INVESTIGATING THE RELATIONSHIP BETWEEN NON-BANK FINANCIAL SECTOR DEVELOPMENT AND ECONOMIC GROWTH IN NAMIBIA

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ABSTRACT

This study aims to empirically investigate whether a long-run relationship exists between the development of the non-bank financial institutions (NBFIs) sector and economic growth in Namibia and to further determine the direction of causality thereof. The study uses time series quarterly data over the period 2001:Q1 to 2019:Q4 and utilizes the Autoregressive Distributed Lag (ARDL) model to examine the long-run relationship between the variables after having carried out the unit root test employing Kwiatkowski-Phillips-Schmidt-Shin (KPSS).

The empirical results of the study show a positive significant relationship between NBFIs development and per capita growth standing for Namibia economic growth both in the long run and short run. This implies that the development of NBFIs can serve as an important locomotive for fostering economic growth in the Namibian context. Surprisingly, unlike majority of the finance-growth studies that support either the supply-leading or demand-following hypothesis, the Granger causality test of this study indicate that there exists no causal linkage between the two variables of interest, which is the development of NBFIs and economic growth. The study however found a bidirectional causal relationship between GDP and labour. The Cumulative Sum (CUSUM) and Cumulative Sum of Squares (CUSUMQ) test results confirmed the structural stability of the ARDL model. Policy makers are thus advised to consider promulgating laws aimed at developing the NBFI sector and those that encourages pension funds and other institutional investors to invest more in the domestic economy.

Key words: NBFIs, economic growth, Namibia, ARDL model, NAMFISA

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LIST OF ABBREVIATIONS

CIS	: Collective Investment Scheme
EME	: Emerging Market Economy
FIM Bill	: Financial Institutions and Markets Bill
FSR	: Financial Stability Report
GDP	: Gross Domestic Product
IMF	: International Monetary Fund
MENA	: Middle East and North Africa
MSME	: Micro, Small and Medium Enterprise
NAMFISA	: Namibia Financial Institutions Supervisory Authority
NBFI	: Non-bank Financial Institution
NSX	: Namibia Stock Exchange
N$	: Namibia Dollar
OECD	: Organisation for Economic Co-operation and Development
PSCE	: Private Sector Credit Extension
SME	: Small and Medium Enterprise
SPV	: Special Purpose Vehicle
SSA	: Sub-Saharan Africa
UIM	: Unlisted Investment Manager

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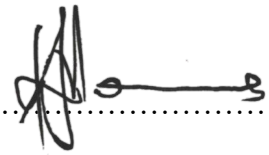
DEDICATION

To my late father, Tate Kondjashili Shipopyeni Johannes ya Kamungungu. You have taught me to be patient no matter the circumstances and to always have faith as better days are ahead. To my mom who always encourages me to pray and to keep on constantly developing and improving myself as learning never stops. To my lovely daughter, Avisha Etupewa Johannes, thank you for understanding when I was not available to give you the attention you deserve.

DECLARATION

I, Kennedy Kolulyolomwene Johannes, hereby declare that this study is my own work and is a true reflection of my research, and that this work, or any part thereof has not been submitted for a degree at any other institution.



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Kennedy Kolulyolomwene Johannes **Date**

CHAPTER 1: INTRODUCTION

1.1. Background of the study

The existence and development of financial instruments, markets, and institutions mitigate the effects of information and transaction costs which subsequently impact rates of saving, investment choices, capital accumulation, technological innovation, and long-run growth rates. Further, the financial system primarily exists to mobilize savings and facilitate the allocation of capital from surplus to deficit economic units in order to put such capital to its most productive use. The financial system is a strong pillar of the economy and it can be used together with the firepower that goes with it to fund micro, small and medium enterprises (MSMEs), women, the youth and farmers in particular in order for them to operate at their full potential. There is ample theoretical reasoning and empirical evidence in modern economics suggesting a positive and primary relationship between financial development and economic growth, and further evidence exists which put forward that the level of financial development is a good predictor of a country's future economic development dynamics (Levine, 1997).

Globally, customary bank lending has plummeted since the global financial crisis as banks are still recovering from the crisis and adjusting to stricter regulatory requirements in line with the Basel III requirements. Due to constrained bank lending, the evolution of non-bank financing is now proving to be the new imperative (World Bank, 2013). NBFIs are defined as those financial institutions that do not have authorization to conduct banking services and can therefore not accept deposits from the public. Nonetheless, they similarly compete and supplement the banking institutions through providing alternative and/or similar financial

services such as contractual savings, borrowing as well as investment management services (Mishkin, 2007).

In Africa, the development of NBFIs has also been evident as statistics reveals that even though the portion of NBFIs as a percentage of GDP for Sub-Sahara African (SSA) countries has been for the most part lesser than that of developed countries and the world average before the financial crisis; this has changed after the financial crisis as the figure overtook that of developed countries and the global average. This is a sign that NBFIs can act as a long-term financing tool for productive capital, especially in times of credit rationing in the traditional bank lending space (Rateiwa & Aziakpono, 2015).

Namibia is no exception as the assets held by the non-bank financial institutions (NBFIs) sector made up over 68% of the total asset base of the country's entire financial sector (Financial Stability Report [FSR], 2019). Further, NAMFISA Annual Report (2020) reveals that the assets of NBFIs increased from N$ 47 billion to more than N$ 316 billion, from 2001 to 2019, respectively. Despite the NBFIs accounting for in excess of 68% of the total assets of the financial sector in Namibia, banks are still considered to be the more significant financial institutions compared to NBFIs.

The NBFIs in Namibia fall under the regulatory and supervision armpit of the Namibia Financial Institutions Supervisory Authority (NAMFISA) and are made up of long-term and short-term insurers, pension funds, medical aid funds, unit trust management companies, investment management companies, stock brokers and microlenders. According to the NAMFISA Annual Report (2020), the number of NBFIs registered with NAMFISA as at 31 December 2019 were made up of 16 long-term insurers, 15 short-term insurers, 1 reinsurer for

both long- and short-term insurance, 132 pension funds, 9 medical aid funds, 1 stock exchange (Namibia Stock Exchange [NSX]), 4 stock brokers, 4 linked investment service providers, 16 unit trust management companies, 24 unlisted investment managers, 29 investment managers, 19 special purpose vehicles (SPVs), 423 microlenders and 1 active friendly society.

1.2. Problem Statement

The value of assets under the management by NBFIs has grown significantly over the years. Further, it has been reported that despite domestic declining economic conditions as has been seen between 2016 and 2019, NBFIs continued to expand their asset base (FSR, 2019). Notwithstanding the growing assets under management by NBFIs every year, real economic growth has been stagnant at an average annual rate of 3.4% since 2001. In addition, the government, through policy intervention, has been promoting the deepening of the financial markets, through the passing of various sub-legislation such as the Pension Funds Regulations issued in terms of the Pension Funds Act No. 24 of 1956 which provides for the minimum threshold of pension fund assets required to be invested in the domestic market, amongst other things. The mismatch between the growth in the asset base of NBFIs and average annual economic growth over the past years can be attributed to the fact that a large proportion of the assets of institutional investors such as pensions funds, unit trust schemes and insurance companies are invested outside the borders of Namibia and in so doing, some of the country's major capital projects such as energy and water supply projects are left underfunded. Another reason could be due to the fact that domestic private sector credit extension (PSCE) by NBFIs is predominantly used for consumption purposes and only a minor portion of it is used to fund businesses or for productive purposes.

Despite the above-mentioned facts and figures, and as mentioned earlier, the debate on the finance-growth relationship remains predominantly focused on the role of banks and capital markets on economic development. It is also alleged that NBFIs are loosely regulated or considered less important compared to banks, because of their purported less significant contribution to economic growth and for that reason the debate on the development of the financial markets has always been centered around banking institutions and their subsidiaries. Consequently, less emphasis has always been placed on the contribution and role of NBFIs in the deliberations on the finance-growth relationship.

Although Rateiwa and Aziakpono (2015) researched on the development of NBFIs and economic growth relationship in three of Africa's largest economies and found that the purpose and significance of NBFIs to the economic growth process is more evident in countries with more sophisticated financial systems, it may be an entirely different case for Namibia. Thus, a need exists to investigate this relationship in the context of Namibia. By establishing the relationship between NBFIs sector development and economic growth, it will help policy makers in developing better policies aimed at ensuring that NBFIs contribute positively towards the country's economy.

1.3. Objectives of the study

The main objective of this study is to investigate the relationship between development of the NBFIs sector and economic growth in Namibia .

The specific objectives being:

- To investigate the relationship between development of the NBFIs sector and economic growth in Namibia; and

- Determination of the direction of the causality between NBFIs sector development and economic growth.

1.4. Hypotheses of the study

In light of the above-mentioned objective, the following hypothesis will be tested:

- **H_{0a}**: There is no long run relationship between NBFIs sector development and economic growth in Namibia;

  H_{1a}: There is a long run relationship between NBFIs sector development and economic growth in Namibia.
- **H_{0b}**: NBFIs sector development does not Granger cause economic growth in Namibia;

  H_{1b}: NBFIs sector development Granger causes economic growth in Namibia.

1.5. Significance of the study

The study will benefit policy makers in implementing better policies that suit the NBFIs sector as well provide opportunities for academics to pursue further research in this area, given the limited body of empirical work in existence at present, specifically in Namibia.

1.6. Limitations of the study

Finding the statistical data, specifically for NBFIs in Namibia prior to 2001 is an extremely difficult assignment, if not impossible at all. The data available on NBFIs sector is only from 2001, which is the same year when NAMFISA was established. One can perhaps conclude that

no statistical data was collected under the Office of the Registrar of Financial Institutions within the Ministry of Finance which was responsible for regulation and supervision of the businesses of NBFIs before the establishment of NAMFISA. Therefore, as a result of limitations of data and non-availability thereof, the study is restricted to the period from 2001 to 2019.

1.7. Delimitation of the study

Data in the study will be confined to only those NBFIs that report to NAMFISA. Other NBFIs such as hire purchase retail outlets, pawn shops and other financial intermediaries that do not currently report to NAMFISA do not form part of this study.

1.8. Organisation of the study

The remainder of the study is organized as follows: Chapter 2 is an overview of NBFIs sector in Namibia; Chapter 3 presents the theoretical and empirical review; Chapter 4 presents the methodology; Chapter 5 contains the empirical analysis and interpretation of results; and Chapter 6 presents the concluding remarks, and further provides policy implications and recommendations as well as recommendations for future studies.

CHAPTER 2: OVERVIEW OF NBFIs SECTOR IN NAMIBIA

2.1. Introduction

In Namibia, the financial system is made up of two categories of financial institutions; namely banks and non-bank financial institutions (NBFIs). Banks are regulated by the central bank [Bank of Namibia (BoN)] and are authorized to accept deposits from the public in terms on the Banking Institutions Amendment Act of 2010. On the other hand, as mentioned earlier, NBFIs do not have authorization to conduct banking services and can therefore not accept deposits from the public. Nonetheless, they similarly compete and supplement the banking institutions through providing alternative and/or similar financial services such as contractual savings, borrowing as well as investment management services. NBFIs in Namibia fall under the regulatory sphere of NAMFISA and consists of long-term insurers, short-term insurers, reinsurers for both long-term and short-term insurance, pension funds, medical aid funds, stock exchanges, management companies, linked investment service providers, stock brokers, unlisted investment managers, investment managers, special purpose vehicles (SPVs), microlenders and friendly societies with an aggregate asset base of N$ 316.254 billion as at 31 December 2019 (NAMFISA Annual Report, 2020). A brief overview of each sector is provided in sections 2.2 to 2.10 of this chapter. NAMFISA was established in 2001 in terms of section 2 of the NAMFISA Act No. 3 of 2001. NAMFISA exists to regulate and supervise the business of NBFIs in Namibia, as well as to advice the Minister of Finance. NAMFISA currently has powers to regulate and supervise the business of NBFIs through a number of legislative instruments such as the Long-term Insurance Act, Short-term Insurance Act, Pension Funds Act, Pension Funds Regulations, Medical Aid Funds Act, Microlending Act, Usury Act, Friendly Societies Act, Unit Trusts Control Act, Stock Exchanges Control Act, and regulations

issued under the afore-mentioned Acts to mention but a few. The industry is at the current moment going under legislative reform with the introduction of the Financial Institutions and Markets (FIM) Bill. Once promulgated, the FIM Bill will harmonize all the afore-mentioned pieces of legislation into one Act (The FIM Act), with the exception of the Microlending Act. This means that all the NBFIs, with the exception of microlenders, will be regulated in terms of the FIM Act.

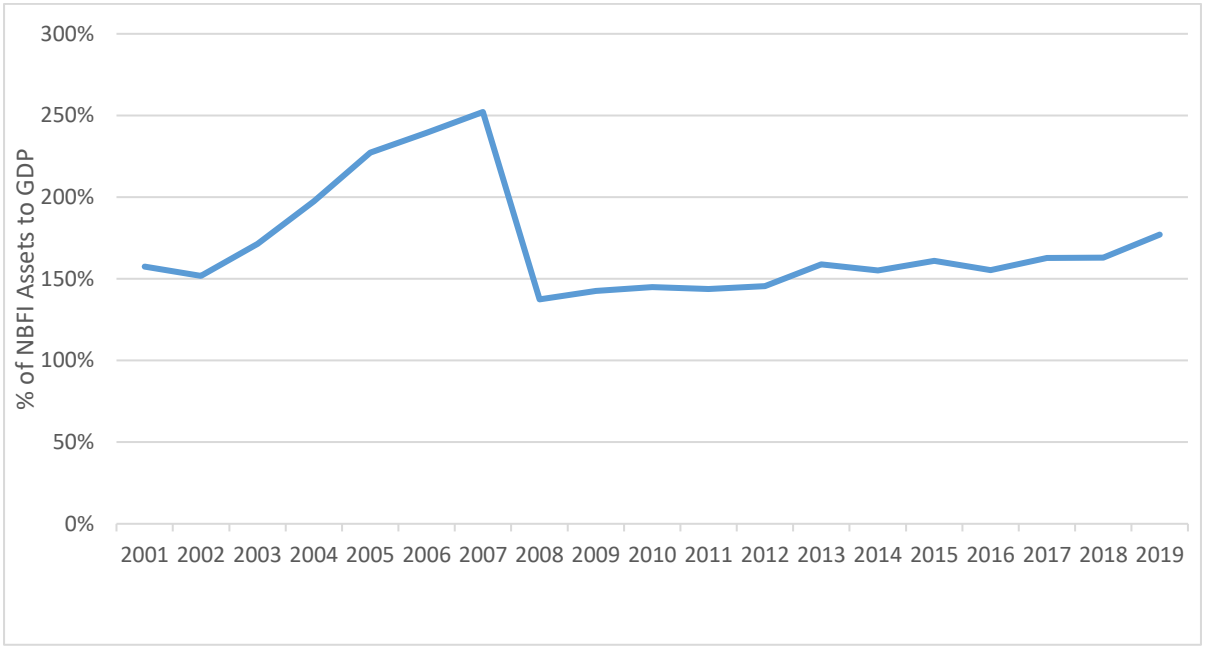
The NBFIs sector in Namibia, especially the insurance and capital markets industry, is dominated by large and heterogeneous multinationals with ownership and funding links to South African financial institutions. Furthermore, some of the biggest insurers, unit trust management companies and investment managers have ownership links to the "big four"[1] banks in Namibia. This is an indication of the interconnectedness between the banking and non-banking sector in Namibia, and which has the potential of systemic risk if not appropriately regulated.

The NBFIs sector has been growing at a fast pace in the early 2000s. The extensive growth levels in the early 2000s can perhaps be credited to the presence of the regulatory body that brought about order and financial inclusion into the NBFI sector. In 2001, the total assets of NBFIs in Namibia stood at just N$ 47 billion (NAMFISA Annual Report, 2007). As of end of 2019, the industry grew to a massive over N$ 316 billion worth of assets under management. Figure 2.1 shows the percentage of total NBFI assets to GDP from 2001 to 2019. The value of the total assets under management by NBFIs as a percentage of total GDP grew from 158% to a massive 252% in 2007. The figure however plummeted significantly to 137% in 2008. Since

[1] The "big four" banks are made up of First National Bank of Namibia Ltd, Standard Bank Namibia Ltd, Nedbank Namibia Ltd and Bank Windhoek Ltd.

2008, the percentage of NBFIs assets to GDP has been slightly growing on an annual basis to 177% in 2019. The significant drop in the figure in 2008 can be attributed to the global financial crisis of 2008 that wiped out a significant portion of financial sector assets.

Figure 2.1: Percentage of NBFI assets to GDP



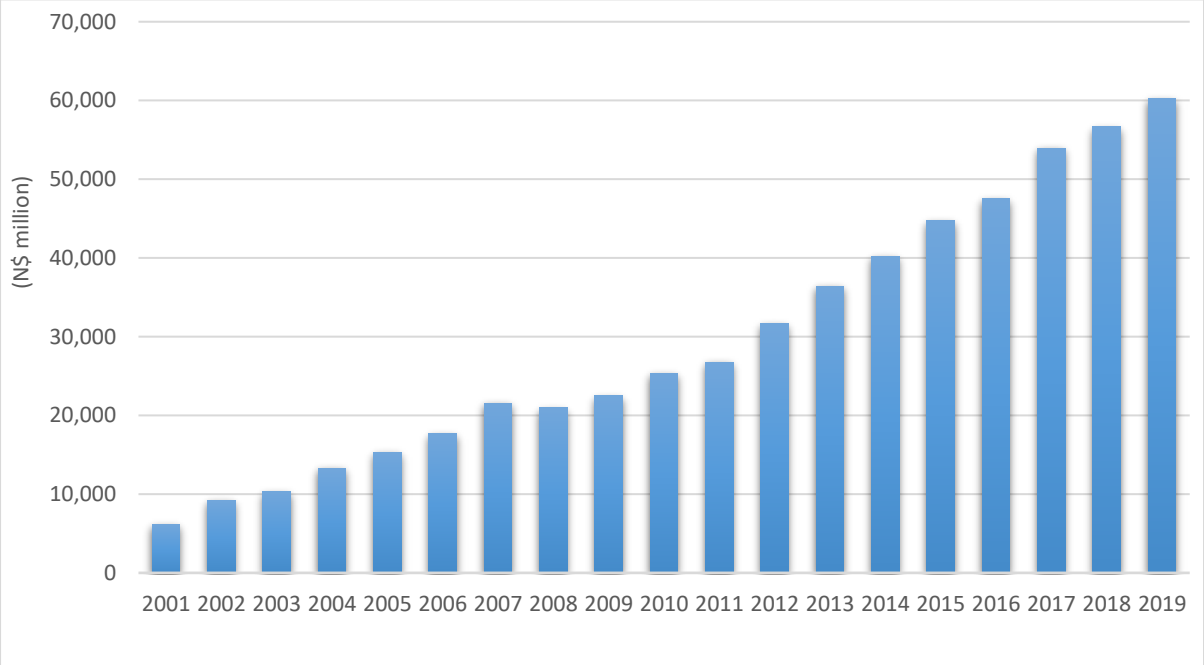
Source: NAMFISA & NSA

2.2. Long-term and short-term insurers

Long-term and short-term insurance companies are registered under the Long-term Insurance Act No. 5 of 1998 and Short-term Insurance Act No. 4 of 1998, respectively. Long-term insurers provide life insurance benefits such as funeral, savings, educational, disability and retrenchment to policy holders while short-term insurers provide fire, theft, damage to property, accident insurance, amongst other risks. As at end December 2019, there were 16 registered long-term insurers and 15 short-term insurers as well as one re-insurer (NamibRe) with a

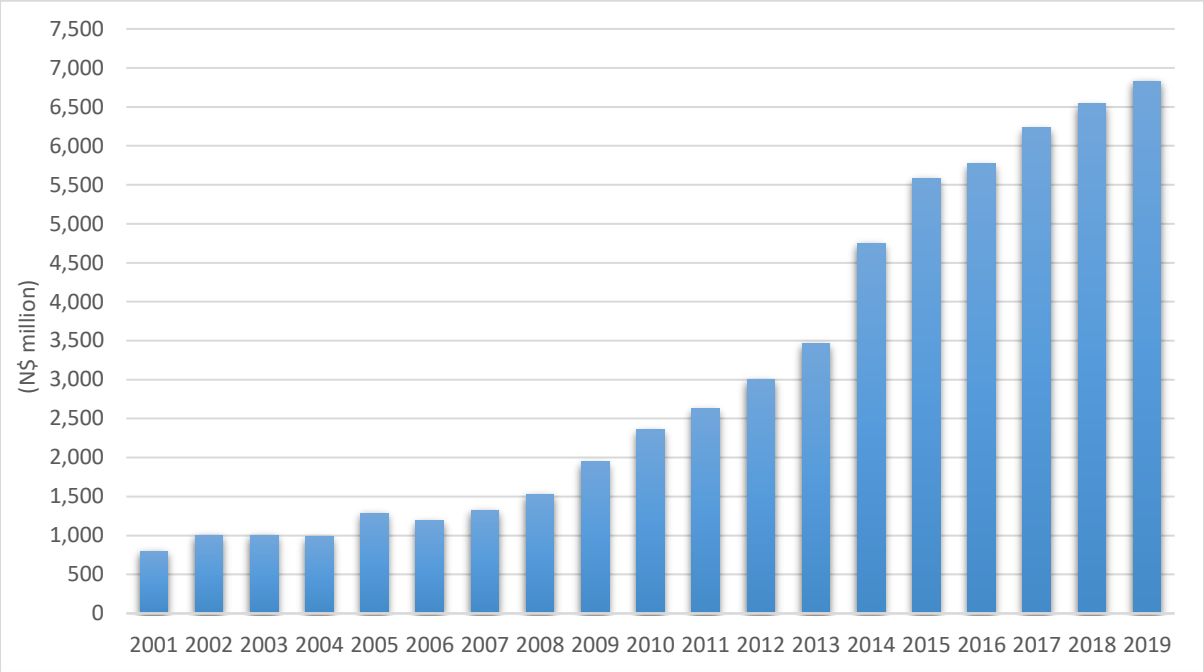
combined total asset value amounting to N$ 67.074 billion (NAMFISA Annual Report, 2020). Notably, the high capital and solvency requirements for both long-term and short-term insurers, with exception of insurers offering funeral insurance as the only class of insurance, is a barrier to entry for prospective insurers to enter the insurance industry. As a result, the insurance sector is dominated by large multinationals, with majority having ownership links to neighboring South Africa.

Figure 2.2: Assets under management by long-term insurers



Source: NAMFISA

Figure 2.3: Assets under management by short-term insurers

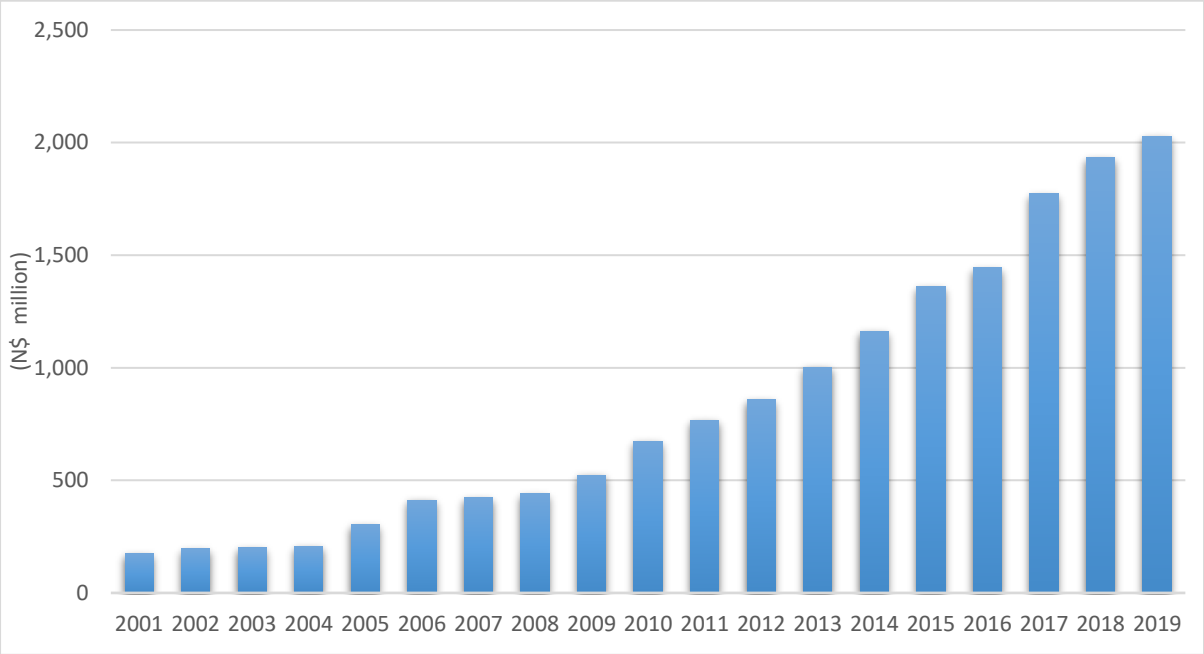


Source: NAMFISA

2.3. Medical aid funds

A medical aid fund helps its members pay for medical bills such as surgery, visits to a healthcare practitioner, medicine, hospital accommodation and any healthcare related costs as defined in the rules of the fund. The members of the fund make contributions on a set regular basis to the fund and in return receive medical cover in accordance with the fund rules. As at 31 December 2019, there were 9 medical aid funds registered with NAMFISA made up of 5 open funds and 4 closed funds with a combined asset base of N$ 2.028 billion (NAMFISA Annual Report, 2020). Open funds are those medical aid funds that are open to the public and anyone is free to join them whereas closed funds' membership is limited to a particular group of employers only. An example of a closed fund is NAPOTEL Medical Aid Fund which is restricted to employees of Namibia Post and Telecom Holdings Limited and their dependents.

Figure 2.4: Medical aid funds' assets



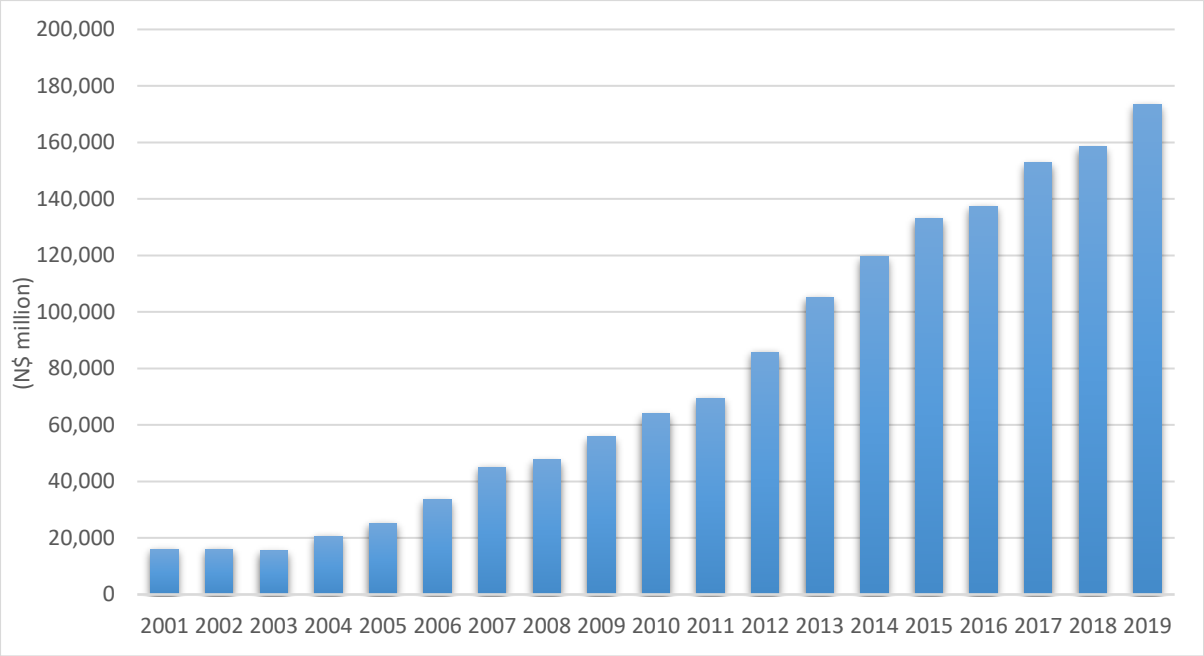
Source: NAMFISA

2.4. Pension funds

Pension and provident funds are contractual savings institutions that collect funds from their members on a regular basis and invest the savings of their members to generate sufficient funds to meet their liabilities. Pension funds exist to provide mechanisms to reduce the risk of loss of income due to accidents, dread diseases resulting in inability to work, retirement or termination of employment. Most of the employers in Namibia have a compulsory pension fund schemes in place for their employees. As at 31 December 2019, pension funds' assets amounted to N$ 173.427 billion which accounts for more than half of the total assets held by NBFIs in Namibia (NAMFISA Annual Report, 2020). Notably, the Government Institutions Pension Fund (GIPF) is by far the largest pension fund in Namibia with an asset base of over N$ 118 billion as at 31 March 2019 (GIPF Annual Report, 2019). Despite the rapid growth in the assets of pension funds over the years, the IMF Financial Sector Assessment Program (FSAP) Report (2018)

reported that the pension funds industry is fragmented and costly. The report specifically points out that there is limited tax incentives in place to encourage pension contributions amongst the workforce and that the preservation of pension benefits is a concern because members are able to withdraw their pension credit when moving from one employer to another, which may lead to outflow from the system.

Figure 2.5: Pension funds' assets



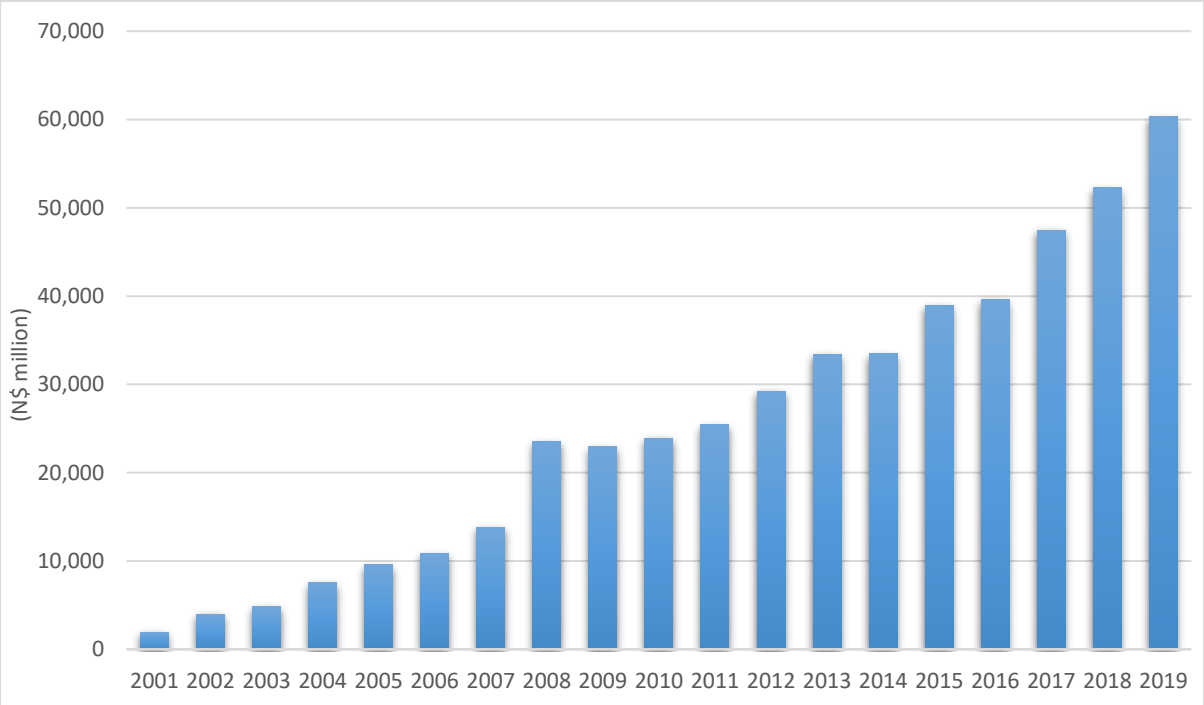
Source: NAMFISA

2.5. Collective investment schemes

A collective investment scheme, better known as a unit trust scheme is a scheme where funds from different investors, both institutional and retails, are pooled together and invested by a unit trust management company or fund manager in diversified asset classes such as government bonds, shares, listed property, money markets instruments and other securities in

accordance with the investment objective and strategy of the scheme. As at 31 December 2019, the total assets under management by unit trust management companies amounted to N$ 60.291 billion (NAMFISA Annual Report, 2020).

Figure 2.6: Assets managed by unit trust management companies



Source: NAMFISA

2.6. Investment managers

Investment management companies provide portfolio management services for retail and institutional investors. Pension funds and insurance companies' assets remain the majority of funds being managed by investment managers. Investment managers' role of linking institutional investors to financial markets is vital for integration of the financial system. Assets under management by investment managers stood at N$ 7.669 billion as at 31 December 2019 (NAMFISA Annual Report, 2020).

2.7. Unlisted investment managers

An unlisted investment manager (UIM) is a management company that invests in debt or equity capital of companies that are not listed on the stock exchange, but excluding assets such as credit balances, bonds including debentures (issued by government, local authorities, regional councils, state-owned enterprises and corporate companies). UIMs invest in start-up and emerging small companies with plans of scaling up their businesses through investment in equipment, bigger business premises, more workforce of value addition to their products or services. SMEs are considered to be high risk by traditional financial institutions especially the commercial banks and therefore find it hard to secure funding from those institutions. The existence of UIMs ensures that this finance gap is bridged.

UIMs are registered and governed in terms of the Pension Fund Regulations, which introduces unlisted investments as an asset class that institutional investors should consider to enhance their investment returns in order to have a diversified investable universe. Owing to the low levels of investment by pension funds in the local economy, the Pension Funds Regulations have been issued in an attempt to curb the percentage of capital that flows out of the country for investments in other jurisdictions and to instead support the local economy by investing in feasible and innovative greenfield projects as well as brownfield projects that requires risky capital that other existing financial institutions such as banks are unwilling to invest in as a result of the high risks associated with those projects. In terms of the Pension Funds Regulations, pension funds are compelled to invest a minimum of 1.75% and up to a maximum of 3.5%[2] of their total assets in equity or debt capital in an entity that is incorporated in Namibia and not listed on any stock exchange. This is envisaged at deepening the capital markets further,

[2] The Pension Funds Regulations have specific set limits of investment for each asset class that a pension fund may invest in.

contribute towards employment creation and to mitigate social challenges that Namibia is facing. The Pensions Funds Regulations prohibits pension funds from investing directly in a UIM and therefore requires that a pension fund's investment in unlisted investments must be done through a Special Purpose Vehicle (SPV). The number of registered UIMs as at 31 December 2019 stood at 24 (NAMFISA Annual Report, 2020).

2.8. Special purpose vehicles

A special purpose vehicle is a company or trust organised and operating for the sole purpose of holding unlisted investments on behalf of investors as stipulated by the Pension Funds Regulations. The SPV makes drawdowns of funds from the pension fund and such funds are subsequently transferred to the UIM and invested as per the management agreement between the SPV and the UIM.As at 31 December 2019, there were 19 SPVs registered with NAMFISA (NAMFISA Annual Report, 2020).

2.9. Friendly societies

Friendly societies are organizations that are member-focused that help their members become financially independent and prepare for life events by providing savings, investment and insurance products. These include education savings plans, retirement annuities, provision of a sum of money upon a member leaving employment due to dismissal or resignation, affordable healthcare and funeral plans. Friendly societies offer similar services to its members as insurance companies and medical aid funds. As at 31 December 2019, there was only 1 active friendly society registered with NAMFISA (NAMFISA Annual Report, 2020).

2.10. Microlenders

The microlending industry grew enormously over the past 12 years from a total asset base of N$ 300 million in 2004 to N$ 5.754 billion as at 31 December 2019 (NAMFISA Annual Report 2007 & 2020). According to the Microlending Act, 2018 (Act No. 7 of 2018), a microlending transaction means a loan transaction in which the loan amount does not exceed N$ 100,000 and the principal debt together with any finance charges must be repaid to the microlender in installments of not more than 60 months from the date on which the loan was granted to the borrower. Microlenders in Namibia are categorized into two types; namely pay day lenders and term lenders. The distinctive features between the two types is predominantly in terms of maximum finance charges allowed as well as the loan repayment period. Pay day lenders are allowed to charge maximum finance charges up to 30% once-off and the loan amount together with the finance charges must be repaid within 5 months. Term lenders on the other hand may set their finance charges at a maximum rate of the prime lending rate times two per annum i.e. prime rate x 2 per annum, with a repayment period of between 6 and 60 months. The majority of microlending borrowers are individuals employed in the private and the public sector. The purpose of these microlending loans are predominantly consumption such as emergency expenses, education and healthcare.

CHAPTER 3: LITERATURE REVIEW

3.1. Introduction

Early studies that did ground breaking on the finance-growth nexus can be traced back more than a century ago and include Bagehot (1874) and Schumpeter (1912). Bagehot (1874) claimed that the financial system was instrumental in financing the development of the railway system as well as the facilitating of trade in England. He further reasoned that finance is a means of diverting the factors of capital by identifying and funding prospective entrepreneurs who portray the likelihood of implementing new product innovations and production processes. Bagehot (1874) however warned that the financial system is a mixture of both economical power and economical fragilities because it has the ability to promote the economy but at the same time it is likely to collapse the economy if not prudently managed. As of today there is, however no consensus reached regarding the relationship between financial development and economic growth. The finance-growth nexus still remains one of the highly debated matters in financial economics literature.

According to Holzmann (1997), Vittas (1997), Davis and Hu (2008), Haiss and Sümegi (2008), Meng and Pfau (2010), Alderman and Yemtsov (2013), Nassr and Wahinger (2014), Liang and Reichert (2015), and Sufian and Majid (2009), the relationship between the development of NBFIs and economic growth can be both in a direct and indirect form.

3.2. Direct linkage

Rateiwa and Aziakpono (2015) describe the direct relationship between NBFIs development and economic growth from the perspective of NBFIs directly influencing rates of saving, investment, allocation of risk and total factor productivity, and therefore enhancing economic

growth. The mobilization of savings, which is the accumulation of surplus capital from different savers, makes it possible for many production processes to access capital and be able to scale up their businesses. Simply put, the existence of the financial system has a direct impact on the amount of available funds to finance businesses, investments and marginal productivity of capital. The consensus from many studies conclude that the financial system carries out a great deal of certain roles which increases total factor productivity capacity of an economy and by so doing increases economic growth. By facilitating access to finance for SMEs, savings mobilization, risk management and providing an incentive for individuals and corporate entities to invest in long-term productive capital are some of the forms in which NBFIs can contribute directly to economic growth. Investment horizons which are long-term in nature are set to be suitable for productive assets such as investment in infrastructure development, which in turn will boost economic growth. NBFIs may also assist SMEs build resilience during times of economic shock, by improving access to finance and thereby contributing towards employment creation and/or retention as well as poverty alleviation. Empirical studies in India and China have proven that access to insurance has a positive impact on production levels and risk appetite because famers who took out rainfall insurance are more likely to engage in the production of riskier yet more profitable crops (Alderman and Yemtsov, 2013).

3.3. Indirect linkage

The indirect relationship, on the flip side, may be through the impact of NBFIs on the bank and capital (stock and bond) markets development, which can subsequently impact economic growth (Meng and Pfau, 2010). This may take place in the form increased competition to the banking sector in the loanable funds markets due to the existence of NBFIs and the increased competition will force banks to increase the supply of loans by keeping their interest rates low with the aim of maintaining their market share (Sufian and Majid, 2015). The liquidity of the

financial sector is therefore improved as a result of increased supply of loanable funds in the financial markets caused by the presence of NBFIs (Haiss and Sümegi, 2008). Some scholars have, however, warned that the oversupply of loanable funds in the financial markets may create unintended consequences that are prone to financial crisis and which may have devastating consequences for both the financial sector and the economy at large especially if not properly regulated and monitored.

3.4. Theoretical Framework

Generally, four broad theories of thinking have mainly been the centre of the literature on the association between financial development and economic growth. The four theories being: supply-leading relationship, demand-following relationship, no relationship and bi-directional relationship.

3.4.1 Supply-leading theory

Even though conclusions are to be stated with caution and sufficient qualification, the majority of theoretical reasoning and empirical evidence suggests a positive, primary association between financial development and economic growth (Levine, 1997). The supply-leading hypothesis can be attributed to the works of Schumpeter (1912). Schumpeter argued that the development of financial intermediaries, the banking system in particular, plays a significant role in driving technological innovation and economic growth. Other authors including McKinnon (1973) and Shaw (1973) also support the supply-leading hypothesis which holds that economic growth is significantly and positively influenced by the creation of financial institutions and markets as well as the supply of financial services. This theory is supported by

the majority of economists including King and Levine (1993a, 1993b); Levine (1997); Ansari and Ahmed (1998); Levine et al., (2000); Fase and Abma (2003); Rousseau and Wachtel (2003); Christopoulos and Tsionas (2004).

3.4.2 Demand-following theory

With regard to the demand-following theory, Robinson (1952) reasoned that financial development happens endogenously as a result of trying to meet the demand of a growing real economy. Simply put, it means that the development of the financial sector has no impact on economic growth. Robinson (1952: 86) specifically notes that "where enterprise leads, finance follows", which suggests that economic growth is a precondition for growth in demand for financial services and products, and vice versa.

3.4.3 No relationship

Lucas (1988) and Chandavarkar (1992) suggests that there is a lack, or no existence, of any link between financial development and economic growth. Lucas (1988) further argues that the prominence of finance is often overemphasized and that a noteworthy relationship between financial sector development and economic growth is non-existent.

3.4.4 Bidirectional theory

Another hypothesis by Patrick (1966) stresses that the finance-growth relationship is bidirectional or mutual. One of development economics' pioneers Lewis (1955) also shares the same sentiments with Patrick (1966) by claiming that there is a two-way relationship between

financial development and economic growth. Their theoretical basis suggests an economic development stage where both supply-leading and demand-following relationship are of significance. In view of that, the supply-leading association is likely to be more dominant in the early stage of economic development, while at the more developed stage of the economy, the demand-following association is likely to be dominant.

3.5. Significance of NBFIs in the finance-growth debate

As earlier mentioned that despite NBFIs forming an integral part of the financial sector development in many of the fast growing economies, studies on the relationship between NBFIs development on economic growth are few. Further, the majority of the studies on the nexus between finance and growth are carried out in Europe, Latin America and the Far East. The limited availability of literature and statistics on NBFIs development and economic growth relationship is caused by the lack of sufficient emphasis on the development of NBFIs. Observations made in the seminal work of Goldsmith (1969) indicate that the financial superstructure tends to expand as economic development proceeds. In their works, Gurley and Shaw (1955, 1960), Shaw (1973) and Goldsmith (1969) are of the view that the structure of the financial industry is likely to expand over time as economic development proceeds. Their view postulates that commercial banks are likely to dominate the financial services sector during the early stages of economic development. But, the portion of banks' assets as a total percentage of all financial assets tends to decline while at the same time a corresponding increase in the share of NBFIs asset base as a percentage of total financial assets as the economy grows. According to Grais and Kantur (2003), the significance of NBFIs such as pension funds, mutual funds and insurance entities has been growing rapidly in many of the developed countries such as the United States, France, United Kingdom, Switzerland and the Netherlands. Just like it has

been observed in the United States and the United Kingdom, today NBFIs play a major role in feeding the economy in France. The decline of the financial intermediary role of commercial banks in the United States has been recognized long ago since the 1920's.

3.6. Empirical Literature

Demirguc-Kunt and Levine (1996) conducted a study, consisting of statistical data set of 48 countries made up of low-income, middle-income and high-income economies graphically showing how the role of NBFIs and the stock market grew in importance with the banking sector representing a corresponding smaller share of the overall financial system over time. The study marks out that, particularly in 1970's, NBFIs and the stock market activities were nearly non-existent during the premature phases of development. However, by 1990 both NBFIs and the stock markets started expanding and developing. The study further concluded that the banking sector started moving their traditional banking business role to a more innovative intermediation of diversification as a result of the increasing competitive pressure from NBFIs and the stock markets' presence. This is also evident in the Namibian context as all the commercial banks have diversified their operations to offer more financial services than they would usually back in the 90's.

It was also found in an empirical study conducted by Murphy and Musalem (2004) on the effect of the accumulation of the financial assets of pension funds on national savings on a panel of 43 countries comprising of developed and developing countries during the period 1960 to 2002, that the growth of pension funds' assets is most likely to increase national savings especially where these funds are the result of a mandatory pension initiative. The study employed Ordinary Least Squares and two-stage least squares methods of estimation. On the other hand,

where the pension funds' assets are the result of a voluntary savings program, they tend to lack a significant impact on national savings. Suffice to say, in Namibia the majority of employers have mandatory pension fund schemes. Even though the study did not indicate a direct linkage between growth in the assets of pension funds and economic growth, the indirect consequence is that mobilization of savings through a pension fund scheme that is mandatory may possibly have a positive impact on economic growth by means of increasing national savings, and national savings is a variable proven to positively affect growth. It has also been theoretically proven that high savings rates normally coincide with high and continuous investment rates which is broadly recognized as one of the main contributors towards persistent economic growth.

Further, the role of institutional investors in the development of the financial sector, particularly the banking sector and stock market, and economic growth comprising of 23 OECD countries over the period 1988-1999 was studied by Harichandra and Thangavelu (2004). Using a dynamic framework of the panel vector autoregressive model (PVAR), they empirically analyzed the causal effect of institutional investors from both aggregated and disaggregated level and found that institutional investors at both levels have substantial causal impact on economic growth. The study generally put forward that the growth of institutional investors plays a significant role in enhancing the economic activities and the growth of financial market in the OECD countries. A similar study was also conducted by Davis and Hu (2004) on a sample of 38 countries made up of 18 OECD and 20 Emerging Market Economies (EMEs) over the period 1960-2002. The study found that the assets of pension funds positively and significantly contribute to the economies of all the countries in the sample. A variety of econometric methods such as Dynamic Ordinary Least Square, Dynamic heterogeneous model with ARDL specification, Johansen, and Generalized Method of Moment were utilized and in

all methods the results have shown consistency. The contribution of pension fund assets to economic growth, in some instances, also exhibited evidence of a greater effect for EMEs than that of the OECD countries. This finding support the results of similar studies that conclude that NBFIs are likely to be more significant to economic growth of a country that is still in the early stage of economic development.

In Saudi Arabia, Masih et. al (2009) carried out a study to examine the possible directions of causality between financial development and economic growth by using the error correction and variance decompositions techniques. The findings of the study put forward that the causal direction of the relationship between financial development and economic growth is supply-leading rather than demand–following as expected for a country Like Saudi Arabia which is in the early development stages.

Similarly, in Asia, Islam and Osman (2011) empirically examined the development impact of NBFIs on economic growth in Malaysia by employing the Autoregressive Distributed Lag (ARDL) bounds testing approach to cointegration over the period 1974 to 2004 using time series data. The study established that the development of the NBFIs sector as well as investment, trade openness and employment had a long run effect on the change in per capita GDP.

There are only a few studies on the relationship between NBFIs and economic growth in Sub-Saharan Africa (SSA)[3] and North Africa countries. The role of NBFIs was analyzed in Egypt and in some MENA countries by Vitas (1997), where his analysis was mainly focused on the

[3] Sub-Saharan Africa is, geographically and ethno culturally, the area of the continent of Africa that lies south of the Sahara.

development of major components of NBFIs with a greater emphasis on contractual savings institutions particularly pension funds and life insurance, which by far, just like in the Namibian context, represent the most significant component of NBFIs assets. According to the pattern of growth of NBFIs around the world emphasized by this study, it was found that during the period 1970 to 1993, contractual savings institutions were the fastest growing NBFIs in diverse levels of economies. Another study conducted on Egypt by Abu-Bader and Abu-Quarn (2008) found that, during the period 1960 to 2001, there is a two-way directional causality in Egypt. By employing a tri-variate VAR model, the study concludes that during the period of the sample study, finance-led economic growth and economic growth also encouraged financial development in Egypt. Odhiambo (2008) conducted a time series study in Kenya for the period 1968 to 2002 using the dynamic tri-variate Granger causality test and an error correction model (ECM). The study found a demand-following relationship between finance and economic growth, and that finance only has a minor role to play in economic growth in Kenya. In another study conducted in South Africa, Odhiambo (2011) used time series data from 1960 to 2006 and employed the tri-variate causality model and ECM modelling to investigate the dynamic causal relationship between financial development, economic growth and poverty reduction. He put forward that the supply-leading hypothesis was not relevant in the South African context. According to the findings of the studies conducted in African countries, there seems to be not so much similarities in the conclusions. This could largely be due to the fact that the setup of the financial sector in each country is completely different from other countries' setups. Rateiwa and Aziakpono (2015), in a cross-country study which included South Africa, Egypt and Nigeria, shows that in countries with advanced financial systems, the role and significance of NBFIs to the economic growth process is more evident.

3.7. Empirical evidence in Namibia

In Namibia, only a few studies such as Mushendami (2007) and Sunde (2010) have been conducted on the relationship between financial sector development and economic growth. Nonetheless, Mushendami (2007) used the Granger causality test and found that financial sector development has a positive impact on the Namibian economy. The empirical results from Mushendami (2007) reveals that the development of the financial sector is positively associated with real GDP growth. Similarly, Sunde (2010) employed the Granger causality approach to test the causal relationship and concluded that causality between financial sector development and real GDP growth is generally bidirectional, meaning that the relationship is both supply-leading and demand-following. However, Sunde (2010) cautioned that his study used a limited sample size because of non-availability of statistical data on the Namibian economy especially the years prior to 1995, and therefore the validity of his study's results could possibly have been negatively affected.

However, no study in Namibia has been undertaken to investigate the correlation specifically between NBFIs sector development and economic growth. The intention of this study is therefore to establish whether a relationship exists between NBFIs sector development and economic growth in Namibia, and to determine whether the causal relationship, if any, is supply-leading, demand-following or a combination of both. This study's emphasis is therefore to employ methods that has already been used in other countries to test the same relationship in Namibia. The study further attempts to bring the issue of the importance of NBFIs in the finance-growth literature in discussion which has long been ignored, most specifically in the Namibian context.

CHAPTER 4: METHODOLOGY

4.1 Introduction

This chapter will specify and explain the methodology that has been applied in the study.

4.2 Specification of the model

According to Levine (1997), the custom method that is used in exploring the relationship between finance and economic growth is by regressing economic growth on financial development together with other control variables, i.e. Y = f(FD, other control variables).

The regression model for this thesis is therefore expressed as follows:

$$GDP_t = f(FD_t, INV_t, OPEN_t, L_t) \quad \text{.....(5.1)}$$

Economic growth (GDP_t) is proxied by real GDP per capita, FD_t is the degree of NBFIs development indicator denoted as the ratio of NBFIs total asset base to GDP, INV_t is the ratio of Gross Capital Formation (GFC) to GDP labelled as investment, $OPEN_t$ represents international trade openness index and L_t represents the labour force (number of employed persons). The decision to use per capita GDP is informed by the literature which indicates that majority of time series studies use per capita GDP as opposed to panel/cross countries studies that use the GDP growth rate.

Consequently, using the variables in natural log, the regression model is estimated as per the below equation:

$$LnGDP_i = \beta_0 + \beta_1 LnFD_1 + \beta_2 LnINV_2 + \beta_3 LnOPEN_3 + \beta_4 LnL_4 + \mu_i \quad \text{..... (5.2)}$$

Whereby *Ln* represents the natural log, β is the beta and μ_i denotes the error term.

Table 4.1: Description of variables

Variable	Definition
LnY	The log of real per capita GDP
LnFD	The log of NBFIs development indicator denoted as the ratio of NBFIs asset base to GDP
LnINV	The log of the ratio of the gross fixed capital formation to GDP
LnOPEN	The log of trade openness which is the ratio of imports plus exports to GDP
LnL	The log of labour force

4.3 Data analysis

The study considered the Kwiatkowski-Phillips-Schmidt-Shin (KPSS) unit root test to test for stationarity because of its superiority to the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) that is commonly used.

To empirically test the correlation between NBFIs sector development and economic growth, the study employs the Ordinary Least Square (OLS) based Autoregressive Distributed Lag (ARDL) method, developed by Pesaran *et al*. (2001) to test the correlation between NBFIs development and economic growth. ARDL is known to be advantageous because it can be applied regardless of whether the core variables are mutually or purely integrated. The study also adopted Granger Causality test in Vector Error Correction Model (VECM) to test the causal relationship between the NBFIs sector variables and per capita GDP. However, there are various steps to go through before the actual estimation. They are discussed below.

4.3.1 Unit root test

The first step when dealing with time-series data is to test for non-stationarity. This is to determine the statistical properties of the data and determine the order of integration. The order of integration can be zero I(0) better known as levels or it can be one I(1) better known as first difference. If the variables are integrated of order zero denoted I(0), it is means that the residual series are stationary at levels. Therefore, the model will be estimated using Ordinary Least Squares (OLS) technique (Du & Zhu, 2001). There are numerous test statistic for unit root, such as ADF, PP etc. However, this study chooses to go with KPSS. The KPSS is superior to the ADF and PP. The testing for unit root is essential in order to determine the order integration as well as an appropriate modelling technique. The null hypothesis postulate that the series is stationary, whilst the alternative hypotheses is that the series is not stationary. The null hypothesis of stationarity cannot be rejected if the calculated value of the KPSS is smaller than at least one of the critical values at a particular level of significance. This implies that the variables are stationary. On the contrary, the null hypothesis can be rejected if the calculated value is greater than the critical values, suggesting that the variable is non-stationary (Sheefeni, 2013).

4.3.2 Bound test to cointegration

If the variables are integrated of order one I(1) and the residual is integrated of order zero I(0), the cointegration test will be conducted to determine if there is cointegration which mimics the long-run relationship. The cointegration technique is used to resolve the problem associated with spurious regression model and are used when variables are integrated of order one I(1) (Du & Zhu, 2001). Hence, Bound Cointegration test was used in this study to investigate the presence of a long-run relationship between variables (Sekantsi, 2011).

The Bound cointegration test is selected because of its advantage of testing for both long-run and short-run coefficient in comparison to other methods of cointegration tests. Unlike the other cointegration tests, the Bound test approach does not require all the variables to be integrated of the same order. Thus, it can be applied irrespective of whether some variables are integrated of order 1 and some of order 0 in one set, or if all variables are integrated of order 1 completely (Dritsakis, 2011).

The Bounds test present two bound namely, the lower bound which assumes that all the variables are integrated of order zero, whilst the upper bound assumes that the variables are integrated of order one. The null hypothesis of no cointegration is rejected is the calculated F-value is greater than both upper and lower bounds implying cointegration exist. On the contrary, the null hypothesis of cointegration cannot be rejected if the calculated F-statistic is below both bounds. However, should the calculated value fall between the bounds then it is indecisive (Pesaran, *et al.*, 2001).

4.3.3 Error Correctional Model (ECM) on ARDL form

The error correction model (ECM) is usually estimated when cointegration is found. This is done in order to estimate the speed of adjustment from the short-term to the long-term equilibrium, hence it is a dynamic model (Gujarati and Porter, 2010). The ECM can be expressed as:

$$\Delta LNGDP_t = \tau_0 + \sum_{i=1}^{m} \alpha_{1i} \Delta LNGDP_{t-i} + \sum_{j=0}^{n} \alpha_{2i} \Delta LNFD_{t-j} + \sum_{k=0}^{o} \alpha_{3i} \Delta LNINV_{t-k} +$$

$$\sum_{l=0}^{p} \alpha_{4i} \Delta LNOPEN_{t-l} + \sum_{s=0}^{q} \alpha_{5i} \Delta LNL_{t-s} + \gamma ECM_{t-1} + \varepsilon_t \quad \text{.....(5.3)}$$

Where

ECM_{t-1} is the error correction mechanism.

$_{\gamma}$ is the parameter which represents the speed of adjustments in the long run.

ε_t is the white noise error term (iid(0,δ^2))

Hence, $\alpha_1 \ldots\ldots \alpha_5$ are short-run coefficients and $\gamma$is a long-run coefficient.

The parameter γ should carry a negative sign and should be statistical significant. If it is positive, then the model is about to explode.

4.3.4 Testing for model efficiency

There are various diagnostic tests that a model should pass in order for it be considered robust. This includes autocorrelation, heteroscedasticity, normality, CUSUM and CUSUM squares. This is to make sure that the assumptions of Classical Linear Regression Model (CLRM) are fulfilled.

4.3.4.1 Autocorrelation test

The autocorrelation test is used to determine the presence of serial correlation. In this regard, the study uses the Breusch-Godfrey serial correlation LM test (BG test). The null hypothesis is that there is no serial correlation while the alternative stipulates that there is. The null hypothesis is rejected if the p-value is less than 0.05 level of significance and conclude that the model suffers from serial correlation (Gujarati & Porter, 2010).

4.3.4.2 Heteroscedasticity

This test is used to determine whether or not the model exhibit a constant variance, which is deemed to be desirable. Hence, this study employed Bruesch-Pegan-Godfrey test and the null hypothesis is that there is no heteroscedasticity (homoscedasticity). The alternative is that there is heteroscedasticity. The null hypothesis is rejected when p-value is less than 0.05 level of significance and conclude that the model suffers from heteroscedasticity (Gujarati & Porter, 2010).

4.3.4.3 Normality test

One of the important assumptions is that of normal distribution. This study uses the Jarque-Bera statistics test to test whether or not the residuals are normally distributed. The null hypothesis is that the residual term follows a normal distribution, while the alternative hypothesis is that the residual term does not follow a normal distribution form (not normally distributed). Reject the null hypothesis if the p-value of Jarque-Bera statistic test is less than 0.05 level of significance and conclude that the residual is not normally distributed (Gujarati, 2004).

4.3.4.4 CUSUM and CUSUM squares

These tests are used to test for parameter constancy over the period. That is if there are any structural breaks. As long as the trend is within the 5% bandwidth then there are no structural breaks.

4.4 Causality Test

In addressing the second objective of the causal relationship, the study use the basic Granger causality technique. This test allows to establish if one variable is good at forecasting another variable in order to determine the direction of causality. The assumption of the Granger causality test stipulates that the past predicts the future and not vice versa and that the root of something has knowledge about an impact that cannot be found anywhere else. There are three possible outcomes. The outcomes are (1) no causal relationship, (2) uni-directional causal relationship and (3) bi-directional causal relationship (Jekonia, 2019).

4.5 Data sources

Time series secondary annual data was obtained and used in estimating the model and covers the period from 2001 to 2019. The time period that was chosen was merely because of the non-availability of data prior to 2001. The annual data obtained was converted into quarterly data. The data was further converted to natural logarithms.

The statistical data on the assets under management by NBFIs was obtained from different issues of the NAMFISA annual report. Real GDP as well as per capita GDP figures were obtained from the National Accounts Time Series publications which is available on the Namibia Statistics Agency's website. The statistical data on imports and exports that was used to compute the trade openness (OPEN) index was obtained from the Bank of Namibia's Integrated Electronic Research System (IERS).

Further, the data on gross fixed capital formation (GFCF) that was used to compute the investment (INV) index was obtained from The Global Economy while the labour force statistics were obtained from the World Bank.

CHAPTER 5: EMPIRICAL ANALYSIS AND DISCUSSION OF RESULTS

5.1. Introduction

This chapter presents the empirical results and the discussion thereof. The analysis presented includes descriptive statistics, correlation analysis, unit root tests, optimal lag selection criteria, ARDL Bounds test for cointegration and the estimated error correction model. The chapter also presents the results of the various diagnostic test. The Granger causality test was presented last.

5.2. Descriptive statistics

The descriptive characteristics of the raw data for each variable was assessed as reported in the table below.

Table 5.1: Descriptive Statistics

	GDP	FD	INV	OPEN	L
Mean	43568.89	3.556999	0.233331	97.72664	0.766918
Median	39619.62	3.479231	0.220218	97.46000	0.760000
Maximum	74994.16	5.026966	0.354091	125.3600	0.940000
Minimum	16686.00	2.750682	0.161510	82.20000	0.590000
Std. Dev.	19469.70	0.599249	0.049422	11.89495	0.111202
Skewness	0.261760	0.655176	0.675852	0.587721	-0.027101
Kurtosis	1.656074	2.614085	2.666707	2.687142	1.594261
Jarque-Bera	6.327301	5.675605	5.895328	4.500284	6.019583
Probability	0.042271	0.058554	0.052462	0.105384	0.049302
Observations	73	73	73	73	73

Source: Author's computations

Table 5.1 reveals that there is consistency because the mean values are within the maximum and minimum range. GDP has the largest mean value, while INV has the lowest mean value. Similarly, GDP also exhibit the largest dispersion, whilst INV shows the smallest dispersion as the standard deviation shows. The same trend is also observed for the median values. In terms of normality, all the variables are normally distributed, with the exception of GDP and L, as shown by the Jarque-Bera test. are not normally distributed.

5.3. Correlation Analysis

This section of the chapter looks at the correlation matrix of the variables as reported below.

Table 5.2: Correlation Matrix

	LNGDP	**LNFD**	**LNINV**	**LNOPEN**	**LNL**
LNGDP	1				
LNFD	0.1729	1			
LNINV	0.1992	-0.3241	1		
LNOPEN	-0.0611	-0.5499	0.6726	1	
LNL	0.99706	0.1874	0.2257	-0.0742	1

Source: Author's computations

Table 5.2 shows the correlation which depicts the linear associations amongst the variables. Since none of the regressors has a correlation value of 0.80 or higher amongst themselves. This implies that there is no problem of collinearity or multicollinearity. The only high correlation value is that of 0.99 but it is between LNGDP and LNL. It is positive and high linear association between the variables.

5.4. Unit root analysis

Since the study is being conducted using time-series data. It is compulsory to check the statistical properties of the variables. This is done by conducting the unit root test. The KPSS test was used in this regard to determine the order of integration of the variables and proceed with the appropriate modelling technique. This also helps not to estimate spurious regression better known as nonsensical regression. The results are presented in the table below.

Table 5.3: KPSS unit root test

	Intercept		**Intercept and Trend**	
	Levels	**First Difference**	**Levels**	**First Difference**
LNGDP	1.1389**	0.5695	0.2121	0.1526
LNFD	0.1242	0.0956	0.1058	0.0957
LNINV	0.2160	0.2316	0.1898	0.0987
LNOPEN	0.2130	0.1708	0.2011	0.0600
LNL	1.1395**	0.2208	0.1615	0.0968

Source: Author's computations.

*Note: ** denote rejection of the null hypothesis of stationary at 5% level of significance.*

Table 5.3 present the results for the KPSS. The results shows that the variables LNFD, LNINV and LNOPEN are integrated of order zero I(0). This is because the null hypothesis of stationarity could not be rejected. Hence, they were found stationary in levels. On the contrary, the variables LNGDP and LNL exhibit a mixture of order of integration. For instance, when one consider the intercept alone then the order of integration is one I(1), whereas with intercept

and trend, then the order of integration is zero I(0). Therefore, this warrant the estimation of the ARDL as desired.

5.5. Optimal lag selection

The ARDL model involve lagged variables, thus before estimating the ARDL, it is a requirement to determine the optimal maximum lag length. This is usually done by using various lag length criterion such as Sequential modified LR test statistic (each test at 5% level) (LR), Final prediction error (FPE), Akaike information criterion (AIC), Schwarz information criteria (SC) and Hannan-Quinn information criterion (HQ).

Table 5.4: VAR lag order selection criteria

Lag	**LogL**	**LR**	**FPE**	**AIC**	**SC**	**HQ**
0	143.5864	NA	0.0008	-4.1996	-4.0337	-4.134039
1	226.3432	150.4670	0.00007	-6.6771	-6.4780	-6.598410
2	248.9332	40.3881	0.00003	-7.3313	-7.0991	-7.2395
3	249.0106	0.1361	0.00003	-7.3034	-7.0379	-7.1985
4	250.1650	1.9939	0.00003	-7.3080	-7.0094	-7.1900
5	254.1143	6.7020	0.00005	-7.3974	-7.0656	-7.2663
6	264.3063	**16.9865***	**0.00002***	**-7.6759***	**-7.3110***	**-7.5317***
7	264.3363	0.0491	0.00008	-7.6466	-7.2484	-7.4892

*Source: Author's computations. Where * indicates the lag-order selected by the criterion*

Table 5.4 shows that the lag length chosen is 6. Coincidentally, all the criterion suggested the same lag. In literature, the predominant criteria are the AIC, SC and HQ.

5.6. ARDL Bounds test

Table 5.5: ARDL Bounds test for cointegration

Test Statistic	**Value**	**k**	**n**
F-statistic	4.667113	4	66
Critical value	**Lower Bound value**	**Upper bound value**	**Null Hypothesis**
1%	2.32	3.232	Rejected
5%	2.725	3.718	Rejected
10%	3.608	4.86	Indecisive

Source: Author's computations.

The ARDL bounds test was applied to determine whether or not there is cointegration. This is to establish whether or not there is a long-run relationship amongst the variables. Table 5.5 shows that there is evidence of cointegration because the calculated F-statistic is greater than two critical values. Thus, the null hypothesis of no cointegration was rejected. The same conclusion would have been made even if the calculated value was greater than the one critical value only. Usually, when the variables are cointegrated, they tend to experience deviation from their long-term value. It is for this reason that an error correction model should be estimated.

5.7. ARDL long-run estimates

Table 5.6: Long-run estimates for the ARDL

Long Run Equation			
Variable	**Coefficient**	**t-statistic**	**Prob.**
LNFD	0.069670	2.346826	0.0238
LNINV	0.184327	4.606851	0.0000
LNOPEN	0.048284	3.168521	0.0029
LNL	-0.709794	-2.238780	0.0307

Source: Author's computations

Table 5.6 presents the result for the long-run estimates. It is noteworthy that all the independent variables are statistically significant. The variable of interest FD positively contributes to economic growth. These finding are similar to that of Islam and Osman (2011). The results are also similar to that of Meng and Pfau (2010) and Rateiwa and Aziakpono (2015) who found that the purpose and significance of NBFIs to economic growth is more evident in countries with relatively more developed financial systems, and thereby suggesting that the NBFI sector in Namibia can be regarded as relatively developed. Moreover, the findings are in line with the theoretical proposition that states that FD contributes to economic growth through the channeling of capital to undertake productive investment activities. Similarly, INV also positively affect economic growth. These results are also similar to that of those of Islam and Osman (2011). The positive contribution implies that as more investment takes place, the effects spin off to economic growth. This usually happens if the investment in question is a productive investment. In the same fashion, trade openness is positively associated with economic growth in the long-term. This is to say that trade still plays a great role in advancing economic growth through output expansion as demand for our goods and services increases

abroad. In contrast, labour force has a negative impact on economic growth. The negative relationship compares favourably with some general theory of economic growth that argues that this depend of the quality of labour and not the quantity of labour. Overall, the results of the long-run test therefore suggests that NBFIs and the other variables selected for our model, with the exception of labour force, positively contributes to per capita GDP in Namibia.

5.8. Short-run dynamics

The short-run estimation looks at the dynamics of LNGDP in Namibia. In this case, the short-run relationship is determined by the negative and statistical significant value of the Error Correction Term (ECT).

Table 5.7: Short-run estimations for ARDL

Dependent variable: LNGDP

Short Run Equation			
Variable	**Coefficient**	**t-Statistic**	**Prob.**
D(LNGDP(-1))	0.464558	4.005921	0.0003
D(LNFD)	0.069670	3.010127	0.0045
D(LNINV)	0.184327	5.955862	0.0000
D(LNL)	-0.709794	-2.938785	0.0054
ECT(-1)	-0.001461	-5.605144	0.000
R-squared	0.921434	Adjusted R-squared	0.888983
Durbin-Watson stat	2.026003		

Source: Author's computations

Table 5.7 shows that all the regressors are statistical significant. For instance, the past value for GDP does positively affect the current value of GDP. As it is in the long-run, LNFD and LNINV positively contributes to economic growth in the short-run. On the contrary, LNL negatively impact economic growth in the short-run, just as it is the case in the long-run estimates.

The coefficient for the error correction term is negative and highly statistical significant. This suggests that the model is robust. However, the speed of adjustment is very slow, in particular, it takes about 0.15% every quarter for these variables to converge to the long-run equilibrium.

5.9. Diagnostic test

Table 5.8: Diagnostic test

Normality, [Prob. 0.711048]
Heteroscedasticity, [Prob. 0.9502]
Serial correlation, [Prob. 0.2922]
Ramsey RESET, [Prob. 0.6782]

The diagnostic tests show that the model is robust as such there is no problem of non-normal residuals, heteroscedasticity, serial correlation or misspecification of the model. As the probability values are reported in table 5.8. Furthermore, the CUSUM and CUSUM square confirms parameter constancy and such that there are no structural break issues as it can be seen in figures 5.1 and 5.2 respectively.

Figure 5.1: CUSUM

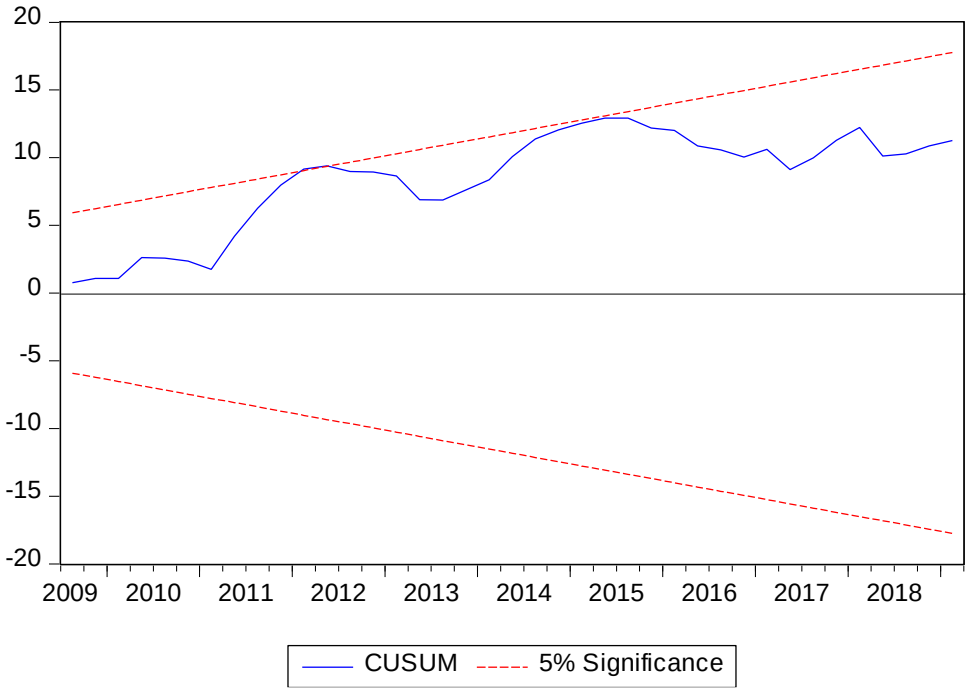
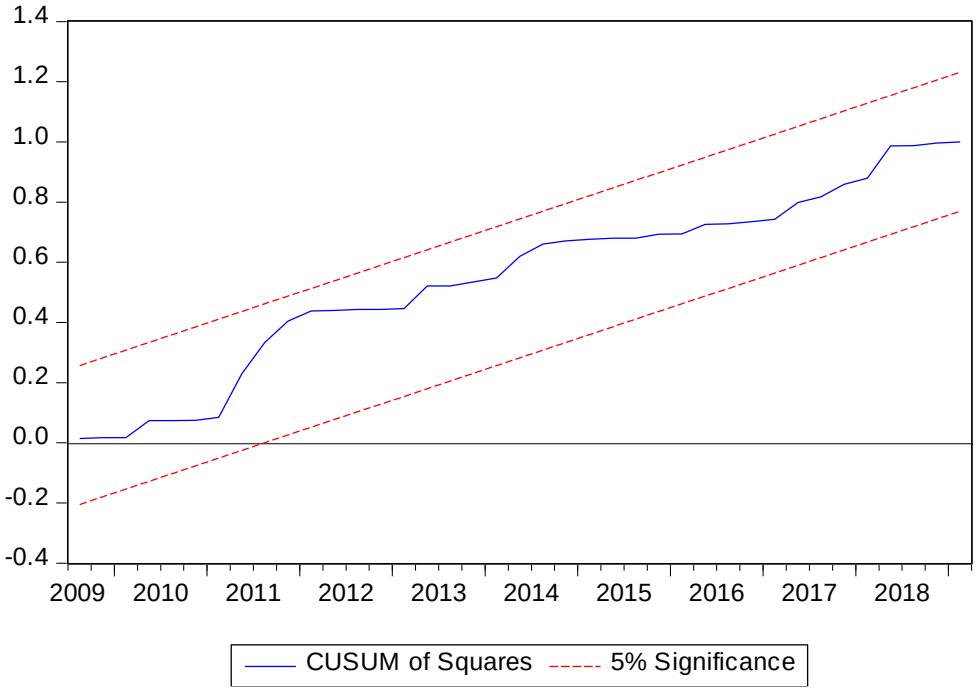


Figure 5.2: CUSUM Squares



5.10. Granger causality

The Granger causality helps to determine whether the variables can be used to predict each other. The results in table 5.9 below reveals that there is no causal relationship between LNGDP and LNFD, the variables of interest. The results further reveal that there exists no causal between GDP, and LNINV and LNOPEN. However, there is bi-directional causal relationship running from LNL to LNGDP as confirmed by the probability value of 0.0072 which is less 0.05 level of significance. Hence, the null hypothesis of no Granger cause was rejected in this case. Similarly, there is causality running from LNGDP to LNL as confirmed by the p-value of 0.0013 which is less than 0.05. Thus, rejecting the null hypothesis of no Granger cause. This finding support the hypothesis by Lucas (1988) and Chandavarkar (1992) who suggests that there is a lack, or no existence, of any link between financial development and economic growth.

Table 5.9: Granger causality results

Null Hypothesis:	**Obs**	**F-Statistic**	**Prob.**
LNFD does not Granger Cause LNGDP	71	0.63213	0.5346
LNGDP does not Granger Cause LNFD		0.16125	0.8514
LNINV does not Granger Cause LNGDP	71	0.76885	0.4677
LNGDP does not Granger Cause LNINV		0.59186	0.5562
LNOPEN does not Granger Cause LNGDP	71	0.14646	0.8640
LNGDP does not Granger Cause LNOPEN		1.55764	0.2183
LNL does not Granger Cause LNGDP	71	5.32833	**0.0072**
LNGDP does not Granger Cause LNL		7.40034	**0.0013**

CHAPTER 6: CONCLUSION AND RECOMMENDATIONS

6.1. Introduction

This chapter presents the summary of the empirical findings from the preceding chapter as well as the policy and future research recommendations.

6.2. Conclusions

It is widely acknowledged that the existence and development of financial instruments, markets, and institutions mitigate the effects of information and transaction costs which subsequently impact rates of saving, investment choices, capital accumulation, technological innovation, and long-run growth rates. The primary objective of this study was to explore the causal relationship between the development of the NBFIs sector and economic growth in Namibia. The study used time series quarterly data over the period 2001:Q1 to 2019:Q4 and utilized ARDL Bounds testing approach to cointegration as well as the Granger causality tests to establish the existence of a causal relationship between NBFIs development and per capita GDP. The CUSUM and CUSUMQ tests were also considered in order to test the structural stability of the estimated model. The test confirms no evidence of structural instability and such that there are no structural break issues.

The empirical results of the study confirmed that the development of the non-bank finance sector had a positive effect on economic growth both in the short-run and long-run. The results further confirm that the other variables in the model, except for labour, positively contributes to the per capita GDP in Namibia. However, unlike majority of the finance-growth empirical

studies that support either the supply-leading or demand-following hypothesis, the Granger causality test indicate that there exists no causal linkage between the two variables of interest. The Granger causality results however confirm a bidirectional causal relationship between GDP and labour.

6.3. Policy recommendations and future research

As indicated by the empirical results of this study that NBFIs play a crucial role in positively influencing economic growth, it is thus essential for the relevant authorities to vigorously pursue and implement platforms through which NBFIs can effectively deliver their services in order to boost long-run economic growth. Policy makers are therefore encouraged to develop policies aimed at encouraging NBFIs particularly contractual savings institutions such as pension funds and insurance companies to invest more in the domestic economy. One of such options could be increasing of the current thresholds for unlisted domestic investments in terms of the Pension Funds Regulations which is currently fixed at a minimum of 1.75% and a maximum of 3.5% of the market value of a pension fund's total assets. This can only be made possible if financial institutions have a variety of asset classes and financial instruments such as derivatives, which include swaps, futures, forwards and options in which they can invest. Increasing the threshold will also unlock funds for long-term investments in feasible and innovative greenfield and brownfield projects that requires risky capital that traditional banks are unwilling to invest in as a result of the high risks associated with those projects.

Policy makers are further encouraged to develop tax incentives that encourage pension contributions amongst the workforce which may in turn have an indirect positive impact on economic growth by means of increasing national savings, and national savings is a variable

proven to positively affect growth. As mentioned earlier, it has also been theoretically proven that high savings rates normally coincide with high and continuous investment rates which is broadly recognized as one of the main contributors towards persistent economic growth.

As a final point, the study appeals for more studies to be conducted on the role that NBFIs plays in advancing economic development in order to fill a gap that exists in the literature, specifically in Namibia. More studies using different methods are encouraged on the subject-matter. Future studies on the NBFI-economic development relationship are further encouraged to use other control variables such as money supply, inflation, private sector credit extension (PSCE), interest rates, etc. Further, with more data availability in future, the study sample period can be extended to a much longer time period compared to the shorter period used in this study.

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