manner. The underlying is the supplying leading hypothesis which says that supply of financial resources is a prerequisite for growth. In conjunction with the supply leading hypothesis, the study adopts the financial function view. This view asserts that whether financial markets are bank-based or stock market-based is not of paramount importance, what matters is the role of the financial system in supporting growth (Merton, 1992; Merton & Bodie, 2006).

The theoretical framework presented in Figure 3-3 also answers the other two objectives meant to determine factors that affect the development of the banking sector and stock market development. The applicable underlier was found to be the demand following hypothesis which advanced that banking sector, stock markets and other components of the financial system grow owing to increase in demand of their products or services. This

demand could emanate from increasing economic activity in the form of economic growth (Robnson, 1952). To meet the needs of market participants, new financial markets and institutions start to develop (Demetriades & Hussein, 1996; Gurley & Shaw, 1967; Jung, 1986; Patrick, 1966; Robinson, 1952). Considering this theory, the study examines the effect of population density, urbanisation and inequality on banking sector development. Population density and urbanisation are hypothesised to positively affect banking sector development through increase in demand of financial services. At the same time, inequality is expected to reduce demand of financial services thereby militating against development of the banking sector. At the same time, industrialisation, press freedom and capital flight are expected to influence stock market development through the same channel. Increase in press freedom and industrialisation is expected to increase demand for equity capital by firms and shares by investors. Exchange regimes also affect the attractiveness of equity owing to their impact of exchange rate volatility. Banking sector development and stock market development variables are put as factors that affect each in line with pronouncements by put forwards systematic scale hypothesis, signalling hypothesis underwriting channel, funding of investment channel, capital structure theory, and spare tyre hypothesis. This allows the research to test the complementary and substitution hypothesis using three distinct models, namely, the banking sector model, stock market model and the economic growth model.

3.10 Empirical literature

There is a large body of literature examining the relationship between finance and economic growth, determinants of banking sector and stock market development and the interaction between these two components. Nonetheless, despite all the large number of

studies, there is no consensus on these issues. At the same time, other regions and countries have received more attention than others. For example, previous studies have covered developed countries and other regions such as Asia and Latin America but have neglected African countries particularly SADC. As a result, evidence from this region is scarce compared to other regions. The following section reviews available empirical literature on the issues highlighted earlier.

3.10.1 Finance and Economic growth

Within the SADC region, South African Reserve Bank (2014) found mixed results on the impact of financial sector development (credit extension and money supply) using the Seemingly Unrelated Regression model. The results show that financial development positively affects economic growth in seven countries while in the other seven countries financial sector development did not support financial development. Taivan and Nene (2016) used the Vector Autoregression (VAR) technique to find direction of causality between financial development and economic growth. Using direct credit and broad money as measures of financial development, they found evidence of both the supply leading hypothesis and the demand following hypothesis in SADC. Though the two studies utilised the two measures of financial development, they suffer from failure to account for the endogeneity problem as well as neglecting stock market development. Bara et al. (2016) examined the impact of financial reforms on the finance-growth nexus. Their results were telling. They found a negative relationship between financial sector development and growth using a combination of the Panel Ordinary Lists Squares Estimations with fixed and random effects and Generalised Methods of Moments Estimation. Reasons they attributed to an unexpected relationship include non-

performing loans, country heterogeneity structure and distribution of credit and underdeveloped financial markets. Though they found financial markets to be detrimental to economic growth, the study confirmed that economic growth had a positive effect on financial sector development thereby conforming the demand following hypothesis. The study utilised a technique that corrects for endogeneity. However, it does not accommodate the impact of stock market development. All these studies did not consider other important dimensions of banking sector development such as stability and efficiency.

Using a Structural Vector Autoregressive model on quarterly data from 1996 Q1 to 2010 Q4, Gisanabagabo and Ngalawa (2017) confirmed the supply leading hypothesis, showing that increase in credit from the banking sector contributed to growth in Rwanda. Any shocks to the banking sector were found to exert negative pressure on economic growth in the country. De Gregorio and Guidotti (1995) used a panel of 100 countries to examine interaction between growth and banking sector development utilising the OLS technique. The results show positive association. However, when countries from Latin America stand alone, the relationship turns out to be negative. Taha, Anis and Hassen (2013) found comparable results in the MENA region, suggesting that the banking sector was detrimental to economic growth in the region.

Shen and Lee (2006) studied the impact of banking sector and stock markets on growth in 48 countries. They concluded that only equity markets impact growth positively while the banking sector affected growth negatively. They found a negative relationship between measures of banking sector development and economic growth for the ten countries under study. In a study covering 27 countries, Fink and Haiss (1999) found a

positive contribution of banking sector development to economic growth and a negative contribution from stock market development. The evidence reviewed also shows conflicting results on the impact of banking sector development on economic growth, showing that there still exists a research gap that needs to be filled. Therefore, this gap will be filled by examining how banking sector development impact economic growth in SADC.

Zegada (2011) studied the impact of stock market development on economic growth in Bolivia using quarterly data from 1994 to 2010. The study utilised the Granger Causality and bivariate and trivariate Vector Autoregressive models to assess the association between per capita GDP and liquidity and size measures of stock market development. The results show insignificant contribution of both the equity and bond markets to economic growth. The author attributed the results to a small and illiquid market that does not distribute capital from the surplus to the deficit units. Another factor highlighted is the dominance of financial firms on the stock exchange as compared to companies in the manufacturing sector which limits the capability of firms in the productive sector to raise capital from the stock markets. Harris (1997) found positive association between stock market development measures, investment and economic growth but only in countries with high income levels. The results by Fink and Haiss (1997) and Harris (1997) concurred with Singh (1997) who found a negative relationship in India. Reasons cited for the potential negative effects of stock markets in less developed countries are smaller and illiquid markets. Singh (1997) contends that the benefits of corporate control and trading do not work as expected, stock markets result in speculative pricing and financially

engineered growth. Also, elevated levels of liquidity in stock markets can result in too much volatility in stock prices and the exchange rate.

Earlier on, Atje and Jovanovic (1993) found a positive relationship between growth and stock market development and no relationship between growth and banking. Though cross-country studies suffer from structural heterogeneity that exists among countries especially when countries at various levels of development are included in a single study, variation in results signifies unique country characteristics, differences in techniques used as well as the time covered by the research. Despite this variability in results, there is evidence that when the stock markets are underdeveloped, they can be detrimental to the economy. The sectors that are supported by stock markets and the roles they play are more pronounced in developed countries than in developing countries, shedding light on why the positive contribution of stock markets is found more in developed countries. The theory fills an important gap in the current study by showing that stock markets serve a different segment of companies from those catered for by the banking sector. The stock markets are appropriate for high technology sectors that are characterised by high levels of information asymmetry. Other important functions such as promoting portfolio diversification, corporate governance and managing systematic risk are different from those offered by the banking sector. This suggests that the banking sector and stock markets could be complementary and substitute variables.

In South Africa, Guei (2018) used the Autoregressive Distributed Lag (ARDL) model on time series data from 1975 to 2016. The results show that financial structure does not matter for economic growth. Supporting the financial services view, the study urges countries to focus on providing a conducive environment for both banks and stock

markets without a particular focus on promoting one segment over the other. However, the results contradict a widely held observation that countries derive more benefits from stock markets as they develop further (Kpodar & Singh, 2011). This suggests that South Africa has not yet developed its economy and financial markets to levels where it starts to derive these benefits. The major shortcoming of the ARDL model utilised in this study is its failure deal with simultaneity or endogeneity bias that affects this relationship.

Demir and Hall (2017) investigated the existence of a dynamic change in financial structure owing to a change in the stages of economic development for Turkey, Germany, USA, and France. They established that apart from Germany, there is a positive association between stock markets and stage of economic development. In Germany, the dominance of the banking sector is positively related to economic development. Findings show a threshold level of economic development at which the importance of markets and banks changes. Banking sector development is dominant in Turkey, France and Germany at the early stages of development and the pattern continues for Germany but for France and Turkey there is evidence of stock markets gaining more relevance. As shown by the evidence, the financial structure alters with the level of development for some countries though this does not hold for the USA and Germany. This signals the possible effect of direct policy orientation as policy makers try to promote one segment against the other. Financial structure could be explained by endogenous variables within financial markets not by economic growth. The study countered the weaknesses of earlier cross-sectional studies that assumed a stable relationship between financial structure and economic development.

Beck, et al. (2010) utilised firm, industry and country level data to assess the relationship between financial structure and economic growth. Country level studies covering 48 countries for the 1980 to 1985 period found an insignificant relationship between financial structure and growth but a positive association between financial development and economic growth. They also utilised industry level data from 34 countries and 36 industries to confirm earlier results. They noted that it is financial development and not structure that influences industry growth and creation of new entities. They further examined whether firm access to external finance is decided by financial structure. The results show that being bank-based or market-based does not alter access to finance but the level of financial development and the legal environment impact firm growth and hence the economy. Their results suggest that the different segments of financial markets are not crucial when they stand alone but they complement each other in supporting access to capital, firm growth and economic development. These results concur with studies by Demirguc-Kunt and Maksimovic (2002), Levine (2002), and Ndikumana (2005). Utilising industry level data in this study addressed the problem of multi-collinearity and measurement error in independent variables that usually characterise aggregated data.

Chu (2019) investigates whether the financial structure - economic growth relationship is affected by level of financial development, economic volatility, banking crisis and balance of the financial structure. Chu (2019) utilises the generalised method of moments (GMM) on a panel of 99 countries on data covering 1971 to 2015. The results suggest that stock markets are better placed to support growth though the positive impact reduces as the financial structure become more unbalanced. Chu's (2019) results confirm earlier

conclusions made by Levine (2002) showing that the financial system functions better when both banks and stock markets are well developed and equally dominant in the financial system. These results might explain why most studies in developing countries find a weak relationship between financial development and economic growth. The dominance of the banking system could be militating against optimal resource allocation.

To counter the effect of heterogeneity on a study carried out by Levine (2002) which highlighted the insignificance of the financial structure using a cross country data set, Pinno and Serletis (2007) grouped countries into developed and developing countries. They show that bank-based systems are more important in developing countries while market-based systems support growth in developed markets. Luintel, Khan, Arestis, and Theodoridis (2008) also tried to overcome the problem of heterogeneity and unbalanced growth path that is usually found when countries at various levels of development are bunched together. They utilised dynamic heterogeneous panel and time series methods to find importance of financial structure in deciding economic growth. These findings by Luintel et al. (2008) and Pinno and Serletis (2007) suggest that earlier panel studies that did not consider heterogeneity across countries could have arrived at misleading conclusions.

Fufa and Kim (2018) also tested how homogeneity among countries included in a study sample affects the interaction between the financial intermediaries, markets, and economic growth. Using the dynamic panel GMM on data from Europe and non-European countries, they found that the link between banks, markets and growth depend on the level of economic development. By grouping countries into upper and lower middle- and high-income countries, they showed that a homogeneous panel provides evidence of

stronger links between economic variables. The study ended the problem of results being proxy sensitive by using three different measures for stock market development and banking sector development. Fufa and Kim (2018) conclude that banks and markets provide different services to economic participants; hence, they complement each other in supporting growth.

3.10.2 Banking sector development and stock market development

Arestis and Demetriades (1997) as cited in Acaravci, Ozturk, and Acaravci (2009) found evidence that GDP foster development of banking system and stock markets in USA. In SSA, Odedokun (1999) found that the effect of GDP on financial intermediation is predominant in low-income than in high-income developed countries. Using the structural vector autoregressive (SVAR), vector error correction (VEC) and the Bayesian vector autoregressive (BVAR) approaches on recent data in Nigeria, Ake (2018) did not confirm the demand following hypothesis in Nigeria. Elsewhere, Chow, Vieito, and Wong (2018) examined the demand following hypothesis in 14 developing countries using cointegration, multivariate and bivariate linear causality test. Their results confirmed the applicability of the theory in these countries. Al-Yousif (2002) found evidence that Korea and the Philippines did not follow the demand following hypothesis, while Pakistan and Sri Lanka exhibit evidence of the demand following theory.

Benncaeur and Goaied (2008) examined the McKinnon and Shaw theory of liberalisation in Tunisia. They found that liberalising interest rates in Tunisia explained the variation in profitability in the banking industry. Touney (2014) observed that financial liberalisation positively impacted credit extended to the private sector in Egypt and Saudi Arabia. The

researcher advances that the importance of liberalisation to the banking sector varies from country to country depending on level of economic development, political stability, quality of legislation and development of the financial services sector.

Like variance in opinion over liberalisation, evidence also shows contrasting results. Odhiambo (2011) used flexible interest rates and broad money to GDP ratio as proxies for financial liberalisation and financial deepening in South Africa, Lesotho, Tanzania, and Zambia. The researcher found positive association between the variables. Donia (2012) used the GMM in 18 emerging countries covering the period 2000-2009. This paper showed that trade and financial liberalisation did not impact the banking sector in the countries studied. Gemech and Struthers (2003) concluded that the relationship between interest rates and savings remain ambiguous. Also, liberalisation policies have achieved mixed results and empirical evidence from studies conducted in developing countries tend to favour a negative effect on savings.

Gleaser, Johnson and Shleifer (2001) analysed how differences in regulation and enforcement mechanisms affected performance of Poland and Czech Republic stock markets. They found that the Polish market recorded more success owing to strict laws and regulations that were enforced by immensely powerful agencies. The limited regulatory environment in Czech Republic led to mistrust owing to exploitation of minority shareholders. The results showed that laws are important in determining development of stock markets.

Wheeler (1994) examined the impact of natural resources in the form of hard-rock minerals affected growth in 30 countries from SSA. His results show that a higher

proportion of minerals in a country's exports had a negative relationship with economic growth. Jalloh (2013) studied the economic growth and natural resources nexus in the Economic Community of West African States (ECOWAS). Results show that an increase in exports from natural resources by 10% leads to a 0.4% decrease in per capita income. The author cited civil unrest and corruption in public entities as the reasons behind evidence supporting the resource curse. The same factors negatively affecting growth could also have a detrimental effect on stock markets through disenfranchising local and international investors, reducing productivity of companies owing to economic instability, political turmoil, civil strife and decrease in investment.

In a more recent study, Ndikumana and Sarr (2019) found a positive association between capital flight and natural resources endowment and a positive relationship between FDI and capital flight. Many African countries do not negotiate for better contracts to maximise benefits from local resources. They do not use export revenue to develop non-resource sectors to broaden the tax base and sources of growth (Ndikumana & Sarr, 2019). However, Spatafora and Warner (2001) did not find evidence of the Dutch disease in 18 developing countries that are oil dependent. Similarly, Sala-i- Martin and Subramanian (2003) did not confirm the Dutch disease in Nigeria

turning to financial markets, Adegboye and Fagbemi (2017) brought out the detrimental effect of natural resources rent on financial sector development in SSA. They highlight that weaker institutions limit the potential benefits of revenue from natural sources in financial markets. Billmeier and Massa (2007) studied the impact of natural resources on stock market development in 17 Central Asia and Middle East countries using a panel of countries with natural resources and those without. They found that remittances and

quality institutions matter most for countries without a huge resource endowment. They also found a positive association between stock market prices and oil prices in resource rich countries. Moreover, their studies showed that oil prices were a significant driver of stock markets in countries with huge natural resources base while in countries without huge resources, remittances and institutions mattered the most. This study brought out the controversy around the expected impact of natural resources on development of stock markets. First, it is not universal that natural resources negatively affect stock market development. The impact is dependent upon other factors such as economic policies, institutions in place and the broad economic structure. Secondly, the effect could depend on the type of natural resources that are abundant as these might influence policies and rent seeking behaviour differently.

The few studies reviewed show contrasting evidence depending on the countries included in the sample, period covered, proxies used, and estimation techniques utilised. As such, there is a need to continuously conduct studies that examine varied factors that were not tested or exhausted before, test factors that were studied before in different regions and utilise different techniques and proxies to clearly capture factors that explain development of financial markets. Cognisant of the fact that financial markets are made up of different components and institutions that include banks, capital markets, pension funds and insurance companies to mention a few, it is important to have a microscopic view on the major components which are banks and equity markets.

3.10.2.1 Determinants of stock market development

Alam and Shah (2013) used a panel of 115 countries to show causal relationship between press freedom, FDI and economic growth. Their study showed a bidirectional relationship between press freedom and economic growth, implying that press freedom attracts flow of funds from the international community while at the same time, growth in the economy impacts positively on freedom of the press. Based on these results, increase in press freedom in the SADC region should positively impact stock market development through attracting foreign capital which in turn increase capitalisation of stock markets, liquidity and efficiency. Based on the media dependency theory, Jonkman, Boukes and Vliegenthart (2019) found a negative association between consumer confidence and negative economic news in the European Union. In another study covering 50 countries, Kim, Zhang and Li (2014) found that press freedom result in more informative stock prices that reflect firm specific information resulting in less co-movement between stock prices.

Dang, Dang, Nguyen, and Phan (2019) collaborated evidence by Kim et al. (2014) in a study covering 41 countries for the period 2000 to 2010. They found that media coverage helps stock price to incorporate idiosyncratic risks thereby reducing synchronicity in stock price movements. Wei, Lu and Lin (2015) studied the interaction between press freedom, financial news and cumulative stock returns in Taiwan, Shanghai and Shenzhen stock markets. Results show that more press freedom result in less information asymmetry and lower cumulative stock returns. In another study, Tetlock (2007) used the Wall Street Journal daily content to decide how the media affects stock markets. The study shows that media pessimism results in a bearish stock market and usually the pessimism is followed by high trading volumes. Kim et al. (2017) studied the relationship between

media independence and accuracy of forecast done by financial analysts in 52 countries. They found that in countries where there is state ownership of media houses and low media freedom, forecasting errors tend to be high.

Kim, Yu and Zhang (2015) made three important observations in the Chinese Market. Based on a study of two million articles from the press, they found that the higher the number of newspaper articles (coverage) on a stock, the lower the level of synchronicity. Also, stocks that receive more coverage tend to follow the random walk theory, and lastly, higher coverage increases probability of informed trading. The results show that more attention from the newspaper increases the level of efficiency on the covered stock through fully reflecting firm specific information and attracting informed traders. Dyke, Morse and Zingles (2010) and Miller (2006) show that more coverage helps to detect accounting fraud and improve corporate governance. This should attract more investors to bring in funds in the stock markets. Evidence by Kim et al. (2015) shows that the change in Chinese media from propaganda to commercial orientation has resulted in more and diverse information being shown to the public. This has promoted competition among media houses, pushing them to be more responsive to the needs of the public.

Dang et al. (2019), Kim et al. (2014, 2017) and Wei et al.'s (2015) findings show the importance of media coverage in improving market efficiency which is one crucial characteristics of a developed stock market. Stock market efficiency is important because it allows markets to distribute capital in an efficient manner, resulting in productive use of resources (Tobin, 1982). Lower levels of market efficiency are usually found in countries that have weak institutions in ensuring enough disclosure, transparency and protection of investors' rights (Hutton, Marcus, & Tehranian, 2009). These studies have succeeded in

showing the positive impact of media freedom and coverage on stock prices, but no study has concentrated on how press freedom can affect development of stock markets in the long-term. The research posits that increase in press freedom in SADC countries should positively affect stock market development through increase in efficiency and reduction in risk thereby attracting more local and international participants.

Bala and Hassan (2018) examines the empirical relationship between exchange rates and stock market development in Nigeria. They found the exchange rate to have a significant and positive impact on stock price. There was no evidence of the portfolio adjustment hypothesis as causality ran from exchange to stock prices only. Abdallah and Murinde (1997) in Philippines, Korea, India, and Pakistan conducted a similar study and found exchange rate to granger-cause stock price movements except in the Philippines. In Turkey, Aydamir and Demirham (2009) confirmed both the flow and the stock model by obtaining a bidirectional casualty between stock prices and exchange rates using daily market data. Alagidede, Panagiotidis and Zhang (2010) studied the relationship in more developed markets. Though they did not find a long run relationship, they found causality running from exchange rates to stock markets in United Kingdom, Canada and Switzerland.

Ho and Lyke (2018) conducted a comprehensive review of theoretical and empirical literature on determinants of stock market development. The research shows that intermediary development, private capital flows and interest rates can either promote or inhibit stock market development. They also found out that legal origins and financial integration could have a positive or negative effect while corporate governance, financial liberalisation and legal protection of investors have a positive effect on stock markets.

Though the research looked at numerous studies that bring out factors to be considered by researchers and policy makers, it lacked empirical evidence linked to a specific set of variables and countries. The effect of these factors is bound to vary across regions, countries of different income levels and time covered.

Ho (2019) used the ARDL bounds testing technique to examine macroeconomic determinants of stock market development in Malaysia from 1981 to 2015. Results show that banking sector development is detrimental to stock market development overall while the short run impact of earlier banking sector development and trade openness is positive. Ho and Odhiambo (2019) conducted a similar study in Hong Kong using the ARDL on quarterly time series data for the period 1992 Q4 to 2016 Q3. Contrary to results obtained in Malaysia, banking sector development and economic growth have positive influence on stock markets while inflation and exchange rates negatively affect stock market development in the short run and long run. In South Africa, Ho (2018) confirmed the positive impact of banking sector and economic growth on stock markets after accounting for structural breaks using the ARDL testing procedure. The study covered the period 1975 to 2015. Trade openness, inflation and exchange rates were also found to have a negative effect on stock market development. The results form studies conducted by Ho (2018, 2019) and Ho and Odhiambo (2019) in South Africa, Malaysia and Hong Kong using the same estimation techniques on data covering the same period is not consistent. For instance, banking sector development has a negative effect in Malaysia but positive effect in Hong Kong and South Africa. Similarly, trade openness positively impacted stock markets in Malaysia while the result is opposite in South Africa. This variability shows the

dangers of generalising results of macroeconomic relationships, hence the need for studies that focus on specific countries and regions.

Motivated by the inconclusive nature and conflicting results of studies on stock market determinants, Nyasha and Odhiambo (2020) examined the Brazilian stock market. The results show positive influence of trade openness, exchange rate and banking sector development both in the short-term and long-term. However, stock market liquidity and investments were found to be detrimental to the development of stock markets. Zhou, Zhao, Belinga, Gahe, and Samuel (2015) modified the Calderon-Rossell model to study determinants of stock market development in Cameroon. Their study proved that FDI and inflow of private capital influence capital markets positively. Contrary to expectations, they found that banking sector development and economic growth do not aid development of capital markets. However, the study suffers from lack of generalisability of results since it is based on data from Cameroon only. In addition, Zhou et al. (2015) used single measures for both banking sector development (credit extended to private sector) and stock market development (capitalisation) thereby addressing a single dimension of the two components.

Ayaydin and Baltaci (2013) studied the relationship between corruption, banking sector and stock market development in 42 emerging countries. The impact of corruption on financial markets was revealed at two levels. First, they found out a negative relationship between corruption and the financial markets. Secondly, they integrated corruption and banking sector variables to find their interaction effect on stock markets. The result is a negative relationship between the interaction term and capital market development,

showing the powerful effect of corruption on stock markets despite banking sector having a positive effect when tested independently.

The studies reviewed here show that there is still no agreement on factors that influence development of stock markets and research is still on-going as shown by recent studies on the subject. The factors found by empirical evidence are varied so are the results. Research has also shunned the SADC region and factors such as exchange rate regime, capital flight, industrialisation and press freedom were not covered in earlier studies. Grouping developing and developed countries found in different regions has made some of the results from past studies inconclusive and difficult to understand. Therefore, the current study addresses these weaknesses.

3.10.2.2 Determinants of banking sector development

Asongu and Nwachukwu (2015) used Tobit regression, fixed effects and GMM to investigate the finance and inequality matrix in 38 African countries using data from 1996 to 2008. Study results prove a positive impact of financial development on inclusive human development as measured by the adjusted human development index. Markets with more participants, many financial assets and that are huge in size reduce inequality among citizens. Nikoloski (2010) studied a mixed panel of developed and developing countries using a dynamic multivariate model on expanded data from 1962-2006. The results showed an inverted U-curve, showing that financial development exerts positive influence on inequality though inequality might increase with financial development at lower levels of financial sector development as suggested by Greenwood and Javanovic (1990). Prete (2013) reinforces the importance of literacy in the relationship between

inequality and financial development. He shows that financial development does not decrease inequality on its own but via economic literacy. The study concluded that economic literacy as opposed to general education impacts the financial development-inequality nexus such that inequality decreases rapidly with financial development in countries where citizens have high financial literacy.

Lyons, Grable and Zeng (2017) explore the interaction between urbanisation and use of bank and non-bank loans in China. Their results contradict expectations by showing that urbanisation negatively affected both demand for bank and non-bank capital. This could be explained by hyper urbanisation and congestion that result in inferior quality services being extended to residents, hence reduce demand for such services (Seraphin, 2019). However, they found that infrastructure had a positive effect on the use of bank loans, particularly for urban residents that use formal banking channels. Though the study focused on the impact of urbanisation and banking development, it differs from the current study in a number of ways: (1) the current study examines the impact of urbanisation on credit extension, bank stability and bank efficiency. Secondly, Lyons at al. (2017) focused on China yet the current study focuses on a REC SADC. SADC countries and China differ on quality of infrastructure, use of technology and levels of income, factors that could impact the nature of the relationship.

In the African context, Seraphin (2019) explored the impact of urbanisation on financial development using banking indicators (bank assets, average credit to the private sector and liquid liabilities) in West African Economic and Monetary Union (WAEMU). Using quantile regression technique, the results show a positive impact of urbanisation on banking development. Similarly, Shahbaz et al. (2017) used the bound testing technique

to test the impact of industrialisation and urbanisation on banking sector development measures on data from 1970 to 2013 in China and India. They found urbanisation and industrialisation to positively affect financial development while government size and poor institutional quality had a negative impact. Though these studies examined impact of urbanisation on banking development, they differ from the current study in the banking sector development indicators utilised and the geographical location of the study. The current study examines the impact of urbanisation on banking stability, efficiency, private credit, and a composite index created from the individual dimensions. Arouri, Ben Youssef, Nguyen-Viet, and Soucat (2014) used the GMM techniques to test urbanisation - economic growth hypothesis in Africa. Measuring urbanisation by the percentage of people living in urban centres, they found a U-shaped relationship between the variables. They note that the non-linear relationship is affected by human capital development. When human capital accumulation is weak then the relationship becomes negative and vice versa. They also found a positive effect of urbanisation on human development indicators such as education and health.

Aluko and Ajayi (2018) employed the GMM dynamic panel estimator to explore factors that affect banking sector development SSA. To capture more dimensions of banking sector development, they used a composite index measure. The findings show the importance of population density, openness to trade and capital flows in developing the banking sector. Aluko and Ajayi (2018) posit that the positive impact of trade openness and liberalisation of capital flows is observed when they are implemented concurrently. Robustness checks brought out that latitude, ethnic diversity, trade openness and income level lower bank efficiency while law, religion and inflation have the opposite effect.

Economic growth, land area, inflation and financial liberalisation weaken banking stability. The advantage of the study is that unlike earlier studies that concentrated on macroeconomic variables, it introduced geographical aspects such as land area and latitude as added variables. Using different dimensions of banking sector development provided a comprehensive understanding of banking sector development.

Another study by Tsaurai (2018) examined banking sector development in SADC using credit extended to the private sector as a proxy for banking sector development. Utilising the dynamic GMM technique with a panel of ten countries on data covering the period 1994 to 2014, the study found that GDP and lagged banking sector development to positively affect the dependent variable. Trade openness had a negative and significant impact on credit extension whilst unemployment and government consumption had negative but insignificant effect. Contrary to expectations, inflation had a marginal but positive impact on banking sector development. Utilising the GMM estimation technique allowed the study to account for the endogeneity problem while at the same time addressing the dynamic nature of banking sector development. However, the study suffers from two major weaknesses. Firstly, it does not capture other dimensions of banking sector development by utilising credit to the private sector as the only proxy. Secondly, the study did not examine new variables that have not been exhausted by literature such as inequality, populations density and urbanisation.

Le, Jungsuk and Minsoo (2015) sought to find determinants of financial sector development in 26 countries in the Asian and Pacific region using the dynamic GMM. They utilised bank development indicators such as liquid liabilities to GDP, credit extended to the private sector and ratio of commercial bank assets to central bank assets

to create a financial deepening index using the principal component analysis technique. The index measuring institutional quality was found to positively influence financial sector development for the whole panel but after separating developed from developing countries, results show institutional quality to matter for developing countries than developed. This could signal low levels of institutional quality in less developed countries; hence, a change could affect the dependent variable significantly. Since these developing countries have more or less the same characteristics with SADC countries, it is imperative for the current study to also examine how institutional quality as proxied by the rule of law affect banking sector development and stock market development and relationship between them in funding growth in a REC setup.

Regarding economic growth, it was found to be insignificant for developing countries though in developed countries level of economic activity mattered for financial development. Puzzling as it is, the result suggests prevalence of factors that militate against growth positively influencing development of the banking sector. For example, higher levels of financial exclusion, inefficient banking systems and lower income levels place barriers to the transition mechanism. Comparable results were also reported for trade openness in developed countries but not in developing countries and for the whole panel, trade openness is insignificant. Opening trade is likely to bring more positive outcomes for developed countries due to their levels of international competitiveness in terms of technology development, trade facilitation, and knowledge accumulation, economies of scale and availability of cheaper sources of capital for exporters. Also, the interest group theory or simultaneous openness hypothesis by Rajan and Zingales (2003) advance that the benefits of trade openness are seen on financial development when

accompanied by financial openness. The results are also important in bringing out the need to separate developed and developing countries when conducting studies to measure relationships between macroeconomic variables as combining these countries with distinctive characteristics could bring out misleading results or less revealing outcomes. As a result, grouping developing nations from the same geographic and economic region will be beneficial to the current study.

Merrouche and Nier (2012) examined the effect of payment system reforms on credit extension in Eastern European countries for the period 1995 to 2005. They found positive influence of payment reforms on amount of credit especially for countries that had lower levels of banking sector development before the reform process. The study concludes that reforms in payment systems reduce cash holding while increasing demand deposits as a medium of transacting thereby increasing credit creation owing to easiness of intermediating demand deposits compared to cash. Furthermore, it found the positive impact of capital inflows, fiscal consolidation and public ownership while foreign ownership had no effect on credit extension. Bzhalava (2014) investigated the effects of democracy and political openness on private credit to GDP and liquid liabilities to GDP for the period 1990 to 2011. Using fixed effects estimation techniques on panel data from 39 countries, the study found that political freedom, financial openness and real income per capita positively influence measures of banking sector development. Furthermore, the size of the financial sector was found to be irrelevant in influencing development of the banking sector.

Touny (2014) conducted a comparative study of banking sector development in Egypt and Saudi Arabia using cointegration analysis. Economic growth was found to negatively

affect banking sector in both countries while interest rate and financial liberalisation had positive impact. The negative impact of growth could emanate from increases in income that result in residents' self-financing. Another explanation could be increase in GDP accompanied by increases in inflation that result in higher interest rates, making it expensive and risky to borrow. Remittances and application of Islamic banking values reduced reliance on banking credit. Growth in the size of stock markets as a result expansion in GDP resulted in firms switching from banks to stock markets (Touny, 2014). The results show that remittances and stock markets can act as substitutes for banking services thereby reducing development of banks instead of complimenting their growth. The same study showed that economic globalisation, money supply growth and trade openness have varying impact on banks in the two countries. This study shows that the same variables may have distinct effects on banking sector development for nations in different locations while also supporting the application of the substitution hypothesis to stock markets and banking sector development. Results from other regions might not be applicable to the SADC countries.

Elsewhere, Lare-Lantone (2012) examined the impact of stock markets on banking sector development in Cote d'Ivoire, Ghana, Kenya, Mauritius, Nigeria, and South Africa. Evidence obtained shows that there is no co-evolution between stock markets and banks in all countries with exception of South Africa. The reason attributable to the negligible impact of stock market on banking activities is economies that are operating below the threshold levels (ibid). The study shows that the impact of stock markets is determined by level of development.

In a study covering 18 emerging countries for the period 2000-2009, Donia (2012) used GMM, Feasible Generalised Least Squares (FGLS) and Random Effects (RE) to examine determinants of banking sector development. The empirical results show that remittances, rule of law and economic growth exert positive influence on banking sector development. Variables such as financial liberation and trade openness did not have a considerable influence on measures of banking sector development. Donia (2012) found that stock markets in emerging markets covered by the study positively impacted banking sector development. The major shortcoming of the study is that it relied on private sector credit as a percentage of GDP to measure of banking sector development instead of testing the relationship on other indicators of banking development to get comprehensive results on the relationships. However, the study benefited from using a battery of panel techniques, some of which can address the dynamic nature of banking sector development.

Despite research on determinants of banking sector development starting a long time ago with several studies conducted over time, no one variable has been able to explain variability in banking sector development over time and across different countries. Variability in determinants of banking sector development and stock market development also shows that different variables become relevant at different periods in time. Also, variance in results could be attributable to different proxies used, countries covered, sample period and methodology used. Sensitivity to these variables mean that no single study can fully explain factors responsible for development of the banking sector, especially in different geographical locations. This calls for studies that cover certain geographical regions, time periods, using separate set of proxies, and methodologies.

Research conducted on the determinants of financial development provides extraordinarily little evidence for SADC. The few studies that have focused on African countries have produced mixed and inconclusive results. Research has shunned studies that concentrate on RECs mainly because they are a new phenomenon and data for these regions have been covering shorter time spans to make meaningful conclusions.

3.11 Complementarity and substitution between banks and stock markets

3.11.1 Banks and stock markets as substitutes

Lin (2017) provided a comprehensive model showing the substitutability between banks and stock markets using data on bank deposits and stock market returns. When stock market returns are higher, households drain deposits from the banking sector to chase for better returns on the stock market, particularly in countries that show higher stock market participation. In addition, Lin (ibid) found that a 10% increase in stock returns results in 0.4% slower deposit growth. In turn, this decrease in deposit reduces bank lending during stock market booms and affect real sector activity. The author posits that when stock prices are overvalued during equity market booms, firms tend to issue out shares during such a time to increase cash holdings or to fund available projects. This result in a drop in the demand for loans and banks respond by reducing supply for deposits, creating negative relationship between stock returns and bank deposits. The implication of the substitution hypothesis is that increase in stock market development through increase in stock market liquidity and capitalisation can result in reduction in banking sector development via decrease in credit demand and extension. Nevertheless, the analysis demonstrates that significant levels of stock market involvement are necessary for banks and stock markets to be interchangeable. Owing to the low levels of

stock market participation in SADC, this criterion can result in a different kind of interaction.

Nguyen, Avram and Skully (2011) used the GMM system estimator to study the interaction between banks and equity markets using a dynamic panel of 106 countries from 1980 to 2007. They found that when using domestic credit to GDP and stock market turnover ratio as measures of bank and stock market development respectively, the relationship shows substitutability. The strong point of the study is in the use of an estimation technique that addresses the problem of endogeneity, but it is worth noting that the use of a single measure could affect the outcome since research has shown that results can be proxy specific. Also combining many countries, both developed and developing countries in a single study could distort the outcome and make the results difficult to generalise on countries of specific economic characteristics.

Cheng (2012) used debt to equity ratio to study whether banks and markets are compliments or substitutes after financial liberalisation. Using data from 1973 to 2007, the results show that the substitution effect increased in Taiwan after financial openness. The study looks at an important and different dimension from other studies and it also considers structural breaks that are usually neglected in empirical literature, yet they are important in explaining potential shifts in long run relationships. However, the study suffers from choice of proxy used to measure relationship between banking sector and stock markets. The author computed the ratio from liquid liabilities and stock market capitalisation and assumed that increase in the debt-to-equity ratio implies complementarity while a decrease mean substitutability. This interpretation is troublesome because a higher debt to equity ratio means growth in the banking sector

compared to equity markets and lower ratio means lower levels of intermediation. As such, the ratio just shows the composition of the financial structure not substitutability or complementarity between banks and stock markets. The study utilised the vector autocorrelation (VAR) approach that does not address the potential endogeneity between economic growth and financial development. Despite these flaws, the study revealed a crucial lesson on financial transparency. It demonstrates that factors other than the degree of development of the corresponding sectors may reduce the substitutability between bank and stock market development.

Nyasha and Odhiambo (2015) studied the interaction between bank based and markets systems in the USA, Brazil and Kenya using the Autoregressive Distributed Lag (ARDL) model bounds testing approach on annual time series data from 1980 to 2012. They saw that banks and stock markets are complements in the USA and Brazil while in Kenya they work as substitutes. In Kenya and Brazil, the results were confirmed only overall while in America it was both overall and short run. Since the study does not utilise cross county data, it suffers from lack of generalisability though the choice of countries was meant to include countries with distinctive characteristics. The study also suffers from failure to account for the endogeneity problem that usually characterise macroeconomic variables used in the study. The study makes use of single dimension measures of banking sector and stock market development, thereby not capturing the other important aspects of the two segments.

Etudaiye-Muhtar and Ahmad (2015) conducted a study covering Botswana, Egypt, Ghana, Kenya, Mauritius, Morocco, Nigeria, South Africa, and Tunisia. Using dynamic estimation technique on data from non-financial firms, they found that there was a

reduction in use of debt after an increase in banking sector development and no effect of stock market development on debt financing. The increase in banking sector development could have resulted in heightening of risk management procedures that include evaluation processes and tightening of credit standards which could have reduced supply of credit to firms. This study shows that developments in the stock markets do no impact banking sector events, suggesting segmentation between the two markets.

In Malaysia, Ho (2017) found a substitutability relationship between banks and stock markets. Using the ARDL bounds testing procedure on data from 1981 to 2015, Ho (ibid) found a positive relationship in the short run and a negative relationship overall. Contrary to these finds, Biswas et al. (2018) confirmed the results by Etudaiye-Muhtar and Ahmad (2015) using data from Bangladesh. Using monthly data from 2006 to 2015 to test dependency between banking sector and stock markets, they utilised non-performing loans, credit to the private sector, interest rate spread and number of bank branches to proxy banking sector development. To measure stock market development, they utilised stock price volatility, number of listed firms, turnover ratio, and stock market capitalisation. The canonical correlation analysis technique showed evidence of independence between the two sectors in Bangladesh. In other words, the two sectors are not correlated.

The studies reviewed in this section show that despite theorical explanations that present banking sector development and stock market development as substitutes, the evidence on the ground does not tally. The results produced mixed outcomes, showing that there is no consensus or agreement on the substitutability between banking sector development and stock market development. There is evidence of results being sensitive to countries studied, proxies used and techniques applied. As a result, there is a need to

carryout studies in SADC using a variety of proxies and techniques. The studies also revealed that financial openness might affect the interchangeability of banks and stock markets; hence, regional integration might significantly affect how the SADC region's banking sector development and stock market development interact.

3.11.2 Banks and stock markets as complements

Pardy and Dong-He (1992) studied 32 developing countries from 1984-1990 using the ratio of stock market capitalisation to measure stock market development and the ratio of credit to the private sector to GDP, M1 to GDP and M2 minus M1 to GDP as proxies of financial intermediary development. The results showed that countries with higher incomes had more developed capital markets and banks with more financial depth as measured by M1 to GDP and M2 minus M1 to GDP while countries with better developed intermediaries measured by credit extend to the private sector had better developed stock markets. They concluded that the positive association in the measures of development shows complementarity. However, association on its own is not enough to find substitutability or complementarity. These variables (sectors) could be sensitive to the same micro and macro conditions, thereby showing positive association.

Odhiambo (2010) examined the relationship between banking sector and stock market development in South Africa using the ARDL approached. The study proxied banking sector development using domestic credit to the private sector while stock market development was measured by stock market capitalisation ratio. The results show a positive relationship between banking sector and stock market development both in the short run and long run. Inflation and real income were found to positively influence

development of stock markets overall while in the short run inflation negatively impacted stock markets, but savings had a positive effect. Arize et al. (2018) used the ARDL model to find a co-evolving relationship between banks and markets in Nigeria. The study utilised monthly time series data from 1981 to 2014 using stock market capitalisation and turnover as a measure of stock market size and liquidity, respectively. Banking sector development was measured by amount of credit extended to the private sector. Results show bidirectional causality between credit to private sector and stock market capitalisation both in the long-run and short-run, suggesting complementarity between banks and stock markets. They further recommended more studies to be replicated in different countries, using different methods to test the relationship. The major advantages of these studies stem from utilising the ARDL approach which is more suitable for analysing data from small sample sizes as well as dealing with the collinearity issue. The technique can be used even on variables that are integrated of different orders. Despite these merits, the studies suffer from lack of generalisability since they are based on single countries. Also, they did not address the endogeneity problem and they are based on single dimension measures, namely, depth of banking sector and size and liquidity of stock markets.

Hassan and Kalim (2017) studied complementarity between markets and banks in countries characterised by low human capital development. They used mean and common mean group estimators on data from 1989 to 2013. Furthermore, Hassan and Kalim (ibid) found banks and stock markets to be compliments in ten low human capital development countries, namely, Zimbabwe, Zambia, Uganda, Tanzania, Kenya, Nigeria, Pakistan, Papua New Guinea, Bangladesh, and Cote d'Ivore. Their results are consistent

with findings by Chinn and Ito (2006) who found that banks and equity markets are complements for less developed countries though this relationship is not significant for emerging countries. They noted that after controlling for legal and institutional development, banking development is a precondition for development of stock markets. In line with these findings, Claessens and Feijen (2006) and Rioja and Valev (2004) advanced that banks and stock markets can provide substitutable or complementary services depending on the level of financial and economic development. Yartey (2008) saw that a percentage point increase in financial mediation in Africa led to a 0.6 increase in stock market development although higher levels of banking sector development can lead to substitutability between debt and equity making them substitutes rather than complements. These findings are in line pronouncements by Dermiguc-Kunt and Levine (1999) who proposed that, at the first stages of its development, the banking sector complements the stock market in financing investment but as the two develop further, they begin to compete as investment financing vehicles. Also, as a country reaches higher levels of income, stock markets tend to play an increasing role thereby substituting banking services.

In a bid to test coexistence of markets and banks in the USA, Brogaard et al. (2019) used 19 525 loan deals for listed firms and 1876 private companies for a period covering 1993 to 2018. They utilised stock market liquidity to measure development of stock markets and loan syndication as development in banking sector. The results show that increase in liquidity positively affects loan syndication among banks. The channel is through provision of more information by stock markets which in turn increases the willingness of banks to take part in syndication. Stock market liquidity encourages investors to trade on

available information in the process helping stock prices to aggregate and reflect all available information. Banks use the information provided by stock prices to make lending decisions. To eliminate the effect of endogeneity problems from utilising ordinary least squares regression, they employed difference in differences (DiD). Results show that stock market liquidity increases loan syndication as well as the possibility of receiving a loan. The results go a long way in bringing out complementarities found in most studies through explaining the existing linkage. However, the major weakness of the study is the use of syndicated loan size to reflect complementarity and smaller loans to suggest substitution. The size of loans syndicated by banks can be affected by amount of capital demanded by firms, level of deposits, economic policy, and prospects of the economy at large.

Soliman and Obi (2017) assess bank capitalisation and stock market liquidity in Nigeria with a view of determining any link between the two using bivariate VAR-GARCH (1.1) model on yearly data from 1986 to 2014. Their study results show that bank capitalisation level positively affects liquidity of stock markets. Furthermore, they note that well capitalised banks can extend more credit to economic players through their capability to absorb more risk and in turn this impact stock market liquidity through increase in turn over. They base their conclusion on the notion that more credit advanced to investors, brokers and hedge funds among other players improves their liquidity positions, positively affecting their capability to trade on the stock exchange through subscription to initial public offers as well as trading on the secondary market. Rational as it sounds, the notion does not consider other ways in which market participants can utilise credit apart from channelling it on the stock markets. For example, individuals can use credit for

consumption of health and education services which is not linked to the stock markets or for consumption smoothing. Similarly, brokers and hedge funds can also invest in other products apart form shares traded on stock markets.

3.12 Chapter summary

A detailed discussion of study variables that include press freedom, industrialisation, exchange rate regime, population density, urbanisation and inequality was carried out in this chapter. The chapter also reviewed various theories that explain banking sector and stock market development. The theoretical literature reviewed shows that the above-mentioned study variables could have a material impact on banking sector and stock market development. However, empirical evidence presented in this chapter brings out that research has omitted the same variables despite their significance, at least according to theory. The conclusion is that a debate on determinants of banking sector and stock market development is not yet settled, and researchers have not yet agreed on variables that are considered important. Further studies are needed to address these gaps.

There are diverging views in literature on the impact of financial development on economic growth, whether banks or stock markets impact growth more and the avenues through which stock markets and banks can be substitutes or complements in supporting economic growth. Similarly, empirical literature brings out conflicting evidence which suggests that the matter is still far from being settled. Most of studies conducted were either in developed countries or the sample of countries included in the studies constituted countries from different regions and at various levels of development. As such, there was more heterogeneity among the panel of countries used. Variance in results obtained could also be because of different country characteristics, proxies used and techniques used to

analyse the data. The chapter also highlighted an existing gap in terms of theories that directly address the interaction of stock market development and banking sector development. For instance, both theoretical and empirical literature and previous studies neglected the impact of regional integration on the relationship between banking sector development and stock market development. These shortcomings both in literature and empirical studies justify the need to carry out further studies focusing on SADC as a region.

4 CHAPTER 4: RESEARCH METHODOLOGY

4.1 Introduction

Chapter three laid out the theoretical background and empirical evidence on the interaction between banking sector development and stock market development as well as factors that contribute to the development of the two components. This chapter brought out that earlier studies utilised varying methodologies in examining relationships between macro-economic variables and financial sector indicators. Also, they brought the methodological shortcomings of past research such as failure to consider the endogeneity problem and the dynamic nature of banking sector development, stock market development and economic growth. Most of the researchers utilised single dimension proxies to measure stock market development and banking sector development while they did not consider other important dimensions such as banking sector stability and efficiency. Therefore, this chapter describes the research methodology adopted in the present study. Also, the chapter provides detailed explanation with regards to the research design adopted, sources of data used in the study, tests done on the data, empirical models estimated, and the estimation techniques used to meet the aims of the study. The focus of the chapter is on explaining the methods and provide justification for choosing the same.

4.2 Research design

The study adopted a quantitative research design that uses statistics to explain relationships between economic variables. The classification of the study as a quantitative study is owing to use of hard data and statistical models to measure the relationship

between banking sector and stock market development (Neuman, 2006). As highlighted by Creswell (2008), adopting a quantitative design entail that the study will follow positivism or post positivism perspectives that emphasise on objectivity and no interference from the researcher. The rationale is that facts can be measured in an independent manner through quantitatively analysing data since data are not affected by being observed. The researcher is separate from the phenomenon being studied, and this facilitates obtaining the truth through measurement and observations (Healy & Perry, 2000). Annual unbalanced panel data was used to benefit from more variability, get more informative data, less collinearity, more degrees of freedom and enhanced efficiency. Precisely, panel data allowed the examination of the dynamic relationship that characterises economic growth, banking sector and stock market development variables. Utilising annual data avoided the need for averaging which Ericsson, Irons and Tryon (2001) discouraged owing to its distorting effects.

The study period is covering 1995 to 2017 for the following reasons: (1) some SADC countries had no stock markets before 1995 and (2) it is the most recent period for which data on stock market capitalisation, stock market turnover ratio, stock market value traded, credit extended by banks to the private sector, Z-score and net interest margin were available. The following nine countries that had data available for all the variables used were included in the study: Botswana, Eswatini, Malawi, Mauritius, Namibia, South Africa, Tanzania, Zimbabwe, and Zambia

4.3 Banking sector development and stock market development indicators

Previous studies have utilised an array of indicators to measure banking development and stock market development. Therefore, this section reviews the different measures

used and their weaknesses and strength with the intension of showing the most proper measures for the current study.

4.3.1 Measures of stock market development

Empirical literature has utilised three main different measures to depict the development of stock markets. These measures include stock market capitalisation as a percentage of GDP, value of stocks traded as a percentage of GDP and the stock turnover ratio. Stock market capitalisation is regarded as the best measure of stock market development because it reflects the size of the stock market. This is so because according to Levine and Zervos (1998), highly capitalised markets are better placed to allocate capital and diversity risk. Since it measures the size of the stock market compared to the size of the economy, it depicts the intermediation role of stock markets in each economy. This ratio indicates the amount of savings being allocated to financing of company projects by stock markets (Seetanah, Sannasee, and Seetanah, 2010). It reflects the significance of the stock markets as a vehicle to mobilise funds and aid in the resource allocation process, (El-Wassal, 2005). However, Levine and Zervos (1998) indicate that size on its own is not a complete reflection of the market's capability to properly allocate capital as required. For example, a market might be huge in size as measured by the capitalisation ratio but still illiquid.

Unlike the stock market capitalisation, value of stocks traded as a percentage of GDP measures the liquidity of stock markets. Though the measure gives an indication of the level of trading activity compared to the size of the economy, it is not best in depicting the easiness of buying and selling securities on the exchange (Levine & Zervos, 1998). Beck

and Levine (2004) noted two major disadvantages of utilising the value traded ratio. Firstly, the ratio measures trading compared to the economy but not precisely market liquidity. Secondly, the ratio can rise without a corresponding increase in the number of transactions since it emanates from multiplying stock prices and quantity. High trading activity of a few shares can influence the ratio yet a considerable number of stocks on the same exchange will be inactive (Beck, Levine & Loayza, 2000). As a result, Beck and Levine (2004) suggest the turnover ratio as a better measure of how stock markets contribute to economic growth.

The turnover ratio measures liquidity and efficiency of the stock market by expressing the value of stocks traded on the exchange as a numerator of value of listed domestic shares. A high turnover ratio reflects lower costs of transacting thereby increasing the ease of buying and selling share on the stock market (Levine & Zervos, 1998). This increase in activity leads to high volume of trade which in turn attracts more participants resulting in further development of the stock market (Bayraktar, 2014). However, Levine and Zervos (1998) opine that the turnover ratio is narrow in its definition of liquidity since it considers the stock market only as opposed to the value traded ratio that consider the whole economy. As much as these two ratios measure liquidity, turnover ratio and value traded ratio can also give contrasting results. For instance, a small market with high liquidity levels will have a high turnover ratio but the value traded ratio will be low (Levine & Zervos,1998). Since there is no consensus on the superiority of one measure over others, the present study utilises the three measures, namely, stock market capitalisation as a percentage of GDP, stock market value traded as a percentage of GDP and stock turnover ratio to measure stock market size, liquidity and efficiency.

4.3.2 Measures of banking sector development

Unlike stock market development, banking sector development has been measured by a variety of measures that include private credit by banks to GDP; liquid liabilities as a percentage of GDP; bank deposits to GDP; financial sector credit to the private sector as a percentage of GDP, commercial to central bank asset ratio, credit to private and public sector of the economy to GDP ratio and the cost of commercial banks to total income ratio. The merits and demerits of some of these measures are discussed in the following section.

Private credit by banks to GDP shows the depth (size) of the banking sector in allocating financial resources. This measure is more comprehensive because it separates credit extended to government and credit to private firms (Yartey, 2008) as opposed to M2 compared to GDP that does not tell us whether the liabilities are those of the central bank, commercial banks, or other depository institutions (King & Levine, 1993). The private sector is more productive than the public sector; hence, credit extended to the former impacts more on productivity (Akinboade, 1998), and it is likely to be extended based on business viability not political influence. The ratio reflects both the quality and quantum of finance extended by the banking sector (Demetriades & Hussein, 1996). It is a good measure of financial intermediation since it captures credit to private sector excluding money extended by the central bank. Adu, Marbuah and Mensah (2013), Garcia and Liu (1999) and Ahmed (2000) used this variable as a proxy for financial sector development. However, the measure does not account for overall quality of credit allocation, non-performing loans, efficiency, and quality of the banking services. Alfaro, Chanda, Kalemi-Ozcan, and Sayek (2004) also note that this measure excludes non-banking institutions

yet in other countries they extend a significant amount of credit to both private and public sector.

Levine, et al. (2000) view financial sector credit to the private sector (% of GDP) as the best measure since it shows how efficient the financial sector is in providing credit. The measure is closely related to investment and economic growth. Though it ignores funding of the public sector, it captures the contribution of the financial sector as a whole in funding investment, thereby providing a direct link between banking development and growth. A slight variation to this ratio is the private credit by deposit money banks to GDP. This ratio includes other financial institutions that accept deposits apart from commercial banks. The measure is broad as it accounts for the activities of other institutions that carry out banking functions such as accepting demand deposits apart from commercial banks. Cizo, Ignatjevo and Lavrinenko (2018) used this ratio in a study that assessed convergence of financial development indicators in states at various levels of development. Commercial to central bank asset ratio shows the size of commercial bank assets compared to the central bank as a measure of the role played by commercial banks in attracting savings and allocating credit. Its strength hinges on the ability to show the amount of savings allocated by commercial banks compared to the central bank. It shows the importance of commercial banks in a country's banking system (Alfaro, Kalemi-Ozcan, and Syek, 2009). However, the ratio was criticised by Levine et al. (2000) for failure to depict both quality and quantity of services given to the economy. Alfaro et al. (2009) also lament lack of specificity on whether the assets represent loans extended to government or private sector.

Liquid liabilities to GDP measure the depth (size) of financial sector usually denoted by M3. It is classified as the broad money measure of financial development since it reflects on the savings services of money as opposed to the payment service captured by M2 (Lynch, 1996). Valickova, Havranek and Horvath (2014) note that the M3/GDP is a better measure than quasi-liquid liabilities M2 that is limited in economies where money is used as a store of value. The ratio depicts the size of the financial sector compared to the economy, hence a good indicator of intermediation (Nowbusting, Ramsohok, & Ramsohok, 2010). The major weakness of this measure is failure to specify ownership of liabilities between commercial banks, other depository institutions and central banks (King & Levine, 1993). The M3/GDP ratio does not explain how financial institutions are faring in overcoming transaction costs and information asymmetry frictions (Fufa & Kim, 2018).

The primary role of banks is to mobilise savings from surplus units and distribute them to deficit units. As such, bank deposit to GDP ratio is an important measure of the financial system's ability to attract savings from economic participants. It reflects the sector's ability to overcome transaction costs in attracting deposits, public confidence in the banking system and provision of attractive conditions such as narrow interest spread (Kakhkharov & Akimov, 2018). Though this gives a measure of depth and size of financial markets, it does not give a sign on the efficiency of distributing these deposits to the productive sector. This efficiency aspect is captured by the cost of commercial banks to total income ratio. Though it shows how efficient the banking sector is in intermediating savings, it falls short in showing the depth and size of the system, the amount of credit provided and the recipients of such credit (Kaur, Yadav, & Gautam, 2013). Another measure that has not been widely used by researchers is the measure of banking sector stability. Banking

sector stability pertains to resilience of the banking system to shocks, resulting in lack of or limited episodes of banking system malfunction. A stable banking system is important because it is capable of allocating resources efficiently, managing risks and reducing price volatility of both financial and real assets (World Bank, 2012). A stable banking system can absorb indigenous and exogenous shocks thereby preventing disruptions in other components of the financial system and the real sector. Banking sector stability is important since most of the payment in the real sector are made through the banking system. An unstable banking sector is hesitant for fund projects, influence assets prices to depart from their fair values and delay processing financial transactions, resulting in bank runs, stock market crush and hyperinflation (Cihak & Hesse, 2010; World Bank, 2012). The common measure for banking sector stability is the Z-score. Besides allowing to compare default risk in several types of institutions, it can be utilised in instances where market-based data is not available (World Bank, 2012). The major limitation of this measure is that it is derived from accounting data; therefore, its accuracy is dependent of the underlying accounting framework (Beck, et al., 2007). When it is utilised to proxy system wide stability, it does not consider the contagion effect (World Bank, 2012). Studies that have utilised z-score as a measure of banking sector stability include Beck, et al. (2007) and Cihak and Hesse (2010). Therefore, the current study used private credit extended by deposit money banks as a percentage of GDP (size), Z-score (stability) and net interest margin (stability) to measure banking sector development.

Owing to the weaknesses inherent in each of the measures used to measure banking sector development and stock market development, recent research has resorted to creating composite measures that include a variety of proxies in a single measure. The

desire to capture different dimensions of banking sector development and stock market development has motivated researchers to construct composite measures of these segment. Therefore, the following section presents a review of trends in the use of composite measures and the strength and weaknesses of the same.

4.3.3 Composite measures of banking sector development and stock market development

This endeavours to provide justification for construction of composite measures of banking sector development and stock market development in the current study. Owing to the presence of a variety of proxies of banking sector development and stock market development, the current study addressed weaknesses of previous studies that used single dimension measures by utilising composite measures in conjunction with single dimension measures. This is meant to address three issues: (1) to counter weaknesses of the single measures, (2) to have a broader definition of banking sector development and stock market development and (3) to allow prescription of specific policies based on single dimension measures.

The major weakness of measures utilised in earlier research is their single dimensional nature especially when they are applied alone (Li & Wong, 2018). Even when utilised together, the traditional measures ignored some important characteristics of the banking sector and stock markets that are crucial in assessing levels of development. For example, measures of access, efficiency and stability are crucial in measuring development of the financial sector, but they have been neglected by earlier researchers. Svirydzenka (2016) buttresses that huge banking sectors and stock markets are less

effective in influencing growth if they are not accessible to the general populace and if they are wasteful when allocating resources. This means that using size only to examine how financial markets affect other macroeconomic variables such as growth is inappropriate. Lynch (1996) notes that single dimensional measures produce conflicting results especially when comparing levels of banking sector development and stock market development across countries. This makes results inaccurate and misleading for purposes of formulating, implementing and evaluating policy. To solve this problem, Heng, Ivanova, Mariscal, Ramakrishnan, and Wong (2016) developed a broader financial development index that encompass depth, access and efficiency dimensions. Such composite measures have become prominent in recent research because of the following reasons: (1) they are more appropriate for ranking countries when complex issues are being measured, (2) a single aggregate measure is more useful for supporting decision making, (3) aggregate indicators provide more meaningful information in comparing trends than various indicators (Saisana, 2007; Sharpe, 2004). As a contribution of this research, composite measures of banking sector and stock market development are constructed using principal component analysis to capture different dimensions of their development. Other studies such as Mahajan and Vermar (2015), Sahay et al. (2015) and Svirydzenka (2016) that utilised composite indexes differ with the current study in choice of proxies that constitute indexes and techniques used to create these measures.

Composite indicators, however, are vulnerable to subjective evaluations when they are being constructed, for instance, when determining weights and filling in blanks. An aggregate measure may also conceal some important data. Moreover, because they include a variety of measures, indexes cannot be utilised to create specific policies

(Nardo, Saisaina, Saltelli, & Tarantola, 2005; Sharpe, 2004). The current study, however, overcame these shortcomings by combining indexes along with single dimension measures and used principal component analysis to create the indexes. Nevertheless, using composite measures might still not be able to capture all the dimensions owing to the use of different proxies to measure the same phenomenon. Also, creation of a proper aggregate measure is sensitive to the technique used meaning that the measure created is as good as the technique used to create the measure.

Table 4-1 shows a summary of different measures of banking sector development and stock market development that have been used by different studies over time. There is a plethora of single dimension proxies for banking sector development and stock market development that have been used over time, but due to well understood weaknesses in them, the use of composite measures of both banking sector and stock market development is gaining prominence in recent studies as shown in Table 4-1.

Author (s)	Measure
Lynch (1996)	Interest rate spread, Private sector credit/GDP, Measures of M1, M2, M3/GDP
Levine and Zervos (1998)	Stock Market Capitalization/GDP, Value of stock traded/GDP, Stock market turnover ratio, Private sector credit/GDP
Bzhalava (2014)	Liquid liabilities/ GDP, Bank private credit/GDP
Mahajan & Vermar (2015)	Composite Indicator
Huang (2010)	Composite index
Chu (2019)	Stock market capitalisation/GDP, Private credit by deposit money banks and other financial institutions/GDP Stock market turnover ratio, Deposit money bank assets/GDP, Overhead costs
Fufa and Kim (2018)	Turnover ratio, Market capitalisation / GDP, traded value ratio, Total credit by deposit money banks to private sector/GDP, liquid liabilities (broad money or M3 to GDP) /GDP, Private credit by deposit banks to the private sector/GDP
Demir and Hall (2017)	Credit to the private sector by deposit money banks/GDP, Stock market capitalisation/GDP

Osoro and Asano (2014)	Credit to the private sector/GDP, Market capitalisation/GDP, Equity turnover, Share price index
Sahay, *et al.* (2015)	Composite index
Bara, *et al.*(2016)	Domestic credit by the banking sector/ GDP, M3 to GDP, Private credit to private sector/GDP
Svirydzenka (2016)	Broad base index
Abel, *et al.* (2019)	M2 supply/GDP, Domestic credit to the private sector/GDP
Taghizadeh-Hesary, *et al* (2019)	Composite index

***Table* 4- 1: Literature on financial development measures** (Author compilation)

4.4 Data sources

Secondary data utilised in this study was obtained from both multilateral and public institutions from the individual countries in SADC. Data on inflation, GDP, labour force, gross fixed capital formation and total net resources rent were obtained from World Development Indicators (WDI). Other variables were obtained from IMF, SADC and World Bank.

Variable	**Source**	**Model**
Exchange rate regimes	*IMF AREAER Database*	*SMD*
Trade Protocol	*SADC*	*SMD, BSD and EG*
Finance and Investment Protocol	*SADC*	*SMD, BSD and EG*
Net interest margin	*Financial Structure Database*	*BSD*
Bank Z-score	*Financial Structure Database*	*BSD*
Private Credit by Deposit Money Banks % of GDP	*Financial Structure Database*	*BSD*
Stock Market Capitalisation % of GDP	*Financial Structure Database*	*SMD*
Stock Market Traded Value % of GDP	*Financial Structure Database*	*SMD*
Stock Market Turnover Ratio	*Financial Structure Database*	*SMD*
Inequality	*World Income Inequality Database*	*BSD*
Labour force	*World Development Indicators*	*EG*
GDP per capital growth rate	*World Development Indicators*	*BSD and SMD*
GDP growth rate	*World Development Indicators*	*EG*
Gross Fixed Capital Formation	*World Development Indicators*	*EG*
Inflation (GDP deflator)	*World Development Indicators*	*BSD, SMD and EG*

Urbanisation	*World Development Indicators*	*BSD*
Total Natural Resource Rent (TNRR)	*World Development Indicators*	*BSD and SMD*
Trade Openness	*World Development Indicators*	*BSD and EG*
Savings % of GDP	*World Development Indicators*	*SMD and EG*
Press Freedom	*World Development Indicators*	*SMD*
Capital Flight	*IMF BOP Figures*	*SMD*
Foreign Direct Investment	*World Development Indicators*	*SMD and EG*
Industrialisation	*World Development Indicators*	*SMD*
Population Density	*World Development Indicators*	*BSD*
Rule of Law	*World Development Indicators*	*BSD and SMD*
Remittances	*World Development Indicators*	*BSD*

BSD=Banking sector development; SMD=Stock market development; EG=Economic Growth

***Table* 4- 2**: **Sources of variables used in the study** (Author compilation)

These sources were preferred because data are already converted into common currency (United States Dollar), they are credible and accessible in the public domain, making the data comparable across different studies. In instances where data were not available from these sources, country statistical offices, stock exchanges and central banks were used to gather the missing figures. Table 4-2 show sources of data used in this study. Capital flight was computed using the residual method prescribed by World Bank (1985). It is an indirect method that compares capital inflows (external debt and foreign investment) against uses (current account deficit and additions to foreign reserves). According to World Bank (1985), the residual method computes the capital flight figure as follows:

$$CF = \Delta ED + FDI - CAD - \Delta FR \quad (1)$$

Where CF represent capital flight, ΔED resemble change in external debt, FDI stands for FDI, CAD represents current account deficit and ΔFR denotes increase in foreign reserve assets. The residual method was opted because it is a broad measure that include reported and unreported accumulation of foreign assets in government and private sector.

It is appropriate under the assumption that funds siphoned out through capital flight would have been used for domestic investment (World Bank, 1985).

4.5 Principal Component Analysis (PCA)

The Principal Component Analysis (PCA) is a data reducing technique utilised to analyse interrelationships among correlated variables to bring out common underlying dimensions (Jolliffe, 2002). The objective of PCA is to decrease or condense the dimensionality in data with little loss of information. The method is widely used because it conserves the maximum amount of information from the original variables while creating uncorrelated variables called principal components. The highest amount of variance in the variables under consideration is accounted for by the first component while the second component account for the variance that was not captured by the first component (Lipovina-Bozovic & Smolovic, 2016). Therefore, PCA transforms several variables into an index or fewer variables that are (1) arranged according to variation in the initial variables, (2) uncorrelated with each other and a linear blend of the initial ones (Everitt & Hothorn, 2011). Owing to its simplicity, effectiveness and ability to alleviate multi-collinearity, studies by Huang (2010), Svirydzenka (2016) and Taghizadeh-Hesary, Phi, Hong, and Chu (2019) have utilised PCA to construct composite index measures of financial development.

In the present study, PCA was used to create a broad-based index measuring stock market development and banking sector development. The notion was to capture the different dimensions of development usually neglected by the earlier studies that looked at the concept of financial development. The banking sector development index (BSDI) was created from three variables, namely, private credit by deposit money banks

(PCDMB), Z-score and the net interest margin (NIM). These variables are meant to measure banking sector depth, stability, and efficiency respectively. The stock market development index (SMDI) was constructed from three variables, namely, stock market capitalisation as a percentage of GDP (SMC), stock market turnover ratio (SMTR) and the stock market value traded (SMVT). These variables measure depth, efficiency and liquidity of the stock market respectively.

Creating broad based indexes using the dimensions of banking sector development and stock market development help to produce a single measure that captures all the dimensions of development. This is important because composite measures are: (1) more right for ranking countries when complex issues are being measured, (2) more useful for supporting decision making, (3) appropriate for providing more meaningful information in comparing trends than various indicators (Saisana, 2007; Sharpe, 2004). These aggregate measures or indexes will help in measuring the state of development of banking sector and stock markets in SADC as well comparing the state of development the banking sector and stock markets.

The other implication is that the variables of interest such as urbanisation, inequality, population density and stock market development (composite index and stock market capitalisation) are going to be tested on four dependent variables namely the banking sector development index, credit extension (depth), Z-score (stability) and net interest margin (efficiency). Similarly, variables of interest under the stock market model, namely, press freedom, industrialisation, capital flight ,exchange rate regimes and banking sector development (composite index and credit extended by banks to the private sector) are going to be tested on four dependent variables: stock market development index, stock

market capitalisation (depth),stock market value traded (liquidity) and stock market turnover ratio (efficiency).

4.6 Panel unit root tests

Before carrying out the estimations, panel unit root tests were conducted to check the time series characteristics of the data. Choice of the right estimation technique was informed on whether the variables are I (0), I (1) and I (2) to avoid spurious regression. Three tests, namely, the Fisher type test by Fisher (1932) based on Augmented Dickey Fuller (ADF), the Phillips-Perron (PP) test and the Im-Persaran-Shin (IPS) test with intercept and trend. These three methods were adopted because they can accommodate unbalanced panels. The ADF has an advantage over the other two because (1) different lag lengths can be used in the ADF regressions, and (2) it can be conducted for any unit root test derived (Maddala and Wu,1999). Developed by Dickey and Fuller (1979), the ADF test whether the variables have a trend, or it follows a random walk. The ADF considers the problem of autocorrelation by including the lagged difference values of the dependent variable in the framework (Firat, 2016). If the variables are not stationary at level, then their first difference are also tested for stationarity. A simulation study by Maddala and Wu (1999) showed that this test is better than the Levin-Lin (LL) test and Im-Pesaran-Shin (IPS) test. The Fisher test was found to be simple, straightforward and more accurate because it combines significance levels of different test. The main difference between the ADF tests and the PP is on treatment of serial correlation and heteroskedasticity in the errors. While the ADF utilises a parametric autoregression, the PP test corrects the bias brought about by omitted correlation in estimating structure of errors.

The PP tests is regarded as more powerful than the ADF but the test is susceptible to size distortions and sensitivity to model specifications. The test is also considered to be more robust to forms of error term heteroskedasticity. However, both tests are known to be affected by finite sample power and size challenges (Dejong, et al.; 1992; Schwert, 1989). Im, et al. (2003) developed tests that relaxed the assumption that panels have a common autoregressive parameter. The choice of test is appropriate as it works on unbalanced panels although it cannot take data with gaps. Unlike the LLC test, IPS fit each panel distinctly then find an average of the t statistics therefore relaxing the common autoregressive parameter assumption (Maddala & Wu, 1999). Like the Fisher-ADF, the null hypothesis is that all panels have a unit root. By assuming a fixed number of time periods (T), the test allows for heterogeneous panels that have serially uncorrelated errors.

4.7 Endogeneity tests

Several authors have raised the problem of endogeneity when studying the finance–growth nexus. This problem emanates from several sources, namely (1) simultaneity, (2) omitted variables bias or misspecification of the model and (3) measurement error (Baltagi, 2005; Wooldridge, 2002). The presence of endogeneity can impact the accuracy of results when measuring the cause-and-effect relationship among variables. It can result in inaccurate and biased estimates resulting in wrong conclusions being drawn about relationships among variables of interest (Antonakis, Bendahan, Jacquart, & Lalive, 2014; Wooldridge, 2002). In the present study, endogeneity could emanate from the possibility that financial sector development measured by banking sector and stock markets can positively influence economic growth (supply leading hypothesis) while at

the same time low economic growth can stall development of the financial sector (demand following hypothesis). There could also exist simultaneity between banking sector development and stock market development as the two complement each other. Other variables susceptible to potential endogeneity are stock market development and industrialisation in the stock marker model and banking sector development, urbanisation and FDI in the banking sector model.

To address the endogeneity problem, Zwane (2018) utilised the Instrumental Variable 2 Stage Least Squares regression (IV-2SLS). However, owing to difficulties in finding strong instrumental variables and weaknesses in dealing with heteroskedasticity, Baum, et al (2003), Chu (2019), Fufa and Kim (2018) and Santos (2015) employed system GMM to deal with endogeneity in the finance-growth nexus. Baltagi, Demetriades, and Law (2009) and Borensztein, De Gregorio, and Lee (1998) recommend the use of lagged values of explanatory, control and dummy variables to address the endogeneity problem. Alfaro et al. (2008) advice that using many control variables in a dynamic regression model can also help to mitigate the endogeneity problem. These prescriptions by Alfaro, et al. (2008), Baltagi et al. (2009), Borensztein et al. (1998), Chu (2019), Fufa and Kim (2018), and Santos (2015) informed the choice of the Seemingly Unrelated Regression (SUR) and the system generalised methods of moments (SGMM) utilised in the present study.

Tests for endogeneity were conducted using the Durbin (1954), Wu (1974) and Hausman (1978) test (Durbin-Wu-Hausman test). The test involved finding if any of the regressors in the model were endogenous. In line with Woodridge's (2009) recommendations, the tests used first lag of each independent variable as an instrument. The null hypothesis is that the regressors are exogenous.

4.8 Specification of empirical models

The study made use of three different dynamic panel models to meet the three objectives which are (1) to examine the determinants and status of stock market development, (2) to examine the determinants and status of banking sector development and (3) to decide the relationship between stock market development and banking sector development in selected SADC countries. To capture the dynamic nature of the relationships under study, the models included lagged values of the dependent variables as independent variables. This implies that the current level of economic growth, development of the banking sector and stock market development are dependent on their earlier levels of development. This follows studies by Aluko and Ajayi (2018), Baltagi et al. (2009), and Guru and Yadav (2019) among others. Baltagi et al. (2009) also note that including the lagged value of the dependent variable allows the dependent variable to partially adjust towards the equilibrium in the long run. The following section will specify three models, namely, the banking sector development model, stock market development model and the economic growth model. The banking sector development and stock market development models will examine the determinants of banking sector development and stock market development respectively. The growth model will decide on the relationship between banking sector development and stock market development in funding economic growth.

Model 1: Banking sector development model

Model 1 assesses the factors that influence the growth of the banking industry, including the development of the stock market, the rule of law and regional integration. Additionally, there are new independent factors like as inequality, urbanisation and population density.

The model aims to demonstrate how changes in the stock market impact changes in the banking industry. As shown in the literature review section, past research has used the impact's nature to infer a relationship that is either complimentary or substitutive. Since the relationship between the development of the banking sector and the stock market is a focus of this study, regional integration and rule of law are also investigated to ascertain how they affect banking sector development specifically.

The following model specification shows variables of interest namely urbanisation, population density, inequality and stock market development as independent variables that affect banking sector development as measured by the composite index. The model also incorporated regulating variables to control for inflation, economic growth, remittances, trade openness, rule of law, resource endowments, and regional integration. The model is underpinned by demand following hypothesis, simultaneous openness hypothesis, endowment theory and law and finance hypothesis. Following Baltagi et al. (2009), Borensztein et al. (1998) and Mahawiya (2016), the research utilises lagged values of independent variables to avoid the simultaneity problem when applying the SUR approach.

$$BSD_{it} = \beta_0 + \beta_1 BSD_{it-1} + \beta_2 UB_{it-1} + \beta_3 FIP_{it-1} + \beta_4 PD_{it-1} + \beta_5 INQ_{it-1} + \beta_6 INFL_{it-1} + \beta_7 SMDI_{it-1} + \beta_8 GDPP_{it-1} + \beta_9 REM_{it-1} + \beta_{10} TO_{it-1} + \beta_{11} RL_{it-1} + \beta_{12} TNRR_{it-1} + \beta_{13} TP_{it-1} + \varepsilon_{it} \quad (2)$$

In this model, BSD represents the banking sector development. Banking sector development is proxied by banking sector development index, private credit by deposit money banks, Z-score and NIM that measure overall banking sector development, banking sector depth, stability, and efficiency. The variable BSD_{it-1} symbolises lagged values of banking sector development. This follows evidence from earlier studies by

Tsaurai (2018) and Aluko and Ajayi (2018) showing that earlier levels of banking development impact the current levels of development. The variables of interest in the model are stock market development index (SMDI), urbanisation (UB), population density (PD), and inequality (INQ).

UB stands for urbanisation which measures the percentage of a country's population that stays in urban areas while *i* and *t* subscripts stand for country and time respectively. Urbanisation can have a negative or positive effect on banking sector development. Positive effects stem from increasing demand of financial services through entrepreneurship, poverty reduction and employment creation. Agglomeration economies results in lower unit cost of service provision by banking institutions (Saghir and Santoro 2018). However, under low levels of capital development, urbanisation can result in unemployment, financial exclusion, low economic growth, and strained services provision channels that culminate into reduced demand for these services (Abdel-Rahman et al., 2006; Saghir & Santoro, 2018).

INQ denotes inequality among citizens measured by the Gini coefficient. Inequality can affect banking sector development through increasing financial exclusion thereby depriving financial institutions scale benefits. This result in concentration risk as banks extend their services to a few individuals as opposed to diverse clientele base. High levels of inequality result in low human capital development, low financial literacy, financial exclusion, low firm growth and low levels of entrepreneurship (Banerjee & Duflo, 2005; Beck et al., 2005; Claessens & Feijen, 2007). If high levels of inequality negatively impact these variables, then it follows that reducing inequality should enhance banking sector development through increasing financial literacy, financial inclusion, firm growth,

entrepreneurship, reduce risk and increases scale economies for banks. However, this link has not been tested empirically, therefore inequality was included as an explanatory variable for banking sector development.

PD represents population density which combines demographic and geographical information about a country. Population density considers the number of people living in a certain area compared to the land size of that area usually measured per square kilometre. This variable is expected to exert positive influence on banking sector develop, implying that high population density should result in more developed banking institutions. This result from the low cost of providing financial services to many people in a small geographical area compared to a disperse population. This could translate into high demand of financial services, more supply of skilled labour and better supply of support services as firms seek more business (Koduru & Tatavharthi, 2016).

SMDI is an index measuring stock market development. Its inclusion is informed by earlier empirical works of Donia (2012) and Lare-Lantone (2012) who included stock market development as an independent variable in estimating development of the banking sector. However, the nature of impact is not clear due to conflicting results produced by earlier studies though more evidence seems to be tilted towards the positive effect. For example, Shifotoka (2014) found stock markets to have an insignificant effect on banking development in Namibia while Lare-Lantone (2012) found a marginal effect in Cote d'Ivoire, Ghana, Kenya, Mauritius, and Nigeria. In contrast, Donia (2012) found a positive and significant impact of stock market capitalisation on banking development. Zhangu and Wu (2012) saw that stock markets can absorb capital from banks despite banks being

more effective in funding growth, reducing their level of development and economic growth.

To examine the effect of using different proxies on the results, another equation with stock market capitalisation (SMC) in place of SMDI is run. SMC is regarded as the best measure compared to value traded and stock market turnover ratio. It is the most preferred because it measures stock market size which is a determining factor in allocating capital and diversifying risk (Levine & Zervos, 1998). It depicts the stock market's intermediation role of channelling savings to productive entities (Seetanah et al., 2010). Resultantly, highly capitalised markets are characterised by low volatility, high liquidity and impact growth more than smaller markets. The rationale behind replacing SMDI with SMC is to examine the sensitivity of results to changes in proxies used to measure stock market development. Using individual indicators help in determining specific policy initiatives that target the banking sector and stock markets.

TNRR stands for total natural resource rent, a proxy for a country's natural resources endowment. Elevated levels of natural resources rent are expected to negatively affect banking sector as suggested by the natural resource curse theory, Dutch diseases hypothesis and open exploration hypothesis (Auty, 1997; Matsuyama, 1992; Sachs & Warner, 1995). On the contrary, factor endowment hypothesis suggests that depending on how the resources are managed, climatic conditions and the quality of institutions, natural resources could positively affect growth. This result in a positive impact on financial markets (Acemoglu et al., 2001; Sokoloff & Engerman, 2000). However, considering the quality of institutions found in countries being studied, the proxy for natural resources is expected to be negatively related to the dependent variable.

The model included other control variables that affect banking sector development such GDPP, inflation, trade openness, rule of law, FIP and TP. Inflation as measured by the GDP deflator is expected to negatively affect banking sector development. Elevated levels of inflation discourage savings and at the same time force companies to reduce investment owing to elevated levels of uncertainty and decreasing real income levels. Huybens and Smith (1999) show that high inflation results in credit rationing and a fall in the inflation adjusted rate of return. Under such circumstance banks are not willing to provide long-term capital and ability to increase resource allocation is constrained (Rousseau & Wachtel, 2002). Other studies show that inflation has a non-linear effect on finance, suggesting existence of a threshold (Boyd, Levine, & Smith, 2001; Kim & Lin, 2010). Trade openness (TO) can have a negative or positive effect on banking sector development. Trade openness facilitate growth of firms through allowing them to compete internationally, thereby increasing demand for services such as risk management and international payments (Svaleryd & Vlachos, 2002). At the same time, Baltagi et al. (2009) contend that such openness result in big firms relying on external finance as opposed to local firms. Also, this might expose small local firms to competition from huge companies operating in advanced economies that provide better business conditions. In their simultaneous openness hypothesis, Rajan and Zingales (2003) advance that trade openness is only beneficial to banking sector development when it is accompanied by financial openness. Additionally, Andrianaivo and Yartey (2010) claim that in financially repressed economies, TO negatively affects the banking sector. Consequentially, this study expects a negative impact in line with results obtained by Andrianaivo and Yartey (2010) and Mahawiya (2016) in SSA.

GDPP resembles growth in income levels as measured by GDP per capital growth rate. Increase in income is expected to positively affect the banking sector variable since it ensures that consumers have extra income to save in banks as deposits (Robinson, 1952). Also, in line with the demand following hypothesis, higher growth rates in income increase demand for goods and services which in turn increase investment by firms operating in the economy. Such hype in economic activity results in increases in demand for loans, underwriting services and other services offered by banks. However, this only happens when income is evenly distributed while most of the income is not spent on imports. RL stands for rule of law index in the model. This relates to the strength and quality of legal systems in the country as measured by judicial independence, protection of creditor rights and contact enforcement mechanisms. A higher rule of law index is expected to positively affect banking sector development (La Porta, Lopez-de-Silanes, Shleifer, and Vishny 1997). Inward remittances (REM) measured as remittances as a percentage of GDP were also included in the model as a control variable. Remittances transferred through financial institutions allow recipients to use banks and demand other financial products. This inflow of funds provides alternative finance, thereby alleviating liquidity challenges that characterise countries with less developed financial markets. As such, remittances promote banking sector development through increasing deposits and credit, especially in less developed financial markets (Andrianaivo & Yartey, 2010; Coulibaly, 2015). Therefore, REM is expected to impact banking sector development positively.

Following Tembo and Makina (2020), the research included dummy variables being the TP (TP) and FIPs (FIP) entered by SADC countries. Through eliminating trade barriers

(tariff and non-tariff), promoting cross-border flow of FDI, facilitating free movement of people, corporation in regional capital markets and exchange controls, coordination on regulation of financial markets and corporation among Central Banks on information and technology, these protocols promote regional integration (Hartzenberg, 2012; SADC, 2015). Therefore, the research uses these protocols to proxy regional integration. The impact of regional financial integration could either be positive or negative. The positive effect emanates from creating economies of scale from a large market that could easily attract foreign investment and facilitate regional trade. This could increase demand for financial services. Regional financial integration has the effect of facilitating financial sector reforms in member countries. These reforms result in more efficient, competitive, diversified, and resilient financial markets (Tahari et al., 2007). However, regional integration could result in instability in the banking sector through (1) lowering credit standards and (2) the contagion effect (Allen & Gale, 1999; 2004; Mlachila, 2017). The term ε_{it} represents the error term which captures variables not included in the model.

The model was modified to include the interaction term of the of the TP and FIP (TP*FIP) to show the joint effect of regional integration measures on banking sector development. However, since these are dummy variables, the stand-alone measures TP and FIP were removed to avoid the problem of multicollinearity.

Model 2: Stock market development model

The rule of law, regional integration and the growth of the banking sector are some of the factors that the stock market development model measures. Press freedom, industrialisation, capital flight, and exchange rate regimes were among the new variables

that had not been studied before. The model looks at whether the growth of the banking sector in SADC promotes or depresses the development of stock markets, hence implying a replacement or complementary relationship, in addition to assessing how these other variables affect stock market development. These two variables were also included as regressors to evaluate how they directly affect stock market development because the study aims to investigate how regional integration and rule of law impact the relationship between banking sector development and stock market development.

Following literature and earlier studies discussed, the research specifies the stock market development model as given below where the lagged values of regressors are meant to avoid the endogeneity problem.

$$SMD_{it} = \beta_0 + \beta_1 SMD_{it-1} + \beta_2 PF_{it-1} + \beta_3 IND_{it-1} + \beta_4 LogCFit_{-1} + \beta_5 Pegged_{it-1} + \beta_6 Crawling_{it-1} + \beta_7 Managed_{it-1} + \beta_8 Float_{it-1} + \beta_9 INFL_{it-1} + \beta_7 BSDI_{it-1} + \beta_8 GDPP_{it-1} + \beta_9 FDI_{it-1} + \beta_{10} S_{it-1} + \beta_{11} RL_{it-1} + \beta_{12} TNRR_{it-1} + \beta_{13} TP_{it-1} + \beta_{14} FIP_{it-1} + \varepsilon_{it} \quad (3)$$

Where *i* represents individual countries at time *t* and ε_{it} is the error term. SMD_{it} is a measure of stock market development. Stock market development is proxied by stock market development index (SMDI), stock market capitalisation (SMC), stock market value traded (SMVT) and stock market turnover ratio (SMTR) that measure overall stock market development, size, liquidity, and efficiency respectively. SMD_{it-1} is the earlier level of stock market development included in the model to capture the dynamism of the model. The expectation is that earlier higher levels of stock market development positively influence the current levels of the same through attracting more companies and traders alike thereby enhancing liquidity and capitalisation. Our variables of interest in the model are stock market development (SMDI), press freedom (PF), industrialisation (IND), capital

flight (CF) and exchange rate regimes are denoted by Pegged, Crawling, Managed, and Floating. All the other independent variables are legged one period to avoid the problem of simultaneity.

PF is a measure of press freedom captured by the voice and accountability governance measure. The expectation of press freedom is positive. Press freedom increases accuracy of analysts forecast resulting in provision of more firm specific information (Brunetti & Weder, 2003; Kim et al., 2017). This results in markets that attract more traders owing to elevated levels of efficiency while at the same time investor's required risk premium will be low owing to low levels of risk.

Industrialisation is represented by IND in the model. During the industrialisation process, the economy becomes dominated by manufacturing firms as opposed to the agriculture sector. This process results in more demand for financial resource as firms become capital intensive and adapt to modern technology. At the time, this transformation process reduces poverty, unemployment and increase productivity (Todaro & Smith, 2011). Put together, these processes lead to growth of stock markets as new firms list on the exchange ad existing ones demand more capital. Individuals will have income that allows them to participate in stock markets.

Capital flight (LogCF) is included in the model since it is a major source of capital outflow, especially in developing countries and it is expected to negatively affect stock markets. It puts a strain on savings therefore increases the savings – investment gap (Yalta, 2010). These funds leaving the country cannot be used to fund production locally, are not subjected to taxation and leave the country in the form of much needed foreign currency.

As investors expect higher taxation to compensate for the shrinking tax base, they divert their funds to low tax destinations to increase after tax returns (Collier et al., 2001). Capital flight negatively affects stock prices by diverting funds from local capital markets to foreign markets that are considered safe. When such movement is frequent, it induces volatility in stock markets and exchange rates alike in the process affecting economic growth.

The model includes dummy variables for exchange rate regimes. These were obtained from IMF`s Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER). The choice of an exchange rate regime is expected to affect capital markets through several channels among them international trade, inflation, currency crisis and capital flight (Ghosh & Ostry, 2009; Staehr, 2015). This is so because the regime being used by a country has a bearing on volatility of the exchange rate, incidences of exchange rate misalignment and ability to absorb shocks. According to the flow model, for instance, the prevailing exchange rate, which is a function of the regime affects company operations and the stock price directly through international trade. A depreciation in the exchange rate can make an international company less attractive to foreign investors while at the same time it increases input cost for a local company. Apart from determining the exchange rate and growth prospects, exchange rate regime is often accompanied by other complimentary policies such as monetary policy and capital controls (Staehr, 2015). Though there are studies that have shown the impact of exchange rate of stock prices, there is no earlier research that is linking exchange rate regime to stock market development.

BSDI stands for banking sector development index. Literature shows that banking sector development can influence the development of stock markets by offering support services

such as underwriting, custodial services and payment facilities. Broni, Hosen and Saiti (2018) note that the few studies that looked at causality between banks and stock markets did not provide conclusive results and similarly, theory has not solved the controversy surrounding this relationship. Ho and Lyke (2018) confirmed the controversy by showing that banks can either promote or inhibit development of stock markets. Studies by Ho (2019) bring out that the effect of banks on capital markets is positive only in the short run while negative overall. However, in Hong Kong, Ho and Odhiambo (2019) found a positive influence of banking sector development on stock markets. The impact of banking sector development on stock market development is therefore taken to be ambiguous. BSDI is replaced by private credit by deposit money banks (PCDMB) is all equations to determine sensitivity of results.

PCDMB is the total amount of credit advanced by deposit money banks to non-government firms outside the financial sector. This measure is used the depth or size of the banking sector compared to the country's GDP. PCDMB is deemed a good measure of financial intermediation because (1) it separates credit extended to the public sector and credit to the private sector, (2) it reflects the quality and quantum of resources advanced to the private sector, and (3) it reflects the efficiency of the banking sector in providing credit to the most productive sector, which is the private sector (Levine, et al.; 2000; Yartey, 2008).

The other variables in the model such as INFL, S, RL, GDPP, FDI, TP, FIP and TNRR represent inflation, savings, rule of law, growth in income per capita, FDI, TP, FIP and total net resource rent, respectively. These are included as control variables following earlier literature that showed them as significant determinants of stock market

development. Inflation represents economic instability. As such, it is expected to have a negative effect on development of stock markets. Companies are expected to reduce investments owing to higher levels of uncertainty while at the same time consumer demand falls owing to erosion of disposal income. Apart from depressing stock prices and inducing volatility on stock markets, instability retards growth which reduces demand for stocks. However, recent evidence from Mahawiya (2015) and Seleteng (2012) show thresholds and non-linear relationships between inflation and economic growth, suggesting that the impact of inflation is significant after a certain level.

Savings (S) measured as gross savings as a percentage of GDP are expected to positively affect growth. Zhangu and Wu (2012) found evidence that households move their savings from banks to stock markets during boom of stock markets and transfer these savings back to banks when stock markets are in a crisis. As a result, when savings flow to capital markets, they increase demand and liquidity of stock markets hence positively affect prices. In the same vein, GDP per capita growth should positively affect stock markets. Higher income levels can positively affect stock markets as investors invest excess income in companies listed on the stock exchanges. Therefore, in line with the demand follow hypothesis, this demand induces liquidity in stock markets and results in higher prices.

Rule of law denoted by RL in the model should have a positive impact on the dependent variable in line with results obtained by Dima, Barna and Nachescu (2017). This is so because protection of creditor rights, judicial independence and robust contract enforcement mechanisms attract investment both local and foreign. According to North (1990), rule of law encompasses regulations, government policies, support services, and

infrastructure that support a market-based economy. Hence, a higher rule of law index supports the existence of market-based economy that promotes a well-functioning stock market. FDI represents the FDI inflows to GDP. It is also used as a de facto measure of global financial integration. The model controlled for FDI as it has been seen to be an important determinant of stock market development (Zhou et al., 2015). Natural resources endowments were controlled for using total natural resources rents (TNRR). This follows theory and empirical evidence that showed the importance of natural resources in influencing development of stock markets (Adegboye & Fagbemi, 2017; Billmeier & Massa, 2007). Though there is ambiguity on the effects of TNRR owing to conflicting results, it is regarded as an important control variable considering that most SADC countries are endowed with natural resources.

Trade protocol (TP) and FIP (FIP) measure regional integration. They are expected to promote cross-border flow of investment, enhance trade and foster competition among stock markets in the region. Competition among stock markets promote efficiency that enhances SADC's capacity to accumulate savings, stimulate investment and fund long-term infrastructure developments thereby positively affecting financial markets (Shipalana & Moshoeshoe, 2019). Financial integration can lead to deeper markets that are efficient, resilient to shocks and integrated to the global world (Tahari et al., 2007). One the other hand, adverse spill overs and spillbacks result in transmission of shocks that can trigger unsustainable sell offs in less developed markets. Such events result in elevated levels of volatility and longer periods of subdued prices (Boako & Alagidede, 2017; Mlachila, 2017). Variables not included in the model were accounted for by the error term ε_{it}. Like model 1, TR and FIP variables are replaced by an interaction term TR*FIP in al equations.

Model 3: Economic growth model

Model 3 looks at how the growth of the stock market and the banking industry combine to finance economic expansion. In contrast to earlier research that looked at the relationship between the two components' regression on each other, this one specifies the interaction term between the two components and their respective measures as predictors of economic growth.

Following the work of Levine (1997), the research postulates a dynamic growth model by extending the original static growth model below:

$G\ (j) = \alpha + \beta\ F\ (i) + \gamma X + \varepsilon$

Where G *(j)* represents growth measures, F *(i)* denotes financial development indicators, X is a vector capturing control variables and ε is an error term. The study extends the model by including the lagged value of G *(j)* and *i* and *t* subscripts that stand for country and time respectively. In a bid to test for complementarity or substitutability between banking sector and stock market development in funding economic growth, the research adopts a model utilised by Giuliano and Ruiz- Arranz (2006) and later Bettin and Zazzaro (2011) to test complementarity between remittances and financial development in economic growth. So, the study includes an interaction term of banking sector development and stock market development [SMDI*BSDI] and their stand-alone indicators in the growth equation. Therefore, the model is expressed as below:

$$GDP_{it} = \beta_0 + \beta_1 GDP_{it-1} + \beta_2 SMDI_{it-1} + \beta_3 BSDI_{it-1} + \beta_4 LF_{it-1} + \beta_5 GFCF_{it-1} + \beta_6 INFL_{it-1} + \beta_7 TO_{it-1} + \beta_8 [SMDI*BSDI]_{it-1} + \varepsilon_{it} \quad (4)$$

The coefficient (sign and significance) of the interaction term will determine the complementarity and substitutability hypotheses. If $\beta_2 > 0$ and $\beta_8 < 0$ then increase in stock market development promote growth only when banking sector development is poor developed. On the other hand, when $\beta_2 < 0$ and $\beta_8 > 0$ or when they are both positive and significant, then a better developed banking sector will support stock markets in financing economic growth (Bettin & Zazzaro, 2011). In essence, when the interaction term is positive, then banks and stock markets are complements while a negative coefficient is evidence of substitutability (Giuliano & Ruiz- Arranz, 2006). To ensure robustness, the banking sector, stock market index variables and their interaction term are substituted by single dimension measures PCDMB, SMC and the interaction term respectively.

GDP_{it} denotes gross domestic product growth rate for the countries included in the model. The variable GDP_{it-1} is meant to capture the dynamic nature of economic growth. The assumption is that earlier levels of economic growth have a bearing on the current levels of economic growth. The lagged value of GDP denoted by GDP_{it-1} is expected to positively impact economic growth. All the other regressors are lagged for one period to control for simultaneity when using the SUR estimation technique.

SMDI is the stock market development index that is expected to have a positive or negative impact on economic growth in line with empirical evidence. When stock markets are developed, they enhance economic growth by providing liquidity and allocating resources to high return long-term projects that would otherwise be left unfunded (Levine, 1991). They offer opportunities for risk sharing and diversification by business owners such that when developed, they incentivise firms to substitute long-term debt with equity (Demirguc-Kunt & Maksimovic, 1999). On the other hand, when the stock markets are

less developed, they retard growth owing to high volatility, low liquidity and depressed prices. These drive away investors, leaving companies that need capital underfunded.

Banking sector development measured by BSDI is expected to enhance economic growth through reducing information asymmetry and lowing transaction costs between borrowers and lenders (Leyland & Pyle, 1977). Owing to economies of scale in collecting information, banks are better placed to monitor customers and borrower's projects thereby ensuring better use of financial resources (Diamond, 1984). The activities of banks ensure that firms are well funded while at the same time capital is allocated to the most productive use. These processes improve a country's growth prospects.

SMDI*BSDI is an interaction term measuring complementarity and substitutability between banks and stock markets in funding growth. Literature and empirical evidence are replete with conflicting views on whether banks and stock markets are substitutes or complements. The notion of substitutability stems from firms making a choice between funding their operations using debt or equity or varying proportions of the same (Arestis, Demetriades, & Luintel, 2001). Earlier on, Friedman (1983) found evidence of long debt and equity being substitutes though there was inconclusive evidence on short-term debt and equity. Later, Aivazian, Callen, Krinsky, and Kwan (1990) collaborated evidence of debt and equity being substitutes. Because investors can switch their funds from the stock market to banks and vice versa when there is instability in any of the markets, these two can be used as substitutes. This is also in line with the spare tyre hypothesis. If this holds true, then development of stock markets can militate against development of the banking sector. The opposite end view banks and stock markets as complements because growth in stock markets result in more demand for banking services such as underwriting. Also,

banks can strengthen their capital base through issuing out equity, which allow them to extend more credit to companies in need while at the same time, companies with strong capital base from issuing equity are able to borrow more (Nguyen et al., 2011). Chin and Ito (2006) found evidence supporting the complementary hypothesis but notes that this could be true for developing countries only. Contrastingly, Nyasha and Odhiambo (2015) found substitutability in Kenya. Besides finding the relationship to be proxy specific, Odhiambo (2014) found weak complementarity in South Africa. Nguyen et al. (2011) advance those differences in results could be explained by differences in the countries under study, the sample period and proxies used. Therefore, the impact of the interaction term on growth is taken to be ambiguous.

Labour force participation (LF), gross fixed capital formation (GFCF), inflation (INFL) and trade openness (TO) are control variables. Labour force is part of the four essential factors of production in any economy. Increase in labour force participation enhances economic development (Kargi, 2014). It supports growth through provision of a diversified skills base. It also brings a dimension of human capital development, which explains differences in production and growth in different countries (Amir, Khan, & Bilal, 2015). Gross fixed capital formation (GFCF) is a measure of domestic investment that emanates from new investments made by domestic firms either existing or new market entrants. Higher levels of investment are expected to increase employment and spur a country's productive capacity. According to Keynes, this translates into higher levels of economic growth through increase in aggregate demand (Tobin, 1965). However, in South Africa, Meyer and Sanusi (2019) found evidence of causality running from economic growth to

investment but not the reverse. Both labour force participation (LF) and gross fixed capital formation are expected to have a positive effect on economic growth.

A low level of inflation is desirable because it promotes economic growth through supporting investment and efficient use of resources (Ahortor, Adenekan, & Ohemeng, 2011). However, theoretical explanations show that the impact of inflation on economic growth is not clear cut. It can have a negative, positive and neutral effect based on whether money complements capital (Fischer, 1981), substitute capital (Tobin, 1965) or is super-neutral (Sidrauski, 1967). Recent evidence from Africa by Ndoricimpa (2017) shows a nonlinear relationship between inflation and economic growth where a threshold of 6.7% was estimated for the total sample while 9% and 6.5% were estimated for low income and middle-income countries respectively. The evidence shows that above the estimated threshold, inflation becomes detrimental to economic growth. According to Choi, Smith and Boyd (1996), inflation above the threshold level reduces lending owing to lower rates of return while at the same time high default risk creates adverse selection and credit rationing. The reduction in credit suppresses economic growth. Owing to more evidence showing the negative effects of inflation on economic growth in low-income countries, the current study expects higher levels of inflation (INFL) to subdue economic growth.

Trade openness (TO) can enhance economic growth via several channels that include (1) provides access to a wider variety of goods and services, (2) improve factor productivity by facilitating dissemination of knowledge and technology diffusion and (3) enhance efficiency in resource allocation (Barro & Sala-i-Martin, 1997). However, it can also subdue economic growth through increasing inflation and lowering exchange rates

(Cooke, 2010). For less developed countries that produce primary goods and low-quality products, exposure to competition can increase vulnerability (Haussmann, Hwang & Rodrik, 2007). Following these theoretical explanations and mixed evidence (Keho, 2017), the effect of trade openness on economic growth is taken to be ambiguous.

The research extends growth model 3 to control for regional integration by including TP (TP) and FIP (FIP) variables in the model. The intention is to determine the impact of regional integration on the relationship between banks and stock markets in funding economic growth. Literature shows that financial integration could have a material impact on stability of financial markets, debt maturity structure and demand and supply of capital. Also, the impact on banks and stock markets and between more developed and less developed countries could be disproportionate (Agca et al., 2007; Boako & Alagidede, 2017; Lucey & Zhang, 2011; Mitton, 2006; Schmukler & Vesperoni, 2006). These developments could significantly change how banks and stock markets work depending on their individual level of integration and sensitivity to such external changes. How they interact in funding growth could be affected. The variables FIP and TP are also replaced by an interaction term TP*FIP to determine the joint effect of the TP and FIP. Tables 4-3,4-4, and 4-5 summarise the regression equations estimated for the models presented.

BSDI $BSDI_{t-1}$ UB PD INQ SMDI GDPP INFLN TO REM RL TNRR TP FIP
BSDI BSDIt-1 UB PD INQ SMDI GDPP INFLN TO REM RL TNRR TPFIP
BSDI BSDIt-1 UB PD INQ SMC GDPP INFLN TO REM RL TNRR TP FIP
BSDI BSDIt-1 UB PD INQ SMC GDPP INFLN TO REM RL TNRR TPFIP
PCDMB $PCMDB_{t-1}$ UB PD INQ SMDI GDPP INFLN TO REM RL TNRR TP FIP
PCDMB PCMDBt-1 UB PD INQ SMDI GDPP INFLN TO REM RL TNRR TPFIP
PCDMB $PCMDB_{t-1}$ UB PD INQ SMC GDPP INFLN TO REM RL TNRR TP FIP
PCDMB PCMDBt-1 UB PD INQ SMC GDPP INFLN TO REM RL TNRR TPFIP
Z-score $Zscore_{t-1}$ UB PD INQ SMDI GDPP INFLN TO REM RL TNRR TP FIP
Z-score $Zscore_{t-1}$ UB PD INQ SMDI GDPP INFLN TO REM RL TNRR TPFIP
Z-score $Zscore_{t-1}$ UB PD INQ SMC GDPP INFLN TO REM RL TNRR TP FIP
Z-score $Zscore_{t-1}$ UB PD INQ SMC GDPP INFLN TO REM RL TNRR TPFIP
NIM NIM_{t-1} UB PD INQ SMDI GDPP INFLN TO REM RL TNRR TP FIP
NIM NIM_{t-1} UB PD INQ SMDI GDPP INFLN TO REM RL TNRR TPFIP
NIM NIM_{t-1} UB PD INQ SMC GDPP INFLN TO REM RL TNRR TP FIP
NIM NIM_{t-1} UB PD INQ SMC GDPP INFLN TO REM RL TNRR TPFIP

***Table* 4-3: Summary of estimated equations – Banking Sector Model** (Author compilation)

SMDI $SMDI_{t-1}$ PF IND LogCF Pegged Crawling Managed Float BSDI INFLN GDPP FDI RL S TNRR TP FIP
SMDI $SMDI_{t-1}$ PF IND LogCF Pegged Crawling Managed Float BSDI INFLN GDPP FDI RL S TNRR TPFIP
SMDI $SMDI_{t-1}$ PF IND LogCF Pegged Crawling Managed Float PCDB INFLN GDPP FDI RL S TNRR TP FIP
SMDI $SMDI_{t-1}$ PF IND LogCF Pegged Crawling Managed Float PCDB INFLN GDPP FDI RL S TNRR TPFIP
SMC SMC_{t-1} PF IND LogCF Pegged Crawling Managed Float BSDI INFLN GDPP FDI RL S TNRR TP FIP
SMC SMC_{t-1} PF IND LogCF Pegged Crawling Managed Float BSDI INFLN GDPP FDI RL S TNRR TPFIP
SMC SMCt-1 PF IND LogCF Pegged Crawling Managed Float PCDB INFLN GDPP FDI RL S TNRR TP FIP
SMC SMCt-1 PF IND LogCF Pegged Crawling Managed Float PCDB INFLN GDPP FDI RL S TNRR TPFIP
SMVT $SMVT_{t-1}$ PF IND LogCF Pegged Crawling Managed Float BSDI INFLN GDPP FDI RL S TNRR TP FIP
SMVT $SMVT_{t-1}$ PF IND LogCF Pegged Crawling Managed Float BSDI INFLN GDPP FDI RL S TNRR TPFIP
SMVT $SMVT_{t-1}$ PF IND LogCF Pegged Crawling Managed Float PCDB INFLN GDPP FDI RL S TNRR TPFIP
SMVT $SMVT_{t-1}$ PF IND LogCF Pegged Crawling Managed Float PCDB INFLN GDPP FDI RL S TNRR TPFIP
SMTR $SMTR_{t-1}$ PF IND LogCF Pegged Crawling Managed Float BSDI INFN GDPP FDI RL S TNRR TP FIP
SMTR $SMTR_{t-1}$ PF IND LogCF Pegged Crawling Managed Float BSDI INFN GDPP FDI RL S TNRR TPFIP
SMTR $SMTR_{t-1}$ PF IND LogCF Pegged Crawling Managed Float PCDB INFN GDPP FDI RL S TNRR TP FIP
SMTR $SMTR_{t-1}$ PF IND LogCF Pegged Crawling Managed Float PCDB INFN GDPP FDI RL S TNRR TPFIP

***Table* 4- 4: Summary of estimated equations – Stock market model** (Author compilation)

GDP GDP_{t-1} SMDI BSDI LogLF GFCF INFLN TO SMDIBSDI S FDI
GDP GDP_{t-1} SMDI BSDI LogLF GFCF INFLN TO SMDIBSDI S FDI TP FIP
GDP GDP_{t-1} SMDI BSDI LogLF GFCF INFLN TO SMDIBSDI S FDI TPFIP
GDP GDP_{t-1} SMC PCDMB LogLF GFCF INFLN TO SMCPCDMB S FDI
GDP GDP_{t-1} SMC PCDMB LogLF GFCF INFLN TO SMCPCDMB S FDI TP FIP
GDP GDP_{t-1} SMC PCDMB LogLF GFCF INFLN TO SMCPCDMB S FDI TPFIP
GDP GDP_{t-1} SMDI BSDI LogLF GFCG INFLN TO SMDIBSDI S FDI TP FIP RL
GDP GDP_{t-1} SMDI BSDI LogLF GFCF INFLN TO SMDIBSDI S FDI TPFIP RL
GDP GDP_{t-1} SMC PCDMB LogLF GFCF INFLN TO SMCPCDMB FDI TP FIP RL
GDP GDP_{t-1} SMC PCDMB LogLF GFCF INFLN TO SMCPCDMB FDI TPFIP RL

***Table* 4- 5: Summary of estimated equations – Economic growth model** (Author compilation)

The economic growth model 3 addresses the aim of the research, estimated by equations in Table 4-5. The model presented shows that current economic growth rate (GDP_{it}) is explained by lagged values of economic growth rate (GDP_{it-1}), stock market development ($SMDI_{it-1}$), banking sector development ($BSDI_{it-1}$), labour force (LF_{it-1}), gross fixed capital formation ($GFCF_{it-1}$), inflation rate ($INFL_{it-1}$), trade openness (TO_{it-1}) and the interaction term between banking sector development and stock market development ([SMDI*BSDI] $_{it-1}$) as measured by composite indexes.

$$GDP_{it} = \beta_0 + \beta_1 GDP_{it-1} + \beta_2 SMDI_{it-1} + \beta_3 BSDI_{it-1} + \beta_4 LF_{it-1} + \beta_5 GFCF_{it-1} + \beta_6 INFL_{it-1} + \beta_7 TO_{it-1} + \beta_8 [SMDI*BSDI]_{it-1} + \varepsilon_{it}$$

Following Bettin and Zazzaro (2011) and Giuliano and Ruiz- Arranz (2006), the coefficient (sign and significance) of the interaction term will determine the complementarity and substitutability hypotheses. If $\beta_2 > 0$ and $\beta_8 < 0$ then increase in stock market development promotes growth only when banking sector development is poor developed. On the other hand, when $\beta_2 < 0$ and $\beta_8 > 0$ or when they are both positive and significant then a better developed banking sector will support stock markets in financing economic growth. In other words, when the interaction term is positive then banking sector development and stock market development are complements while a negative coefficient is evidence of substitutability. The model is modified by replacing SMDI, BSDI and SMDI*BSDI with single dimension measures SMC, PCDMB and SMC*PCDMB. Furthermore, the research controls for regional integration by including dummy variables TP, FIP and TP*FIP in the model. The motive is to find out how regional integration affects the relationship between banking sector development and stock market development in funding economic growth. The model is also changed to study how institutional arrangements affect the relationship between the growth of the banking industry and the growth of the stock market. This is accomplished by adjusting the growth equation to account for rule of law (RL).

4.9 Estimation techniques used

In line with Abdelaziz, Rim, and Anderson (2019), Mahawiya (2015), Novalina, Nazliana, and Ruslan (2019), and Sumer (2012), the banking sector, stock market and economic growth equation were estimated using seemingly unrelated regression (SUR) and GMM. Robustness checks were done at three levels. Firstly, the research used alternative

measures of banking sector development and stock market development to examine the determinants and the interaction between banking sector and stock market development. Secondly, the equations on determinants of banking sector development and stock market development were used to test complementarity and substitutability by putting them as regressors. Thirdly, the equations were estimated using the SGMM and comparison of the results was done.

The choice of SUR method was motivated by the additional efficiency obtained in estimation by combining information from different equations. This method results in small standard errors particularly in larger samples. Since the method can be utilised in both cases where there is a single dependent variable or different dependent variables (Abdelaziz et al., 2019; Novalina et al., 2019; Sumer, 2012; Zellner, 1962), it was deemed appropriate for this study. The SUR model, put forth by Zellner (1962), is suitable for estimating panel models with long time (big T) and little observations (small N). Aitken's generalised least squares is used in the model to estimate parameters from a set of equations (GLS). In comparison to estimating each equation separately using ordinary least squares, the GLS produces asymptotically effective coefficient estimators (OLS). Heidari Keshavarz and Mirahmadizadeh (2017) evaluated the effectiveness of SUR and OLS estimatorsin a study that looked at the factors that contribute to fatigue among employees of Swedish petrochemical industries. They discovered proof that SUR estimators were more precise than OLS because the parameters had lower standard errors. Because it considers error term correlation, the SUR consistently outperformed other methods. Cadavez and Henningsen both attained comparable outcomes (2011).

The SUR model increases efficiency by allowing parameters of each equation to consider information provided by other equations and simultaneously calculating the parameters of all equations. When there is substantial correlation between the error terms of several equations and low correlation between the regressors in those equations, efficiency benefits can be significant (Zellner, 1962). The model is known as an unrelated regression model because of contemporaneous correlation, which is the phrase used to describe the correlation between the error terms.

The SUR model, according to Zellner (1962), can be applied when a single equation is regressed for a single micro unit, but it can also be expanded to apply when several regressions are performed for a single micro unit. For instance, Novalina et al. (2019) used the SUR to look at how Indonesian monetary and fiscal policies affected economic stability. The findings indicate that while inflation was discovered to have a negative impact on the GDP, the credit interest rate, money supply, and government spending had a favourable impact on growth. Sumer (2012) used data on the Turkish economy from 1980 to 2010 to evaluate the efficacy of several theories of economic growth. Sumer (2012) developed a system of four equations that were used to assess the Harrod-Domar, Barro and Romer, and Solow growth models using GDP as the dependent variable. The outcomes demonstrate the three growth models' applicability to the Turkish economy. The SUR model was used in a different study by Wan, Griffiths, and Anderson (1989) to calculate the production functions of maize, rice and wheat in China for 28 regions from 1980 to 1983. They discovered that as sown area, irrigation costs and chemical fertiliser grow, variation increases while machinery costs and organic fertiliser stabilise out of these cereal crops. For the years 2000–2017, Abdelaziz et al. (2019) looked at the effect of

external debt on investment and economic growth in 23 low-income countries. They calculated two equations for economic growth and investment, demonstrating that both the main sample and the sub-sample are negatively impacted by external debt. The SUR model, unlike the GMM model, does not account for the simultaneity issue that is typically present in macroeconomic connections. This issue may skew the estimations and lead to incorrect inferences and conclusions. A situation like that would lead to the endogeneity issue. As recommended by Baltagi et al. (2009), Borensztein et al. (1998) and Mahayiwa (2016), the current study uses lagged values of independent variables as regressors to overcome this issue.

The dynamic GMM technique was chosen for robustness check because of its ability to deal with endogeneity between finance and growth and between banking sector and stock market development as well as the use of the lagged dependent variable as a regressor (dynamic term). The method is also handy in controlling for country specific effects, heteroskedasticity and autocorrelation (Pedroni, 2000; Rioja & Valev, 2004). It is a broad estimation technique that derives estimators from moment conditions. Since Hansen (1982) formalised it, it has grown to be one of the most often used estimate approaches, primarily because unlike techniques like maximum likelihood estimation, it does not require complete knowledge of how the data are distributed (MLE). The GMM relies on assumptions regarding a subset of the random variable's moments, not its complete distribution. As a result, the GMM is more reliable and effective than the MLE (Drukker & Pinzon, 2015). In comparison to other estimating techniques, the GMM uses less data while yet delivering reliable results. Hansen and Singleton (1982), for instance, point out that the GMM does not require comprehensive knowledge of the economic environment

effecting the variables under consideration, assumptions, or the nature of the forces affecting the variables. It is naturally thrifty.

By enabling the number of assumptions (moment conditions) to be more than the number of parameters, GMM stands for generalisation of methods of moments. The estimator becomes overidentified when the moment conditions exceed the parameters in these cases, and the GMM is more effective at merging moment conditions (Drukker & Pinzon, 2015). Many practical economics scholars prefer utilising GMM over alternative panel data techniques, according to Bun and Kleibergen (2010:2), because it "provides asymptotically efficient deductions assuming a limited set of statistical assumptions."

Blundell and Bond (1998) claim that persistent explanatory variables with lagged values that have not been transformed are poor instruments for transformed variables, which has an adverse effect on the difference GMM's asymptotic and small sample features. To put it another way, when the series is persistent, the difference GMM model's accuracy suffers because the instruments are less effective at forecasting endogenous changes (Bun & Kleibergen, 2010). As a result, Arellano and Bover (1995) and Blundell and Bond (1998) created the SGMM estimator, which uses two equations to simultaneously estimate differences and levels to boost efficiency. Because there is no association between fixed effects and the initial differences of instrument variables, the SGMM has more instruments than the differenced GMM. Because it generates unbiased findings, it is consistent in estimating parameters, and effectively addresses the endogeneity problem, the SGMM is preferred over the difference GMM, pooled OLS, and fixed effects estimators (Chu, 2019). As a result, the SGMM technique was used in the current study to boost efficiency, produce unbiased results and address the endogeneity issue.

The popularity of systematic GMM in growth literature is related to its capacity to handle heteroskedasticity and the serial correlation problem, in addition to resolving the endogeneity of explanatory variables (Leitao, 2010). Baum, Schaffer and Stillman (2003) advocate GMM over IV estimator because it can produce accurate estimates even when heteroskedasticity is present and even though they see poor sample performance when heteroskedasticity is absent.

But when it comes to addressing cross-sectional reliance, GMM has a flaw (Pesaran & Smith, 1995). Since the GMM disregards the integration and cointegration phenomenon, other approaches might be more effective when long-term connections are involved (Christopoulos & Tsionas, 2004; Pedroni, 2000). When the time (T) is less than the number of observations (N), like in short panels, Pedroni (2000) emphasises that the GMM is appropriate. The study used two strategies recommended by Roodman (2007), namely, limiting the delays of the instruments and collapsing instruments, to address the issue of instrument proliferation, which typically arises when T is bigger than N. The first method yields a maximum number of instruments each period, limiting the instrument count to a function of only Levine et al. (2000) also used this technique. The second method divides the instruments into smaller sets rather than completely dropping them, retaining more data in the process. As a result, the instrument count will also be linear to Roodman (2007). Beck and Levine (2002) and Calderon, Chang, and Loayza (2004) both employed a comparable strategy (2002). According to evidence found by Roodman (2007), combining these two procedures greatly lowers the number of instruments used, improving the validity of the results. Because of this, the current study used both strategies as Roodman (2007) advised.

Having explained the methodology used to meet the objectives of the study, the following chapter will show presentation, analysis and discussions of the estimation results.

4.10 Chapter summary

Considering that stock markets and banking sector in SADC remain underdeveloped despite policy initiatives that have been put in place to develop these sectors. Theory has not been exhaustive in identifying the factors that explain the development of banking sector and stock market while results from previous studies are mixed and inconclusive. At the same time, both theoretical and empirical literature have omitted examining the impact of regional integration on the relationship between banking sector development and stock market development. As a result, the study's objectives were to: (1) determine the determinants and status of banking sector development, (2) determine the determinants and status of stock market development and (3) decide on the relationship between banking sector development and stock market development in funding economic growth. In a bid to address these objectives the research specified three models, namely, the banking sector development model, stock market development model and the economic growth model. After specifying the empirical models to be estimated, variables used in the models were also justified. The estimation techniques utilised in the study, namely, SUR model and the SGMM were explained, with the focus of bringing out the benefits derived from utilising the two methods. The chapter also highlighted the sources of data and the variables used to make up the broad-based measures of banking sector development and stock market development using principal component analysis. Diagnostic tests such as panel unit root and endogeneity test were also explained. Having

explained the methodology used in this study, empirical results from these tests and estimation techniques are presented and discussed in the next chapter.

5 CHAPTER 5: ANALYSIS AND INTERPRETATION OF FINDINGS

5.1 Introduction

The previous chapter explained and justified the methodological choices that were made so as to meet the research objectives and bridge the research gap. The models were specified and the estimation techniques chosen helped to analyse data. Therefore, this chapter presents study results in line with research objectives stated in the previous chapter. Principal component analysis and descriptive statistics are explained in section 5.2, panel unit root tests results are discussed in section 5.3 and section 5.4 analyses the correlation of banking sector and stock market development variables. The results for endogeneity tests are shown in section 5.5. In section 5.6, the banking sector development modelling results are presented while section 5.7 display the stock market development findings. The economic growth results are presented in section 5.8 and finally a chapter summary is provided in section 5.9.

5.2 Construction of banking sector and stock market development indexes

In the study, banking sector and stock market development indexes were determined using Principal Component Analysis (PCA), and used as broad-based measures of banking sector and stock market development.

Tables 5-1 and 5-2 depicts the PCA results for banking sector development index (BSDI) and stock market development index (SMDI) respectively.

Rotation: (unrotated=principal)				
Component	Eigenvalue	Difference	Proportion	Cumulative
Component 1	1.78966	0.93440	0.5966	0.5966
Component 2	0.85526	0.50017	0.2851	0.8816
Component 3	0.35509		0.1184	1.0000
Principal component (eigenvectors)				
Variable	Component 1	Component 2	Component 3	
PCDMB	0.6668	-0.1182	0.7358	
Z-score	0.4361	0.8625	-0.2567	
NIM,	-0.2043	0.4920	0.6267	

***Table* 5- 1: PCA results for BSDI** (Author compilation)

The banking sector development index was constructed to capture three dimensions, namely, depth, stability, and efficiency. These dimensions were proxied using private credit by deposit money banks to GDP (PCDMB), net interest margin (NIM) and the Z-score respectively. In line with standard practice contained in literature, the Kaiser's rule was used to extract the components that have useful information. According to the Kaiser's rule only components with eigenvalues greater than 1 should be extracted (Kaiser, 1958). The second column in Table 5-1 shows that component 1 has an eigenvalue of 1.79 and explain 60% of the variance in the data. As a result, component 1 is the only candidate right for extraction. The other components with eigenvalues less than 1 are less important and therefore should not be extracted for use according to the Kaiser's rule (Tabachnick & Fidell, 2007). The eigen vector values or loadings that stand for the individual variable contribution to the respective component are used to produce weights of the variables in the construction index (Destek, Sinha, & Sarkodie, 2020). Therefore, weights of 74.20%, 48.53% and -22.74% were assigned to PCDMB, Z-score and NIM respectively in producing the banking sector development index (BSDI).

Table 5-2 shows results of the stock market development composite index created using stock market capitalization to GDP (SMC), stock market value traded to GDP (SMVT) and the stock market turnover ratio (SMTR). These measures capture stock market depth, liquidity, and efficiency respectively (Levine & Zervos, 1998; Sahay et al., 2015 Svirydzenka, 2016).

Rotation: (unrotated=principal)				
Component	Eigenvalue	Difference	Proportion	Cumulative
Component 1	2.17745	1.4158	0.7258	0.7258
Component 2	0.76165	0.70074	0.2539	0.9797
Component 3	0.06091		0.0203	1.0000
Principal component (eigenvectors)				
Variable	Component 1	Component 2	Component 3	
SMC	0.6311	-0.3705	0.6815	
SMVT	0.6542	-0.2180	-0.7242	
SMTR	0.4169	0.9029	0.1048	

***Table* 5- 2 : PCA results for SMDI** (Author compilation)

There is a total of three components given that these usually correspond with the number of variables used to construct the index (Kaiser, 1958). In line with Kaiser's rule, only component 1 has an eigenvalue greater than 1 (2.18) therefore meets the inclusion criteria. Component 1 explains 73% of variance in the data; hence, it has more information about the variables used than any other component. The other 2 components have eigenvalues less than 1 as shown in Table 5.2 where component 2 has an eigenvalue of 0.76 while component 3 has a corresponding eigenvalue of 0.06. Combined they explain the remaining 27% of variance in the data. The individual contributions of SMC, SMVT and SMTR to standardised variance of the first principal component 37.07%, 38.43% and 24.49% respectively, were utilised as weights to construct the stock market development index (SMDI). Having looked at the construction of indexes used in the study, the next section covers descriptive statistics.

5.3 Descriptive statistics of key variables

The descriptive statistics cover a panel of nine SADC countries for the period 1995 to 2017. Table 5-3 contains summary statistics such as the mean, standard deviation, maximum, minimum, skewness, kurtosis and normality results for the variables employed in the study. Private credit by deposit money banks to GDP has a minimum ratio of 2.72% and a maximum of 101.23%. The same variable has a mean value of 33.43% while the standard deviation of 26.76% is below the mean signifying low variability of the credit extension across the region. Banking sector stability measured by the Z-score had a minimum value of 3.101 and a maximum value of 96.68 while the mean and standard deviation were 14.01 and 12.14 respectively. A standard deviation below the mean implies lower variability in banking sector stability within the SADC region. Similarly, there was low variability in banking sector efficiency (NIM) as evidenced by a standard deviation (4.09) that is below the mean (6.89). The banking sector development index had a minimum value of -2.39 and a maximum value of 3.9. The mean of the index was -0.075 against a standard deviation of 0.93. This shows a higher level of variability across the countries being studied.

Stock market capitalisation to GDP (SMC) shows elevated levels of variability evidenced by a standard deviation of 69.09% compared to a mean value of 49.11%. The difference between a minimum value of 1.33% and the maximum value of 328.36% indicate potential differences in the level of stock market development across countries. Stock market value traded to GDP ratio (SMVT) had a minimum value of 0.00% and a maximum of 123.25%. The mean SMVT was 9.21% while the standard deviation was 21.28% and above the mean. Stock market efficiency as measured by stock market turnover ratio (SMTR) had

a maximum value of 205.44 and a minimum value of 10.31. There was elevated level of variability in SMTR shown by a standard deviation of 21.95 against a mean of 10.31. The stock market development index (SMDI) had a minimum of -2.39 and a maximum of 2.603. The index's variability was 0.97 while the mean was -7.84e-09. This implies a high coefficient of variation for SMDI. A comparison of the banking sector and stock market using measures of depth (size) show that the stock market has more volatility compared to the banking sector. The stock market had a coefficient of variation equal to 1.4068 compared to the banking sector with a coefficient of 0.8005. This higher level of volatility suggests more risk in the capital markets.

Variable	Mean	Min	Max	Standard deviation	Skewness	Kurtosis	Normality
BSDI	-.074969	-2.39	3.897	0.93038	.7645961	4.612886	0.0002
PCDMB	33.43434	2.724	101.230	26.762	.6911382	2.372158	0.0015
Z-score	14.01001	3.101506	96.68028	12.135	3.281851	17.7367	0.0000
NIM	6.892745	1.47257	28.98239	4.0868	2.484072	13.06713	0.0000
UB	40.44814	14.875	68.7	14.712	.1544339	2.065114	0.0004
PD	119.3706	1.977268	622.9621	206.01	1.855808	4.617566	0.0000
INQ	53.06928	37.5	66.5	9.0889	-.408206	1.938466	0.0000
INFLN	9.82058	-0.654	95.409	9.4049	5.294181	46.39309	0.0000
GDPP	2.995467	-9.4420	18.06597	3.0757	.9359746	8.979471	0.0000
Rem	1.43918	.004505	13.61145	2.6581	2.88395	11.1485	0.0000
TO	84.1051	23.981	175.798	32.540	.4392386	2.55552	0.0458
RL	.037015	-1.852	1.077	0.65663	-.580985	3.22413	0.0174
TNRR	4.82199	0.001	22.093	4.7165	1.670765	6.29456	0.0000
TP	.660130	0.000	1.000	0.47522	-.676135	1.45715	0.0010
FIP	.300653	0.000	1.000	0.46004	.8694789	1.75599	0.1649
SMDI	-7.84e-09	-2.39	2.603	0.97333	.3467381	2.71401	0.0000
SMC	49.1180	1.326	328.360	69.086	2.044714	6.29755	0.0000
SMVT	9.20740	0.000	123.245	21.280	2.908088	11.5633	0.0000
SMTR	10.3079	0.014	205.443	21.9525	6.043737	47.7479	0.0000
PF	.063250	-4.472	1.007	0.83158	-1.58926	7.43248	0.0000
IND	13.2503	4.950	35.215	7.3354	1.662218	5.32558	0.0000
CF	3250	-5670	15800	5930	3.573223	17.6794	0.0000
Pegged	.307189	0.000	1.000	0.46284	.835892	1.69871	0.0000
Crawling	.084967	0.000	1.000	0.27974	2.976926	9.86208	0.0000
Managed	.267973	0.000	1.000	0.44435	1.047749	2.09777	0.0000
Floating	.320261	0.000	1.000	0.46810	.7704562	1.59360	0.0000
FDI	3.12123	-2.73	10.912	2.4652	.815449	3.57171	0.0009
S	19.3568	-13.9	44.231	12.170	-.277227	2.83635	0.3427
GDP	4.81498	-7.65	19.675	3.1795	.8553792	7.79436	0.0000
LF	6115212	260915	22900000	7436685	1.050756	2.48532	0.0001

GFCF	22.0540	8.100	36.228	5.903526	.1412716	3.01600	0.7206
Obsv	153	153	153	153	153	153	153

***Table* 5- 3: Descriptive statistics of variables used in the study** (Author compilation)

Both stock markets and banks in SADC are still underdeveloped compared to other regions. The SADC region had a lower mean stock market capitalisation to GDP ratio of 49.11% compared to emerging markets that had a ratio of 87.04% for the period 1994 to 2014. During the same period, emerging markets had a mean private credit to GDP ratio of 68.96% against 33.43% recorded by SADC (Tsaurai, 2017).

The highest level of urbanisation (UB) recorded was 68.7% against a lowest of 14.88%. The average UB was 40.45% while the standard deviation was 14.88%, showing little variability in urbanisation levels across SADC. In terms of population density (PD), the maximum recorded was 622.96 and a lowest of 1.98 was also recorded. The mean PD was 119.37 while the standard deviation 206.01 which imply high variability in the population per unit area for the countries under study. Income inequality (INQ) measured by the Gini coefficient had a standard deviation of 9.08 and a mean of 53.07. This suggests minor change in income inequality over the years covered by the study. The minimum and maximum values recorded were 37.5 and 66.5 respectively. The press freedom index had a mean of 0.063250 and a standard deviation of 0.83158, showing higher levels of variability in press freedom with the region. A minimum index value of -4.472 and a maximum of 1.007 also show that press freedom is low in countries under study. Capital flight (CF) showed a higher level of variability with a standard deviation of $5930 million against a mean of $3250 million. The minimum value was - $5670 while the maximum was $15 800. The exchange rate regimes, namely, pegged, crawling, managed and floating had the same minimum and maximum values of 0 and 1 respectively. Floating

regime had the highest mean and standard deviation of 0.3202 and 0.4681 respectively followed by pegged regime with a mean of 0.3072 and a standard deviation of 0.4628. These were the most often adopted regimes in the SADC region during the period being studied. The crawling regime was the least adopted with a mean of 0.0850 and a standard deviation of 0.2797. Industrialisation levels (IND) in the region showed little variability as shown by a standard deviation of 7.55% and mean of 13.25%. The minimum level if industrialisation was 4.95% and the maximum was 35%. There was high growth in GDP as compared to growth in levels of income. The GDP growth rate (GDP) recorded a mean of 4.82% against 3.0% recorded by GDP per capita (GDPP). GDP recorded a lower of variability compared to GDPP as shown by standard deviations of 3.18% and 3.08% respectively. There is evidence of higher growth in economic growth than in living standards and higher variability in living standards as compared to economic growth. Data on capital flight and labour force were transformed into natural logarithms potential bias and misleading results that emanate from outliers and high standard deviations.

Positive skewness is illustrated for most variables suggesting more positive values on the distribution tails. Only inequality (INQ), rule of law (RL), TP (TP), press freedom (PF) and savings (S) has negative skewness. Results of kurtosis show leptokurtic for values greater than 3 and platykurtic for values less than 3. Leptokurtic and platykurtic resemble a distribution which peaked and flatter than the normal distribution respectively. The joint skewness and kurtosis normality tests rejected the normality assumption for the variables with exception for FIP (FIP), savings (S) and gross fixed capital formation (GFCF) variables.

5.4 Banking sector development and stock market development in SADC

Kennel density estimation (KDE) was done to determine the distribution of banking sector development variables for the SADC countries included in the study. The KDE has been used by various authors such as Bhorat and Van der Westhuizen (2013) and Zwane (2018) to explaining distribution of wealth using asset-poverty index. Similarly, this thesis adopts the KDE approach in explaining the distribution of the banking sector and stock market development index among other proxies of financial sector development in SADC. The results are presented in Figure 5-1 and Figure 5-2 below.

The distribution of the banking sector development index shows a single peak below zero, showing where most values are concentrated. This peak shows that majority of SADC countries have a low banking sector development index, signalling low levels of banking sector development. A striking feature is shown by PCDMB where the distribution has two peaks. The first peak shows that majority of countries have private credit to GDP ratios between 10% to 15% of GDP while the second smaller lump of countries have better developed banking systems that have ratios concentrated at 55% of GDP. The PCDMB brings out that firstly, there is unequal development of banking systems in SADC and secondly, the banking systems are still lagging countries in other regions. A comparison with countries in other regions such as Portugal (135,61%), Greece (74,46%), Brazil (42,87%), Argentina (15.48), Hong Kong (163,10%) and Malaysia (121,35%) show how majority of SADC countries are trailing behind. However, countries such as Mauritius (71,24%) and South Africa (64,27%) have competitive banking systems though they fall behind the average of 100% for developed countries (Andrianaivo & Yartey, 2009).

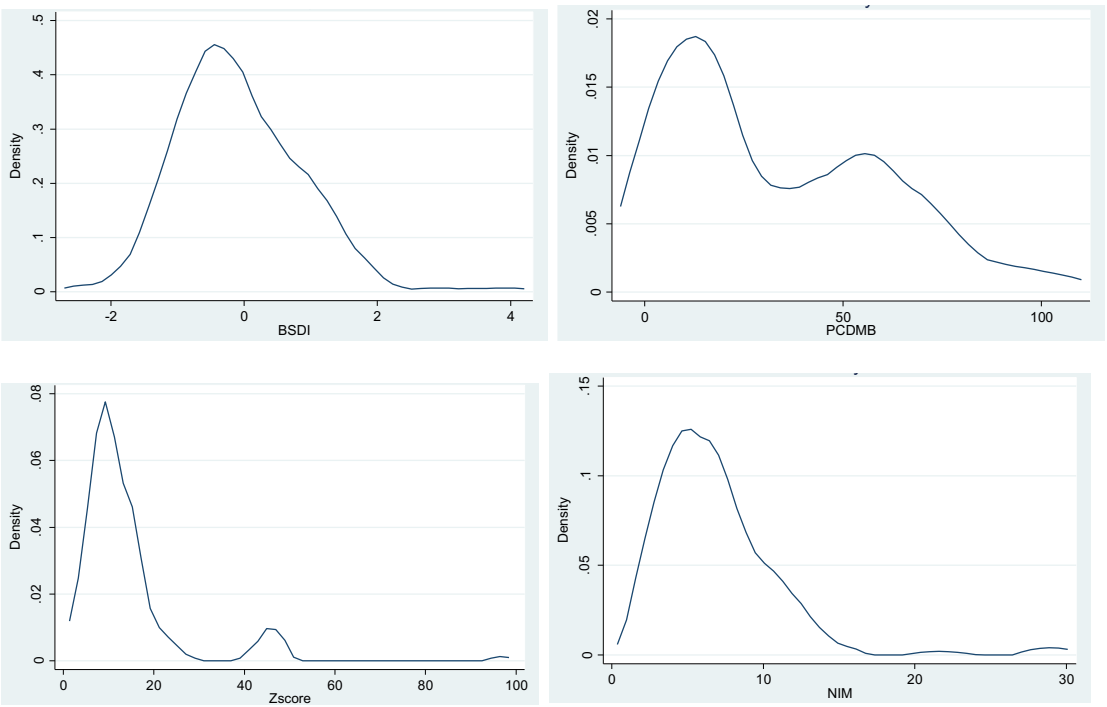


***Figure* 5- 1: Distribution of banking sector development variables** (Author compilation)

Banking sector stability as measured by the Z-score shows that most of the SADC countries have indicators concentrated around 10. These resemble similar levels of stability compared to Denmark with score of 9.18, France with 10.82 and Netherlands at 7.84. Another smaller group of countries is concentrated around 48. This distribution shows that most banking systems in the region are stable as indicated by high Z-scores. The most stable banking system is found in Namibia with an average of 25.90 followed by South Africa with 21.06. These two countries have scores above the regional average of 14.10. They compare well with the highest ranked European countries such as Luxembourg, Austria, Italy, Germany at 25.91,25.50,14.21 and 14,12 respectively based on average values for the period 2004 to 2014 (Sysoyeva, 2020). The least stable banking systems are found in Zimbabwe with an average of 3.45 and Eswatini averaging 7.16. These countries are also below the SSA average of 8.56. However, these are still ranked

higher than Greece with a score of 1.94 and Slovenia at 3.30 (Sysoyeva, 2020). There are strong indications that economic and political stability found in South Africa and Namibia could be positively influencing bank stability while fragility in Zimbabwe and Eswatini largely explains instability in the two countries' banking systems. Net interest margin (NIM) is concentrated around 6% for the SADC countries being studied. However, there are few countries with NIMs that go up to 10% and beyond. The data show that even though majority of banking systems in the region have the same level of efficiency, there is disparity among countries shown by a long tail. Compared to SSA with an average of 7.27%, majority of SADC countries exhibit better levels of efficiency (Aluko & Ajayi, 2018). However, when compared to European countries using averages for the period 2008 to 2014, SADC countries display elevated levels of inefficiency. For instance, Luxembourg had an average of 0.94%, Austria 1.87%, France 1.89%, Italy 2.29%, and Germany 2.38.% (Angori, Aristei, & Gallo, 2019) In a nutshell, banking systems in the region are inefficient as shown by large interest margins, limited in terms of depth but stable. This evidence collaborates views expressed by ADB (2019).

Figure 5-2 shows that majority of SADC countries have a stock market development index ranging from -1 to 0 as shown by a peak around that region. The other smaller number of countries have an index that is beyond 0 up to 2.5. The indication is that most stock markets are underdeveloped and there is disparity among the countries with other countries have more developed market like South Africa. The distribution of stock market capitalisation as percentage of GDP shows that majority of stock markets are concentrated around 30% while few countries have bigger stock markets that go beyond 300%. A capitalisation ratio of 328.36% against a minimum of 1.33% show huge

differences in sizes of stock markets in the region. The distribution also shows that majority of stock markets are capitalised below the regional average of 49.12%. The stock market value traded as a percentage of GDP (SMVT) shows that most of the countries under study are concentrated between 0 and 10%, showing lower levels liquidity. Compared to advanced economies such as USA (176.20%), UK (114.62%), Australia (62.69%) and Canada (60.35), SADC countries recorded extraordinarily little activity. Even benchmarking against Asian countries like Hong Kong (257.29%), Singapore (93.59%), Malaysia (67.45%), Japan (59,47%) and China (57.96) shows that markets in SADC are characterised by small size and low levels of activity (Bayraktar, 2016).

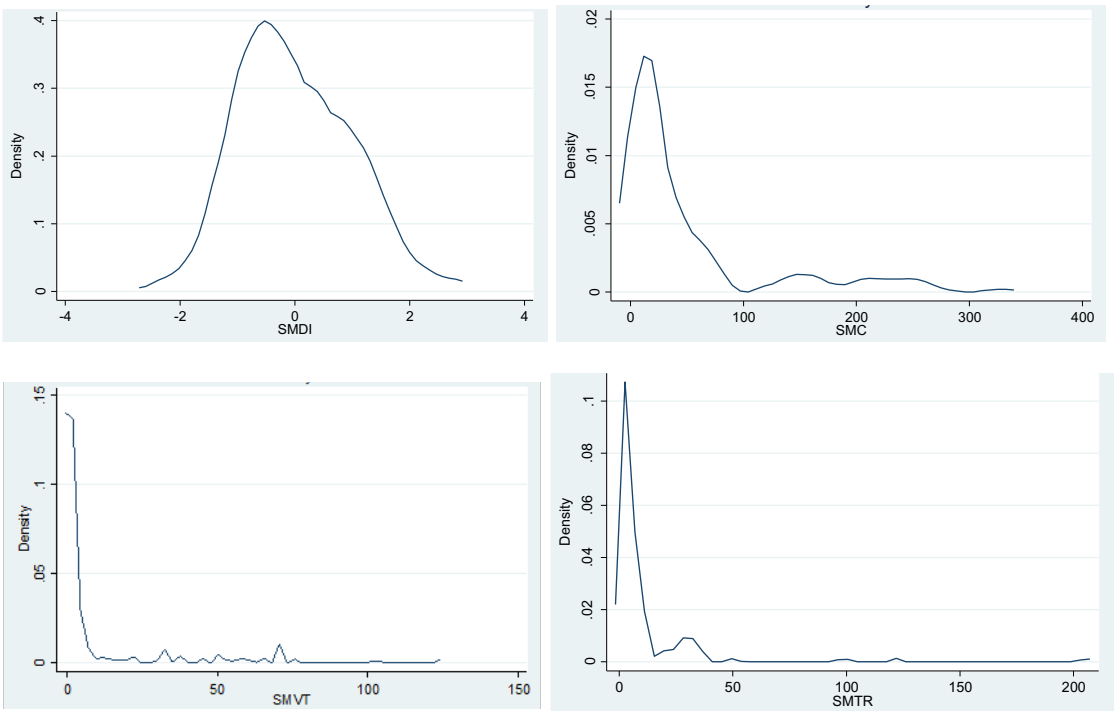


***Figure* 5- 2: Distribution of stock market variables** (Author compilation)

Stock market turnover ratio depicts the same distribution as the SMVT. It shows the ratio is concentrated around 5%, indicating difficulties in disposing securities. This ratio depicts

lower levels of efficiency in buying and selling shares mostly owing to high transaction costs. However, Eswatini, South Africa and Zimbabwe have higher average SMTRs of 33.70%,27.60% and 10.00% respectively. Despite these higher ratios compared to regional counterparts, these ratios remain low compared to world standards despite outperforming countries such as Argentina (19,34%), Colombia (9.99%), Ukraine (7.08%), and Croatia (6.05). The SADC countries in general lie far behind world leaders such as Taiwan, Korea, China, USA, and Germany that average 229.03%,194.56%,153.34%,150,01% and 117.63% respectively for the period 1990 to 2015 (Bayraktar, 2016). When the three measures utilised to explore the state of stock markets in SADC are compared to other countries in different regions, one can conclude that capital markets in SADC are underdeveloped characterised by small size, illiquidity and inefficacy.

5.5 Panel unit root tests results

Table 5-4 illustrates the results of unit root test using the Fisher type test based on the Augmented Dickey Fuller (ADF), Phillips–Perron (PP), Maddala and Wu (MW) as well the Im-Pesaran-and Shin test. These four methods were chosen because they are compatible with unbalanced panels. The null hypothesis for all the four tests is that there is unit root in the series, and they assume individual unit root processes. Though the methods were not always in agreement, results from majority (3 methods) agreed that there is no unit root in series. The Maddala and Wu (1999) tests' outcomes are trusted since they outperform other methodologies. For instance, Maddala and Wu (1999) performed simulations to assess how well the Levin-Lin (LL), Im-Pesaran-Shin (IPS), and Maddala and Wu (MW) tests performed under the assumption of cross-sectional

correlation. They discovered that, despite the low power and size distortions the approaches exhibit when subjected to cross-sectional dependence, the MW outperformed the IPS and LL. Similar size distortions and a lack of ability to discern the unit root null from stationary alternatives characterise the Dickey Fuller, Augmented Dickey Fuller (ADF), and Phillip-Perrons (PP) tests (Hoang & McNown, 2006; Maddala & Wu, 1999). As a result, when the type of data allows, Maddala and Kim (2002) advised abandoning the ADF and PP tests in favour of alternatives like the MW and Weighted Symmetric (WS) estimator test. The MW test can be applied on infinite and finite cross sections (N), and its alternative hypothesis permits certain groups to have unit roots and others not to have unit roots since it combines the p-values from individual unit root ADF tests performed to each time series (Baltagi, Bresson & Pirotte, 2007). Based on this criterion, the null hypothesis was rejected and the conclusion that all variable stationary at level (I (0)) was reached. This paves way to the following section that looks at the correlation between the variables employed in the study.

	Fisher-ADF		**Fisher-PP**		**IM Pesaran Shin**		**Maddala and Wu**	
Variable	**Statistic**	**p-value**	**Statistic**	**p-value**	**Statistic**	**p-value**	**Statistic**	**p-value**
BSDI	33.1901	0.0158**	46.5794	0.0023***	-1.14159	0.1268	53.3786	0.0000***
PCDMB	30.7217	0.0310**	29.9530	0.0344**	-1.00758	0.1568	35.9765	0.0000***
Z-score	25.8208	0.1039	29.5751	0.0418**	-0.96021	0.0685**	24.1768	0.0000***
NIM	56.8156	0.0000***	58.7360	0.0000***	-2.9836	0.0014***	61.8765	0.0000***
UB	40.2747	0.0019***	47.8031	0.0002***	-0.87243	0.1915	50.6576	0.0000***
PD	60.8853	0.0000***	28.7983	0.0509*	-10.4784	0.0000***	40.8763	0.0000***
INQ	43.6270	0.0003***	40.4771	0.0018***	-0.08239	0.4672	45.4367	0.0000***
INFLN	73.8016	0.0000***	86.6161	0.0000***	-7.71414	0.0000***	75.3452	0.0000***
GDPP	43.6390	0.0006***	133.296	0.0000***	-2.17478	0.0148**	66.7685	0.0000***
Rem	32.8840	0.0172**	11.4297	0.8752	-6.21528	0.0000***	39.4563	0.0000***
TO	38.3118	0.0035***	24.8032	0.1304	-2.23343	0.0128**	27.1178	0.0000***
RL	27.6008	0.0684**	26.8226	0.0674**	-1.02364	0.1530	29.9765	0.0000***
TNRR	29.8533	0.0389**	32.5248	0.0190**	-1.33842	0.0904*	25.3567	0.0000***
SMDI	33.5828	0.0142**	30.7664	0.0346**	-0.27989	0.3898	37.8356	0.0000***
SMC	30.6253	0.0318**	28.11764	0.0368**	0.01390	0.5055	33.6758	0.0000***
SMVT	35.3942	0.0084***	11.2779	0.8822	-1.49913	0.0369**	30.6547	0.0000***
SMTR	63.7925	0.0000***	322.661	0.0000***	-3.92163	0.0000***	110.4567	0.0000***
PF	52.4176	0.0000***	28.7341	0.0517*	-11.0452	0.0000***	60.6523	0.0000***
IND	24.1740	0.1494	30.7047	0.0067***	-0.76414	0.0224**	26.7689	0.0000***
LogCF	52.7257	0.0000***	57.6633	0.0000***	-3.27289	0.0005***	60.2765	0.0000***
FDI	48.7769	0.0001***	72.8150	0.0000***	-2.86377	0.0021***	45.8765	0.0000***
S	36.8538	0.0251**	45.2641	0.0086***	-0.29334	0.0846*	50.6547	0.0000***

GDP	45.2584	0.0004***	122.400	0.0000***	-2.26298	0.0118**	55.3456	0.0000***
LogLF	35.5096	0.0081***	57.2911	0.0000***	-1.80982	0.0352**	45.7665	0.0000***
GFCF	43.7817	0.0054***	15.1499	0.0417**	-0.15153	0.0698*	37.7654	0.0000***
SMDIBSDI	38.2358	0.0036***	45.9714	0.0003***	-1.95685	0.0252**	35.8765	0.0000***
SMCPCDMB	36.2959	0.0065***	9.05445	0.9585	-1.65655	0.0488**	40.5647	0.0000***

***Table* 5- 4: Panel unit root test with intercept and trend results** (Author compilation)

5.6 Correlation analysis

In order to look for possible multicollinearity, correlation analysis of the variables was conducted, and results are presented in Tables 5-5, 5-6 and 5-7. Table 5-5 which presents results for banking sector variables show that there is a positive linear association between banking sector development variables private credit by deposit money banks, banking sector development index and stability (PCDMB, BSDI, Z-score) and urbanisation (UB). The association between PCDMB, BSDI and UB is positive and significant while that of Z-score and UB is insignificant. Population density (PD), stock market capitalisation (SMC) and stock market development index (SMDI) also show a positive and significant association with PCDMD and a positive and insignificant relationship with BSDI and Z-score. The positive association implies that an increase in UB, PD, SMC and SMDI will be followed by a linear increase in credit extension, banking sector stability and broad banking sector development. The results suggest that banking sector development is complementary to stock market development.

Net interest margin (NIM) is significantly and negatively correlated with UB, PD and SMC while at the same time insignificantly and positively correlated to inequality (INQ). There is a negative but insignificant correlation between SMDI and NIM. The implication is that increase in urbanisation, population density and stock market development result in improved efficiency while inequality is detrimental to banking sector efficiency. The results also show that inequality (INQ) is negatively correlated with PCDMB and BDSI but

positively associated with Z-score, suggesting that inequality is detrimental to banking sector depth and broad development although it enhances stability. Inflation is negatively correlated with BSDI, PCDMB, Z-score but positively and significantly correlated with NIM. These results might imply that inflation discourages lending thereby causing instability in the banking sector while at the same time inhibiting efficiency as banks charge higher margins to compensate for inflation risk.

	PCDMB	Zscore	NIM	BSDI	UB	PD	INQ	INFLN	SMDI	GDPP	Rem	RL	TNRR	TO	TP	FIP	SMC	TPFIP
PCDMB	1.00																	
Zscore	0.37*	1.00																
NIM	-0.61*	-0.17	1.00															
BSDI	0.18*	0.14	0.14	1.00														
UB	0.51*	0.04	-0.43*	0.05*	1.00													
PD	0.57*	0.10	-0.32*	0.04	-0.05	1.00												
INQ	-0.08	0.16*	0.02	-0.05*	0.31*	-0.56*	1.00											
INFLN	-0.40*	-0.11	0.39*	-0.03	-0.23*	-0.23*	-0.04	1.00										
SMDI	0.14*	0.05	-0.13	0.06	0.08	0.02	0.01	-0.01	1.00									
GDPP	-0.12	-0.19*	0.12	0.22*	-0.15	0.10	-0.20*	0.07	0.11	1.00								
Rem	-0.21*	-0.28*	0.11	-0.09	-0.25*	-0.01	-0.19*	0.09	0.00	0.34*	1.00							
RL	0.59*	0.30*	-0.45*	0.05	0.50*	0.53*	-0.10	-0.34*	-0.01	-0.20*	-0.61*	1.00						
TNRR	-0.43*	-0.31*	0.42*	-0.09	-0.10	-0.40*	0.09	0.23*	0.12	0.10	0.05	-0.52*	1.00					
TO	0.20*	-0.04	-0.26*	-0.19*	0.00	0.38*	0.04	-0.30*	0.03	0.06	0.15	0.33*	-0.44*	1.00				
TP	0.13	-0.31*	-0.08	0.20*	0.08	0.04	-0.11	-0.17*	0.25*	0.22*	0.01	-0.11	0.30*	-0.15	1.00			
FIP	0.24*	-0.19*	-0.16*	0.16*	0.23*	0.06	-0.09	-0.25*	0.28*	0.08	0.20*	-0.08	0.09	-0.05	0.47*	1.00		
SMC	0.60*	0.13	-0.40*	0.05	0.64*	0.01	0.16	-0.16*	0.15	-0.17*	-0.12	0.15	0.02	-0.25*	0.15	0.22*	1.00	
TPFIP	0.24*	-0.19*	-0.16*	0.16*	0.23*	0.06	-0.09	-0.25*	0.28*	0.08	0.20*	-0.08	0.09	-0.05	0.47*	1.00	0.22*	1.00

***Table* 5- 5: Correlation results for banking sector variables** (Author compilation) *Denotes significance at 5% level

Regional integration measures TP (TP) and FIP (FIP) were positively and significantly correlated with BSDI but negatively and significantly correlated with Z-score. They are both negatively correlated with NIM and positively associated with PCDMB though FIP has significant associations in both cases. These results suggest that trade and financial integration increase credit extension but also causes instability owing to more cross-border transactions. Also, it increases efficiency owing to more competition thereby promoting banking sector development. The interaction term (TPFIP) is perfectly correlated with FIP and therefore, has the same correlations with banking development variables.

Remittances (Rem) and total natural resources rent are (TNRR) are significantly and negatively correlated with PCDMB and Z-score and insignificantly but negatively correlated with BSDI. On the other hand, they are positively correlated with NIM, implying that remittances and natural resources endowment have detrimental effects on credit extension, banking stability, efficiency, and banking sector development. Contrary to theory, gross domestic product per capita growth rate (GDPP) was negatively correlated to PCBMB and Z-score but positively correlated with NIM and BSDI. The results suggest that growth in income levels might reduce credit extension, reduce banking sector efficiency and cause banking sector instability though it promotes banking sector development. Trade openness (TO) is significantly and positively related with PCDMB but negatively correlated with Z-score, NIM and BSDI. These results might mean that opening to global trade increases landing by banks owing to increased business activity but lowers baking sector stability owing to high risks that come with globalisation. Openness might enhance banking sector efficiency but endanger banking sector development. Rule of law

(RL) is positively associated with PCDMB, Z-score and BDSI but negatively correlated to NIM, implying that increase in rule of enhance credit extension, banking stability, efficiency, and banking sector development. The correlation matrix shows that all the variables have pairwise correlations that are below the 0.8 threshold; therefore, the problem of multicollinearity does not exist for banking sector variables.

Table 5-6 below highlights the correlation results for the stock market modelling variables. The results show a positive and significant relationship between press freedom (PF) and stock market development variables stock market capitalisation (SMC) and stock market value traded at a percentage of GDP (SMVT). A positive and insignificant relationship was also found between PF and stock market development index (SMDI) while a weak negative and insignificant relationship was also found between PF and stock market turnover ratio (SMTR). These results might mean that press freedom (PF) positively impact the size, liquidity and overall development of stock markets. However, it is weakly and negatively related to the efficiency of the stock market. Industrialisation (IND) is also weakly and positively correlated with SMC and SMVT but significantly and positively correlated to SMTR. A negative and insignificant association was found between IND and stock market development index (SMDI). The results are a sign that industrialisation might enhance the size, liquidity and efficiency of stock markets but hinder the overall development of stock markets. Capital flight was negatively and significantly correlated with SMC, SMVT and SMTR but insignificantly correlated with SMDI meaning capital flight could be suppressing development of stock markets.

Exchange rate regime, ‘Managed’ has a negative and significant association with SMVT but an insignificant negative correlation with SMDI and SMTR. On the other hand, it is

positively correlated with SMC. The Pegged regime is seen to have a positive and significant correlation with SMC and SMVT and an insignificant positive correlation with SMDI and SMTR. The results also show a positive and significant association between Crawling regime and BSDI and a positive and insignificant correlation with SMC. However, it is insignificantly and negatively correlated with SMVT and SMTR. On the other hand, Floating regime is seen to have a negative association with all the banking sector variables. These results imply that adopting the Managed and Pegged regimes enhance growth, liquidity and overall development of stock markets. Also, implementing the Floating exchange rate regime inhibits the growth, liquidity and efficiency of stock markets. In terms of banking sector development, private credit (PCDMB) has positive correlation with all measures of stock market development. However, the banking sector development index (BSDI) is positively correlated with both SMDI and SMC but negatively associated with SMVT and SMTR. These results imply that private credit is complimentary to stock market size, liquidity efficiency and stock market development while overall banking development is complementary only to stock market development and stock market size.

	SMDI	SMC	SMVT	SMTR	PF	IND	CF	INFLN	S	FDI	RL	Pegged	Crawling	Managed	Floating	TNRR	GDPP	BSDI	PCDMB	TP	FIP	TPFIP
SMDI	1.00																					
SMC	0.15	1.00																				
SMVT	0.19*	0.93*	1																			
SMTR	0.31*	0.32*	0.43*	1.00																		
PF	0.05	0.37*	0.24*	-0.06	1.00																	
IND	-0.12	0.04	0.08	0.34*	-0.33*	1.00																
LogCF	-0.08	-0.23*	-0.23*	-0.11	0.15	0.12	1.00															
INFLN	0.03	-0.12*	-0.09*	-0.06*	-0.23*	-0.12	-0.04	1.00														
S	-0.06	-0.02	-0.03	-0.23*	0.43*	-0.40	-0.04	0.00	1.00													
FDI	0.07	-0.33	-0.26*	-0.06	-0.09	-0.16*	-0.17*	0.08	0.10	1.00												
RL	-0.01	0.15	0.039	-0.08	0.52*	-0.17	-0.05	-0.31*	0.44*	-0.08	1.00											
Pegged	0.10	0.36*	0.24*	0.07	-0.12	0.26*	-0.25*	-0.06	-0.12	0.17*	-0.01	1.00										
Crawling	0.21*	0.04	-0.11	-0.10	0.15	-0.32*	-0.14	-0.07	0.37*	-0.07	0.28*	-0.20*	1.00									
Managed	-0.08	0.17*	-0.22*	-0.16	0.13	-0.01	-0.13	-0.01	-0.05	0.00	0.17*	-0.40*	-0.18*	1.00								
Floating	-0.03	-0.53	-0.53*	0.16*	-0.13	-0.08	0.47*	0.14	-0.06	-0.14	-0.38*	-0.46*	-0.21*	-0.42*	1.00							
TNRR	0.12	0.02	0.072	-0.01	-0.31*	-0.23*	0.18*	0.25*	0.14	0.25*	-0.52*	-0.32*	-0.01	-0.03	0.40*	1.00						
GDPP	0.11	-0.17*	-0.22*	-0.14	-0.15	-0.04	-0.17*	0.07	-0.07	0.00	-0.20*	-0.05	-0.02	0.04	-0.01	0.10	1.00					
BSDI	0.06	0.05	-0.01	-0.11	0.07	-0.23*	-0.04	-0.09	-0.06	-0.03	0.05	0.00	-0.09	-0.09	0.14	-0.09	0.22*	1.00				
PCDMB	0.14	0.60	0.46*	0.11	0.65*	0.10	0.35*	-0.34*	-0.11	-0.17*	0.58*	-0.18*	-0.08	0.14	0.04	-0.43*	-0.12	0.18*	1.00			
TP	0.25*	0.15	0.101	-0.16*	0.01	-0.23*	0.19*	-0.13	-0.11	0.03	-0.11	-0.24*	0.22*	0.15	-0.04	0.30*	0.22*	0.20*	0.13	1.00		
FIP	0.29*	0.22*	0.17*	-0.02	0.04	-0.26*	0.26*	-0.21*	-0.23*	-0.05	-0.08	-0.25*	0.21*	0.09	0.07	0.09	0.08	0.16*	0.24*	0.47*	1.00	
TPFIP	0.29*	0.22*	0.17*	-0.02	0.04	-0.26*	0.26*	-0.21*	-0.23*	-0.05	-0.08	-0.25*	0.21*	0.09	0.07	0.09	0.08	0.16*	0.24*	0.47*	1.00	1.00

***Table* 5- 6: Correlation results for stock market variables** (Author compilation) *Denotes significance at 5% level

The results in Table 5-6 also support a positive association between (1) stock market development index and stock market capitalisation (2) stock market development index and stock market value traded, (3) stock market development index and stock market turnover ratio, (4) stock market turnover ratio and stock market capitalisation, (5) stock market turnover ratio and stock market value traded, and (6) stock market capitalisation and stock market value traded. As expected, stock market development is positively correlated with stock market size, efficiency and liquidity. Inflation (INFL) has a significant negative correlation with all banking sector variables except banking sector development index, suggesting that inflation is detrimental to stock market size and liquidity but promotes overall development of stock markets. Savings as a percentage of GDP (S) is negatively correlated to all stock market variables. These results imply that accumulation of savings in the banking sector deprive stock markets of funds that could support their development. There is a negative correlation between FDI as a percentage of GDP (FDI) and all stock market variables except the index, a sign that global integration could be negatively affecting size and liquidity of stock markets though weakly enhancing the overall development.

Regional financial integration (FIP) is positively correlated with stock market development, size and liquidity but negatively and insignificantly correlated with efficiency. Similarly, trade integration is positively associated with the stock market index, stock market value traded, capitalisation but negatively associated with turnover ratio. This suggests that regional financial and trade integration enhance development of stock markets, liquidity and size but inhibit their efficiency. Apart from the turnover ratio, all other stock market measures of stock market measures were found to be insignificant and

positively related to total natural resources rent (TNRR). The income growth rate (GDPP) on the other hand has a negative correlation with all stock market variables except for the stock market index. The implication is that growth income promotes overall stock market development but inhibit depth, efficiency and liquidity of stock markets. Though there exists correlation above 0.8, the variables are not both independent variables but a dependent and an independent variable. SMC and SMVT with a correlation of 0.9304 are dependent variables which have separate models.

	SMC	SMDI	INFLN	S	FDI	TO	BSDI	GFCF	LogLF	GDP	TP	FIP	PCDMB	TPFIP	SMDIBSDI	SMCPCDMB
SMC	1.00															
SMDI	0.15	1.00														
INFLN	-0.12	0.03	1.00													
S	-0.02	-0.06	0.00	1.00												
FDI	-0.33*	0.07	0.08	0.10	1.00											
TO	-0.25*	0.03	-0.19*	-0.04	0.00	1.00										
BSDI	0.05	0.06	-0.09	-0.06	-0.03	-0.19*	1.00									
GFCF	-0.21*	0.14	-0.08	0.68*	0.17*	0.16*	-0.05	1.00								
LogLF	0.48*	0.03	0.15*	-0.05	-0.07	-0.48	0.10	-0.16	1.00							
GDP	0.24*	0.10	0.14	-0.01	0.07	-0.10	0.19*	0.03	-0.08	1.00						
TP	0.15	0.25*	-0.13	-0.11	0.03	-0.15	0.20*	0.09	0.20	0.19*	1.00					
FIP	0.22*	0.28*	-0.21*	-0.23*	-0.05	-0.05	0.16*	0.02	0.15	0.05	0.47*	1.00				
PCDMB	0.60*	0.14	-0.34*	-0.11	-0.17*	0.20*	0.18*	-0.11	-0.10	0.31*	0.13	0.24*	1.00			
TPFIP	0.22*	0.28*	-0.21*	-0.23*	-0.05	-0.05	0.16*	0.02	0.15	0.05	0.47*	1.00*	0.24*	1.00		
SMDIBSDI	-0.02	0.10	0.12	-0.02	0.01	0.08	-0.11	-0.01	-0.01	0.15	0.16	0.19*	0.05	0.19*	1.00	
SMCPCDMB	0.68*	0.15	-0.18*	-0.03	-0.29*	-0.21*	0.07	-0.21*	0.44*	0.29*	0.15	0.22*	0.69*	0.22*	-0.02	1.00

5- 7: Correlation results for economic growth variables (Author compilation) *Denotes significance at 5% level

Table 5-7 presents the correlation matrix for economic growth variables. The results show that stock market capitalisation is significantly and positively correlated to gross domestic product growth rate (GDP), suggesting that stock market depth is beneficial to economic growth. The stock market development index (SMDI) has a weak positive correlation with GDP, implying a weak but positive influence of stock market development on GDP growth. Private credit by deposit money banks (PCDMB) has a significant positive correlation with GDP while banking sector development index is significantly and positively associated with GDP. This might mean that credit extension is positively affecting economic growth while overall banking sector development is also facilitating the growth of the economy. The interactive term encompassing stock market development index (SMDI) and banking sector development index (BSDI) has a positive linear association with economic growth rate. Similarly, the interaction term standing for stock market capitalisation and private credit by deposit money banks (SMCPCDMB) is positively correlated with GDP. This might suggest that a combination of well-functioning stock markets and banking sector support economic growth while a combination of banking sector and stock market depth alone is detrimental to economic growth.

GDP has a weak positive association with regional financial integration (FIP) and a significant and positive linear correlation with trade integration (TP). The implication is that trade integration is enhancing growth more than financial integration. Savings (S) and Trade openness (TO) are having a weak and negative collation with GDP while FDI weakly correlated economic growth rate. Gross fixed capital formation (GFCF) is positively correlated with GDP while labour force (LF) was found to be negatively correlated with economic growth rate. The implication of the results is that investment

enhances economic growth, but labour is hindering the growth of the economy. The matrix shows that no independent variables have a correlation above the 0.8 threshold thereby paving way for further analysis since there is no problem of multicollinearity.

5.7 Endogeneity tests results

The Durbin-Wu Hausman (DWH) test which is composed of the Hausman endogeneity and regressor endogeneity tests was used to test for the problem of endogeneity in the banking sector, stock market and growth models. The null hypothesis is that the variables are exogenous.

Results in Table 5-8 show that SMDI is an endogenous regressor when BSDI is the dependent variable. Also, SMC is an endogenous regressor when PCDMB and Z-score are the dependent variables. This is shown by p-values less than 0.01 for the PCDMB model and 0.05 for the BSDI and Z-score models. The rest of the regressors are not significant and hence are exogenous variables.

Variable	**Hypothesis**	**Durbin (p values)**	**Wu-Hausman (p values)**
UB with BSDI dependent	Variables are exogeneous	0.5857	0.6064
UB with PCDMB dependent	Variables are exogeneous	0.9803	0.9814
UB with Z-score dependent	Variables are exogeneous	0.9263	0.9304
UB with NIM dependent	Variables are exogeneous	0.1615	0.1845
INQ with BSDI dependent	Variables are exogeneous	0.1610	0.1839
INQ with PCDMB dependent	Variables are exogeneous	0.7860	0.7975
INQ with Z-score dependent	Variables are exogeneous	0.5079	0.5313
INQ with NIM dependent	Variables are exogeneous	0.7571	0.7701
PD with BSDI dependent	Variables are exogeneous	0.0878	0.1050
PD with PCDMB dependent	Variables are exogeneous	0.3177	0.3443

PD with Z-score dependent	Variables are exogeneous	0.8315	0.8406
PD with NIM dependent	Variables are exogeneous	0.3187	0.3454
SMDI with BSDI dependent	Variables are exogeneous	0.0195**	0.0259**
SMC with PCDMB dependent	Variables are exogeneous	0.0033***	0.0048***
SMC with Z-score dependent	Variables are exogeneous	0.0392**	0.0496**
SMC with NIM dependent	Variables are exogeneous	0.3203	0.3470

***Table* 5- 8: Banking sector endogeneity test results** (Author compilation) *** and** Denotes significance at 1% and 5% respectively

Variable	**Hypothesis**	**Durbin (p values)**	**Wu-Hausman (p values)**
IND with SMDI dependent	Variables are exogeneous	0.2715	0.2979
IND with SMC dependent	Variables are exogeneous	0.6646	0.6821
IND with SMVT dependent	Variables are exogeneous	0.9855	0.9863
IND with SMTR	Variables are exogeneous	0.8529	0.8610
BSDI with SMDI dependent	Variables are exogeneous	0.8600	0.8676
PCDMB with SMC dependent	Variables are exogeneous	0.1108	0.1302
PCDMB with SMVT dependent	Variables are exogeneous	0.1145	0.1343
PCDMB with SMTR dependent	Variables are exogeneous	0.5132	0.5365
PF with SMDI dependent	Variables are exogeneous	0.3284	0.3551
PF with SMC dependent	Variables are exogeneous	0.9677	0.9695
PF with SMVT dependent	Variables are exogeneous	0.9494	0.9522
PF with SMTR dependent	Variables are exogeneous	0.9310	0.9348
LogCF with SMDI dependent	Variables are exogeneous	0.7896	0.8010
LogCF with SMC dependent	Variables are exogeneous	0.1383	0.1598
LogCF with SMVT dependent	Variables are exogeneous	0.2470	0.2730
LogCF with SMTR dependent	Variables are exogeneous	0.6050	0.6249

***Table* 5- 9: Stock market endogeneity test results** (Author compilation)

Variable	Hypothesis	Durbin (p values)	Wu-Hausman (p values)
SMDI with GDP dependent	Variables are exogeneous	0.1777	0.1946
BSDI with GDP dependent	Variables are exogeneous	0.3231	0.3424
PCBMB with GDP dependent	Variables are exogeneous	0.6142	0.6285
SMC with GDP dependent	Variables are exogeneous	0.3506	0.3699

***Table* 5- 10: Economic growth model endogeneity test results** (Author compilation)

Tables 5-9 and 5-10 show that there are no endogenous variables in the stock market and economic growth models. However, since all models include a lagged dependent variable as part of the regressors, the models have an endogenous variable in them. Also, variables such as SMDI and SMC are shown to be endogenous in Table 5-8. This needed correcting for endogeneity when using the seemingly unrelated regression (SUR) estimation technique in line with Aggarwal, Demirguc-Kunt, and Martinez-Peria (2006) and Baltagi et al. (2009). Also, in order the deal with endogeneity in a dynamic regression model, the study included as many control variables as possible as suggested by Alfaro, et al. (2008). The second method used to check for robustness, GMM solves the endogeneity problem. All the control variables are assumed to be exogenous as suggested by Hansen (1999) and Kremmer, Bick and Nautz (2013).

5.8 Determinants of banking sector development

Table 5-11 shows estimation results of determinants of banking sector model using SMDI as the proxy for stock market development. The table has results for the SUR estimation technique used to estimate determinants of banking development using four proxies, namely, banking sector development index (SMDI), private credit by deposit money banks (PCDMB), Z-score, and net interest margin (NIM). One period lagged value of BSDI is

positive and statistically significant at 1% level, justifying the assumption of dynamism in the model. This entails that the future level of banking sector development is dependent on earlier level of banking sector development. The results also show that stock market development index (SMDI) has a positive and significant effect on the overall development of the banking sector as measured by the banking sector development index. This implies that the banking sector has derived benefits from stock market development through increase in credit extension and banking sector stability as shown by positive coefficients of SMDI (0.100 and 0.224) on PCDMB and Z-score. This could be through quality information generated by stock markets which can be used by banks in evaluating and monitoring borrowers. Such positive externalities result in more credit being extended to credit worthy clients therefore improving credit extension and banking stability.

Variables	BSDI (1)	PCDMB (2)	Z-score (3)	NIM (4)	BSDI (5)	PCDMB (6)	Z-score (7)	NIM (8)
$BSDI_{t-1}$	0.631*** (0.0499)				0.631*** (0.0499)			
$PCBMB_{t-1}$		0.962*** (0.0220)				0.962*** (0.0220)		
$Z\text{-score}_{t-1}$			0.578*** (0.0679)				0.589*** (0.0679)	
NIM_{t-1}				0.652*** (0.0379)				0.653*** (0.0380)
UB	0.000963* (0.00675)	0.0564** (0.0263)	-0.0910* (0.0792)	-0.048*** (0.0188)	0.00102 (0.00680)	0.0565** (0.0264)	-0.0892 (0.0815)	-0.049*** (0.0189)
PD	0.000766 (0.000775)	0.0104* (0.00537)	0.0219** (0.00941)	-0.00323 (0.00210)	0.000758 (0.000780)	0.0104* (0.00538)	0.0212** (0.00965)	-0.00325 (0.00212)
INQ	0.0115** (0.0155)	0.0765 (0.0836)	0.520*** (0.199)	-0.0119 (0.0417)	0.0116** (0.0156)	0.0759 (0.0838)	0.507** (0.204)	-0.0117 (0.0420)
SMDI	0.113* (0.0619)	0.100 (0.201)	0.224 (0.710)	0.117 (0.168)	0.112* (0.0624)	0.102 (0.201)	0.182 (0.731)	0.114 (0.170)
INFLN	-0.00514** (0.00699)	-0.016*** (0.0224)	-0.012*** (0.0791)	0.0251** (0.0191)	-0.0052** (0.00704)	-0.016*** (0.0225)	-0.0084*** (0.0815)	0.0255** (0.0192)
GDPP	0.0294** (0.0207)	0.284*** (0.0628)	-0.0676 (0.228)	0.0101 (0.0544)	0.0288** (0.0209)	0.285*** (0.0630)	-0.0795 (0.235)	0.00817 (0.0548)
REM	-0.0508* (0.0426)	-0.244** (0.133)	0.286 (0.484)	0.131 (0.115)	-0.0500* (0.0429)	-0.246* (0.134)	0.299 (0.499)	0.134 (0.116)
TO	-0.000647* (0.00285)	-0.00664** (0.0120)	-0.088** (0.0360)	0.00238 (0.00752)	-0.000638* (0.00287)	-0.00661** (0.0120)	-0.085** (0.0369)	0.00241 (0.00759)
RL	-0.0571 (0.265)	-1.507* (0.915)	1.715 (3.017)	1.190* (0.714)	-0.0536 (0.267)	-1.514* (0.918)	1.738 (3.110)	1.201* (0.721)
TNRR	-0.000232 (0.0177)	-0.0985 (0.0615)	-0.139 (0.201)	0.105** (0.0482)	-0.000651 (0.0178)	-0.0972 (0.0617)	-0.143 (0.207)	0.104** (0.0487)
TP	-0.0179 (0.0170)	0.0463* (0.0400)	-0.44*** (0.415)	-0.0606 (0.0521)				
FIP	0.159 (0.157)	-0.364** (0.494)	-0.869 (1.774)	-0.0572 (0.419)				
TPFIP					0.152 (0.158)	-0.347* (0.496)	-1.007 (1.823)	-0.0806 (0.422)
Obsv	144	144	144	144	144	144	144	144
Breusch-Pagan test of independence: chi2 (28) = 815.466, p value=0.000								

***Table* 5- 11: SUR banking sector model with SMDI results** (Author compilation) ***, ** and * Denotes significance at 1%,5% and 10% respectively.

Variables	BSDI (1)	PCDMB (2)	Z-score (3)	NIM (4)	BSDI (5)	PCDMB (6)	Z-score (7)	NIM (8)
$BSDI_{t-1}$	0.933***				0.932***			
	(0.0803)				(0.0815)			
$PCDMB_{t-1}$		1.056***				0.967***		
		(0.113)				(0.00969)		
Z-score $_{t-1}$			0.578***				0.575**	
			(0.166)				(0.224)	
NIM_{t-1}				0.576***				0.585***
				(0.0589)				(0.0311)
UB	0.00200	0.0768***	-0.108	-0.038**	0.00205	0.0365**	-0.0884	-0.05***
	(0.00225)	(0.0214)	(0.127)	(0.0156)	(0.00242)	(0.0145)	(0.129)	(0.0133)
PD	0.000470	0.0109*	0.0220	-0.00444	0.000470	0.00662**	0.0150	-0.00594
	(0.000609)	(0.0355)	(0.0224)	(0.00394)	(0.000607)	(0.00265)	(0.0252)	(0.00472)
INQ	0.00180*	-0.330	0.526	-0.0614	0.00199	0.0251	0.390	-0.0577
	(0.0147)	(0.702)	(0.529)	(0.0849)	(0.0137)	(0.0596)	(0.689)	(0.112)
SMDI	0.0437*	0.0388	1.125	0.237	0.0449	0.0224	1.253	0.253
	(0.0558)	(0.808)	(1.060)	(0.296)	(0.0602)	(0.191)	(1.050)	(0.231)
INFLN	-0.009***	-0.070***	-0.019***	0.0437*	-0.008***	-0.117***	-0.015***	0.00740*
	(0.0118)	(0.120)	(0.214)	(0.0309)	(0.0103)	(0.0568)	(0.185)	(0.0487)
GDPP	0.00327**	0.168**	-0.324	0.118	0.00270	0.374**	-0.367	0.0748
	(0.0264)	(0.113)	(0.316)	(0.118)	(0.0284)	(0.138)	(0.326)	(0.0597)
REM	-0.0604**	-0.289*	0.559	-0.126	-0.0577**	-0.251*	0.608	0.0833
	(0.0293)	(0.483)	(0.776)	(0.270)	(0.0226)	(0.244)	(1.137)	(0.137)
TO	-0.00200	-0.0396	-0.0831	0.00120	0.00199	-0.00908	-0.0693	0.000893
	(0.00190)	(0.0734)	(0.0751)	(0.00802)	(0.00182)	(0.00686)	(0.0842)	(0.00766)
RL	-0.234*	-0.817	2.715	0.00109*	-0.228*	-0.782	3.166	1.013*
	(0.104)	(1.761)	(3.157)	(1.068)	(0.104)	(0.869)	(3.907)	(0.466)
TNRR	-0.00133	-0.146	-0.0395	0.0643	-0.00194	-0.0447	-0.0835	0.0389
	(0.0207)	(0.171)	(0.420)	(0.0557)	(0.0197)	(0.0348)	(0.333)	(0.0519)
TP	-0.0273	6.628**	-1.375	-1.677				
	(0.244)	(2.548)	(8.524)	(2.082)				
FIP	-0.0744	-6.345**	-2.615	0.413				
	(0.160)	(2.420)	(6.571)	(1.172)				
TPFIP					-0.0907	-1.134	-4.068	-0.448
					(0.146)	(0.739)	(3.471)	(0.413)
Sargan	0.864	0.717	0.807	0.946	0.936	0.394	0.773	0.676
AR (2)	0.491	0.234	0.284	0.211	0.471	0.203	0.293	0.550
Obsv	144	144	144	144	144	144	144	144

Table **5- 12: GMM banking sector model with SMDI results** (Author compilation)

Results from the GMM estimator presented in Table 5-12 confirm the positive effects of (1) the lagged value of BSDI and (2) SMDI on banking sector development. These results imply that the development of stock markets facilitate banking sector development through risk diversification that allows companies to demand more capital from banks, increase in demand for services such as underwriting, and development of risk management assets such as derivatives that are in turn offered by banks over the counter (Demirguc-Kunt & Levine, 1993).

Stock market capitalisation (SMC) has an insignificant but positive relationship with banking sector development (BSDI) again suggesting a limited effects on banking sector stability (Z-score) and efficiency (NIM). The insignificant but positive coefficient for Z-score and negative coefficient for NIM for both SUR and GMM estimators support this notion. However, it also shows that improvement in stock market capitalisation could positively affects bank stability through banks strengthening their capital base by raising more equity. Increase in banking activity because of offering underwriting and advisory services owing to growth in stock markets help banks to diversify income streams thereby reduce their riskiness. Such increase in activity could also see banks reducing their net interest margin since they will not be relying on lending only for income. The positive signals because of an increase in stock prices and the quality of information given by developed markets induce banks to reduce interest spread, leading to stable and efficient banks.

When the BSDI is replaced by private credit by deposit money banks (PCDMB) as the dependent variable, the coefficient for SMDI remains positive but becomes insignificant

for both the SUR and GMM estimators. This implies that though stock market development contributes to banking sector development, not all its facets strongly affect credit extension. Therefore, overall stock market development does not have a significant impact on credit extension. However, replacing the SMDI with SMC show that stock market depth (size) has a positive significant effect on credit extension by banks. This is shown by a positive coefficient of stock market capitalisation (SMC) for the private credit by deposit money banks at 5% significance. However, the level of significance decreases to 10% for the GMM model. These results are presented in Tables 5-17 and 5-18 in the appendices section. The results show that growth in stock market size results in an increase in credit extended by banks. Such effect could emanate from increase in company capital bases as stock prices rise, thereby making banks comfortable to extend credit to these companies owing to their capability to raise fresh capital from stock markets. Also rising share prices single better prospects, thereby encouraging banks to extend more credit. On the other hand, banks will be able to raise more equity from capital markets, allowing them to extend credit even to high-risk borrowers.

Both SUR and GMM outputs show that urbanisation (UB) positively affects banking sector development, private credit extended and banking sector efficiency but negatively affects banking sector stability. The results give credence to the hypothesis that urbanisation results in a greater number of the population being in cities and towns where they are closer to banking institutions, thereby making it less costly for banks to extend services to the population. Through transfer of technology and remittances from urban to rural areas, banks can extend services to earlier unbanked people in the rural areas and urban cities alike. This increases demand for financial services from individuals and corporates

that get business from these urban dwellers. Financial markets benefit through increase in credit demand and lower interest spread as business increases and the cost of extending services decrease. As people get access to stable income in urban centres, banks reduce landing rates owing to lower risk. However, extending credit to previously unbanked citizens with shorter credit history can result in bank instability owing to higher non-performing loans. An increase in credit extension in response to demand and as a way of increasing market share could result in banks lowering credit standards thereby subjecting banks to higher risks. At the same time, urbanisation increases concentration risk which can materialise in case of any shock to economic activity in the urban areas.

The coefficient for population density (PD) is positive and significant for banking sector depth and stability while it is insignificant for banking sector development. In terms of net interest margin, the coefficient is negative, showing a positive influence on banking sector efficiency. The GMM output in Table 5-12 confirms the sign of the coefficient for all the measures including the significance level for banking sector depth but does not confirm the significance on banking sector stability. The results could imply that when areas are densely populated, financial institutions can provide services to many people at less cost. The substantial number of people found in a certain geographical area increases the demand of financial services in the form of loans, deposits, money transfer, and advisory services. At the same time, these people provide a rich pool of labour and diversified skills base which increases the productivity of financial institutions. Indirectly, densely populated areas attract entrepreneurs and businesses that seek high returns owing to more business volume. These firms in turn seek services from banks thereby increasing the business of banking institutions. This will positively affect demand and supply of loans,

resulting in high credit extension. Similarly, banking stability will be enhanced through increased profits owing to high business volume at low cost, helping banks to increase their capital bases. Highly capitalised banks are better prepared to absorb losses and withstand shocks in the economic environment. In the same vein, business from many firms and individuals help banks to diversify their risk in terms of their customer base as well as business lines. The result are well capitalised and less susceptible banks that are stable.

However, the insignificant effect on banking sector development and efficiency could be explained by high financial inclusion and low-income levels that characterise SADC countries. Though many people could be in a smaller geographical area, a considerable number of them will be utilising informal banking channels, thereby depriving formal banks the much-needed business. On the other hand, lower levels of income constrain citizens in demanding financial services since most of the money that come through the banks will be transitory deposits earmarked for consumption. As a result, banks will be forced to source expensive deposits for on lending activities which culminate into higher lending rates. Added to that is the elevated risk of low-income borrowers which also require banks to charge elevated risk premiums. This is despite a highly concentrated banking sector that is oligopolistic in nature. This lack of competition and poor regulatory systems gives banks room to form cartels and offer low deposit rates to their customers, resulting in higher interest spread that militates against efficiency. However, the results suggest that population density could still enhance banking development and efficiency though in the present circumstances the effect is not significant.

Contrary to expectations, the coefficient for inequality (INQ) is positive and significant on banking sector development and banking sector stability while it is positive and insignificant for private credit extended by deposit money banks. On the net interest margin, the coefficient is negative and insignificant as well. The implication of the results is that increase in inequality enhances the development of the banking sector, banking sector depth, stability, and efficiency. The results hint that inequality could influence banking sector development through increasing the income of wealthier citizens. Since the marginal propensity to save is higher for rich people than poor people (Kaldor & Kaldor, 1960), concentration of income on a few would result in higher savings. Owing to higher levels of financial exclusion in SADC countries, distribution of income to the poor would result in more resources outside the banking sector since income is not the only determinant of financial inclusion. Also, concentration of income in the hands of few citizens makes it cheaper for banks to offer services since they will be underwriting larger transactions from a few individuals as opposed to many small transactions that are costly to administer. As a result, higher concentration results in more profit and efficiency.

Also, this inequality could be proving the income differences between rural dwellers and urban dwellers and since bank presence and outreach is high in urban areas, then it influences banking operations positively. In line with Kuznets' (1955) theory, the migration of people from agricultural rural based set ups to industrialised cities result in higher income for migrants. Such a process positively impacts development of financial markets for the following reasons (1) people that have migrated to industrialised parts of the country increase demand for financial services (2) their income levels increase, further impacting the banking sector and (3) the people left out in the rural areas (lower income)

have never had access to financial services owing to financial exclusion and concentration of banks in urban centres. As a result, the income gap between them and urban dwellers does not negatively impact banking institutions. In fact, increase in inequality for developing countries is because of increasing income levels (Kuznets, 1955; Matins-Bekat & Kullarni, 2009). Therefore, such increase in income results in increase in demand for financial services thereby affects banking sector development, credit extension, stability, and efficiency positively. This is collaborated by the coefficient for GDP per capita (GDPP) which is positive and significant for banking sector development and private credit extended by deposit money banks. Comparable results that support the positive impact of per capital income on financial development were obtained by Bzhalava (2014).

However, the GMM results show a negative insignificant coefficient for inequality on banking sector depth only but confirms the coefficient of the other indicators, suggesting the influence of the estimator on results. In terms of control variables, the two approaches used show that inflation (INFL) is detrimental to financial development in the SADC region. This is shown by a significantly negative coefficient on the indicators of banking sector development, private credit extension and bank stability and a positive and significant coefficient on net interest margin. The results are consistent with theory as well evidence obtained by Aluko and Ajayi (2018) and Mahawiya (2015). Inflation results in a fall in real return on assets, increase in credit market friction and therefore push banks to ration credit. At the same time, banks increase lending rates to reflect the inflation premium and the increase in default risk owing to decreasing economic activity and falling investment levels. Such actions result in increase in spread between lending and deposit

rates, thereby lowering efficiency. The coefficient for remittances as a percentage of GDP (Rem) is negative and statistically significant on banking sector development and private credit by deposit money banks for both the SUR and GMM estimators, though at various levels of significance. The results bring out that remittances can work as a substitute to the banking sector when citizens receive funds to fund needs such as education, asset purchases and daily upkeep from the diaspora instead of borrowing from banks. Giuliano and Ruiz-Arranz (2005) note that when financial markets are less developed, agents can use remittances to reduce liquidly constraints and fund economic growth. This is worse in SADC where majority of these remittances are sent and received using informal means and other channels outside the banking system. In instances where financial inclusion is low and these remittances are just enough to cover immediate requirements, they might never find their way into the formal banking channels. Such a scenario further depresses financial market development. A similar negative relationship was also found by Touny (2014). Similarly, when citizens rely on remittances instead of banks, bank lending is reduced, forcing banks to rely on huge interest margins instead of volumes thereby increasing net interest margins. However, the coefficient for bank stability is positive but insignificant.

The results show that trade openness (TO) has a negative and significant effect on banking sector development, private credit by deposit money banks, stability and a positive but insignificant effect on net interest margin. However, TO is not accompanied by the expected increase in cross-border transactions that are beneficial to banking sector development. Instead, it subjects local companies to excessive competition that comes from companies from developed countries that have access to advanced technologies,

cheaper financial resources, economies of scale, and experience curve. Such a scenario reduces the profitability and growth of local companies. This makes countries in SADC net importers, hence reduce demand for financial service. TO can also transfer adverse shocks through increase in import prices, decrease in export prices and decrease in quantity demanded. This can reduce demand and supply of credit, cause instability through increase in non-performing loans and result in inefficiency owing to decrease in activity. The expected benefits could be hindered by banking systems that are closed to the global world. The results concur with the interest group theory which postulates that TO is only beneficial to financial development when accompanied by financial openness (Rajan & Zingales, 2003). These results support evidence obtained by Anchang (2016) and Tsaurai (2018). The results from the GMM estimator confirm the sign of the coefficient but not the significant for all dependent variables. Contrary to theory, rule of law (RL) is negatively affecting the index for banking sector development and private credit by deposit money banks while positively related to net interest margin. Under the SUR approach, the coefficient for banking sector development is insignificant but the ones for private credit by deposit money banks and net interest margin are significant at 10%. When it comes to the GMM estimator, the coefficient for banking sector development and net interest margin are significant at 10%. The coefficient for banking sector stability (Z-score) is consistently positive and insignificant for both estimators.

This finding suggests that the rule of law is hurting the banking industry's growth by inhibiting credit extension and decreasing efficiency. This could be explained by the fact that most SADC nations, especially Zimbabwe, Zambia, Tanzania, Malawi, and Eswatini, have low rankings for the rule of law (World Justice Project, 2020). Because the results

for banking sector stability are insignificant for all estimators, they should be interpreted with caution. When the rule of law is not upheld, property rights, investor rights, outside investor protection, and contract enforcement procedures are generally weak, which hinders the growth of financial markets (Demirguc & Levine, 2001; La Porta et al., 1998). Politicians who have too much authority can sway the creation of institutions, rules and the operation of the judicial system when the rule of law is weak (Olson, 1993). The ruling class may purposely obstruct the growth of the financial markets in order to direct funding toward state institutions that are under their control (Levine, 2001).

The results show that total natural resource rent (TNRR) has a negative and insignificant effect on banking development, private credit extension, banking stability but a positive and significant effect on net interest margin. Comparable results were also produced by the GMM estimator except for net interest margin where the coefficient is insignificant. The results imply that resource endowment could negatively influence banking sector development in the countries being studied, though in an insignificant way. As for banking sector efficiency, the effect is negative and significant implying that weak legal and political institutions that result in rent seeking, lack of property rights and corruption directly affects banking sector efficiency. Furthermore, the presence of natural resources results in policy makers negating their role of creating strong institutions that can reduce corruption, strengthen the rule of law and reduce rent seeking behaviour. Owing to over reliance on revenue from natural resource exports, countries end up with bad economic policies and inefficient systems that negatively affect the functioning of other sectors of the economy. Evidence shows that increase in natural resources exports results in lower economic growth, income per capita and higher levels of capital flight (Jalloh, 2013;

Ndikumana & Sarr, 2019; Wheeler, 1994). These factors militate against efficiency in the banking system through inducing economic instability, reducing participation of foreign banks and lowering demand for financial services.

Both the SUR and GMM estimators show that TP (TP) has a negative and insignificant effect on banking sector development, positive and significant effect on banking sector depth and a positive and insignificant effect on banking sector efficiency. TPTP has a significant and negative impact, and an insignificant and negative effect on banking sector stability according to the SUR and GMM estimators respectively. The results show that signing the protocol on trade by SADC countries increased economic activity through promoting trade in goods and services among member countries. This resulted in more credit being extended by banks to fund production and trade. This collaborates evidence obtained by Tembo and Makina (2020). It also resulted in an increase in cross-border movement of funds and the demand and supply of other trade related support services such as trade finance and structure trade solutions. This results in banks extending more credit and reducing their margins owing to increased revenue streams. The negative effect of TP on banking stability is explained by increase in risk taking by banking institutions as suggested by Cubillas and Gonzalez (2014), resulting in higher levels of credit extension beyond the optimum level. Coupled with poor credit standards and risk management techniques found in developing countries, this resulted in higher levels of bank sector instability.

The FIP (FIP) coefficients with private credit extension as the dependent variable were negative and significant for both the SUR and GMM estimators. Similarly, the coefficients with banking sector stability were negative and insignificant while with banking sector

development the coefficients were positive and insignificant for both approaches. However, the coefficients for net interest margin had contrasting results with SUR indicating a negative but insignificant effect and GMM showing a positive but insignificant impact. These results imply regional financial integration had an adverse effect on lending by private banks. Firstly, this could have resulted from heightened credit standards and risk management practices as regulators and institutions expected increase in competition and instability. Secondly, increase in competition reduced lending relationships as the benefits from such relationships were eroded away by the elevated levels of information asymmetry characterising SADC countries. This reduced firm's access to credit and use of debt in their capital structure. Lastly, firms could have migrated to capital markets as lenders shifted from long-term to short-term debt to monitor borrowers and institute disciplinary action in the face of rising information asymmetry and risk aversiveness owing to financial integration. This scenario is worsened by reduced lending relationships and poor institutional quality. This evidence is collaborated by Agca et al. (2015).

The insignificant impact on banking development, stability and efficiency shows that regional financial integration in the form of FIPs signed by SADC countries have not had a material impact. This could emanate from the infancy of the protocol since it was only ratified by majority of countries in 2010. Also, a study by Teghizadeh-Hesary, et al. (2019) suggests that the impact of financial integration on financial development is dependent on the level of income, extent of TO and institutional quality. Specifically, countries should have little barriers to trade, high quality of institutions and income levels that are above 3032 .07 US dollars. Some of the conditions such as higher quality of institutions and

income levels above 3032.07 are not yet obtaining in some SADC countries. For instance, by end of 2019 the average GDP per capita for SADC was $1 927 while Zimbabwe, Zambia, Tanzania, and Malawi had $1722, $1326, $1094, and $430 respectively (SADC, 2020).

Considering the contradictory results obtained on the effects of protocols on trade and finance and investment on private credit by deposit money banks and banking sector development, the research ran models with an interaction term of protocols on trade, finance and investment (TPFIP). The results show that the coefficient for the interaction term on private credit by deposit money banks was negative and significant at 10% significance for the SUR model while the GMM approach had a negative and insignificant coefficient. The coefficient on banking sector development is insignificantly positive and insignificantly negative for the SUR and GMM estimators respectively. This implies that TP and FIP had a significant negative joint effect on banking sector depth, suggesting that when financial markets are underdeveloped, integrating with regional counterparts might hinder effective resource allocation as banks reduce credit extension owing to higher levels of information asymmetry. Companies trading cross-border faces many risks compared to local firms therefore when financial markets have less mechanisms to manage such risk and advanced techniques of evaluating and monitoring such firms, banks prefer to issue short-term debt or reduce lending to mitigate the effects of integrated markets. In instances where institutional quality is low, the risk of extending more debt becomes even greater. Owing to the small size of the SADC region-smaller than Turkey, the positive effect of trade integration could be small (Flatters 2001), yet there are higher levels of risks that emanate from financial integration of underdeveloped markets

characterised by information asymmetry and poor institutional quality. The Breusch-Pagan test for independence shows the presence of contemporaneous correlation between the equations, showing appropriateness of the SUR model. This test revealed that there was a contemporaneous relationship between the equations presented, indicating that their error terms are correlated. This is because the equations were estimated jointly as suggested by Zeller (1962) and in accordance with Wan et al. (1989) and Abdelaziz et al. (2019) in order to gain efficiency. The AR (2) test under the GMM model is insignificant, showing the absence of high order correlation in all the equations. Sargan statistic used to depict over identifying restrictions show that the instruments are valid and uncorrelated with the error term. Therefore, the model is appropriately specified.

5.9 Determinants of stock market development

The results for stock market development model estimated using SUR and GMM techniques are shown in Table 5-13 and 5-14 respectively. Overall, stock market development is measured by a composite index, stock market development index (SMDI) while stock market capitalisation is measuring the depth or size of the stock market. Stock market value traded represents the value of shares traded compared to the size of the economy; therefore, it captures the economy wide level of liquidity of the stock market. Stock market turnover ratio measures the level of efficiency on the stock market and compares the total value of shared traded to the size of the stock market. It measures the easiness of buying and selling shares at the posted prices hence a higher ratio signals lower levels of transaction costs. This shows the efficiency of the market as suggested by Yartey (2008).

The regression results concur with the correlation matrix on the positive link between stock market development index (SMDI) and banking sector development index (BSDI). Both the SUR and GMM estimators show a positive coefficient for BSDI on SMDI at 10% significance level. The result implies that banking sector development is crucial in supporting the development of the stock market by providing various support services such as lending to stock market investors, facilitating settlement of transaction and providing underwriting and advisory services. The results also show that banking sector development has a positive effect on stock market capitalisation as shown by a positive coefficient. Therefore, this shows that the development of the banking sector positively influences (1) stock prices, (2) number of shares issued by listed firms and, (3) the number of new listed companies and hence, enhances the growth of stock market.

Variables	SMDI	SMC	SMVT	SMTR	SMDI (1)	SMC (1)	SMVT (1)	SMTR (1)
$SMDI_{t-1}$	0.597*** (0.0557)				0.597*** (0.0557)			
SMC_{t-1}		0.983*** (0.0289)				0.984*** (0.0291)		
$SMVT_{t-1}$			1.029*** (0.0305)				1.029*** (0.0305)	
$SMTR_{t-1}$				0.507*** (0.0621)				0.508*** (0.0621)
PF	0.107 (0.136)	1.503** (2.404)	0.853** (0.878)	-0.405 (3.364)	0.107 (0.136)	1.481** (2.439)	0.856** (0.882)	-0.437 (3.387)
IND	-0.00123 (0.0107)	-0.00182* (0.188)	0.00620 (0.0700)	0.443 (0.275)	-0.00125 (0.0108)	-0.00771* (0.191)	0.00547 (0.0703)	0.445 (0.277)
LogCF	-0.0100* (0.009)	-0.0702** (0.156)	-0.0271* (0.0607)	-0.28059 (0.234)	-0.01001* (0.009)	-0.0719** (0.158)	-0.2744* (0.609)	-0.2778 (0.236)
Pegged	0.0408* (0.428)	0.991* (6.950)	0.269 (2.700)	2.045 (10.61)	0.0419* (0.428)	0.911* (7.062)	0.247 (2.713)	2.118 (10.68)
Crawling	0.0734 (0.487)	1.836* (7.994)	-0.485 (3.085)	-1.493 (12.13)	0.0746 (0.488)	1.866* (8.122)	-0.473 (3.100)	-1.581 (12.21)
Managed	-0.209 (0.427)	2.092** (6.920)	-0.0197 (2.685)	-4.505 (10.54)	-0.209 (0.427)	2.065** (7.033)	-0.0262 (2.698)	-4.484 (10.62)
Floating	-0.134** (0.460)	-3.348** (7.621)	1.641 (2.943)	-0.976 (11.41)	-0.136** (0.460)	-3.082** (7.737)	1.594 (2.956)	-0.826 (11.48)
BSDI	0.0190* (0.0707)	0.190* (1.159)	0.407 (0.446)	0.101 (1.752)	-0.0185 (0.0707)	0.218 (1.176)	-0.400 (0.448)	0.0683 (1.763)
INFLN	-0.0024** (0.00704)	-0.057*** (0.114)	-0.012*** (0.0443)	-0.0298 (0.174)	-0.0025** (0.00705)	-0.060*** (0.116)	-0.012*** (0.0445)	-0.0319 (0.175)
GDPP	-0.00674 (0.0202)	-0.591** (0.328)	-0.107** (0.128)	-0.286 (0.500)	-0.00666 (0.0202)	-0.583** (0.334)	-0.106** (0.129)	-0.292 (0.504)
FDI	-0.0460* (0.0261)	-0.263 (0.428)	-0.287* (0.165)	-2.292*** (0.646)	-0.0460* (0.0261)	-0.259 (0.435)	-0.287* (0.166)	-2.292*** (0.650)
S	-0.00772 (0.00716)	0.0593* (0.116)	-0.00945 (0.0447)	-0.188 (0.177)	-0.00776 (0.00716)	0.0570* (0.118)	0.00888 (0.0449)	-0.185 (0.178)
RL	-0.136 (0.223)	-0.813 (3.623)	-0.505 (1.405)	4.320 (5.522)	0.135 (0.223)	-0.866 (3.682)	-0.515 (1.412)	4.361 (5.560)
TNRR	0.0494** (0.0192)	-0.183 (0.311)	-0.0441 (0.121)	0.857* (0.475)	0.0496*** (0.0192)	-0.171 (0.316)	-0.0417 (0.121)	0.846* (0.478)
TP	0.00456 (0.00690)	0.335** (0.464)	0.0668 (0.0981)	-0.297 (0.462)				
FIP	0.0818 (0.169)	0.107 (2.739)	0.653 (1.060)	0.365 (4.164)				
TPFIP					0.0825 (0.169)	0.149 (2.783)	0.663 (1.065)	0.318 (4.192)
Obsy	144	144	144	144	144	144	144	144
Breusch-Pagan test of independence: chi2 (28) = 881.531, p value = 0.000								

***Table* 5- 13: SUR stock market model with BSDI results** (Author compilation)

Variables	SMDI (1)	SMC (2)	SMVT (3)	SMTR (4)	SMDI (5)	SMC (6)	SMVT (7)	SMTR (8)
$SMDI_{t-1}$	0.671*** (0.0959)				0.679*** (0.0991)			
SMC_{t-1}		1.105*** (0.0337)				1.123*** (0.0303)		
$SMVT_{t-1}$			1.468*** (0.113)				1.472*** (0.117)	
$SMTR_{t-1}$				0.432*** (0.0883)				0.508*** (0.0786)
PF	0.317 (0.828)	10.41 (7.212)	10.75* (5.020)	3.781 (2.348)	0.375 (0.992)	12.15 (7.320)	11.03* (5.441)	4.821 (3.194)
IND	-0.0261 (0.0269)	-0.504* (0.354)	-0.565 (0.311)	0.491 (0.269)	-0.0257 (0.0255)	-0.570* (0.339)	-0.580 (0.333)	0.265 (0.166)
LogCF	-0.00445* (0.008228)	-0.2069** (0.30739)	-0.005289 (0.06994)	-0.16439 (0.184310)	-0.00065* (0.00796)	-0.1421** (0.31895)	-0.01027 (0.07534)	-0.01983 (0.103803)
Pegged	0.0206* (0.315)	8.256* (4.568)	33.76** (46.22)	0.327 (3.609)	0.154* (0.476)	8.712* (5.221)	33.19** (45.86)	8.137 (8.518)
Crawling	0.0577 (0.500)	5.620* (4.189)	-46.49 (52.17)	3.350 (5.101)	0.165 (0.704)	6.937* (4.148)	-46.06 (52.13)	11.57 (12.41)
Managed	-0.268 (0.239)	9.263*** (3.564)	-31.05 (44.50)	9.344 (9.525)	-0.128 (0.390)	10.01*** (3.915)	-30.51 (44.19)	4.579 (5.632)
Floating	-0.250** (0.153)	-0.207* (7.989)	-38.44 (47.34)	-0.284 (3.440)	-0.0711* (0.297)	-1.852* (8.198)	-37.61 (46.81)	9.305 (6.469)
BSDI	0.0645* (0.103)	2.174* (2.309)	-0.0905 (0.444)	-0.368 (0.873)	0.0697* (0.102)	2.420* (2.377)	-0.158 (0.309)	-1.662 (1.293)
INFLN	-0.00608* (0.0133)	-0.257*** (0.148)	-0.0254** (0.0746)	-0.238* (0.231)	-0.0043* (0.0139)	-0.317*** (0.130)	-0.0155** (0.0466)	-0.0268* (0.130)
GDPP	-0.0160 (0.0538)	-2.148** (0.720)	-0.160* (0.149)	-0.109 (0.202)	-0.0257 (0.0544)	-1.869** (0.749)	-0.155* (0.140)	-0.0813 (0.241)
FDI	-0.0249* (0.0411)	-0.222 (0.209)	-0.577 (0.504)	-0.0153** (0.288)	-0.0244* (0.0433)	-0.183 (0.186)	-0.572 (0.494)	-0.0302** (0.472)
S	-0.0101 (0.0106)	0.281* (0.139)	-0.122 (0.0708)	-0.458 (0.464)	-0.0102 (0.0115)	0.260* (0.135)	0.117 (0.0679)	-0.535 (0.605)
RL	-0.162 (0.759)	-1.282 (4.808)	-6.769** (2.697)	-3.578 (5.926)	-0.217 (0.933)	-2.405 (5.186)	-7.086** (3.020)	-2.637 (8.259)
TNRR	0.0359* (0.0179)	-0.605 (0.672)	-0.0232 (0.227)	1.440 (0.985)	0.0301 (0.0199)	-0.463 (0.684)	-0.0548 (0.242)	0.617 (0.779)
TP	-0.160 (0.146)	4.068** (2.384)	-0.881 (3.779)	-20.71* (10.24)				
FIP	0.205 (0.292)	-5.859 (4.502)	-0.806 (4.088)	7.308 (6.499)				
TPFIP					0.124 (0.270)	-0.463 (0.684)	-1.416 (4.235)	6.986 (10.33)
Sargan	0.992	0.328	0.727	0.615	0.940	0.303	0.857	0.605
AR (2)	0.994	0.335	0.231	0.109	0.984	0.495	0.235	0.264
Obsv	144	144	144	144	144	144	144	144

***Table* 5- 14: GMM stock market model with BSDI results** (Author compilation)

However, BSDI has a negative but insignificant effect on both stock market liquidity (SMTV) and stock market efficiency (SMTR). The results show that though the effect is insignificant, the banking sector can take away activity from the stock markets owing to their elevated levels of illiquidity. As investors look for minimal risk and more liquid assets, they shift their activity to the banking sector where they can easily liquidate their investment with minimum loss in value and at the least cost. Similarly, to avoid liquidity shocks, investors can decide to invest their short-term funds in the banking sector. This will deprive stock markets of the much-needed buying and selling activity thereby militating against liquidity and efficiency. When BSDI is replaced with private credit by deposit money banks (PCDMB), the results from the SUR estimator show a positive effect on all stock market variables. These results concur with those of the pairwise correlation matrix.

The sign is that private credit by deposit money banks positively influences stock market development, stock market depth, liquidity, and efficiency. These results could imply that banking sector credit is complementary to dimensions of stock market development. The plausible explanation for such a relationship is that: Firstly, as banks extend more credit to the private sector, it sends positive signals to the market participants about the prospects of the economy thereby stimulating demand for shares. Secondly, credit extension by banks strengthens company balance sheets and profitability which enhances attractiveness of the listed firms. Thirdly, more credit extended to the private sector increases the level of liquidity in the economy, leaving investors with more money to spend on the stock markets. This increases capitalisation, liquidity and efficiency of stock markets. Results by Yartey (2008) show a similar relationship but Barnor (2015)

found private sector credit to have a negative effect on stock market capitalisation. However, results from the GMM estimator show a negative and insignificant effect on SMVT and SMTR. These results are in line with the effect of the stock market development index on SMVT and SMTR. Tables 5.19 and 5.20 in the Appendices section show results when BSDI is replaced with PCDMB for both the SUR and GMM models respectively.

Lagged dependent variables have a positive and significant effect at 1% level of significance on all dependent variables. This entails those earlier levels of stock market development, depth, liquidity, and efficiency have got a positive and significant effect on future values of the same. Press Freedom (PF) has a positive and insignificant effect on stock market development according to both estimators. The coefficient for stock market capitalisation is positive and significant under the SUR approach and positive and insignificant under the GMM approach. When it comes to stock market value traded, both estimators show positive and significant coefficients. However, the coefficient for turnover ratio is negative under the SUR estimator and positive under GMM but insignificant in both cases. The results show that improvement in PF could positively affect stock market development through enhancing stock market capitalisation and stock market liquidity. More importantly, PF increases free flow of correct information to both local and foreign investors thereby attracting more capital to stock markets. At the same time, free media enhances transparency, corporate disclosure and reduces accounting fraud (Dyke, Morse & Zingle, 2010; Miller, 2006), which positively effects on demand for shares and trading activity. It is this decrease in information asymmetry that reduces risk on the part of investors thereby increasing shares prices and stock market liquidity. Since free media

increases the accuracy of analysts' forecasts and help to expose analysts who make wrong forecasts as suggested by Brunetti and Weder (2003) and Kim et al. (2017), it increases investor confidence to rely of analysts' recommendations. The result will be more liquid stock markets that are characterised by high efficiency.

Contrary to expectations, the results show that industrialisation (IND) has a negative effect on stock market development and stock market capitalisation while at the same time it is positively affecting stock market efficiency. The coefficient for IND is positive on stock market liquidity using the SUR approach and negative using the GMM approach. Though all the coefficients are insignificant, except for stock market capitalisation, the results provide evidence that deindustrialisation being experienced in the SADC region is detrimental to the size and overall development of stock markets in the region. According to Moyo (2020), market liberalisation (globalisation) has resulted in deindustrialisation characterised by declining manufacturing value added (MVA) in SADC. Traditionally, the MVA has been low owing to SADC's heavy reliance on primary commodity exports as opposed to manufactured goods. This shows that SADC's Industrialisation Strategy and Roadmap 2015–2063 has not yielded the expected results. A closer diagnosis of SADC manufacturing sector data show that manufacturing sector growth rate, manufacturing sector contribution to GDP and the MVA growth rates have been on a decreasing trend for the period 2009 to 2019. At the same time, the share of agriculture value added to GDP has been on an upward trend (SADC, 2020). This scenario could have militated against development of stock markets in a number of ways. Firstly, deindustrialisation could have reduced the demand for equity capital from the industrial sector as firms down sized operations. Secondly, security prices of manufacturing firms have been depressed

owing to decrease in profitability and growth prospects because of globalisation. Thirdly, decreasing income levels usually associated with dominance of the agricultural sector could have reduced demand for shares on local exchanges. Lastly, the under performance of the manufacturing sector could have reduced portfolio investments.

The positive and insignificant coefficient on the turnover ratio signify increase in trading activity attributable to reduction in stock concentration, which increases the investible universe of stocks and therefore, sectorial diversification. Deindustrialisation have been accompanied by growth in other sectors of the economy like the agriculture sector, thereby increasing sectorial diversification as well reducing concentration of trades on a few dominant stocks. Such developments increase liquidity and therefore efficiency of stock markets. In line with priori expectations, both the SUR and GMM estimators show that capital flight (LogCF) has a negative influence of stock market variables. Results from the SUR estimator shows that the coefficient for capital flight is negative and significant on stock market development and stock market value traded at 10% significance level while it is negative at 5% significance on stock market capitalisation. The GMM estimators confirm a negative and significant effect on stock market development and stock market capitalisation and an insignificant effect on stock market turnover ratio. These results show that capital flight takes away resources or funds that should have been invested on the stock markets by residents. When residents choose to invest their funds in foreign jurisdictions that they consider safe and more rewarding, they deprive local stock markets of much needed demand for shares. This negatively affects stock prices and stock market activity. At the same time, capital flight impacts share prices through its native impact on savings, tax revenue investment and economic growth (Collier et al. 2001; Kapoor 2007).

The insignificant effect on stock market turnover ratio could be explained by low levels of stock market participation by local investors.

The coefficient for the pegged exchange rate regime is consistently positive and significant for stock market development and stock market capitalisation under both estimators. The implication is that pegged regime positively influences broad development of stock markets and stock market capitalisation. This positive effect comes from the stability brought about by adopting a pegged exchange rate particularly for developing countries characterised by high exchange rate risk (Ghosh & Ostry, 2009). For instance, pegged exchange rates keep inflation low owing to higher demand for holding local currency as a result of the confidence brought about by stability in the exchange rate. Adopting such a policy induces discipline as policy makers avoid the cost of abandoning the peg. These results in lower growth rates in money supply (Ghosh, Ostry, Gulde, & Wolf, 1997). These developments attract both local and international investors to the stock markets owing to enhanced performance of local companies as they increase investment because of low inflation and more certainty. Foreign currency stability attracts foreign investors owing to currency convertibility and certainty when converting returns into their home currency. Such level of stability and certainty in international transactions can also reduce capital flight. Results from the GMM estimator show that the pegged regime significantly enhances stock market liquidity, though the SUR approach shows an insignificant but positive effect. This shows that stability brought about by the regime induces trading on the stock markets thereby positively influencing liquidity. However, the effect on efficiency is positive but insignificant for both estimators.

Like the pegged exchange rate regime, the crawling regime has a positive though insignificant effect on stock market capitalisation and stock market development suggesting that the stability brought about by a crawling exchange could positively influence company performance and therefore share prices. The coefficient on stock market value traded is negative but insignificant for both approaches. The results for stock market traded ratio are conflicting but insignificant with the SUR model showing a negative coefficient while the GMM estimator shows a positive effect. In addition, the results suggest that the crawling regime does not have a material effect on stock market liquidity and efficiency. However, the indication is that adopting a crawling regime could be detrimental to stock market liquidity owing to the uncertainty brought about by the need for constant exchange rate changes in response to external pressures. The uncertainty can be further worsened by inconsistent and opaque policies by the monetary authorities. The insignificant effect is also in sync with the fact that only one country, Botswana, has implemented this regime over the years.

When it comes to managed exchange rate regime, the results show that it negatively but insignificantly affects stock market development and stock market liquidity. However, the coefficient for stock market capitalisation is positive while the results on stock market efficiency are contradicting. The results suggest that managed regimes enhance stock market size but could negatively influence the overall development and liquidity of stock markets. This could be explained by the fact that managed regimes are characterised by speculative tendencies emanating scepticism on the sustainability of maintaining the regime (Rogoff, Husain, Mody, Brooks, & Oomes, 2003) owing to low foreign currency reverses and lack of central bank independence that usually characterises developing

countries. Such speculative tendencies by investors can prop up stock market prices as they try to hedge against inflation and subsequent depreciation of the local currency. However, the rapid increase in stock prices can make them overpriced and costly thereby reducing stock market activity. The instability that comes with these sentiments depress stock market activity thereby hampering liquidity.

Floating exchange rate regime has a consistent negative and significant effect on overall stock market development and stock market capitalisation, suggesting that completely allowing the market forces to determine the exchange rate could be detrimental to stock market development. This finding is in line with suggestions that floating the exchange rate retard economic growth in developing countries owing to elevated levels of volatility and increased inflation pressures. Elevated levels of uncertainty caused by fluctuating exchange rate and high inflation expectations could depress investments and company earnings especially in countries that import essential raw materials and equipment. Such levels of uncertainty induce investors to demand high returns in compensation for elevated risk (Mahapatra & Bhadhuri, 2019). These developments will depress demand for shares and therefore stock prices. The effect on stock market turnover ratio is negative but insignificant while results on stock market value traded are conflicting and insignificant.

The coefficient for inflation is consistently negative and significant on stock market development, stock market capitalisation, stock market value traded, and stock market turnover ratio. The results show that inflation is detrimental to the overall development of stock markets, size, liquidity, and efficiency. Moreover, inflation increases uncertainty about both the country's prospects and the firms operating in that country. At the same

time, it reduces the citizens' purchasing power thereby negatively affecting demand for goods and services. Coupled with decrease in company investment owing to future uncertainty, high interest rates and low growth prospects, company profitability decreases, reducing the attractiveness of firms listed on the stock exchange. This reduces the demand for shares trading on the stock exchange while at the same time companies might prefer to issue out debt as opposed to equity. As a result, stock market capitalisation is negatively affected while at the same time stock market activity decreases. This result is not only in stripe with theory, but it also supports evidence obtained by Barnor and Wiafe (2015), Ho and Odhiambo (2019) and Ho (2018).

The effect of income growth as measured by growth rate in GDP per capita (GDPP) was found to be negative and significant on stock market size and stock market liquidity while its effect on stock market development and stock market efficiency is negative but insignificant. Although it is contrary to theory, this result is consistent with evidence on the ground where growth rate in income has been decreasing for the SADC region (SADC, 2020). As a result, this is pulling down development of stock market. Abel et al. (2021) and Zhou et al. (2015) obtained similar results in SADC and Cameroon respectively. When poverty is high, any increase in income will be channelled towards consumption instead of increasing savings and investment. Therefore, the current level of income is important in explaining the relationship between income growth and stock market development.

Savings as a percentage of GDP has a positive and significant effect on stock market capitalisation, implying that savings are enhancing investment thereby supporting growth of stock markets as suggested by Garcia and Liu (1999). However, these savings are

negatively affecting stock market liquidity, efficiency and overall stock market development though in a non-significant way. This could suggest that the positive effect of savings on investment and therefore stock market development could be through the banking sector such that increase in savings reduces the level of activity on the stock market; hence affecting liquidity and efficiency. Though it seems counterintuitive, the explanation could be that most of the savings are not channelled through the stock markets owing to the underdevelopment of stock markets compared to the banking sector. Consistent with evidence obtained by Nyasha and Odhiambo (2020) and Ho and Lyke (2018), current results show that FDI has a negative effect on all measures of stock market development utilised in the study. The coefficients are significant for stock market development, stock market liquidity and efficient under the SUR approach while under the GMM approach only coefficients for stock market development and efficiency are significant. The results are in line with the FDI dependency theory by Prebisch (1950) which posits that the dependency on FDI is detrimental to growth and development of recipient countries. The notion is that FDI promotes export of raw materials, yet the host countries import manufactured goods that fetch more value. At the same time, FDI led to displacement of local firms by well resources and equipped companies from developed countries. This result in dominants of multinational companies yet these lists their shares in more developed home country stock markets. The situation is worsened by the repatriation of profits by most multinational companies to home countries, creating balance of payment problems for host countries (Odo, Anoka, Nwachukwa, & Agbi, 2016). Furthermore, employment of highly mechanised equipment reduces demand for local labour resulting in high unemployment, low income and low savings. All these factors

negatively affect number of listed companies, size of local companies, share prices and liquidity of stock markets as well as economic growth in general.

Rule of law (RL) has a negative and significant effect on stock market liquidity under the GMM estimator while its effect on stock market development, stock market liquidity and size is negative but insignificant. The SUR estimator confirms the negative effect on all measures except stock market efficiency that has a positive but insignificant coefficient. The results suggest that rule of law is not a significant determinant of stock market development, stock market size and efficiency. However, it has a detrimental effect on liquidity of the stock market. The implication is that lower levels of rule of law inherent in most SADC countries is weighing down activity on stock markets. Owing to the risk that comes with lack of rule of law, investors shy away from taking part in the stock market thereby undermining liquidity. Poor record of adherence to the rule of law stifles development of a market-based systems and threaten rights of individuals and business that include property rights, contact enforcement mechanism and protection against arbitrary power by government and regulators. This creates uncertainty in business transactions thereby undermining development of stock markets. Aluko and Azeez (2018) also found that effectiveness of legal institutions does not cause stock market development in SSA.

In terms of total natural resources rent (TNRR), the results from the two estimators show a positive and significant effect on oval stock market development and liquidity. This suggests that the presence of natural resources is helping to boost the development of stock markets in the SADC region. On the contrary, the results show that natural resources negatively and insignificantly affect stock market capitalisation and liquidity.

The implication of the results is that resources endowments bolster development of stock markets through bringing in foreign currency and creating employment. However, the depressed volatile mineral prices could negatively affect capitalisation and liquidity of stock markets, especially considering that most of the largest mining companies are also listed on local stock markets. Trade protocol (TP) shows a robust positive relationship with stock market capitalisation showing that the signing and implementation of the protocol had positive influence on prices and therefore the size of the stock markets in line with evidence from Tembo and Makina (2020). However, the protocol did not enhance efficiency as shown by a negative and insignificant coefficient of stock market turnover ratio. The coefficients for stock market development and stock market value traded were insignificant and inconsistent for the two estimators. The results imply that TP has a considerable influence on stock market capitalisation only. Regional financial integration as measured by finance and investment protocol (FIP) had a positive but insignificant impact on oval stock market development and efficiency. Inconsistent and insignificant results were also obtained on stock market capitalisation and stock market liquidity. The implication of the result is that the FIP did not have a material impact on stock market development in the region. As is the case with FIP, the interaction term TPFIP shows insignificant results for all the estimators.

Model diagnostic tests show that both the SUR and GMM models are correctly specified. The Breusch-Pagan test for independence shows the presence of contemporaneous correlation between the specified regression equations. This implies that the SUR model is compatible with this study. Two statistical tests were used to figure out the appropriateness of the GMM model. The first diagnostic statistic, Sargan test shows that

the null hypothesis is not rejected implying the chosen instruments are valid in all the estimated models. The null hypothesis indicates that the instruments used are valid and uncorrelated with the error term. According the to the AR (2) statistic, the null hypothesis is not rejected; therefore, there is no second order autocorrelation. The null hypothesis is that there is no second order correlation between errors in the first difference equation and the error term.

5.10 Relationship between banking sector development and stock market development

The growth model was run with the aim of figuring out the interaction between banking sector development and stock market development in funding economic growth. Results in Tables 5-15 and 5-16 show that banking sector development (BSDI) positively influences economic growth in the region. The results support the supply leading hypothesis which postulates that the banking sector positively influences economic growth through channelling financial resources from surplus units to deficit units.

When the banking sector development index (BSDI) is substituted by private credit from deposit money banks (PCDMB), the results confirm the positive effect, showing that credit extended to the private sector by banks enhances the productive ability of firms thereby improving economic growth. The findings agree with theoretical pronouncements showing that the banking sector support growth through pooling savings, reducing the cost of distributing savings, lowering information asymmetry and funding investments into productive assets (Levine, 1997; Swan, 1965). These results are in line with findings in SADC by Taivan and Nene (2016) and Mahawiya and Dramani (2020) though they contradict Bara et al. (2016) and Moyo and Le Roux (2020). The results also show that

controlling for regional financial integration and trade integration using protocols does not significantly change the effect of banks on economic growth. The weak effect shown by the results signals low levels of development of banking sector, thereby not having a robust impact on growth.

Variables	GDP (1)	GDP (2)	GDP (3)	GDP (4)	GDP (5)	GDP (6)	GDP (7)	GDP (8)	GDP (9)	GDP (10)
GDP_{t-1}	0.287*** (0.0723)	0.284*** (0.0722)	0.285*** (0.0704)	0.286*** (0.0720)	0.283*** (0.0707)	0.285*** (0.0720)	0.288*** (0.0732)	0.284*** (0.0713)	0.287*** (0.0732)	0.283*** (0.0702)
SMDI	-0.0135* (0.0621)		-0.0127 (0.0611)	0.0180** (0.0650)			-0.0142 (0.0672)		-0.0144** (0.0673)	
BSDI	0.0153** (0.0646)		0.0163** (0.0684)	0.01482** (0.7444)			0.0124* (0.0593)		0.0124* (0.0593)	
LogLF	-1.1733 (0.7528)	-1.0873 (0.7310)	-1.1876 (0.7521)	-1.1873 (0.7624)	-1.0863 (0.7900)	-1.1107 (0.7932)	-1.1202 (0.7988)	-1.1021 (0.7453)	-1.1204 (0.7843)	-1.1024 (0.7452)
GFCF	0.153*** (0.0572)	0.152** (0.0587)	0.151*** (0.0570)	0.151*** (0.0577)	0.145*** (0.0574)	0.155** (0.0590)	0.150** (0.0562)	0.152** (0.0563)	0.150** (0.0563)	0.152*** (0.0563)
INFLN	-0.0897*** (0.0252)	-0.0899*** (0.0259)	-0.0876*** (0.0248)	-0.0890*** (0.0253)	-0.0897*** (0.0253)	-0.0870*** (0.0236)	-0.0908*** (0.0256)	-0.874*** (0.0257)	-0.909*** (0.0296)	-0.873*** (0.0284)
TO	-0.0285** (0.0117)	-0.0279** (0.0109)	-0.0295** (0.0110)	-0.0278** (0.0107)	-0.0287** (0.0116)	-0.0279** (0.0115)	-0.0282** (0.0112)	-0.0281** (0.0114)	-0.0283** (0.0114)	-0.0280** (0.0113)
SMDIBSDI	0.000398 (0.0640)		0.000745 (0.0527)	0.000210 (0.0628)			0.000432 (0.0593)		0.000180 (0.0573)	
S	-0.0553** (0.0240)	-0.0578** (0.0270)	-0.0578** (0.0259)	-0.0595** (0.0276)	-0.0575** (0.0280)	-0.0579** (0.0269)	-0.0590** (0.0264)	-0.0578** (0.0267)	-0.0591** (0.0260)	-0.0578** (0.0267)
FDI	-0.148 (0.0932)	-0.153 (0.0965)	-0.152 (0.0937)	-0.151 (0.0949)	-0.147 (0.0933)	-0.153 (0.0950)	-1.152 (0.0935)	-1.149 (0.0897)	-1.155 (0.0764)	-1.149 (0.0897)
SMC		0.000489** (0.00512)			0.000571** (0.00527)	0.000501** (0.00513)		0.000130* (0.00610)		0.000134* (0.00620)
PCDMB		0.000569** (0.00420)			0.000614*** (0.00439)	0.000557** (0.00415)		0.000480** (0.00408)		0.000480** (0.00410)
SMCPCDMB		0.0000628** (0.0000715)			0.0000739** (0.0000524)	0.0000820** (0.0000734)		0.0000760** (0.0000957)		0.0000689** (0.0000910)
TP			0.0342 (0.0887)		0.0469 (0.112)		0.0305 (0.0716)			0.0291 (0.0705)
FIP			-0.0444 (0.106)		-0.0517 (0.124)		-0.0473 (0.115)			-0.0488 (0.132)
TPFIP				-0.0119 (0.0600)		-0.00533 (0.0438)		-0.00543 (0.0408)	-0.0133 (0.0523)	
RL							-0.0686* (0.0143)	-0.0643* (0.0151)	-0.0650* (0.0173)	-0.0670* (0.0120)
Obsv	144	144	144	144	144	144	144	144	144	144
Breusch-Pagan test of independence: chi2 (18) = 1384.007, p value =0.0000										

***Table* 5- 15: SUR economic growth model results** (Author compilation)

Variables	GDP (1)	GDP (2)	GDP (3)	GDP (4)	GDP (5)	GDP (6)	GDP (7)	GDP (8)	GDP (9)	GDP (10)
GDP_{t-1}	0.403** (0.167)	0.243 (0.432)	0.420* (0.196)	0.348 (0.329)	0.372* (0.172)	0.312 (0.255)	0.453* (0.176)	0.354 (0.332)	0.370* (0.169)	0.301 (0.247)
SMDI	0.0712* (0.408)		0.283* (0.784)		0.316* (0.780)		0.201* (0.673)		0.283* (0.657)	
BSDI	0.407* (0.425)		0.839* (0.815)		0.826* (0.746)		0.784* (0.634)		0.820* (0.742)	
LF	-0.789 (1.340)	-13.16 (13.57)	-1.045 (2.723)	-20.34 (23.37)	-0.986 (2.600)	-17.91 (18.65)	-1.101 (2.872)	-19.67 (20.30)	-0.973 (2.579)	-17.26 (18.20)
GFCF	-0.0171* (0.0917)	0.305** (0.379)	0.103*** (0.130)	0.728*** (0.807)	0.0877** (0.112)	0.608** (0.438)	*103*** (0.130)	0.703*** (0.815)	0.0867** (0.103)	0.609** (0.442)
INFLN	-0.00363*** (0.0571)	-0.0231*** (0.199)	-0.0401*** (0.124)	- 0.0602*** (0.425)	- 0.0115*** (0.0945)	- 0.0878*** (0.404)	-0.0432*** (0.200)	- 0.0602*** (0.425)	- 0.0113*** (0.0941)	- 0.0892*** (0.412)
TO	-0.0190** (0.0293)	-0.282** (0.337)	-0.0400** (0.0606)	-0.544** (0.515)	-0.0353** (0.0553)	-0.463** (0.372)	-0.0403** (0.0596)	-0.560** (0.520)	-0.0372 (0.0581)	-0.473** (0.394)
SMDIBSDI	2.721** (0.919)		6.457** (2.526)		6.267** (2.643)		5.023** (2.482)		6.038** (2.189)	
S	0.0168 (0.0450)	-0.148* (0.146)	-0.0659* (0.0807)	-0.309* (0.349)	-0.0689* (0.0865)	-0.267* (0.283)	-0.0547* (0.0769)	-0.300* (0.313)	-0.0721* (0.0676)	-0.267* (0.283)
FDI	-0.0627 (0.210)	0.219 (0.110)	-0.0702 (0.338)	0.306 (0.482)	-0.0939 (0.365)	0.282 (0.401)	-0.0730 (0.356)	0.286 (0.438)	-0.0957 (0.3.74)	0.237 (0.374)
SMC		0.300** (0.299)		0.506** (0.609)		0.481** (0.539)		0.480** (0.588)		0.448** (0.504)
PCDMB		0.0635*** (0.165)		0.195*** (0.270)		0.178*** (0.236)		0.190*** (0.274)		0.103*** (0.195)
SMCPCDMB		0.00414** (0.00443)		0.00736** (0.00859)		0.00702** (0.00767)		0.00573** (0.00692)		0.00384** (0.00401)
TP			-1.362 (2.158)	-1.400 (2.770)			-1.365 (2.150)	-1.402 (2.777)		
FIP			-3.609 (2.860)	-0.342 (1.569)			-3.609 (2.860)	-0.238 (1.476)		
TPFIP					-4.324 (2.522)	-0.730 (1.292)			-4.041 (2.433)	-0.733 (1.299)
RL							-0.467* (0.263)	-0.534* (0.272)	-0.429* (0.258)	-0.549* (0.280)
Sargan p value	0.300	0.575	0.913	0.574	0.922	0.710	0.858	0.826	0.901	0.700
AR (2)	0.136	0.334	0.922	0.258	0.979	0.205	0.881	0.239	0.956	0.202
Obsv	144	144	144	144	144	144	144	144	144	144

***Table* 5- 16: GMM economic growth model results** (Author compilation)

When it comes to stock markets, the results show that two of the coefficients for stock market development (SMDI) under the SUR estimator are negative against one that is positive. However, all the three coefficients from the GMM estimator show that SMDI has a significant positive effect on economic growth. Since most regressions show a positive effect, the results imply that stock market development could enhance economic growth in SADC. Controlling for regional integration using the TP and the FIP shows that integrating with regional countries significantly increased the coefficients. For instance, under the SUR model, including the interaction of financial and trade integration changed the coefficient from negative to positive. However, the low effect depicted by small coefficients shows that stock markets are not contributing to economic growth as expected. This could be explained by low level of stock market development characterised by small size, few listed counters, illiquidity, and elevated levels of volatility except for South Africa.

Replacing the SMDI with stock market capitalisation (SMC) shows that stock market size has a positive effect on economic growth. The results from both estimators confirm that stock markets are positively associated with economic growth though the size is low. Studies by Abel et al. (2021) and Auckbarally and Subadar (2015) also found comparable results in SADC. Similar with the case for SMDI, controlling for regional integration increases the coefficients under both approaches, suggesting that regional integration enhances the effect of stock market development on economic growth. The interaction term between SMDIBSDI is meant to test the complementarity or substitutability between banking sector and stock markets in funding economic growth. The coefficient of the interaction term is positive, showing that banking sector development and stock market development are complements in funding economic

growth. A banking sector that extends more credit to the private sector, and that is stable and efficient appears to support development of huge, liquid and efficient stock markets. This may show that developments in the banking sector support growth of the stock market in funding economic growth through mobilising savings and providing liquidity to long-term projects. This enhances quality and quantity of investments on the stock market, attract more participants and therefore positively affect economic growth. Banks also provide a platform that facilitate growth of smaller firms so that they can graduate into stock markets. Smaller companies start by accessing loan financing from banks before they qualify to list on stock markets, as they grow larger, mature and older they list on stock markets to access long-term capital. Therefore, banks that are stable and extend more credit at a less costs are better placed to support growth of small firms into large entities that qualify to list on the stock exchange.

On the other hand, stock markets could be facilitating growth of banks through providing firms with a platform to price and diversify risk which allow firms to raise more capital from banks to finance their projects. Also, when markets are huge, liquid and efficient, banks can raise more equity in a bid to strengthen their capital bases. As a result, they will be able to support more business from high risky clients that were previously sidelined. Banks derive more business from stock markets through providing underwriting services while in turn banks use economies of scope to offer these services at less cost, thereby attracting both large and smaller firms to list on the stock markets as suggested by Drucker and Puri (2007). These results are in line with the positive effect of banking sector on stock markets and vice versa as shown by banking sector and stock market models.

The implication of these results is that having developed banks and stock markets is beneficial to economic growth as the two support each other in providing funding to the diverse types of firms in the economy.

Controlling for trade and financial integration using the TP and the finance and investment control shows that regional integration increases the complementary effect of banks and stock markets on economic growth. This is evidenced by an increase in the magnitude of the coefficients in three of the four regressions measuring this effect. The coefficient of SMDIBSDI increased from 2.721 to 6.457 when TP and FIP dummy variables are put as independent variables. When the interaction term TPFIP is put, the coefficient of SMDIBSDI increased to 6.267 under the GMM model. The same trend is also observed under the SUR approach.

Regional integration has positively enhanced performance of stock markets as opposed to banking sector development as shown by evidence from both the banking sector and stock market model. For instance, reforms such as improvement in property rights, usually associated with integration of capital markets as suggested by Gonzalez and Gonzalez (2014), increase the use of equity markets and capitalisation levels. Measures such as increasing free flow of information, harmonisation of regulation and listing requirements contained in the FIP could have boosted stock markets. In the same vein, trade integration could have enhanced the productivity of local firms through increasing market size, diversification of markets and foreign currency earnings from exports. At the same time, easy access to raw materials and equipment could have improved company earnings. Such positive effect on stock markets could have resulted in positive signals being sent to the banking sector thereby increasing

the complementary effect. Similarly, increase in capitalisation levels could have increased demand and supply of credit.

When the SMDIBSDI interaction term is replaced with SMCPCDMB, the results show that stock market capitalisation and private credit by deposit money banks have a combined positive effect on economic growth. The results imply that stock market size and banking sector depth complement each other in funding economic growth in SADC. These results confirm the complementary relationship shown by the broad measures of banking sector and stock market development. In line with theoretical explanations, the results indicate that banks and stock markets co-evolve through positive information externalities. Banks that operate in economies with larger stock markets incur less costs in managing risk, absorbing risk and reputational signalling. As advanced by Bossone and Lee (2004), capital markets provide information that help banks in screening and monitoring investments. Under such circumstances, banks need less resources to send signals about firm reputation and investors in these markets have better ability to interpret information. This makes it cheaper and efficient for banks to send signals. Banks are comfortable to extend credit to firms with a strong capital base as shown by high equity capital in the balance sheet. Since large stock markets allow firms to raise more equity, they create necessary conditions for banks to extend more credit to firms.

Besides the positive signals that are sent by banks to stock markets when banks issue out credit owing to their ability in evaluating and monitoring borrowers, bullish stock markets might also send positive signals to the banking sector. According to Almutair and Ibu Muhammad (2015), rising stock prices (1) increases demand for bank loans as investors chase high returns against lower cost of borrowing and (2) induces firms

to demand more credit as they expect brighter prospects. On the other hand, banks respond by (1) increasing credit extension owing to the same expectations of a brighter future and (2) increase lending even to risky borrowers owing to realised capital gains that cushion their assets against losses. These results are reinforced by the positive impact of credit extension on stock market capitalisation and vice versa for both the stock market and banking sector models. Consistent with results for the SMDIBSDI interaction term, regional integration increases the complementary effect of stock market capitalisation and credit extension on economic growth. This is shown by an increase in the coefficient of the interaction term (SMCPCDMB) from 0.00414 to 0.00736 and 0.00702 after controlling for the trade and FIP and their interaction term respectively. Under the SUR model, the same coefficient increased from 0.0000628 to 0.0000739 and 0.0000820. Though the effect is marginal (0.322% and 0.288% change under GMM), it shows that regional integration enhances the complementarity of credit extension and stock market size in funding economic growth in SADC.

The study also looked at how institutional frameworks in the SADC area affects the link between the growth of the banking industry and the growth of the stock market. By integrating the rule of law (RL) variable in the economic growth model, institutional settings were measured. The SUR model's findings demonstrate that the complementary relationship between the growth of the banking industry and the growth of the stock market is negatively impacted by the rule of law. Although the institutional intervention did not change the nature of the relationship, it did lessen the favourable impact that the expansion of the banking sector and the stock market had individually and collectively on economic growth. When regional integration is governed by FIP and TP and the interaction term FIPTP respectively, the coefficient

of BSDISMDI decreases from 0.000745 to 0.000432 and from 0.000210 to 0.000180. The findings indicate that weak legal systems are endangering the advantages of regional integration. The negative impact of the rule of law (RL) on stock market activity, as demonstrated by the stock market development model, can be used to explain this adverse effect on the complementarity of banking sector expansion and stock market development in funding economic growth. Furthermore, the rule of law (RL) has a detrimental impact on the broad measure of banking sector development, credit extension and banking sector efficiency, according to the model assessing drivers of banking sector development. A similar pattern is seen when the broad index interaction term (SMDIBSDI) is swapped out for the interaction term of single dimension measurements. The PCDMBSMC coefficient falls from 0.0000739 to 0.0000689 and from 0.0000820 to 0.0000760. The GMM model also supports these findings. Therefore, it makes sense to propose that a lack of rule of law prevents the stock market and banking sector from working together to foster economic growth. As observed by World Justice Project (2020), addressing the fundamental flaws with the rule of law in SADC nations might significantly improve the complimentary effects of stock market and banking sector development on economic growth.

In terms of control variables, labour force (LogLF) has a negative insignificant relationship with economic growth. These results could be attributable to low levels of human capital development in SADC countries. Despite increase in enrolment levels for both primary and secondary education, SADC still faces shortage of critical skills particularly in the science, technology, engineering, and mathematics (STEM). Coupled with brain drain, such shortage of skilled personnel could militate against economic growth owing to lower levels of innovation and productivity per worker. In

line with results obtained by Abel et al. (2021), the study found that TO has a negative influence on economic growth in the region. Both estimators show a significant negative effect, suggesting that opening to global trade is inhibiting growth in SADC. This could indicate lack of competitiveness on the part of SADC countries. Countries in the region export unprocessed primary products that have low prices that are characterised by elevated levels of volatility, yet they import manufactured goods. This result in persistent balance of payment deficits and makes the countries susceptible to external shocks thereby negatively affecting exchange rate stability and economic growth.

Contrary to expectations, savings as a percentage of GDP has a negative effect on economic growth rate. Out of the 12 regressions, 11 confirm a significant and negative effect on economic growth while one shows a positive and insignificant effect. The results appear to suggest that increase in savings reduces economic growth, showing that savings are reducing the levels of consumption thereby reducing growth. At the same time, owing to inefficiency and underdevelopment of the banking sector, the savings are inefficiently allocated. Considering the low levels of income in most countries, these savings are exceptionally low, volatile and mostly transitory. This negatively affects economic growth. In line with priori expectations, gross fixed capital formation (GFCF) has a positive effect of economic growth. This suggest that GFCF is stimulating economic growth through enhancing the countries' productive capacity consistent with Bara et al. (2016). Inflation (INFLN) has a negative and significant effect on economic growth in SADC. These results are not only in line with evidence obtained by Bandura, Zivanomoyo and Tsaurai (2019) and Bara et al. (2016) but also agree with theory which suggests that inflation reduces economic activity through

weakening consumption and investment FDI as a % of GDP has an insignificant negative effect on GDP growth. Out of the 12 regressions only three show a positive effect while nine show a negative effect. These findings are in line with results obtained by Mahembe and Odhiambo (2015). The implication is that FDI might harm economic growth in the region. This could be attributable for factors such as volatility of FDI inflows and outflows, decreasing inflows, crowding out local firms, brain drain, increase in net imports and a greater chunk of FDI being attracted by the extractive sector (Mahembe & Odhiambo, 2015; Markowitz, 2020).

The regional trade integration dummy variable (TP) has an ambiguous but insignificant effect on economic growth. The results from the SUR model shows a positive but insignificant effect while the GMM approach shows negative but insignificant effect. Though contradictory, the results show that the TP does not have a material impact on economic growth. This result is supported by low levels of intra-SADC trade as well as lack of beneficiation. Similarly, the measure for financial integration (FIP) has a negative insignificant effect on economic growth according to both estimators. The results suggest that FIP is not yet affecting growth in a material way but could have detrimental effects in the region. The interaction term (TPFIP) has an insignificant effect on economic growth suggesting that the joint implementation of the TP and FIP is not affecting economic growth materially. This could be explained by the infancy of the FIP, small economic size of the SADC, undiversified economies, incomplete implementation of the protocols, underdeveloped financial sector and low levels of industrialisation.

The Breusch-Pagan test of contemporaneous correlation shows that the equations are correlated, rejecting the null hypothesis of no contemporaneous correlation. This

shows that the SUR estimator is a suitable model. The Sargan test for over showing restrictions under the GMM model shows that the instruments are valid. This is owing to failure to reject the null hypothesis, implying that the model was correctly specified. The AR (2) statistic shows absence of higher order autocorrelation, showing validity of the estimations.

5.11 Chapter summary

The chapter presented results of the determinants of the development of banking sector development, determinants of stock market development and interaction between banking sector and stock markets in funding economic growth. There is evidence that both banks and stock markets in SADC are still underdeveloped though the banking sector shows higher levels of development compared to the stock markets. These findings are in line with literature which show that banks develop first before stock markets and the economy develop further stock market start to develop as well. The study findings showed that stock market development, urbanisation, inequality, and population density were important determinants of banking sector development through effect on different measures of banking sector development. The development of stock markets in SADC as measured by stock market development index, stock market capitalisation, liquidity, and efficiency are influenced by industrialisation, press freedom, exchange rates regimes, and measures of banking sector development. Findings on the interaction between banks and stock markets showed that banks and stock markets are complements in funding economic growth. The complementary effect on economic growth is enhanced by regional integration.

6 CHAPTER 6: DISCUSSION OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

6.1 Introduction

Literature provides a plethora of variables as determinants of banking sector development and stock market development but there is no agreement on the impact of these variables as their effects vary from one region to another depending on country characteristics. Furthermore, both theoretical and empirical literature is not exhaustive in identifying the most important determinants of financial development. As a result, policy makers have failed to stimulate the development of financial markets to desired levels, particularly in SADC countries and other developing regions. At the centre of the debate on development of financial markets lies the question of the interaction between banking sector development and stock market development. Again, this question remains unanswered up to this day. This question is pertinent for countries that have infant stock markets that are characterised by small size, illiquidity and inefficiency, and banks that are undeveloped compared to other regions. Therefore, the foremost aim of this study was to decide on the nature of relationship between banking sector development and stock market development in the SADC region. To produce robust results, the study had to determine factors that influence the development of the banking sector and stock markets in the region. Having presented the results of both the SUR and GMM estimation techniques in the earlier chapter which show a complementary relationship between banking sector development and stock market development, this section will discuss the findings, conclude the study and proffer recommendations.

The following constitutes the final chapter sections: The findings are discussed in section 6.2, the study's addition to the body of knowledge is highlighted in section 6.3, the study is concluded in section 6.4, the study's limitations are covered in section 6.5, and study suggestions are given in section 6.6. Future research topics are discussed in Section 6.7.

6.2 Discussion of findings

6.2.1 Development of the banking sector and stock markets in SADC

The current study found that both banking sector and stock market are still underdeveloped. Using kernel density distribution, the results show that the banking sector development index is concentrated below zero, indicating low level of development. Private credit by deposit money banks is concentrated around 10% to 15% of GDP for majority of countries while a smaller number of countries is concentrated around 55% of GDP. Few other countries have ratios that reach 100% of GDP. This shows that there is disparity in the depth of the banking sector in the region. However, majority of countries fall below the average of 100% recorded in developing countries (Andrianaivo & Yartey, 2009). The distribution of the Z-score showed that banks in the SADC region are stable as evidenced by concentration around a score of 10. Another smaller concentration is around 48, again showing higher levels of stability. The level of stability exhibited could be a result of low credit extension, thereby exposing banks to low levels of risk. There is evidence to the effect that countries that have experienced economic instability such as Eswatini and Zimbabwe have low average scores, an indication that economic variables are important determinants of stability. When it comes to efficiency, the findings point to elevated levels of inefficiency in SADC when compared to European countries though

they perform better compared to SSA countries. Most countries are concentrated around 6% net interest margin with a smaller number going as far as 10% and beyond. Compared to European countries that range from 0.9% to 2.4% and SSA countries that average 7.3%, the region has an inefficient banking sector by developed country standards though competitive when compared to other Africa countries. The indication is that low levels credit extension results in banks relying on higher margins for survival instead of high business volumes and this could be discouraging firms and individuals to access bank loans.

Evidence shows that stock market development index in concentrated around -1 to 0, showing that stock markets in the region are underdeveloped. Some countries have indexes as low as -2 while other countries go beyond 2, highlighting the huge disparity in the development of stock markets in the region. South Africa, for instance, has a stock market ranked in the top 10 the world over while at the same time countries as Malawi have some of the least developed stock markets in the world. When it comes to stock market capitalisation as a percentage of GDP, there is concentration around 30% while very few markets go beyond 300%. This clearly shows that stock markets in the region are exceedingly insignificant compared to the size of the economy, signalling that majority of companies are not raising equity using the capital markets. This evidence is collaborated by stock markets characterised by few numbers of listed countries except South Africa, Mauritius and Zimbabwe. Liquidity levels are exceptionally low, evidenced by a stock market value traded ratio concentrated around 0% to 10%. The level of liquidity compared to the size of economies is exceptionally low and this can be attributed to very few counters listed on most exchanges, culminating into little trading activity.

The stock market turnover ratio is concentrated at 5%, again showing lower levels of activity compared to the size of the stock markets. When compared to pace setters such as Taiwan, Korea, China, USA, and Germany that average 229.03%,194.56%,153.34%,150,01% and 117.63% respectively for the period 1990 to 2015, stock markets in the region are very inefficient. This could be explained by high transaction costs incurred by traders since several stock markets have not yet implemented automation. Higher charges in the form of stamp duties, listing and issuance fees, withholding tax and levies make it expensive to buy and sell shares (Soumare et al., 2021). Since there is extraordinarily little activity and low competition among service providers, brokerage firms charge high commissions to cover costs. For instance, the 2019 Bright Africa report shows that Zimbabwe had the highest trading costs while Malawi, Mauritius and Zambia were charging the highest exchange fees at 1 %. Even though South Africa had the lowest brokerage commissions (0.18%), traders were levied 0.25% securities transfer tax per share, a tax not levied in most advanced economies.

6.2.2 Determinants of banking sector development

Empirical findings indicated that urbanisation (UB) had a positive impact on the banking sector development index (BSDI), private credit by deposit money banks (PCDMB) and efficiency (NIM) while it negatively affected banking sector stability (Z-score). This shows that as more people move to the cities, demand for financial services increases from both individuals and companies resulting in higher levels of credit extension and efficiency through reduction in interest rate spread. As banks underwrite more business, they reduce the charges and interest rates, thereby enhancing profitability from volumes as opposed to margins. However, this results in

higher instability as banks end up lending to uncreditworthy individuals or individuals that are vulnerable to economic shocks. For instance, people who migrate from rural areas to cities have low skills and little to no credit risk; this makes them susceptible to job layoffs and difficult to evaluate their credit worthiness. Population density (PD) on the other hand had a positive and significant effect on PCDMB and Z-score suggesting that a higher number of people in a smaller geographical area increases the amount of credit extended by banks as it becomes cheaper to offer services to clients while at the same time it increases demand for credit. Proximity to financial services increases usage as it makes it cheaper to provide the service for banks and less expensive for user to access the service. Stability is enhanced by population density through allowing banks to easily screen and monitor activities of lenders (individuals and firms) that are concentrated in a smaller geographical area. Banks can diversify credit extension through offering lesser amounts to a diverse but substantial number of clients thereby reducing their credit risk exposure. Therefore, owing to availability of infrastructure and proximity to clients, banks extend more credit at less cost and can manage risks associated with the lending.

Inequality (INQ) had a positive and significant effect on banking sector development (BSDI) and banking sector stability (Z-score). This suggests that concentration of income in a few individuals enhances banking stability by reducing the exposure of banks to credit risk. Since most SADC countries are characterised by elevated levels of financial exclusion among the low income and rural citizens, most of the credit is extended to high income citizens and firms. When banks extend credit to higher income individuals that are concentrated in urban areas, they reduce their credit risk exposure since these individuals are less susceptible to economic shocks as

compared to low-income citizens that are found in rural areas and poor suburbs. This increases banking stability, thereby promoting overall banking sector development. In terms of stock market measures, stock market development index (SMDI) had a positive effect on the banking sector development index (BSDI), showing that overall stock market development is complementary to the broad measure of banking sector development. This concurs with the notion that banks and stock markets complement each other in economies that are still at lower levels of development by funding different segments of the economy (Yartey, 2008). Stock market capitalisation (SMC) on the other had a significant positive effect on private credit by deposit money banks (PCDMB) again showing that growth in stock markets induces banks to extend more credit through enhancing bank capital bases, sending positive signals, providing a platform for diversification, and strengthening company balance sheets. Stock market development (SMDI) had a positive effect on credit extension and banking sector stability indicating that overall development in stock market promotes banking sector depth and stability. This again signals a complementary relationship between the two sectors.

6.2.2.1 Other determinants of banking sector development

In terms of control variables used in the study, the main estimation technique showed that inflation, trade openness and remittances have a negative impact on banking sector development and private credit extended by deposit money banks. Inflation was also found to be detrimental to banking sector stability and efficiency while TO also caused instability in the banking sector. Rule of law had a negative impact on private credit by deposit money banks and banking sector efficiency, suggesting that having weak institutions that enforce the rule of law makes banks hesitant to extend credit

resulting in them charging higher margins on the little credit they extend. Total natural resources rent negatively affected banking sector efficiency whereas the TP has a mixed effect on the banking sector through enhancing credit extension but also increasing banking sector instability. The FIP and the interaction term between the former and TP had the effect of reducing private credit extended by deposit money banks.

6.2.3 Determinants of stock market development

The current study found that press freedom (PF) has a positive effect on stock market capitalisation (SMC) and stock market value traded (SMVT) implying that free flow of information without restrictions and political interferences enhances the size and liquidity of stock markets. Free press guarantees flow of credible information which improves the efficiency of stock market. It promotes trust, increase scrutiny of management decisions and company operations, and improves monitoring performance of investment analysts and fund managers. This increases the demand of shares and activity on the stock market. Industrialisation (IND) had a negative and significant effect on stock market capitalisation only while it was insignificant on all other measures. The results show that deindustrialisation characterising most SADC countries is negatively impacting stock market size through reducing company earnings thereby lowering stock prices. In extreme cases, companies end up delisting or reducing the number of shares in issues. Deindustrialisation can result in companies delisting from the exchange or in depresses number of new listings. The results indicate that the SADC Industrialisation Strategy and Road 2015-2063 has not yielded the intended results. The effect of capital flight (CF) is negative on stock market development index, stock market capitalisation and stock market value traded. This is

in line with literature which suggests that the outflow of capital can drain much need resources that could be utilised for investment in the local economy. As a result, capital flight lowers demand for shares in the local, depresses liquidity and induces higher levels of volatility all of which negatively affect the overall development of stock markets.

The results show that different exchange rate regimes impact stock markets differently but regimes that promote exchange rate stability are more beneficial to stock markets in SADC. The pegged regime has positive and significant effect on stock market development, stock market size and stock market liquidity. This shows that exchange rate stability brought by a fixed exchange rate promotes stock markets. This is so because it promotes low levels of inflation, attract foreign investors due to certainty of value of returns and promote exports of output and import of essential equipment and raw materials. The result is high stock prices and more liquidity on the stock markets.

On the contrary, the floating exchange rate regime has a negative and significant effect on stock market development and stock market capitalisation, showing that floating the exchange rate results in uncertainty and inflation pressures that retard growth of and development of stock markets through its negative impact of economic growth, company earnings and returns by foreign investors. The managed and crawling regimes had a significantly positive effect on stock market capitalisation only. This outcome supports the notion that exchange rate stability promotes size of stock markets through attracting foreign investors and positively impacting economic growth. Though these regimes allow movement in the exchange rate, they reduce incidences of exchange rate jumps and high volatility thereby guaranteeing certainty. Banking sector development index (BSDI) significantly promotes stock market

development and stock market capitalisation, supporting the complimentary relationship obtained by the banking sector model. This gives credence to the co-evolving hypothesis which posits that banks and stock markets co-evolve together as banks provide support services such underwriting, advisory and money transfer. The results of the model with PCDMB as the measure of banking sector development confirm the complementary effect through its positive effect on stock market development, stock market capitalisation, liquidity and efficiency though the output from the GMM approach show negative but insignificant effect on SMVT and SMTR. The results highlight the positive effect of credit extension by banks on the size of stock market size. This effect could be through the signalling effect, improvement in company balance sheets, increase in firm profitability, and increase in liquidity levels in the economy. As a result, credit extended by banks complements the size of stock markets, liquidity and efficiency; therefore, the overall development of stock markets.

6.2.3.1 Other determinants of stock market development

Contrary to expectations GDP per capital had a negative effect on stock market capitalisation and liquidity while FDI stifled stock market development, liquidity and efficiency. Savings on the other had promoted stock market capitalisation while total natural resources rent propped up stock market development and efficiency, a result that is contrary to theoretical explanations. Regional integration as proxied by the TP had a positive impact on stock market capitalisation, showing the positive signalling effects of the trade agreements and actual increase in trade, therefore, boost in company earnings.

6.2.4 Relationship between banking sector development and stock market development in funding economic growth

The results of the relationship between banks and stock markets show that banks and stock markets are complementary in funding economic growth in SADC. This is collaborated by a positive coefficient of the interaction term between broad based measures of stock market development and banking sector development. The results are also supported by the positive coefficient of the interaction term of private credit by deposit money banks (PCDMB) and stock market capitalisation (SMC). The implication is that a banking sector that is stable and efficient can extend more credit to the economy, and this positively influence the development of stock markets through enhancing their size, liquidity and efficiency. When banks extend more credit to firms and individuals, they improve the liquidity levels in the economy, allowing investors to demand more shares on the stock market. The result will be an increase in activity on stock markets, which increases efficiency and share prices. This will attract more companies to raise equity using stock markets while simultaneously attracting investors both local and foreign to channel their savings through stock markets. On the other hand, growth in stock markets strengthens bank balance sheets, facilitates their evaluation and monitoring functions, increases the equity capital of firms, and sends positive signals about prospects of the economy since share prices are taken as predictive indicators. This increases the levels of business to banks, improve their capitalisation levels and diversify income sources. The result is a positive effect on credit extension, bank stability and efficiency. Therefore, owing to their co-existence, banks enhance the savings mobilisation role of stock markets while at the same time stock markets promote the intermediation function of banks

thereby positively influencing economic growth through extending more credit and equity to firms and individuals alike.

The study further examined the effect of regional integration on the relationship between banks and stock markets in SADC using the TP and the FIP entered by member countries. The results revealed that regional integration does not change the nature of the relationship between banks and stock markets but enhances the complementary effect in funding economic growth. Controlling for regional integration marginally improved the complementary effect of banks and stock markets in funding economic growth. The results indicate that though reginal integration could spur economic growth through promoting savings intermediation by both banks and stock markets, the effect is still small in SADC. This could be attributed to small economic size of the SADC region, low levels of intra SADC trade, underdeveloped financial markets, presents of barriers to trade and low levels of financial integration. The implication therefore is that more needs to be done to stimulate the positive effect of regional integration in funding economic growth in the region.

The study went one step further and examined how institutional settings, as assessed by the rule of law, impacted the relationship between the growth of the banking industry and the growth of the stock market. The findings demonstrated that the rule of law lessens the complimentary effect of stock market and banking sector expansion in fostering economic growth. Rule of law diminishes the combined positive impact of stock markets and banks on economic growth, like how regional integration does not change the nature of the interaction between banks and stock markets. This finding is confirmed by the banking sector and stock market models' findings that the rule of law has a detrimental impact on the growth of both the banking sector and the stock

market. As a result, it appears that the rule of law is decreasing the economic growth contribution of banks and stock markets.

6.2.4.1 Other determinants of economic growth

The results show that both banks and stock markets have a positive effect on economic growth through mobilising savings from deficit units and distributing them to economic agents in deficit. This improves the productive capacity of firms; hence, positively impacting economic growth. Banks seem to have a larger positive effect compared to stock markets as shown by the magnitude of the coefficients. This result points out to several explanations for this phenomenon. Firstly, banks in SADC are more developed than stock markets; therefore, they are better placed to fund economic growth compared to capital markets. Secondly, most SADC countries are dominated by firms that are small and as a result, they find it expensive to issue out shares on stock markets than to get credit from banks. Lastly, owing to stringent restrictions, many firms are excluded from participating on the stock markets owing to failure to meet requirements. Inflation, trade openness and savings had a significant negative effect on economic growth while the effect of FDI was negative but insignificant. Labour force had a consistently negative and insignificant effect showing the need to invest in human capital development and reduce brain drain. Gross fixed capital formation positively influenced economic growth whereas the TP had a positive but insignificant impact on economic growth. Similarly, both the FIP and the interaction term between the protocols has an insignificant but negative effect on economic growth.

6.3 Contribution to knowledge

This section discusses the literature and methodological contribution of the current study to the body of knowledge. The study applied the kernel density estimation technique to determine the level of development of financial markets in SADC. The study utilises this novel idea in explaining the state of development of financial market anywhere in the world. The study also created an index that considers the three dimensions of banking sector development, namely, depth, stability, and efficiency. Similarly, a broad measure of stock market development was created that constituted stock market depth, liquidity, and efficiency. This study is the first of its kind to explore the relationship between banks and stock market using indexes that capture the different dimensions of their development.

Contrary to earlier studies by Arize, et al. (2018), Hassan and Kalim (2017) and Nyasha and Odhiambo (2015), the current study takes care of the endogeneity problem by regressing the dependent variable against lagged values of the independent variable under the SUR model and applies the SGMM approach that addresses the problem. Using two estimation techniques allowed testing whether the results were model dependent. Though most of the signs of the coefficients were similar, there were notable differences in the significance of the coefficients. The SUR estimator had more significant coefficients than the GMM estimator, indicating the inefficiency of the latter in dealing with long panels. According to Pedroni (2000), GMM is more appropriate for short panels as it tends to generate many weak instruments as time increases.

This study differs from earlier studies in that it combines three different models to estimate the relationship between stock market development, banking sector

development and economic growth. Firstly, the research specified banking sector and stock market development models in which stock market and banking sector development indicators are included as regressors respectively. Secondly, the study expresses an economic growth model in which banking sector development, stock market development and their interaction terms are included as independent variables. This was meant to obtain robust conclusions since using only one model might not clearly bring out the complementarity and substitutability in funding economic growth.

Earlier studies that have examined the relationship between banks and stock markets have not exclusively focused on SADC as a REC. No study has explored this relationship in the SADC region. Nyasha and Odhiambo (2015) did time series studies in Brazil, Kenya and the USA while Hassan and Kalim (2017) studied 10 countries drawn from the Asia, the Pacific Ocean and Africa. Arize, et al. (2018) concentrated on the Nigerian economy. Therefore, the study fills in the knowledge gap by focusing on SADC as a regional block.

The study demonstrates that the growth of the banking industry and the stock market in SADC are compatible. The three models mentioned in the study support this association. Credit granting and the stability of the banking industry were positively impacted by stock market growth as evaluated by the broad index. While credit expansion had a favourable impact on the size, liquidity and efficiency of the stock market, the broad index used to evaluate banking sector development had a positive impact on stock market development. The economic growth model also demonstrates that the connection between the growth of the banking industry and the growth of the stock market, as well as the size of the stock market and credit expansion, had a complementary impact on financing economic growth.

The study contributes to literature by examining the impact of regional integration on the relationship between banking sector development and stock market development. Though studies have previously examined the relationship between stock markets, banks and economic growth, the current study differs from previous studies by bringing out that regional integration increases the complementary effect of banking sector development and stock market development on economic growth. This study shows that regional integration promotes economic growth indirectly through increasing the intermediary role of banks and stock markets. The study used trade, finance and investment protocols to gauge regional integration. Because these elements were specifically designed with SADC member states' objectives, national traits, geographic proximity, and political ties in mind, they are exclusive to the SADC.

Another addition of the study is its examination of how the rule of law affects the relationship between the growth of the banking industry and the growth of the stock market. The study found that while the complementary relationship between banks and stock markets in SADC remains unchanged, their combined impact on economic growth is diminished. This suggests that the rule of law's adverse impact on the growth of the bakery sector and the stock market works against its overall beneficial impact on economic growth.

In addition, the study examined the determinants of banking sector development in SADC. Departing from earlier studies that have focused on measuring banking sector using the depth, liquidity and size proxies, the current study considered other dimensions such as stability and efficiency. The study tested the effect of variables such as urbanisation, population density and inequality that have been neglected by both literature and empirical studies. From the literature review carried out in this

study, no empirical research has examined the effects of these variables on banking sector development, private credit extended by development money banks, banking sector stability and banking sector efficiency. The results show that urbanisation positively affects banking sector development, private credit extension and banking sector efficiency despite promoting banking sector instability. Population density positively influences private credit by deposit money banks and banking sector stability but had insignificant effect on overall banking sector development and efficiency. Another variable of interest, inequality significantly enhanced banking sector development and stability while its impact on private credit extension and efficiency was insignificant.

In the same vein, the study also contributes to knowledge by filling a gap on the impact of press freedom, industrialisation, capital flight and exchange rate regimes on stock market development, stock market capitalisation, stock market liquidity and efficiency. More importantly, press freedom was found to have a positive effect on size and liquidity of stock markets in the region. However, it had an insignificant impact on overall development and efficiency of stock markets. Industrialisation had a significantly negative impact on stock market capitalisation, showing that the deindustrialisation trend being seen in SADC was weighing down on the growth of stock markets. The coefficient for stock market development was negative but insignificant while that of stock market liquidity was insignificant with mixed signs. The results also showed that stock market efficiency was insignificantly enhanced by industrialisation. These results should be interpreted with caution owing to the insignificance of the coefficients as this suggests lack of a robust relationship between the variables.

Capital flight is seen to have a negative effect on stock market development, capitalisation and stock market liquidity though the negative effect on efficiency is insignificant. This shows that capital flight is depriving stock markets of much needed funds, which could be worsening the problems of illiquidity and volatility. Exchange rate regimes are shown to have had mixed effects on stock markets. The pegged regime positively impacted stock market development through enhancing their size and liquidity. On the extreme end, the floating regime militated against development of stock markets through depressing their growth. Crawling and managed regimes had a significantly positive impact on size of stock markets only while their effect on overall development, liquidity and efficiency was consistently insignificant. The results show that the stability in the exchange rate brought about by pegged regimes is desirable for SADC countries as it lowers inflation expectations, enhances economic growth, and ensures certainty of returns on the part of foreign investors.

6.4 Conclusion

The study examined the relationship between banking sector development and stock market development in funding economic growth in the SADC region. Considering that SADC is classified as a REC in which policies to promote regional integration have been pursued, the study endeavoured to examine how these policy measures impact the relationship between banking sector development and stock market development. At the same time, evidence on the ground shows that the banking sector and stock markets in the region remain underdeveloped compared to other regions. Therefore, there was need to determine the factors that explain both banking sector and stock market development. In a bid to address these objectives, the research specified three models, namely, the economic growth model to test the interaction between banking sector development and stock market development in funding economic growth and

banking sector development model and stock market development models to determine the factors that explain development of these two sectors.

The study concludes that both stock markets and banking sector are still underdeveloped characterised by illiquidity, small size, low credit extension, and low intermediation efficiency. The banking sector is more developed compared to the stock markets and the former is stable even when compared with developed countries. However, there is heterogeneity in the development of these sectors in the region. Countries such as Malawi and eSwatini have severely underdeveloped stock markets and banking sector while on the other hand South Africa and Mauritius have better developed banks and stock markets. In terms of banking sector development, the study concludes that urbanisation, population density and inequality are important determinants that positively influence development of the sector through impact on its different dimensions, namely, private credit extension, stability, and efficiency. Specifically, urbanisation had a mixed effect on the banking sector. It positively affected banking sector development, credit extension and efficiency yet it had a negative effect on banking sector stability. The study also concludes that population density significantly enhances private credit extension and banking sector stability while inequality improves overall banking development as well as the sector's stability.

In relation to stock market development, the study concludes that enhancing press freedom positively affects stock market growth and liquidity while industrialisation is negatively affecting stock market size. Capital flight has a detrimental effect on stock market capitalisation, stock market liquidity and the overall development of stock markets. The study also examined the effect of exchange rate regimes on development of stock markets and results show that the pegged exchange regime had

a positive effect on stock market capitalisation, liquidity and overall development. The crawling and managed regimes only enhanced stock market size while the floating regime has a detrimental effect on stock market size and stock market development. The conclusion reached is that regimes that foster exchange rate stability enhance development of stock markets.

The study also concludes that banking sector development and stock market development have a complimentary relationship in funding economic growth. This entails that development in the banking sector positively influences the development of stock markets thereby stimulating economic growth. Similarly, stock markets support the development of banks. In other words, these two segments co evolve. Therefore, it is plausible to conclude that policies that foster banking sector development should positively affect development of stock markets. This conclusion is arrived at after observing that the interaction terms of banking sector development index and stock market development index and private credit by development money banks and stock market capitalisation positively affected economic growth. In addition, the stock market development index was found to significantly promote banking sector development index while stock market capitalisation had a positive effect on private credit by development money banks. On the other hand, banking sector development index has a positive effect on stock market development and stock market capitalisation while private credit by deposit money banks had a significant positive effect on all measures of stock market development. As a result, the banking sector was seen to be enhancing stock market development more than the influence of stock market development on the former. This could be explained by the important levels of banking sector development compared to stock market development.

The study further revealed that the complementary effect between banking sector development and stock market development is amplified by regional integration through the trade and FIPs, suggesting that regional integration is supporting growth through increasing the complementary effect of banking sector and stock markets. Additionally, it was found that the development of the banking sector and the stock market, which work in tandem to finance economic growth, were negatively impacted by the rule of law.

Contrary to expectations, the study brought out some insights that go against theory. Inequality was found to promote overall banking sector development and banking sector stability while urbanisation was found to cause banking sector instability.

6.5 Limitations of the study

To determine the determinants of banking sector and stock market development and the relationship between these two components, the study faced several constraints. The first constraint pertained to unavailability of secondary data on stock market development variables. Some SADC countries did not have the data, in instances where it was available, it was only for a noticeably brief period. As a result, the study ended up dropping seven countries for which some stock market variables were not available thereby limiting the study to nine countries. The nine countries were considered right for the purpose of generalising the results in the SADC region.

The second limitation was unavailability of variables that measure stock market volatility and efficiency for all stock markets in SADC. The study endeavoured to use similar dimensions in creating development indexes. To mitigate this challenge, the study had to proxy stock market efficiency by the stock market turnover ratio as suggested by other theorist though this measure is wildly used to depict liquidity.

The third limitation was on the availability of regional integration measures. Owing to non-availability of alternative proxies to measure regional integration, the study had to rely on the dummy variables created for the trade and FIPs entered by SADC countries.

6.6 Recommendations of the study

To derive maximum benefits from the existence of financial markets in the SADC region, individual countries, and the region should prioritise strategies that develop the banking sector and stock markets. Specifically, the region should focus on improving financial literacy, financial inclusion and putting in place the requisite infrastructure so that banks can derive maximum benefits from urbanisation and population density. However, policy should be also targeting the rural population and low-income earners to reduce inequality and poverty. This should reduce concentration risk and increase demand for financial services in the future.

Since press freedom was found to positively influence stock market size and liquidity, the SADC region should enact laws that promote media freedom. Countries should repeal obsolete legal and policy frameworks that hinder press freedom and strive to promote usage and access to digital media. The SADC as a region should put in place a body responsible for monitoring press freedom in the region to promote free flow of information relevant to the development of stock markets. Countries in SADC show aim to reduce the deindustrialisation trend characterising the region to reduce its negative effect on stock markets. The focus should be on increasing implementation of the Industrialisation Strategy and Roadmap through focusing on value addition and diversification from the primary resources sector. This should be aimed at increasing

domestic consumption of these value-added goods as well promoting inter African and inter SADC trade through taking advantage of the TP.

Capital flight is detrimental to stock market development and as a result, countries should establish strategies to reduce this scourge. Instead of putting in place capital controls, countries should create an environment that encourages capital to remain in their respective countries. This can be done through creating stable economic environment, drafting investor friendly policies, strengthening institutions that promote political stability and judicial independence and removing capital controls. Countries are recommended to adopt exchange rate regimes that ensure exchange rate stability. Specifically, they should implement pegged exchange rate regimes and crawling and managed regimes as these promote economic growth, reduce inflation, ensure exchange rate stability, arrest capital flight, attract foreign investors and promote development of capital markets.

It is further recommended that for countries to promote development of financial markets, they can start by putting in place policies that target development of the banking sector. This will help to promote development of the stock markets which in turn propel further development of the banking sector since these two sectors are complements. Furthermore, SADC countries should push to entrench regional integration through strengthening implementation and monitoring mechanisms to ensure adherence from all member countries. Regional integration will increase the complementarity between banks and stock markets in funding economic growth as well promoting the development of the individual sectors. This can be done by putting in place supranational institutions that will handle policy formulation and implementation. These regional institutions can take the form of a regional central

bank, parliament and court that ensure economic policy consistency and credibility, harmonisation of laws and judicial independence. Such initiatives can improve regional integration thereby improving the complementary effect of banks and stock markets in funding economic growth.

By bolstering the institutions that uphold the law in the area, SADC nations should work to advance the rule of law. This should focus on protecting these institutions from political influence, increasing judicial independence, and ensuring that the ruling class upholds the law. These actions may aid in the growth of the stock market, the banking industry, and their complimentary effects on economic expansion.

6.7 Suggestions for future research

Future research should concentrate on examining whether the relationship between banks and stock markets varies with the levels of income. This requires splitting the countries into different income groups and then examine the nature of the relationship. This will be subject to availability of data, which allow the research to include countries that have been excluded in this current study.

The study also recommends that similar studies could also focus on examining the same factors on both development of stock markets and banks to determine their sensitivity to common variables. Furthermore, researchers can carry out similar studies in other regional communities where alternative measures of regional integration are available. In the same vein, research that do comparative studies across regional economic communities can also be carried out to find if regional characteristics have an impact on relationship between banks and stock markets.

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Variables	BSDI (1)	PCBMB (2)	Z-score (3)	NIM (4)	BSDI (5)	PCDMB (6)	Z-score (7)	NIM (8)
$BSDI_{t-1}$	0.630***				0.630***			
	(0.0498)				(0.0498)			
$PCBMB_{t-1}$		0.946***				0.946***		
		(0.0230)				(0.0230)		
$Zscore_{t-1}$			0.580***				0.590***	
			(0.0669)				(0.0668)	
NIM_{t-1}				0.658***				0.658***
				(0.0382)				(0.0383)
UB	0.000770	0.0271**	-0.165*	-0.0460***	0.000745	0.0271**	-0.163*	-0.0461**
	(0.00960)	(0.0298)	(0.109)	(0.0255)	(0.00965)	(0.0299)	(0.113)	(0.0258)
PD	0.00100	0.0106**	0.0157**	-0.00290	0.000999	0.0106**	0.0151**	-0.00292
	(0.000967)	(0.00516)	(0.0112)	(0.00256)	(0.000971)	(0.00517)	(0.0115)	(0.00258)
INQ	0.0152***	0.0887	0.448***	-0.00739	0.0152**	0.0878	0.435***	-0.00727
	(0.0171)	(0.0814)	(0.210)	(0.0451)	(0.0171)	(0.0816)	(0.215)	(0.0455)
SMC	0.000462	0.00964**	0.0177	-0.00057	(0.00718)	0.00963*	0.0174	-0.000581
	(0.00160)	(0.00534)	(0.0177)	(0.00430)	-0.000466	(0.00536)	(0.0183)	(0.00433)
INFLN	-0.00611**	-0.011**	-0.00313***	0.0256***	-0.0171***	-0.012**	-0.00661**	0.0259***
	(0.00714)	(0.0219)	(0.0795)	(0.0191)	0.00621	(0.0220)	(0.0818)	(0.0193)
GDPP	0.0321***	0.296***	-0.0366	0.0125	0.0316***	0.298***	-0.049	0.0106
	(0.0210)	(0.0619)	(0.228)	(0.0544)	(0.0211)	(0.0622)	(0.235)	(0.0549)
REM	-0.0570*	-0.205**	0.386	0.124	-0.0563*	-0.207**	0.397	0.127
	(0.0443)	(0.134)	(0.495)	(0.117)	(0.0445)	(0.134)	(0.509)	(0.118)
TO	-0.000751*	-0.00380**	-0.0715*	0.00219	-0.000748*	-0.00372**	-0.069*	0.00221
	(0.00323)	(0.0116)	(0.0387)	(0.00842)	(0.00324)	(0.0116)	(0.0396)	(0.00849)
RL	-0.101	-0.848*	3.461	1.127*	-0.0987	-0.854*	3.458	1.136*
	(0.312)	(0.961)	(3.495)	(0.827)	(0.313)	(0.966)	(3.598)	(0.834)
TNRR	-0.00182	-0.0940	-0.0915	0.106**	-0.00146	-0.0924	-0.0970	0.104**
	(0.0182)	(0.0593)	(0.203)	(0.0485)	(0.0183)	(0.0595)	(0.209)	(0.0489)
TP	-0.0140	0.0512*	-0.429**	-0.0565				
	(0.0139)	(0.0450)	(0.402)	(0.0499)				
FIP	0.223	-0.128**	-0.617	-0.00908				
	(0.154)	(0.495)	(1.717)	(0.408)				
TPFIP					0.217	-0.109*	-0.774	-0.0143
					(0.155)	(0.497)	(1.761)	(0.411)
R-Sq	0.427	0.994	0.568	0.735	0.426	0.994	0.563	0.734
Obsv	144	144	144	144	144	144	144	144
Breusch-Pagan test of independence: chi2(28) = 812.683***, p value = 0.0000								

***Table* 5- 17: SUR banking sector model with stock market capitalisation (SMC) results** (Author compilation)

Variables	BSDI (1)	PCDMB (2)	Z-score (3)	NIM (4)	BSDI (5)	PCDMB (6)	Z-score (7)	NIM (8)
$BSDI_{t-1}$	1.096*** (0.131)				1.022*** (0.0647)			
$PCDMB_{t-1}$		0.994*** (0.0601)				1.017*** (0.0351)		
$Zscore_{t-1}$			0.544*** (0.151)				0.571** (0.200)	
NIM_{t-1}				0.592*** (0.0502)				0.615*** (0.0390)
UB	0.000735 (0.0196)	0.185*** (0.0793)	-0.237 (0.149)	-0.0593** (0.0279)	0.00419 (0.0142)	0.0171** (0.0394)	-0.131 (0.156)	-0.063*** (0.0194)
PD	0.00195 (0.00329)	0.0125* (0.0231)	0.0267 (0.0266)	-0.00399 (0.00261)	0.00097** (0.00243)	0.00093 (0.0134)	0.0258 (0.0269)	-0.00509 (0.00342)
INQ	0.0514* (0.0700)	-0.0283 (0.409)	0.745 (0.513)	-0.0338 (0.0614)	0.0325* (0.0597)	0.0957 (0.242)	0.613 (0.623)	-0.0396 (0.0841)
SMC	0.00262 (0.00382)	0.0343* (0.0177)	0.00660 (0.0213)	-0.00370 (0.00570)	0.00134 (0.00230)	0.00338* (0.00487)	0.0057 (0.0200)	-0.00555 (0.00619)
INFLN	-0.0198*** (0.0143)	-0.00589*** (0.0967)	-0.117*** (0.253)	-0.0410* (0.0245)	-0.00732*** (0.0114)	-0.121*** (0.0576)	-0.332*** (0.667)	0.00452* (0.0483)
GDPP	0.00727** (0.0193)	0.146** (0.137)	-0.175 (0.344)	0.131 (0.120)	0.00107 (0.0239)	0.0324** (0.104)	-0.365 (0.438)	0.0889 (0.0707)
REM	-0.122** (0.0589)	-0.172* (0.265)	0.499 (0.781)	-0.0951 (0.235)	-0.0780** (0.0655)	-0.116* (0.138)	0.426 (1.165)	0.0727 (0.124)
TO	-0.00970 (0.00838)	-0.0178 (0.0549)	-0.108 (0.0749)	0.000821 (0.00626)	0.00684 (0.00554)	-0.00560 (0.0285)	-0.107 (0.0638)	0.00356 (0.00926)
RL	-0.204** (0.424)	-2.856 (1.735)	4.702 (3.552)	0.393* (0.910)	-0.215* (0.269)	-0.640 (1.115)	2.080 (5.525)	0.993* (0.438)
TNRR	-0.0129 (0.0299)	-0.181 (0.137)	-0.144 (0.412)	0.0825* (0.0370)	-0.00104 (0.0163)	-0.0273 (0.0477)	-0.0391 (0.236)	0.0470* (0.0396)
TP	-0.504 (0.527)	6.083** (2.764)	-5.016 (10.21)	-1.732 (1.711)				
FIP	-0.213 (0.261)	-5.422** (1.683)	-0.640 (6.700)	0.744 (0.960)				
TPFIP					-0.0440 (0.0631)	-1.738 (0.693)	-4.340 (3.488)	-0.109 (0.284)
Sargan	0.543	0.643	0.720	0.899	0.501	0.178	0.698	0.705
AR (2)	0.352	0.188	0.487	0.160	0.389	0.233	0.291	0.407
Obsv	135	144	144	144	144	144	144	144

***Table* 5- 18: GMM banking sector model with stock market capitalisation (SMC) results** (Author compilation)

Variables	SMDI (1)	SMC (2)	SMVT (3)	SMTR (4)	SMDI (5)	SMC (6)	SMVT (7)	SMTR (8)
$SMDI_{t-1}$	0.588***				0.588***			
	(0.0565)				(0.0565)			
SMC_{t-1}		0.977***				0.978***		
		(0.0310)				(0.0311)		
$SMVT_{t-1}$			1.027***				1.028***	
			(0.0311)				(0.0311)	
$SMTR_{t-1}$				0.506***				0.507***
				(0.0627)				(0.0611)
PF	0.0515	0.789**	0.883**	-0.772	0.0515	0.759**	0.880**	-0.763
	(0.151)	(2.526)	(0.964)	(3.758)	(0.151)	(2.565)	(0.968)	(3.785)
IND	-0.00425	-0.0557*	0.0231	0.417*	-0.00428	-0.0624*	0.0220	0.422*
	(0.0111)	(0.185)	(0.0714)	(0.287)	(0.0111)	(0.188)	(0.0716)	(0.289)
LogCF	-0.0104*	-0.066**	-0.017*	-0.268	-0.010*	-0.069**	-0.017*	-0.265
	(0.0094)	(0.154)	(0.600)	(0.232)	(0.0094)	(0.157)	(0.060)	(0.234)
Pegged	0.0153*	1.623**	0.109	2.341	0.0155*	1.579**	0.101	2.372
	(0.427)	(6.969)	(2.722)	(10.62)	(0.428)	(7.081)	(2.732)	(10.70)
Crawling	0.127	2.527*	-0.253	-1.277	0.127	2.574*	-0.239	-1.374
	(0.488)	(8.058)	(3.110)	(12.14)	(0.488)	(8.184)	(3.121)	(12.23)
Managed	-0.208	2.263**	-0.0635	-4.427	-0.208	2.247**	-0.0664	-4.418
	(0.426)	(6.923)	(2.696)	(10.54)	(0.426)	(7.034)	(2.706)	(10.62)
Floating	-0.192**	-3.287**	1.283	-1.075	-0.192**	-3.091**	1.252	-0.938
	(0.457)	(7.583)	(2.935)	(11.36)	(0.457)	(7.697)	(2.945)	(11.44)
PCDMB	0.00429*	0.0611***	0.00324**	0.0250*	0.00430*	0.0627***	0.00366**	0.0225*
	(0.00488)	(0.0844)	(0.0313)	(0.120)	(0.00488)	(0.0855)	(0.0314)	(0.121)
INFLN	-0.00193**	-0.0550***	-0.00942***	-0.0310	-0.00194**	-0.0572***	-0.00979***	-0.0330
	(0.00702)	(0.114)	(0.0444)	(0.173)	(0.00703)	(0.116)	(0.0445)	(0.175)
GDPP	-0.00901	-0.595**	-0.138**	-0.287	-0.00897	-0.587**	-0.136**	-0.294
	(0.0196)	(0.319)	(0.125)	(0.485)	(0.0196)	(0.324)	(0.125)	(0.489)
FDI	-0.0495*	-0.333	-0.285*	-2.315***	-0.0495*	-0.332	-0.286*	-2.313***
	(0.0263)	(0.440)	(0.168)	(0.655)	(0.0263)	(0.446)	(0.169)	(0.659)
S	-0.00464	0.0975*	-0.0162	-0.172	-0.00465	0.0961*	0.0160	-0.171
	(0.00784)	(0.128)	(0.0497)	(0.197)	(0.00784)	(0.130)	(0.0498)	(0.198)
RL	-0.0430	-1.903	-0.767	3.882	0.0426	-1.967	-0.780	3.955
	(0.239)	(3.928)	(1.521)	(5.954)	(0.239)	(3.988)	(1.527)	(5.997)
TNRR	0.0525***	-0.152	-0.0343	0.869*	0.0526***	-0.140	-0.0322	0.857*
	(0.0193)	(0.314)	(0.122)	(0.478)	(0.0193)	(0.319)	(0.123)	(0.481)
TP	0.00152	0.293**	0.0529	-0.288				
	(0.00255)	(0.470)	(0.0879)	(0.482)				
FIP	0.0333	0.461	0.511	0.114				
	(0.175)	(2.850)	(1.109)	(4.334)				

TPFIP					0.0335 (0.175)	0.432 (2.895)	0.516 (1.114)	0.0882 (4.366)
Obsv	144	144	144	144	144	144	144	144
Breusch-Pagan test of independence: chi2 (28) = 886.805, p value = 0.0000								

***Table* 5- 19: SUR stock market model with private credit by deposit money banks (PCDMB) results** (Author Compilation)

Variables	SMDI (1)	SMC (2)	SMVT (3)	SMTR (4)	SMDI (5)	SMC (6)	SMVT (7)	SMTR (8)
$SMDI_{t-1}$	0.617*** (0.153)				0.672*** (0.0933)			
SMC_{t-1}		1.153*** (0.0700)				1.134*** (0.0635)		
$SMVT_{t-1}$			1.469*** (0.153)				1.480*** (0.125)	
$SMTR_{t-1}$				0.402** (0.141)				0.548*** (0.155)
PF	1.132 (1.946)	11.06 (29.94)	7.528** (15.03)	19.47 (25.60)	0.398 (0.786)	31.21 (49.11)	21.58** (8.090)	43.17 (95.18)
IND	-0.119 (0.255)	-1.682* (3.474)	-0.274 (0.481)	0.365 (3.022)	-0.00453 (0.0250)	-0.676* (3.979)	-0.568 (0.960)	3.091 (6.632)
LogCF	-0.00084* (0.00743)	-0.40096** (0.293989)	-0.03274 (0.08372)	-0.06105* (0.24451)	-0.008351* (0.01191)	-0.40097** (0.31139)	-0.072355 (0.091162)	-0.53294* (0.73074)
Pegged	0.366* (0.785)	6.886** (9.477)	1.130** (2.565)	2.292 (7.787)	0.173* (0.241)	37.51** (69.00)	29.85** (62.00)	-5.177 (17.36)
Crawling	1.053 (1.083)	0.485* (9.673)	-3.048 (5.187)	1.919 (19.08)	0.359 (0.537)	24.13* (58.29)	-49.81 (71.47)	15.33 (72.12)
Managed	-0.307 (0.781)	12.29*** (7.060)	-2.429 (3.843)	0.358 (3.211)	-0.125 (0.184)	35.81*** (72.67)	-24.55 (56.44)	6.907 (18.63)
Floating	-0.982** (1.950)	-9.662* (19.92)	-3.594 (6.874)	-0.196 (20.71)	-0.0304* (0.233)	-59.95* (103.0)	-24.71 (64.55)	30.25 (23.68)
PCDMB	0.0368* (0.0562)	1.019** (0.805)	-0.504 (0.439)	-0.102 (0.553)	0.00402* (0.0160)	1.054** (0.419)	-0.0600 (0.116)	-0.795 (1.581)
INFLN	-0.00371* (0.0259)	-0.137*** (0.395)	-0.0676** (0.267)	-0.474* (0.626)	-0.0115* (0.0140)	-0.593*** (0.809)	-0.156** (0.186)	-0.0788* (1.003)
GDPP	-0.0196 (0.0274)	-0.640** (0.526)	-0.0585* (0.147)	-0.229 (0.301)	-0.0193 (0.0108)	-0.145** (0.918)	-0.284* (0.305)	-0.251 (0.681)
FDI	-0.0590* (0.0990)	-0.793 (1.137)	-0.0963 (0.427)	-0.200*** (0.785)	-0.0189* (0.0394)	-0.453 (1.921)	-0.188 (0.698)	1.398*** (2.486)
S	-0.0148 (0.0202)	0.108* (0.411)	-0.332 (0.462)	-0.402 (0.898)	-0.00788 (0.00869)	0.693* (1.348)	-0.374* (0.186)	-0.0554 (1.194)
RL	-2.342 (4.001)	-17.64 (47.58)	-6.444 (8.717)	-23.17 (45.35)	-0.203 (1.077)	-15.84 (71.60)	-24.61* (12.66)	-78.88 (201.9)
TNRR	0.0544* (0.0291)	-1.102 (0.997)	-0.907 (0.980)	1.869* (0.905)	0.0409 (0.0120)	-1.282 (1.259)	-0.158 (0.258)	0.215 (11.93)
TP	-0.656 (0.958)	3.680** (11.66)	-16.05 (16.39)	-28.57* (15.14)				
FIP	0.725	-21.84	-4.109	8.628				

	(1.337)	(14.92)	(9.787)	(21.86)				
TPFIP					0.115 (0.457)	-9.241 (29.13)	-7.324 (8.671)	26.98 (68.02)
Sargan	0.885	0.874	0.494	0.529	0.820	0.846	0.582	0.558
AR (2)	0.575	0.576	0.259	0.106	0.394	0.458	0.151	0.412
Obsv	144	144	144	144	144	144	144	144

***Table* 5- 20: GMM stock market model with private credit by deposit money banks results** (Author compilation)

Summary

The research sought to determine the relationship between banking sector development and stock market development in the SADC region. To examine this relationship, the study explored the impact of regional integration on the interaction between banking sector and stock market development and the determinants of development of these two segments. Using the Seemingly Unrelated Regression (SUR) and System Generalised Methods of Moment (SGMM), the study found a complementary relationship between banking sector and stock market development in SADC. The results show that regional integration enhances the complementary effect of banking sector development and stock market development in funding economic growth. Stock market development was found to be an important determinant of banking sector development while banking sector development was also found to positively enhance stock market development. Other important determinants for these two segments are urbanisation, industrialisation, inequality, population density capital flight, exchange rate regime and press freedom.

KEY TERMS

Banking sector development; Stock market development; Regional integration, Complementarity; Substitutability; SADC.

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