Financial Development and International Trade: Evidence from South Africa

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ABSTRACT

The research employs the use of Bound Testing (ARLD) to Co-integration approach to test for the long run relationship between trade openness and financial openness in the case of South Africa. Further we are interested to test the validity of the Rajan and Zingales (2003) simultaneity of financial and trade openness impact on financial development in the case of South Africa. It is also aimed at investigating the predictive nature of trade openness on financial development using Granger Causality Test. The research used time series data on yearly basis between the periods of 1972-2014 on South African economy.

The research estimate confirmed that the financial development variables are positively correlated with the interaction term of capital and trade openness with 0.97%. Specifically, the impact of interaction term (FOTO) on domestic credit to all the various sectors accounted for 0.96% of South Africa's financial development. Similarly, the impact of interaction term (FOTO) on domestic credit to private sector only was 0.19% of South African's financial development. The finding of the long run causality test showed a bi-directional way between financial development and the trade openness.

Keywords: International Trade, Trade Openness, Financial Openness, Financial Development, Bound Testing, Economic Growth, South Africa.

ÖZ

Araştırma, Güney Afrika örneğinde ticaret açıklığı ile finansal açıklık arasındaki uzun vadeli ilişkiyi test etmek için Eş Bütünleşme yaklaşımına Sınır Testi (ARLD) kullanıyor. Ayrıca, Güney Afrika örneğinde finansal ve ticaret açığının finansal gelişme üzerindeki eşzamanlılığını Rajan ve Zingales (2003) geçerliliğini test etmek istiyoruz. Ayrıca, Granger Nedensellik Testi'ni kullanarak finansal kalkınmada ticaret açıklığının öngörücü doğasını araştırmayı amaçlamaktadır. Araştırma, 1972-2014 yılları arasında South Afrika ekonomisi üzerine yıllık bazda zaman serisi verilerini kullandı.

Araştırma tahmini, finansal gelişim değişkenlerinin sermaye etkileşim terimi ve ticaret açıklığı ile% 0.97 arasında pozitif bir korelasyon olduğunu doğrulamıştır. Özellikle, etkileşim döneminin (FOTO) yerli krediler üzerindeki etkisi çeşitli sektörlere etkisinin South Afrika'nın finansal gelişiminin% 0.96'sını oluşturuyordu. Benzer şekilde, etkileşim döneminin (FOTO) iç kredi üzerindeki etkisi sadece South Afrika'nın finansal gelişiminin% 0.19'u idi. Uzun dönem nedensellik testinin bulgusu, finansal gelişme ile ticaretin açıklığı arasında iki yönlü bir yol gösterdi.

Anahtar Kelimeler: Uluslararası Ticaret, Ticaret Açılımı, Finansal Açıklık, Finansal Gelişme, Sınır Testi, Ekonomik Büyüme, South Afrika

DEDICATION

To My Family

ACKNOWLEDGMENT

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LIST OF ABBREVIATIONS

ADF   Augmented Dickey Fuller

ARDL   Auto Regressive Distributed Lag

ECT   Error Correction Term

ELG   Export-led Growth Hypothesis

GGM   Generalized Method of Moments

MENA   Middle East and North Africa Countries

OECD   Organisation for Economic Co-operation and Development

PP   Philips Perron Test

SARB   South Africa's Reserve Bank

VAR   Vector Autorregresssive

VECM   Vector Error Corretion Model

Chapter 1

INTRODUCTION

This research investigates the impact of trade and capital account openness on South Africa's financial development. Financial development entails the banking sectors, financial market, pension fund, bond, insurance issuers, equity markets and the apex – the central bank. It is the institution that controls and strategizes towards an effective capital flow which allows lenders to access funds with smooth and easy protocols towards employment and economic growth. Hence, financial development is strongly accepted as a stimulant to long run growth, (Levine, 2003; Demetriades and Andrianova 2004; Goodhart, 2004.)

By definition, International trade is the trade or business transaction that entails between two or more countries. When a country is open to trade with other countries, its economy is regarded as open economy. The gross capital in-flow and out flow is termed as capital openness. Hence, according to Rajan and Zingaless simultaneity hypothesis (2003), not only trade openness affects financial development but also the simultaneity of the two variables of trade and capital account openness breeds competition and make the incumbents however powerful to become weaker due to inflow of capital from outside source, thereby leading to a strong financial development.

South Africa's economy is historically affected by unhealthy environment for financial sector to stimulate growth. This is as a result of its sanctions imposed by USA, Japan and some European counterparts due to its policy of apartheid in the period of 1980. This ended in 1991 with an average slow down of GNP by 1.3% [Staehelin-Witt *et al*. (2003) and Padayachee (2010)]. The economy also experienced some shocks due to economic crises of 2008-2009 and its capital inflow was drastically affected. Moreover, its exporting countries are experiencing economic recession which reduced exports. Manufacturing sector output was declined by 6.8%, mining production dropped by 12.8%, similarly both trade, domestic production, and fall drastically which create a lot of economic imbalances resulting to unemployment, inflation and high importation of goods (SARB Quarterly Bulletin 2009). This study will test for the simultaneity hypothesis of Rajan and Zingales (2003) using South Africa economy.

The initial examination of financial development was from Schumpeter (1911), in which he postulated that for any growth or development to have thrived, finance is the key to open its door, thereby the subject of financial development is connected to capitalist economy. He also made it clear based on his analysis that when credit is given to an entrepreneur, the role played will stimulate growth into more prosperous and productive economy. The simple notion, according to Schumpeterian analysis was that credit given to an entrepreneur enhances growth through new innovations. However, trade on the other hand was the subject of countries' stimulant of growth since prehistoric period; trade was part of the daily activities around the world. Trade plays a key role in the socio-economic activities of all nations. It helps a country to move from a poor country to a sustained and developed country. The concept of

international trade was just the activities made by countries with mutual and benefiting understanding to do business among each other with the essence of achieving effective growth and development. Trade can be in form of exportation and importation of goods and services.

Several literatures have shown that there are huge long-run linkages between financial development and trade. Countries that develop faster tend to have a strong financial development spurred by trade openness and financial openness because it opens the economy for development (Kim, et al, 2010, Pesaran, Shin and Smith, 1999). Huang and Temple (2005) test whether an open economy affected the interdependence between trade and finance growth. The conclusion of this study shows that an open economy is positively backed by strong financial system. But the research has some inconclusive evidence as to whether the variables are affected by the supply side improvement or the dependency from external sources.

Therefore, this research will test for the Rajan and Zingales Simultaneity hypothesis of capital account and trade openness as the mandatory approach towards strong financial development.

1.1 Objectives of this Study

The broad aim of this study is to examine the impact of trade and capital account openness on financial development in South Africa. The specific objectives are as follows:

(i)   To test whether the Rajan and Zingales (2003) simultaneous capital account and trade openness hypothesis work on South Africa's financial development.

(ii)   To evaluate the long run relationship, vis-à-vis the causal nexus between international trade, capital account openness and financial development in South Africa.

1.2 Research Methodology

The research methodology will guide research of the step-by-step techniques to follow in analyzing the data from 1973 to 2014 using a time series approach. A unit root test will be conducted using the Augmented Dickey Fuller (ADF) and Phillips-Peron (PP) techniques to test whether the variables are stationary or not at level. Also, if the variables are not stationary at level, we proceed to check for the first difference and find out if the variables are I(1). A Bound Test Approach will be applied to find out the long run relationship between the variables captured in the model and the ECM to test for the short run dynamics among these variables in South Africa. Meanwhile, Granger Causality will be used to test the causal relationship among the variables.

1.3 Segmentation of the Study

The research contains six chapters. Chapter one is the introduction, which explains the main topic. It includes the objectives and methodology of the study. Chapter two explains the detailed literature review as well as the theories of financial development and international trade and also how they are related. However, chapter three focuses on South Africa's trades and its financial sector development. Chapter four provides the detailed methods employed in the research. Chapter five examines the results using the model employed from the methodology. Lastly, chapter six provides the conclusion and recommendations based on the empirical findings.

Chapter 2

THEORETICAL LITERATURE REVIEW

2.1 Theories of Financial Development

Financial development entails the banking sectors, financial market, pension fund, bond, insurance issuer's, equity markets and the strong coordinator of all the institutions – the central bank. It's the institution that controls and strategizes towards an effective capital flow which allows lenders to access funds with guides and smooth protocols to stimulate economic growth. However, financial development is the key player in ensuring effective intermediation of all the savings towards the redistributions of the allocated resources to investors for sound economy.

2.2 The Evolution of Financial Development

The first to examine the theory of financial development was Schumpeter (1911), in which he postulated that for any growth or development to have thrived, finance is the key to open its door, thereby the subject of financial development is connected to capitalist economy. He also made it clear base on his analysis ascertaining that when credit is given to an entrepreneur, the role played will stimulate growth into more prosperous and productive economy. The simple notion according to Schumpeterian analysis was that credit given to an entrepreneur enhances growth through new innovations.

Robinson (1952) remarks that financial development has a meagre effect on growth, it's considered as a silent influence on growth. However, financial development instead rises when there is huge demand for finance by the firms. Notably, when the

demand for finance is high, financial institution become very strong by devising strategic ways to control and measure the opportunity cost of providing loans to the investors for steady growth.

Gurley and Show (1955), Goldsmith (1969) and Hicks (1969) went on deeply into the study of financial development in relation to growth and conclude that, financial services plays a huge role in the development of a strong economy. They suggested that firms, corporations, traditional sectors such as agriculture source funds from financial institutions to produce in high magnitude, thereby generating employment and boost the economy at large. The workings of these sectors encourage households to save their earnings in large quantities leading to an increased liquidity in the banking sectors; hence the money is redistributed back in circle as loan to investors. The fundamentals of this theorist are called the Structuralist view of financial development. Consequently the view was discarded and criticised by Keynes due to its informal rationale. He argued that there is too much repression in the financial system such as the restrictions imposed on interest rate and reserve terms. These policies were the slogans of developing nations on how to stimulate their financial deficits without looking outwards for other sources. Thereby distorting the financial system leading to a lower credit available for investors.

However, in a further theory that put forward the significance of financial development emphasised that most of the developing countries don't have the strong financial institutions, therefore they self finance the economy. Base on this nature of the economy, firms cannot survive until available funds are deposited into the banks. The link between what boost the investors and the finance availability is what they

termed as complementarity hypothesis; Kapur (1976), Mathieson (1980), Fry (1988), Pagano (1993).

The neostructural economist such as Van Wijnbergen (1982) and (1983), Taylor (1983) was also against the financial liberation theories. Their argument was that the restricted market in developing economies performs better with efficient credits markets. Restricted market induces households to substitute restricted market for bank deposit. Hence, this discourages savings which result to low loanable funds for investors.

In view of the neo structuralist theorist, Fry (1988) condemn the theories by arguing that accepting the fact that commercial banks are more efficient and reliable in financial intermediaries. He further claimed that financial liberalisation was the key to stimulate growth but if restriction is to be effected, loanable funds will be reduced or limited, therefore investors cannot have funds available to access.

Mckinnon (1997) and show (1973), claim that liberalization of financial sector can only thrive when there is no restriction or barrier in accessing loan from all angles. With no restrictions a strong financial system will be acknowledged. They also argued that a savings impediment was a general issue much more than the investments in developing nations. Hence, there should be a regulations and strategies to improve savings using precise real interest rate regulations.

In another development Owen and Solis Fallas (1989) supporting Fry's theory agreed that financial intermediaries holds in a two system, a formal and informal credit markets. The two forms of system combined to give strong financial services to a higher bank deposits in other words higher liquidity.

2.3 Functionalist Theories of Financial Development

The functional theories of financial development are guided by different scholars. The theorists implied the way and manner at which financial development works to improve the output growth of a country.

Gurley and Show (1955) are among the growth theorists that suggested two main processes that complement each other in which financial development stimulate growth. The first was the capital accumulation flow and total factor productivity flow called the (TFP). The two main processes are also called the quantitative and qualitative. The qualitative called the debt accumulation hypothesis, it's the channel at which funds are realised through the mobilization of saving by the household and piped towards the investors for active production. So also the TFP called the qualitative process is nothing but the means at which a device were used technically to reduce cost of information that distort the resolute and reliable investigation of project by the investors. In another dimension, growth theorist such as Romer(1986) argued that financial development is one of the main avenues that can be used to stimulate and improve rate of return. Moreover, Bencirensa and Smith (1991) attested that financial development is identifying the best productive investments using adequate measure to regulate liquidity risk.

In a similar note scholars such as Levine (1996) made his assertion in this case using new ideas to which he made mention of the demand and supply side concept (demand following and supply – leading hypothesis) however, according to the literature the supply leading plays a significant role in the development of real sector of the economy. It was this literature that led to so many arguments as to where the causality lays between growths and finance.

Financial development complexities resort to many interested observations as to how countries financial development can be sustained and prosper. Remarkably, countries financial institution capabilities are heavily connected with proper management, adequate reorientation and mobilization, resource accumulation and control of risk in liquid assets (Levine 1997).

Also, Levine (1997.b) classified the functional process of financial development into 5 stages. The functions help define and ascertain how financial development establishes a close relationship with growth but only when it follows through the following concepts:

i.   Resource allocation and disbursement

According to Levine (1997.b), the proper allocation of capital to the investors always lead to effective and stabilises growth through systematic process of selecting the most promising investors. This idea was supported by Tobin and Brainard (1963) whose suggestions were made base on proper evaluation of strong investors with historical backup in business before any allocation can be made. Hence, these ideas lead to robust economy.

ii.   Saving inducement for effective financial system

Financial institutions, agents and financial markets contribute actively towards the realisation of high amount of saving by coordinating and strategizing ways in which households, small businesses can make fund available to banks for redistribution through lending. This enhances the financial system with enough liquidity in supporting investors for better economic growth.

iii.   Cutting down uncertainties

This function serves as a risk reduction method in which financial intermediaries provide liquidity through a form of control of maturity period of loans. Another way of building confidence is through stock market shares where investors obtain shares for long term and for its easy conversion into liquid assets. It reduces the uncertainty among individual savers since loan given to investor have long term records of performance in the stock market.

iv.   Expedite business transaction

Transactions are made through receipt and payment. The assurance of payment and credits to individual business makes the system flow. Financial institutions benefit through a continuous process of credit flow in form of loans and other trade agreements between parties. Also the form of intermediating in all credit transactions by managing, streamlining the small savings of their customers channelling the funds to the carefully well functional project help the system to boost the economic growth along the line.

v.   Corporate control measure

This process plays a vital role in controlling the firm's activities, their survivability in the sector and how well they used the available funds given to run their projects. The evaluations and valuations may sometimes incur more cost but remedies such as adequate and reliable arrangements can regulate the cost exposure. Hence, these measures can stimulate growth.

Additionally, some economist such as Rajan and Zingales (2003) relate financial development as the inclination of adequate and strong financial viability made available to the business moguls in order to process a sound and productive investments. Thereby, expect to have a high returns on investment with a low cost and low risk by both the key players.

2.4 Theories against the Link between Finance-Growth

The question of finance relevance

In view of how financial development affects economic growth, not all theorists agreed to it. Rather economic development is independent and emphasis should not always be linked with finance towards economic development. In this sense financial development involves no cost with perfect information in all market. It was also suggested that banks has no direct link in the cause of price change due to lending decisions, Modigliani and Miller (1958), Fama (1980) and Lucas (1988).

The question of how banks operate

The arguments was that banks only works to ensure that lenders pay back their debts, which makes or pool the risk averse investors to only invest in real assets than intangible assets such as innovative investments. This notion retard and discourage

investors, hence a negative economic growth manifest, Morck and Nakamura (1999) and Morck et al (2000).

Does stock market influences growth

The notion that stock market improves economic growth is still inconclusive. The argument was that stock market only operates within one circle. It is regarded as a substitution of stock market commodities from what was accessed as banks loans to further obtain stock shares. Another arguments rose was the speculative notion of stock, this rather destabilizes the economy due to its unpredictable nature towards growth. In a similar vein, stock market, mostly in developing countries has no perfect symmetric information and lack of good business ethics that could make the system flow efficiently. Therefore, stock market strongly distorts an economy to grow faster, Keynes (1936) and Singh (1997).

The question for financial crises

The fact that financial crises have a negative effect on economic growth is a question that was answered by different scholars. Minsky (1975), (1991) in his theory called ''financial instability'', highlighted that continuous change in government policies in pursuance of economic stability that cannot be sustained leads to unstable economy. He further declared that an economy independently advances from a strong financial system to a weak system and more economic expansion leads to risky decisions. This unpredictable economic shocks lead to bankruptcies, hence economic recession sets in.

Negative assertion to financial liberalization

Stiglitz (2000) reserved that, financial crises are mostly fuelled by the activities of financial liberalization. He argued that an economic boom will only be actualized when government restrict and control the financial system, until then economic growth will continue to shrink. An example given was that if an interest rate is low, more lenders will troop in with low ability to repay while on the same note credits constraint will induce more liquidity for investors.

In a similar development, Mankiw (1986) concluded that by government intervention, efficiency and transparency induces legitimate lenders that can boost the economic sector positively.

Based on these theories one would understand that financial development is not only about having funds or liquid assets that are only required to have strong financial institutions, but also to mobilize for savings, control and regulations of financial sectors, provision of adequate information to the investors to develop confidence and to have no restrictions or barrier to access funds in order to stimulate strong growth and effective economy that will boost domestic production for exportation. Moreover, since financial liberalization is the key aspect for adequate financial intermediation where banks and other financial institutions used to fund loans for sound investment but in some instances some factors create the borrowing constrains and thereby lead to weaker financial institutions. One factor is the high interest rate from the financial intermediaries, in some countries even if there are no legal restrictions, liberalization of financial institutions is taking place but some banks still impose a high interest rate and eventually business agent may found it very difficult to access funds. On the second factor which is guided by the historical records of

banks. In this case financial intermediations will be hampered with huge deficit that cannot be remedied over time. This lead to information's asymmetric and poor cash flow in the financial sector, hence they cannot provide loan to the investors.

2.5 International Trade Theories

Since prehistoric period trade was part of the daily activities around the world. Trade plays a key role in the socio economic activities of all nations. It helps a country to move from a poor country to sustained and developed country. The concept of international trade was just the activities made by countries with mutual and benefiting understanding to do business among each other with the essence of achieving effective growth and development. Trade can be in form of exportation and importation of goods and services. With these development theories have guided us through different ways since prehistoric periods as to how trade exist and how it's formed. The Theories are classified into the classical theories and the modern day theories which help to shape the trading between countries with the aim of having economic advantage. Among the classical theories that works so well to give an idea of how the world of trade came into being and how countries can benefit mutually within and outside their territory are: the Mercantilist theories, the Absolute Advantage Theory by Adam smith, the Comparative Advantage by David Ricardo, the Heckscher Ohlin Theory by Heckscher and his student Bertil Ohlin and the Leontief Paradox Theory by Wassily Leontief. Whereas those that worked for the modern day theories are: the Linder theory by Staffan Burestam Linder, the product life cycle theory by Remond Vernon, the global strategist rivalry theories by Paul Krumgman and Kevin Lancaster, the national competitive advantage theory by Michael Porter and the Gravity model theory by Jan Tinbergen among others. Let's look at the theories in series.

2.6 The Classical Theory of International Trade

2.6.1 The Mercantilist Theory of International Trade

The theory was founded over 300 years ago and was embraced by Thomas Mun (1620), and James Steuants (1769). The theory was an extension of the feudal system to capitalist system which crowded mostly the Western Europe around 16th to 18th centuries ago. A system purely for the control of resources where trade is extended to larger boundaries in an aim solely to get more gold. Mercantilist system was base on foreign market dominance and the sole aim of the system was to accumulate more by exporting more and importing less, whereas the import and export ratio should always be high in comparison with other countries doing business with them. The analogy here is to receive gold in exchange of any transaction made with other countries as a deficit paid back into their country from the other trade partner. Thereby, having a positive balance of trade. The mercantilist established a government that make some policies and control measure to restrict export of gold, subsidizing for import and also maintain the steady inflow of gold to have a steady economy they successfully create a monopolies between the endogenous sectors. Simply a mercantilist theory was basically a system that assumes the accumulation of more gold is what makes a country richer than other countries with less, Verter (2015).

2.6.2 The Theory of Absolute Advantage of International Trade

The theory was postulated by a Scottish philosopher in the 18th century after the mercantilist theory was abolished by Adams Smith book ''the wealth of the nation'' (1776). The notion called absolute advantage was the idea that countries can benefit from trade simultaneously. If a country can produce a product or goods at a lesser resources than other country can produce, then trade exist. I.e. when country A can produce 100 cloths in 50 hours and country B can produce 80 cloths in 60 hours. İn this sense country A has an absolute advantage over country B. But country B can produce 80 barrels of wine in 20 hours while country A is inefficient in this sector they can only produce 60 barrels of wine in 30 hours. Base on the absolute advantage theory, country A can produce and specialize in cloth while country B can produce and specialize in wine that has more absolute advantage.

The theory solely considers specialization with dominance in the production of good in order to have an active participation in the international market. The theory also did not consider the countries that do not have either advantage of producing wine or cloth; thereby the limitation is obvious for a country that has no specialization in both the product that is what the next theory tries to expatiate by comparative advantage theory, Golub (1995), Perrinello (2006), Seretis and Tsaliki (2015).

2.6.3 Comparative Advantage Theory of International Trade

The theory was a further clarity of absolute advantage theory by Adams Smith by David Ricardo in 1815. The theory of comparative advantage was to prove the absolute advantage theory that only focuses on specialization thereby depriving the countries that has no advantage in all the products. This theory was of the notion that even if a country cannot specialize in a product it can as well has a comparative

advantage to produce using its opportunity cost. A country has less opportunity cost in producing a product can produce and have a comparative advantage trading with other countries. i.e. consider two countries that produces two products. Country X produces cloth and Keyboards while country Y Produces the same products. But country X produces 1 Cloth per hour and produces 2 Keyboards. And at the same time country Y produces 3 cloth per hour and 5 Keyboards per hour.

Table 1:COUNTRY (X)

	Cloth	Keyboard
No of hours per unit	1	2
Opportunity cost of producing one unit	$1/2$ Keyboard	2 cloths

Table 2:COUNTRY (Y)

	Cloth	**Keyboard**
No of hours per unit	3	5
Opportunity cost of producing one unit	$3/5$ Keyborad	$5/3$ Cloths

The opportunity cost of producing 1 keyboard per hour is 0.5 or $1/2$ and 2 cloths per hour is 2 in country X. For country Y, the opportunity cost of producing 3 keyboards per hour is 0.6 or $3/5$ and 5 cloths is 1.66 or $5/3$.

Intuitively, country X specialises in producing cloth since the opportunity cost is lower in that country while country Y specialises in keyboard at its opportunity cost for producing that product is lower.

However, the theory not only talks about opportunity cost in production but also in prices that affected as a result of production cost. When a country is open to trade the prices of goods to purchase will be determined by the opportunity cost of each country product prices. For example after the autarky prices, the world prices: keyboard for example will be between $\frac{5}{3}$ cloths and 2 cloths will result to a decrease in price than country Y for a cloth and get profit. In this case country X pays less for keyboard while county Y pay less for Cloths.

The theory by David Ricardo is applicable to the world trade even in the present day situation of trade, countries specialises in a product and benefit more by making the prices the world market. And also the theory is applicable to the world of free trade where countries produce and export goods that are needed in other part of the world at a cheaper price, Koo and Kennedy (2005), Costinot (2009) and Sen (2010).

2.6.4 The Heckscher – Ohlin theory of International Trade

The theory is an extension of Ricardian Theory of Comparative Advantage which was regarded as total specialization and the opportunity cost principle of benefiting from trade using only single factor of production where every partner wins (win – win). The factor proportion model was originated by the Scottish Eli Hecksher together with his student Betli Ohlin in 1920's. Heckscher Ohlin Factor proportion theory is a comprehensive model that ascribed the use of two factor of production, it was on the assumption that all countries share an identical technology, identical preferences and factors are movable. But countries are different in terms of abundance of these factors, the more abundant a country is in a factor the more different and productive they will be in trading that goods. Moreover, HO model try to categorize the sectors into two, the capital intensive and the labour intensive. The

theory asserted that the more a country is labour abundant, or labour intensive the more the country productive they will be and export that product while in the same vein the other sector will be less productive which at the end the country will import the less productive sector products. Furthermore, the exporting country will have an advantage to benefit from imported goods at a cheaper rate.
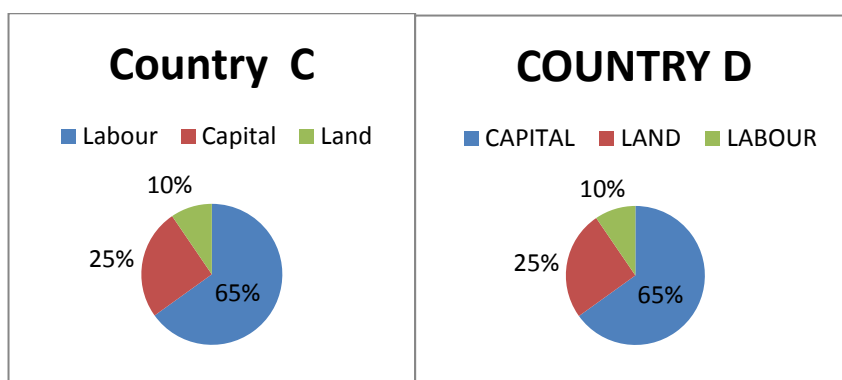
Figure 1: Relative Factor Endowment

The intuition here show that country C with vast labour are set to be labour abundant country while country D with huge capital is set to be capital abundant country, Koo and Kennedy (2005).

2.6.5 The Leontief Paradox Theory of International Trade

Recalling the Heckscher Ohlin Theory of factor proportion theory which ascertain that countries with more abundant of endowment will be more advantage in that sector than the other sector with less. Hence the country can export that product by importing the product that has a weaker sector endowment.

The theory continues to be popular until the American Economist came up with a controversial theory that contradicts the Heckscher Ohlin assumptions by Wassily Leontief (1906-1999). The theory called Leontief Paradox was founded in 1953 when he made a research using the American Data of 1946 in his input and output measure and found out that United States were largely exporting labour intensive goods rather than the capital intensive as HO model was signifying that America is a Capital abundant country thereby exporting capital intensive goods. The Leontief Paradox argued that United State of America was strongly a labour abundant country because of their high investments in the human capital intensive thereby leading United State with a high skilled labour for the productive sector. In essence the theory was of the opinion that due to the huge and high skilled labour United State is endowed with their tendency to be in capital intensive sector is minimal compared to their abundance of human capital that actively in the labour sector making large production that contradict the Heckscher Ohlin theory, Casas and Choi (1985).

2.7 Modern Theories of International Trade

2.7.1 The Linder Theory of international Trade

In continuation of the Leontief paradox theory of International trade that ascertain in a different context as to how efficient United workers lead to high export of labour intensive goods. To which his theory contradict the Heckscher Ohlin theory which say that United States of America is more of capital intensive country because of its abundance in capital. Here we came with another theory which supersedes the Leontief paradox in another dimension.

A Swedish renowned Economist Staffan Burestam Linder observed the two previous scholars and came up with a theory called the Linder Hypothesis or the country similarity theory in 1961. The theory describe that trade exist mostly in countries of similar taste, similar per capita income, similar preferences and also similar in technology.

The hypothesis postulated that countries can exchange goods for different product which is called intra-trade. A developed country can trade with a developed country with a similar technology but a different product i.e. England and Germany can trade appliances. Base on the standard industrial classification trade with similar country amount to 23% of the world trade and for the developed countries it amounts to more than 60%. This indicates what Linder observed between countries that has similarities export and import good within themselves, Adnan et.al (2005) and Hallak (2006).

2.7.2 Product Life Cycle Theory of International Trade

The theory by Raymond Vernon (1996), analyse how product life circle stage move in trade from where it was innovated to where the product will be demanded newly due to change in demand and supply factors from its initial manufactured country. The theory ascribed the movement or flow of trade of a product into four stages.

   a.   The production stage

   b.   The growth stage

   c.   The maturity stage

   d.   The decline stage

The theory further explains that the production stage is when a product is produced mostly in the developed country and thereby sold to the market. The production stage mainly starts from a well advanced country. At growth stage, the product is growing and it's sold in many developed nations that has similar advancement same with the producing nation. But at the maturity stage which I called the critical stage, it when the buyers and the sellers have perfect knowledge of the product, the product prices begin to fall due to market forces. The falling of the price will lead to low production because of the low profit witnessed by the producers. And at this stage also the exporters will become importers of that same product they are producing before. The innovation have now moved to a country that has cheap labor and are able to produced it cheaply and efficiently to the market. And finally, the decline stage, this is when the producers realized that their product has low patronage from its customers and some countries can produce it at lesser price. This result to make the innovators of the product to stop the production and start another production in a new innovative form, Boje (2008).

2.7.3 The Global Strategic Rivalry Theory of International Trade

In an effort to have a dictate on the global market, the oligopolies. Strategic and decisive measures were incepted by two economists, Paul Krugman and Kevin Lancaster in the early 1980's. The theory focuses on how firms should continue to stay competitive thriving to a strong competitive advantage through the following ways:

a. Holding intellectual property rights

b. Promoting research and development

c. Gaining high economies of scale

d. Capitalising on experience curve

e. Creating partnership using mergers and acquisitions.

The literature was culled from: Lancaster (1980) and Krugman (1981).

2.7.4 The National Competitive Advantage Theory of International Trade

The theory was examined by an economist called Michael Porter, (1990). The theory explains how a nation has a competitive advantage over other nations. In his theory, he shades more light upon four key concepts using his diamond national advantage theory.

a. Local demand conditions

b. Local supply – chain improving industries

c. Firm level approach under perfect competition.

Porter NCA theory signifies a very important aspect of international trade by the rationing of the domestic producers key aspect that lead to a viable trade and sophistication. However, the theory is new but basically it affects the nature of trade across countries, Hunt and Morgan (1995).

2.7.7 The Theory of Gravity Model of International Trade

Gravity model implies that trade between two countries is determined by the size of a country measured by their GDP which is stimulated by the distance of the two countries. The model was firstly developed by Isaac Newton (1687) in his renowned literature the ''apple tree''. Later, the model was metamorphosed into trade by Walter Isard (1954) and Jan Tinbergen in (1962). And the model was in a form of trade between two countries.

$$fij = G \frac{\text{Mi}^{B1}\text{Mj}^{B2}}{\text{Dij}^{B3}}$$

Where f is the trade flow, M is the economic mass of either country, D is the distance while G is a constant in essence the model was widely used to examine the

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inducements of bilateral trade movements between countries trade which include related boarders, language, legal system, currency and colonial legacies: De Benedictis and Taglioni (2010).

EMPIRICAL LITERATURE REVIEW

This chapter will focus on the review of previous literatures as examined by different scholars for better ideas. And to also determine the level at which the validity of this research topic affect the economic development of South Africa as a whole through the findings and recommendations of previous scholars. The chapter categories the previous literatures base on the literatures that ascertain financial development and international trade, and then we interconnect the two variables: financial development and international trade to see how they relate to each other base on several finding in the fields of study.

2.8 Empirical Literature on Financial Development

Financial development has become great concern to nations building. The need to finance business to improve growth and is what attract different scholars from different areas. Financial institutions now require more sophistication and strong policies that could guide and poster sustainable development now is what has become a challenge to both developing and developed nations. Financial development plays a great role to banks, capital markets, private institutions, small business, industries and agricultural sectors. With this notion a renowned scholar Patrick (1966) relates financial development with two phenomenon, the supply-leading and the demand following hypothesis. The need for more loans from the traditional sectors pushes the financial institutions to becoming stronger by becoming highly litigated with strong strategies and policies to meet the demands of their

customers. Thereby becoming more sophisticated, the result being that strong financial institutions will emerge with the task to supply low interest loans to the entrepreneurs, hence economic growth will emerge strong.

Mackinnon (19730), Shaw (1973, Fry (1978), Thornton (1989) were the leading scholars that explore and support the supply leading hypothesis postulated by Patrick (1966).

Rajan and Zingalaes (2003) in a different test tested how countries financial development is affected over time due to changes in terms of trade openness and political moves by what they called the incumbents powers. A time series approach of 24 countries and a cross sectional data approach for the countries were used. It was observed that countries are more financially strong in 1913 than in 1980s while witnessing a reverse due to their inability to have an open economy that allow capital flow from external sources.

Hondroyiannis, et al (2004) test the relationship between banking, stock market and economic growth of Greece for a period of 4 years. The analysis was made using VAR models and concluded that the two variables banking system and stock market bolster economic growth in the long run but their impacts are minimal. While the stock market variable finance is meager relative to bank finance.

Law (2007) using dynamic heterogeneous panel data results based on 68 countries for the period of 1980 – 2001. The results indicated that simultaneous open product and capital market actually better financial development. Similarly, Law (2008) examined the role of trade and capital account openness in determining financial development using time series in Malesia. The results shows that capital account and

trade openness are determinant of financial development implying that Rajan and Zingales (2003) hypothesis holds.

Batalgi et al. (2008) tested for the validity of Rajan and Zingales (2008) hypothesis. This study used annual data for developing and industrial countries. The econometrics techniques applied is a dynamic panel estimation technique. The result shows that openness is statistically significant determinant of financial development. This funding supports the Rajan and Zingales (2003) hypothesis that liberalization of trade on financial development.

Acikgoz et al. (2012) investigates Rajan and Zingales (2003) hypothesis using a time series data on Turkey for the period 1989:1 to 2007:2. The finding strongly supports the hypothesis of Rajan and Zingales (2003).

Kenourgios and Sanitas (2007) investigated the relationship between financial development and economic growth in another dimension of a transitional economy of Poland. The test was conducted using a cointegration approach of quarterly data of 1994-2004. It was concluded that in the long – run credits to private sectors stimulate polish economic growth. And additionally, economic development is not supported by internal variables such as financial development.

In a different approach by Rachdi and Ben (2011), a test was conducted to study the relationship between financial development and economic growth. It was examined using a panel data and GMM system paths using a sample of 10 nations, 6 from OECD and 4 from MENA regions for a period of 16 years. The result ascertained financial development and economic growth to be a long term for the OECD and

MENA countries. Consequently, the GGM approach indicates that financial development and real GDP capita have a positive and strong tie. Using the error correction model it implies that the OECD regions are bidirectional while the MENA countries are unidirectional. In a positive note, economic growth triggers financial development.

In a similar vein, Sinha, and Macri (2001), test the relations between financial development and economic growth using a data of 8 Asian countries. The method used in conducting the research was time series approach and it was tested using two segments. The first was the relationship between income and financial development growth rates. The result implied that a positive relationship between the two variables income and financial development for Malaysia, Pakistan and India and Srilanka. Also a multivariate test was conducted and the result being that there is bidirectional causality between the two variables, income and financial development for India as well as Malaysia. And a unidirectional relationship between the two variables for Japan and Thailand. Similarly, a contrary causality was found for Pakistan, Korea and Philippines. Categorically, the findings brace the result in a positive manner between financial development and economic growth.

Sinwaka, et al, (2012) testifies that a poor relationship between growth and economic development was acknowledged due to weak financial market in Malawi. The test was conducted using a time series data of 20 years. They suggested that its only when the financial system is improved and was geared towards the supply of funds to the productive sector then the economy will improve. This literature rather tries to show how dependent an economy is with financial development of a country especially in the developing nations.

Ibrahim and Shuaibu (2003) examine the causal relationship between financial development and economic growth using UECM – Bound test by Pesaran et al. (2001), Yoda and Yamamoto causality test (1995) for a time lag of 30 years. The result postulated also that financial development promotes economic growth in the long run while simulative approaches and growth policies should be maintained to keep the long run relationship of financial development.

Pal (2014), carried out his test by examining how financial deepening can influence economic growth in India using 41 years period of observation. His work indicated that high financial deepening influences or improve economic growth in developing countries.

2.9 Empirical Literature on International Trade

In a view to explore the rationale behind international trade, influential literatures were used to ascertain how international trade influences economic and sustainable development in a given country. Countries benefit more by exporting manufactured goods to different part of the world that has less comparative advantage on that product. In line with these notion different literatures that examine this trade flow such as the Export Led Growth literatures (ELG), restrictions on trade effect, how trade reduce conflict and improve economic conditions, openness to trade impact and how export boost economic growth of nations will be focused in this area of concern.

Chang (2000) study the relationship between conflict and trade, in other words how trade reduce conflict to poster nation's development. His test clarified that conflicting states enjoy the benefit of trade by reducing unemployment among others. However, according to Chang, foreign aid also stimulate and improve trade

only in the short run while in the long run the effect will be too much dependence on other sources that are not reliable. In the same vein, high tariff increases conflicts. The conclusion is that there is causality between trade and conflict among conflicting countries.

Medina-Smith (2001) examined whether ELG hypothesis is significant in poor nation, the test was conducted using a time series approach for 47 years in Costa Rica and she found that ELG hypothesis play a significant role in improving growth mostly for the developing countries.

Batiz and Romer (1991) tested to conclude that trade restrictions slow down worldwide growth using Europe and North America. Their method entails the use of consumer 29ehavior theory. The result shows that the impact of integration and redundancy show changes in growth and development.

Allaro (2012) tested the effect of export led growth on Ethiopian economy. As a result of the economic fall down of Ethiopia, Ethiopia changes its strategies through the adoption of export led techniques to cushion the effect. Multivariate time series test was adopted for 32 year period. And the result indicated that there is a unidirectional relationship between export and economic growth in Ethiopia. In contrast, export led to economic growth was in a positive direction.

Similarly, Bahmani and Alse (1993) in a view to discover whether export led growth affect economic growth in LDCs using cointergration and error correction model. The studies found that there is a significant correlation between export and growth.

Chang, et al (2008), measured how openness is trade influences growth when certain aspect of the economy is complemented. The research was conducted using sample of 22 developed nations and 60 developing countries for a five year average of 40 year period. The test concludes that openness to trade can only affect growth if certain changes are made in countries policies.

Doyle (2012) used another different approach to study the impact of audio visual in international trade. The study tested that it helps boost market of an open economy to shape cultures and improve growth across the trading partners.

Tan (2012) test the international trade openness impact on growth using time series approach for 53 years in search of trade exposure in Singapore and the findings shows that a positive result was acknowledged when a country is open to trade.

Daumal and Ozyurt (2011), examine how trade openness affects the growth of Brazilian state. The study looks at 26 State for a period of 21 years. The test adopted GMM system estimator. The results shows that states with high human capital tends to have a positive result while states that have labour intensive skills benefit less in trade. This literature talks about the imbalances of in state policies on trade.

Huchet – Bourdon, et al (2013) in a new insight, study the relationship between trade openness and growth. The study was conducted using a panel data of 158 countries on average of five years in range of 1980 and 2004. Their findings conclude that a positive result in trade affecting growth but no specific clarification was made about the main reasons regarding different variety of products used in export. Their research found that the countries that export high level of quality products have their

growth affected positively and prosper significantly while a backward growth is experienced in a country that export low quality goods.

2.10 Literatures on the Relationship between Financial Development and International Trade

The link between financial development and international trade generated wide interest from scholars. So many debates tested the relationships to clarify their facts about the causal effect among the two variables. The debates is still not conclusive, it's on this note that this research will explore the various analysis and arguments in order to have a basis for further analysis and studies.

Beck (2002) elucidates the link between financial development and trade in manufactured goods. The literature highlighted the role financial institutions plays in providing financial means to their big firms which in essence promote and enhance big returns especially in promoting local production which lead to export. Also, a 30 year panel of 36 countries was tested with an emulation of Kletzer and Bardhan method (1987). He concluded that financial development has a significant impact on trade helping the producing firms to produce at an export level. He further concluded that the firms that have adequate access to finance eventually produce and export more goods than the less privileged to access the fund form the financial institutions.

Huang and Temple (2005) test whether an open economy affected the interdependence between trade and finance growth. The study uses a sample of different countries data from 1990-2001. Panel data approach was conducted and their research suggested that production of goods in an open economy is positively backed by strong financial system. But the research has some inconclusive evidence

as to whether the variables are affected by the supply side improvement or the dependency from external sources.

Qun and Jianju (2007) explore the link between financial development and foreign trade. The study shows clearly how the comparative advantage theory in the development of China's economy using a panel of 30 states in a period of 13 years was strongly promoted by effective financial development. The literatures also ascertain the strong economies of scale in the production of manufactured goods.

Samba and Yan (2009) tested to find the relationship between financial development of a country and its comparative advantage in international trade. Basically, the test was conducted using time series approach and 7 Asian countries were used to test whether the variables have a long run relationship with financial development and international trade in manufactured goods. The model was conducted using the VAR and it was found that large number of countries used in the model appeared to have gained and achieve success in production of goods by the sector boosted by financial development. The literature also used the classical theory of trade as to explain that most countries achieved their market powers by producing intensively in the sector that was supported by strong financial institutions.

Kim, et all (2010) test the long run and short run linkages between financial development and trade openness. It was analysed capturing the mean estimate of Pesaran, Shin and Smith (1999) unbalance data for 87 countries. The study shows that there is a huge long run relation among financial development and trade openness. The countries were further divided into two segments, the OECD and the non OECD countries. The results shows that improper financial system lead to a

negative impact on trade while strong financial institution lead to a positive result in trade.

Shaheen, et al (2011), in their own case try to scrutinize the causal relationship between international trade, financial development and economic growth for the case for Pakistan, a time series approach for a period of 52 years. The result conclusively determined that a long run relationship occurs between financial development, international trade, local credit and economic growth. And it was indicated that the granger causality test was unidirectional between the entire variable vice versa. Hence, the result further nullifies the demand following hypothesis regarding Pakistan. And suggest the simulative approach to the financial sectors and stock market.

Leibovici (2014) studies the total impact of finance in international trade. The study was made using panel data. And was able to capture the Chilean different manufacturing companies for 1 year. He observed that financial influence has a positive role on international trade within firms while it has a minimal role to play in the total firm level. In contrast, financial impact may have a significant impact on international trade at the firm or small business level but have no reasonable impact at the total level as a result of the corrections regain in final market value or worth.

Mafizur, et al (2015) examine how international trade, financial development affect growth in Australia for a period of 55 years using ARDL approach Zivot-Andrews (1992) and Clement et al (1998) approach was borrowed to attest the variables in the case of stationarity. And the result shows financial development, international trade affect growth significantly both in the long run and short run. The research further implored that financial development encourages local industries to an economies of

scale. And there exist a causal relationship between export, import and growth. Similarly, international trade has a causal relationship between financial development and capital. To this end, it was suggested that Australia should support and improve the financial sector continuously.

In a nutshell, financial development affects international trade positively. Strong indications have emerged, that countries with strong financial system support firms with low interest rate loans, easy access to loans and high liquidity in the banking institutions directly stimulate investments to produce cheaply in an economies of scale. Thereby exporting more of the product to the world market and largely become a dominant figure in the production of those products due to its comparative advantage.

Chapter 3

FINANCIAL SECTOR AND INTERNATIONAL TRADE TREND IN SOUTH AFRICA

3.1 An overview of South Africa's economy

Despite the global financial crises, South Africa's economy is still strong and stable due to its firm fiscal and monetary policies. In terms of politics the country is well formed with stable and functional political system. The country is endowed with natural resources and adequate human capital with a well established manufacturing sector.

South Africa is ranked as an upper middle income country, according to World Bank. It's the second largest economy in Africa behind Nigeria. In terms of GDP, South Africa account for $20 billion in 1972 to a rise of $351 billion in 2015 with per capita of $ 5724 and a population of 55.1 million. Source: Wold bank Development Indicators and Statistics South Africa (2016).
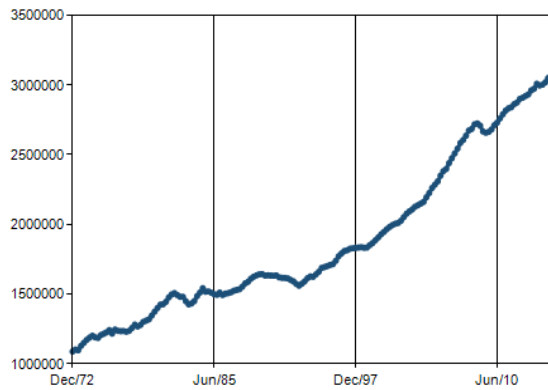
Source: South Africa reserve bank
Figure: 2 South Africa's GDP

In the year 2011, South Africa was listed among the BRIC group of countries along with other countries such as Brazil, China, Russia and India. South Africa is developed with functional legal system which shape the legislation governing commerce, labour and maritime development. The country is developed with complement policies that guide and control the abuse of patent, copyright, trademarks standards which is in conformity with global best practices.

3.2 The Positive Outlook of South Africa

According to world economic forum, South Africa was ranked the 49th in the world global competitiveness index out of the 140 economies in the world. The country was ranked first for its strength and its reporting standards through the stimulation of equity market. Meanwhile, the country was ranked 12th for its financial market strength, 29th for it market size, 33rd for its sophistication in business and 38th for its technical knowhow among the 140 economies in the world. Source: World Economic Forum 2016.

3.3 The Economic Growth and Diversity in South Africa

South Africa's development and its diversity were reflected by the significant rise in its GDP. This development was as a result of its steady economic policies. The country witness unstoppable economic growth in the last 62 quarters ranging between 1993 – 2007 which recorded a rise in GDP to about 51%. But even with the growing of its economy, World Bank predicted the slow rate of its GDP to 2.0% in the year 2015 to a same figure in 2016. The slowdown was the result of the fall in the commodity prices lead by internal and external constraints, and also due to Chinese economic slow pace. But World Bank predicted a rise in South Africa's GDP to about 2.4% in 2007 base on the new energy supply.

Moreover, in terms of social development, South Africa is working hard to ensure effective service delivery with measures to improve public services. In an effort to improve the public services, the reduction of reckless spending and stamping out corruption was taking seriously. The strict adherence to the plans stated, a national development plan and medium – strategic framework was designed to keep the growth steady.

The South African inflation policy implemented by the South African Reserve Bank, record was astonishing with a fall in 2015 by 4.8% from its initial rate of 6.1% in 2014. The measure was taken to maintain the standard of living in the country for both the working and low income families. Below is the South Africa's sectors contribution to GDP:

- Agriculture: 2.2%

- Mining: 10%

- Manufacturing: 13.3%

- Electricity and water: 2.6%

- Construction: 3.9%

- Wholesale, retail and motor trade, catering and accommodation: 14.6%

- Transport, storage and communication: 9%

- Government services: 17.6%

- Personal services: 5.9%

The development of South Africa is hampered by national concerns especially from the mining sector. And also the slowdown of South Africa's business partners such as Europe led to the drastic fall in exporting goods. Consequently, trade policies implored by South Africa promote new way to domestic firms in creating new ideas to compete with the BRIC group to stimulate their growth. Source: European commission data bank.

The Challenge

In 2015 South Africa's economy rise in a slower rate to a margin of 0.7% to an increase from 1.3% reduction in the second quarter stated by South Africa's statistics. Most of the industries fell down with a ratio of 3:10 such as the mining, agriculture, water supply, and gas. The most promising sector is the manufacturing posting a significant growth. The labour intensive sector recorded a lower rate in employment generation as it account for most of the unskilled labour while the

public services sector account for 72 percent of the employment leaving an unemployment rate25%.

3.4 Financial Sector Development in South Africa

The South African banking sector was created through the establishment of Dutch East Indian Company in 1793 named Bank Van Leening to serve the traditional farmers with a long term credits. And the Lomabard Discount bank established by the British to serve as a short term credit supplier to farmer in 1808. Subsequently, the free banking period break through with the establishment of the Cape of Good Hope Bank, in 1836. During this period small places were used as banks with little knowledge of banking system.

Late 19th century, the banking sector was transferred with the inception of the imperial banks such as standard banks of British SA LTD. İn 1862, Netherlands Banks of SA in 1888. Further, more banks emerged like the Barclays National Bank LTD in 1926 and Volkskas Banks in 1934. These banks lead to the disappearance of the previous small bank with little expertise. In the middle of 1960's and 1980's banking sector and the capital markets were limited through intensive and extensive monetary control measures. These measures were created just to reduce the too much spending and lower inflation rate. The measure, succeeded in increasing high liquidity towards the development and stimulation of the markets. Source: South African History Online (SAHO).

The financial liberalization took place after 1980's base on the recommendation of De-Kock commission. Free markets led to the amalgamated banks of South Africa, Standard Bank, First National Bank and Nedbank, Mishi and Tsegaye (2012).

These banks hold 95% banks assets in South Africa. The 5% asset goes to the 27domestic banks and 9 international owned banks. By 1991, when the bank act was created all the banks that has poor system and inadequate liquidity ratio formed to become groups. This however, made the financial system strong serving its purpose. By 1997 South Africa has 51 strong banks with 5 community banks. In the year 2000, an increase of new 10 banks becoming 60 licensed banks. By the year 2016 South Africa had huge number of different banks comprises with 17 approved banks and 14 domestic banks, control banks, 2 mutual banks, 43 foreign controlled banks, 2 cooperative banks. South Africa financial sector (banking sector) is marked as the 3rd out of the 148 countries' banking sector in the world in the year 2014 as acknowledged by World Economic Forum Global Competitiveness Survey. Source: South African Banking Association Review 2014.

3.5 International Trade in South Africa

In the last five decades even under much pressure, sanctions and restrictions from different international communities, South Africa's economy heavily depends on foreign trade. With gold as the largest of its export, its economy was over reliant on gold export as source of revenue. In 1970s and 1980s, gold prices determined the value of rand base on the export sold in foreign markets. During this period market fluctuations were the result of the over dependence of gold export as the economy was basically a nanoeconomy. Only few investors were able to risk their investment on other productive sectors.

In early 1970s, a new development was innovated using the creation of railway lines and mines which directly improve income generation to 18% yearly. In 1980s, the creation of BTI (Board of Trade and Industry) leads to the restructuring industries by

limiting goods for export from 56% to 36%. The South African Government directly limits import in order to protect the local producers by increasing surcharge on some goods to about 60%. By 1989 surcharged on capital goods reduced from 20% to 15%. However, south Africa being the second largest producer of gold and other commodities such as chrome, magnese, platinum, vanadium and vermiculite, limonite, palladium, rutile and zirconium and also the largest exporter of coal. South Africa's trading partners are African countries such as Nigeria, Botswana, Lethoso, Mozambique, Namibia while for other countries are Germany, United States, China, Japan, UK and Spain. Among the products exported to most of these trading partners are gold, diamond, fruits, metals and minerals. South Africa imported commodities are automobile equipments which is about 20% of its import leaving the remaining 80% in other goods imported.

3.6 The Trade Patterns of South Africa

South Africa is the 36th largest exporter and 33rd largest importer in the world, with gold as the major resource generating huge amount of revenue, with comparative advantage of exporting 229 products. In 2014 the country exported $106 billion and imported $102 billion with a trade balance of $3.39 billion. China tops the export destination of South Africa products with a value of $9.8 billion, United States become the second destinations with $8.9 billion and UK with $6.18 billion. Meanwhile, the top import originated from china with $16.1 billion, Germany with $8.56 carrying, Saudi Arabia with $7.13 billion while United State and India has $6.96 billion, and $5.48 billion respectively.

Source: South Africa Revenue Service Data Bank and global Competitiveness Report 2016.
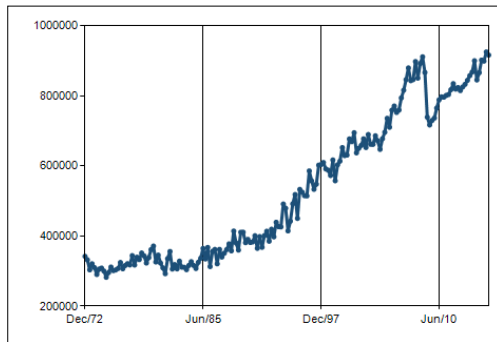
Source: South Africa Reserve Bank

Figure 3: South Africa Export
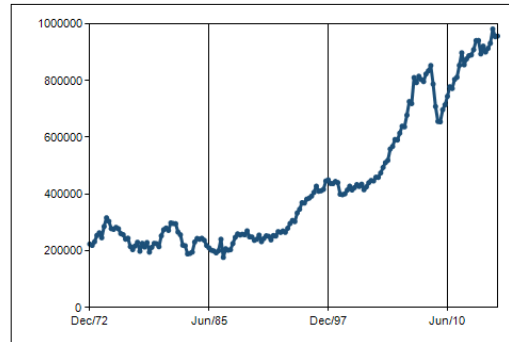
Source: South Africa Reserve Bank

Figure 4: South Africa Import

Its major export product gold was about $11.9 billion, diamond $10.3 billion, platinum $7.45 billion, coal $5.80 billion and iron ore $5.52 billion. While for imports, crude oil was the dominant aspect which accounts for $16.2 billion, while cars recorded $6.13 billion among the imported goods, Source: World Bank Development indicators 2016.

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Chapter 4

DATA AND METHODOLOGY

Introduction

This research is designed to examine the relationship between Financial Development and International Trade (openness to trade) in South Africa. To determine the right estimation method to apply, we conducted a unit root tests, co-integration test and a bound testing approach to know the level of relationship among variables proposed by Pesaran et al. (2001) leading to a two- stage ARDL approach base on the established long run relationship used as proposed by Pesaran and Shin (1999). Granger causality is conducted to determine the causal effect among the variables.

4.1 Data

The data used in this research are captured from the World Bank Development Indicators and the International Financial Statistics (CD ROM) 2015. The data set used covers the period of 1973 to 2014 to make it Fourty-One observation. A time series approach is used in this research.

4.2 The Variables

This research will focus on five variables to examine the relationship between financial development and international trade; therefore all the variables are endogenous. The financial development variables are: domestic credits to private sectors by financial institutions divided by the GDP (DCF), domestic credit to private sector by the financial sector divided by GDP (DCP), money supply is (M2),

financial openness as the sum of Gross capital inflow and gross capital outflow divided by the GDP (FO). The variable for international trade is the trade openness which is the sum of export and import divided by the GDP (TOP).

$$M2 = F(FO_t, TOP_t, FOTO_t) \tag{1}$$

$$DCP = F(FO_t, TOP_t, FOTO_t) \tag{2}$$

$$DCF = (FO_t, TOP_t, FOTO_t) \tag{3}$$

Where:

M2 is Money Supply

DCP is Domestic Credit by the financial sector to Private Sector

DCF is Domestic Credit Provided by the Financial Sector to various private sectors

TOP is Trade Openness

FO is Financial Openness

FOTO is an interaction term between FO and TOP variables.

Table 3: Variables Captured in the Research

S/N	VARIABLE	UNIT OF MEASURE	NAME
1.	Domestic Credit Provided by the Financial Sector to Private Sectors. (DCF)	% of GDP	DCF
2.	Domestic credit to Private Sector by Financial Sector (DCP)	% of GDP	DCP
3.	Financial openness (FO)	% of GDP	FO
4.	Money supply (M2)	% of GDP	M2
5	Trade openness (TO)	% of GDP	TOP

4.3 Domestic Credit to Private Sector

Domestic Credit to private sector to GDP is referred to as a source of finance provided to private sector in the inform of loans for trade and industrial regeneration. It also includes receivable cheques that can be claimed in other words, it is the credit supplied to real sector by the deposit banks to GDP which excludes the central bank. Credit to private sector to GDP is highly correlated with high income countries, whereas countries with high income have strong financial sector which spur domestic investments, Levine, Loaya and Beck (1999).

4.4 Domestic Credit Provided by the Financial Sector to Various Sectors

Domestic credit provided by the financial sector to GDP is defined as the total liquidity available in all sectors which excluded the central bank. The financial institutions consist of the monetary institutions such leasing companies, money lenders, insurance corporations, pension funds, and foreign exchange companies that provided liquidity and non financial facilities to private sector. The variable is also known as the gross credit supplier. This indicator of financial development is widely used by these researchers, Levine, Loaya and Beck (1999).

4.5 Money Supply (M2)

Money supply to GDP (M2) referred to the total amount of money supply either informs of coin or notes (currency) in circulation. It also incorporates the non bank issued cheques, checkable deposits (M1), time deposit also known as near money. Most of the literatures suggested that M2 measured the size and adequate liquid available for investment towards improving the real sector in the economy thereby boosting economic growth Akyuz, (1990)

4.6 Financial Openness

This referred to as the combination of gross capital inflow and outflow. The gross capital outflow is summed as the foreign direct investment, portfolio investment liabilities and other investment liabilities while the gross outflow is measured as the sum of direct investment abroad, portfolio investment assets and other investments. This research emulate the use of de-factor indicator of measuring financial openness according to Acikgoz et.al (2009,) Lane and Milesi-Ferretti's (2006, 2007) known as the quantity based method of which is supported by Rajan and Zingales (2003) hypothesis.

4.7 Trade Openness (International Trade)

Sizeable number of research were conducted with a different approach to trade openness measure, according to Svaleryd and Vlachos (2002) coined from Sachs and Warner (1995) index, a country is not open to trade if it falls and operate within the following; minimum tariff exceed 40%, operating a socialist economic system, exercising monopolistic power in export, exchange rate limit exceed 40% in the parallel market. However, it was argued that the proxy is mainly used for big policy making and different institutions besides policy; Rodriguez and Rodrik (1999). Hence, Vlachos (2002) emulate the use of import duty revenue ratio in respect of total import which he labelled as effective import tariff while the other proxy is presented was the total goods traded calculated based on quota and restrictions. This research will use the ratio of the sum of import and export to GDP as the easy to and popularly considered in research.

4.8 Unit Root Test

This is a way of testing the stationarity of data in which the order of integration is determined among the variables. Gujarati (2009) affirms that when data are not stationary, the data does not have constant variance, hence the covariance is not constant over time, the time series data will result to an inaccurate or false result. Therefore, different methods are used to check for the presence of unit roots, examples include the ADF and Phillips Perron test. In this research we apply both the ADF and Phillip Perron unit root tests.

4.9 Augmented Dickey – Fuller (ADF) Test

Dickey and Fuller (1998) proposed a test for stationarity among variables. However, the test was also used to test for autocorrelation function an extension from its initial proposal for stationarity. The model employs the individual trend or individual intercept and trend or none. The ADF model for testing unit root is:

$$\Delta_{xt} = \beta_1 + \beta_{2t} + \delta_x X_{t-1} \sum_{t=1}^{n} \alpha i\ \Delta X_{t-1} + e_{t} ----------(15)$$

Where Xt is the exact time series, Δ represent the first difference, δ explains the stationairty of the series hypothesis: H0:$\delta = 0$, as the decision for null hypothesis which shows that H1: $\delta < 0$, decides for non stationary alternative meaning there is stationary, as such n is the number of lags.

The adoption of ADF and PP are mostly to check whether data are stationarity or not stationary. And only in rear cases that variables are not having unit root. And mostly at level data are not stationary which failed to reject ($\delta = 0$). Hence the data must

check for the difference which makes it stationary by rejecting the null and accepting the alternative $(\delta < 0)$.

4.10 Phillips – Perron Test

Phillips (1987) and Perron(1998) proposed a technique for testing unit root. The test is similar to the (ADF) test Augmented Dickey Fuller Testing for unit root. PP test employ the AR (1), it calculates the residual changes by employing the Newey-West method for correcting autocorrelation and heteroscedasticity. The condition for PP unit root by Bartlett (Newey-west) is shown below:

$$\delta_z = \sum_{t=2+1}^{p} LtLt - nk = - - - - P = kth\text{----------------------------------}(16)$$

Where P denotes the restrictive lag structure for analyzing the PP criteria. The δz indicates the correlation coefficient of the corrected residuals. In this case, to check if variance is random walk or pure random walk we employ ADF and PP test for non-stationarity.

This is similar case for ADF test which has its null hypothesis accepted to ascertain the unit root while if the alternative is accepted, the rejection of null hypothesis is inevitable which shows there is stationarity in the data.

4.11 Model Specification

The model entails the use of financial development indicators measured by the three indicators domestic credit provided by the financial sectors divided by GDP (DCF), domestic credit to private sectors divided by the GDP (DCP), Money supply (M2). While the international trade indicators measured by trade openness as the sum of import and export divided by the GDP (TOP), the financial openness indicators are the sum of Gross Capital Inflow and the Gross Capital Outflow divided by the GDP

(FO). All the variables according to Beck (2002), Rajan and Zingales (2003), Qun and Jianyu (2007), Jenkins and Katircioglu (2008), Mafizur et al. (2011), Shaheen et al. (2011), Acikgoz and Baicilar (2012), Menyah K. et al. (2013) are based on how to use of the variables to suit the model for pure analysis.

The Model in a stochastic form

$$M2_t = \beta_0 + \beta_1 FO_t + \beta_2 TO_t + \beta_3 FO_t \times TO_t + \varepsilon_t \qquad (4)$$

$$DCP_t = \beta_0 + \beta_1 FO_t + \beta_2 TO_t + \beta_3 FO_t \times TO_t + \varepsilon_t \qquad (5)$$

$$DCF_t = \beta_0 + \beta_1 FO_t + \beta_2 TO_t + \beta_3 FO_t \times TO_t + \varepsilon_t \qquad (6)$$

Where:

DCP is domestic credit to private sector; DCF is domestic credit provided by the financial sector; M2 is the money supply; FO is Financial Openness; TOP is Trade opened, FOTO is an interaction term. L is the length of the lag; t is the time while ϵ is the error term. A simultaneity approach which inculcates the two interaction term FO×TO as the necessary meter for strong financial development: Rajan and Zingales (2003).However, the study tries to prove the existence of relationship between the variables in equation (4), (5) and (6). It is expected that the variables β_1 and β_2 to be positive due to the fact that trade and financial openness lead to financial development from Rajan and Zingales (2003) hypothesis. Similarly if β_3 is account to be significant and positive, therefore the merged interaction terms influences financial development are in line with the hypothesis imbibed in this research.

Where exist a co-integration among variables the variables M2, DCP, DCF, and FO and TO. With no preceding knowledge regarding the way and manner the variables are directed, the bound testing approach we run an unrestricted error correction

model (UECM) using all the variables represented as dependent, it takes the form of the following:

4.12 ARDL/BOUND Test to Long Run

$$\Delta M2_t = c_0 + C_{1t} + \delta_1 M2_{t-1,} + \delta_2 FO_{t-1,} + \delta_3 TO_{t-1,} + \delta_4 (FO \times TO)_{t-1} +$$

$$\sum_{t=i}^{L} \gamma_i \Delta M2_{t-i} + \sum_{t=i}^{L} \omega_i \Delta FO_{t-i} + \sum_{t=1}^{L} \theta_i \Delta TO_{t-i} + \sum_{t=i}^{L} \lambda_i \Delta(FOTO)_{t-i} + \varphi K_t +$$

$$\cup_t \hspace{3cm} (7a)$$

$$\Delta DCF_t = c_0 + C_{1t} + \delta_1 DCF_{t-1,} + \delta_2 FO_{t-1,} + \delta_3 TO_{t-1,} + \delta_4 (FO \times TO)_{t-1} +$$

$$\sum_{t=i}^{L} \gamma_i \Delta DCF_{t-i} + \sum_{t=i}^{L} \omega_i \Delta FO_{t-i} +$$

$$\sum_{t=i}^{L} \theta_i \Delta TO_{t-i} + \sum_{t=i}^{L} \lambda_i \Delta(FOTO)_{t-i} + \varphi K_t + \cup_t$$

$$(7b)$$

$$\Delta DCP_t = c_0 + C_{1t} + \delta_1 DCP_{t-1,} + \delta_2 FO_{t-1,} + \delta_3 TO_{t-1,} + \delta_4 (FO \times TO)_{t-1} +$$

$$\sum_{t=i}^{L} \gamma_i \Delta DCP_{t-i} + \sum_{t=i}^{L} \omega_i \Delta FO_{t-i} +$$

$$\sum_{t=i}^{L} \theta_i \Delta TO_{t-i} + \sum_{t=i}^{L} \lambda_i \Delta(FOTO)_{t-i} + \varphi K_t + \cup_t$$

$$(7c)$$

K_t is the vector of exogenous variables. The bound test estimates each equation (4), (5) and (6) using ordinary least squares (OLS). As such while the null hypothesis indicates no integration where as the alternative suggests a long run level of relationship among the indicators, therefore we estimate using Wald restriction test. They are formulated as follows:

$H_0: \partial_1 = \partial_2 = \partial_3 = \partial_4 = 0$

$H_{1:} \neq \partial_1 \neq \partial_2 \neq \partial_3 \neq \partial_4 \neq 0$

The F-test distribution are non standard under the null hypothesis indicating a no co-integration among variables in the UECM equation (6), (7) and (8) disregarding whether variables are I(0), I(1) half integrated or mutually integrated. A set of two asymptotic critical values are provided by Persaran et al. (2001). Set one presume that all variables are I(0) while set two assumes that all variables are I(1). Therefore, we reject the null hypothesis of no co integration and finalize that there exist a long run relationship among variables if the estimated F-statistics is greater than the upper bound critical value; we reject the null hypothesis indicating a no co-integration. However, the bound test is set to be indecisive when the estimated F-statistics is within the two bound critical values.

Furthermore, when the equilibrium relationship in the long run equilibrium is maintained, the bound testing is estimated in two steps approach. Where the first process is regarded as the conditional ARDL $(p_1, q_1, q_2, q_3,)$

$$M2_t \sum_{i=1}^{p_1} \alpha_1 \ M2_{t-i} + \sum_{i=0}^{q_1} \emptyset_{1i} FO_{t-i} +$$

$$\sum_{i=0}^{q_2} \emptyset_{1i} TO_{t-i} + \sum_{i=0}^{q_3} \emptyset_{1i} \ (FO_i TO)_{t-i} + \varphi D_t + \cup_t \qquad (10a)$$

$$DCF_t \sum_{i=1}^{p_1} \alpha_1 \ DCF_{t-i} + \sum_{i=0}^{q_1} \emptyset_{1i} FO_{t-i} +$$

$$\sum_{i=0}^{q_2} \emptyset_{1i} TO_{t-i} + \sum_{i=0}^{q_3} \emptyset_{1i} \ (FO_i TO)_{t-i} + \varphi D_t + \cup_t \ (10b)$$

$$DCP_t \sum_{i=1}^{p_1} \alpha_1 \ DCF_{t-i} + \sum_{i=0}^{q_1} \emptyset_{1i} FO_{t-i} +$$

$$\sum_{i=0}^{q_2} \emptyset_{1i} TO_{t-i} + \sum_{i=0}^{q_3} \emptyset_{1i} \ (FO_i TO)_{t-i} + \varphi D_t + \cup_t \qquad (10c)$$

Where the lag length of the variables p_1, q_1, q_2, q_3, the knowledge are based on the estimated values indicated by Akanke (AIC) or Swartz Bayesian (SBC) information

criteria accepting the smallest value. The second processes of bound testing ARDL approach estimates the model for conditional ECM as formulated below:

$$\Delta M2_t =$$

$$\cup \sum_{i=1}^{p_1} \gamma_1 \, \Delta M2_{t-i} + \sum_{i=0}^{q_1} \emptyset_{1_i} \Delta FO_{t-i} +$$

$$\sum_{i=0}^{q_2} \theta_{1_i} \Delta TO_{t-i} + \sum_{i=0}^{q_3} \varphi_{1_i} \, \Delta(FO_i TO)_{t-i} + \pi ECM_{t-1} + \varphi D_t + \cup_t$$

$$(13a)$$

$$\Delta DCF_t =$$

$$\cup \sum_{i=1}^{p_1} \gamma_1 \, \Delta DCF_{t-i} + \sum_{i=0}^{q_1} \emptyset_{1_i} \Delta FO_{t-i} +$$

$$\sum_{i=0}^{q_2} \theta_{1_i} \Delta TO_{t-i} + \sum_{i=0}^{q_3} \varphi_{1_i} \, \Delta(FO_i TO)_{t-i} + \pi ECM_{t-1} + \varphi D_t + \cup_t$$

$$(13b)$$

$$\Delta DCP_t =$$

$$\cup \sum_{i=1}^{p_1} \gamma_1 \, \Delta DCP_{t-i} + \sum_{i=0}^{q_1} \emptyset_{1_i} \Delta FO_{t-i} +$$

$$\sum_{i=0}^{q_2} \theta_{1_i} \Delta TO_{t-i} + \sum_{i=0}^{q_3} \varphi_{1_i} \, \Delta(FO_i TO)_{t-i} + \pi ECM_{t-1} + \varphi D_t + \cup_t$$

$$(13C)$$

Where $\gamma_1, \, \emptyset_1, \theta_1, \, \varphi_1$ are the short run values, π indicates the speed of adjustment, leading to a convergence equilibrium.

$$ECM_t = M2_t - \hat{\beta}_0 - \hat{\beta}_1 FO_t - \hat{\beta}_2 TO_t - \hat{\beta}_3 FO_t \times TO_t$$

$$(14a)$$

$$ECM_t = DCP - \hat{\beta}_0 - \hat{\beta}_1 FO_t - \hat{\beta}_2 TO_t - \hat{\beta}_3 FO_t \times TO_t$$

$$(14b)$$

$$ECM_t = DCF_t - \hat{\beta}_0 - \hat{\beta}_1 FO_t - \hat{\beta}_2 TO_t - \hat{\beta}_3 FO_t \times TO_t$$

$$(14c)$$

The long run values of $\hat{\beta}_0, \hat{\beta}_1 FO_t, \hat{\beta}_2 TO_t, \hat{\beta}_3 FO_t \times TO_t$ are collected using the automatics ARDL model of equation 1 or 2 or 3, depending on the co-integrated model as estimated.

4.13 Granger Causality test

It is important to also test the causal relationship among the variables captured in this study includes financial development, financial openness and international trade (openness to trade) Engel and Granger (1987) implies that where two I(1) series are co-integrated, a causal relationship exits. Moreover, the causal relationship can be checked from the error correction model (ECM) of long run co-integrated vectors. In this study the test for Granger Causality is attested through the following models:

$$M2_t =$$

$$\pi_{10} + \sum_{t=1}^{p} \pi_{11,} \Delta M2_{t-1} + \sum_{t=1}^{p} \pi_{12} \Delta FO_{t-1} +$$

$$\sum_{t=1}^{p} \pi_{13} \Delta TO_{t-1} + \sum_{t=1}^{p} \pi_{14,} DCP_{t-1} +$$

$$\sum_{t=1}^{p} \pi_{15,} \Delta DCF_{t-1} + \sum_{t=1}^{p} \pi_{16,} \Delta(FOTO)_{t-1} + \varphi_1 ECM_{t-1} + \cup_{1t}$$

(23a)

$$DCF_t =$$

$$\pi_{20} + \sum_{t=1}^{p} \pi_{21,} \Delta DCF_{t-1} + \sum_{t=1}^{p} \pi_{22} \Delta FO_{t-1} +$$

$$\sum_{t=1}^{p} \pi_{23} \Delta TO_{t-1} + \sum_{t=1}^{p} \pi_{24,} DCP_{t-1} +$$

$$\sum_{t=1}^{p} \pi_{25,} \Delta M2_{t-1} + + + \sum_{t=1}^{p} \pi_{26,} \Delta(FOTO)_{t-1} + \varphi_2 ECM_{t-1} + \cup_{2t}$$

(23b)

$$DCP_t =$$

$$\pi_{20} + \sum_{t=1}^{p} \pi_{31,} \Delta DCP_{t-1} + \sum_{t=1}^{p} \pi_{32} \Delta FO_{t-1} +$$

$$\sum_{t=1}^{p} \pi_{33} \Delta TO_{t-1} + \sum_{t=1}^{p} \pi_{24,} DCF_{t-1} +$$

$$\sum_{t=1}^{p} \pi_{25,} \Delta M2_{t-1} + \sum_{t=1}^{p} \pi_{26,} \Delta(FOTO)_{t-1} + \varphi_3 ECM_{t-1} + U_{3t}$$

(23c)

$$FO_t =$$

$$\pi_{40} + \sum_{t=1}^{p} \pi_{41,} \Delta FO_{t-1} + \sum_{t=1}^{p} \pi_{42} \Delta DCP_{t-1} +$$

$$\sum_{t=1}^{p} \pi_{43} \Delta TO_{t-1} + \sum_{t=1}^{p} \pi_{44,} DCF_{t-1} +$$

$$\sum_{t=1}^{p} \pi_{45,} \Delta M2_{t-1} + \sum_{t=1}^{p} \pi_{46,} \Delta(FOTO)_{t-1} + \varphi_4 ECM_{t-1} + U_{4t}$$

(23d)

$$TO_t =$$

$$\pi_{50} + \sum_{t=1}^{p} \pi_{51,} \Delta TO_{t-1} + \sum_{t=1}^{p} \pi_{52} \Delta DCP_{t-1} +$$

$$\sum_{t=1}^{p} \pi_{53} \Delta FO_{t-1} + \sum_{t=1}^{p} \pi_{54,} DCF_{t-1} +$$

$$\sum_{t=1}^{p} \pi_{55,} \Delta M2_{t-1} + \sum_{t=1}^{p} \pi_{56,} \Delta(FOTO)_{t-1} + \varphi_5 ECM_{t-1} + U_{5t}$$

(24e)

Where $\pi's$ are estimated values, U_{1t}, U_{2t}, U_{3t}, U_{4t} and U_{5t} are white noise, and ECMs is the error correction mechanism as computed from equation 14a, 14b and 14c. The T-statistics on the coefficients $\varphi_1, \varphi_2, \varphi_3, \varphi_4$ and φ_5 indicates the lagged ECM which is significant in the long run causal effect.

Chapter 5

EMPIRICAL RESULT AND INTERPRETATION

Introduction

This chapter focuses on the outcome of the result computed. The outcome was obtained using the ADF and PP test in analyzing the unit root. Having tested for stationarity among the variables at level. The result indicated a unit root in some variables with a stationary in one variable at level. However, all the variables are stationary at first difference I(1). According to Pesaran and Shin (1999) and Pesaran et al. (2001), suggested that if variables are mixed such as I(0) and I(1) the ARDL/Bound test need to be used. Some stability tests are also conducted using the CUSUM AND CUSUMQ test. To know whether the variables are serially correlated or not a diagnostic test will be conducted. Granger causality test will be emulated to focast the movement of the variables, for example how a variable cause the other variable, are they unidirectional or bidirectional, Gujarati (2009).
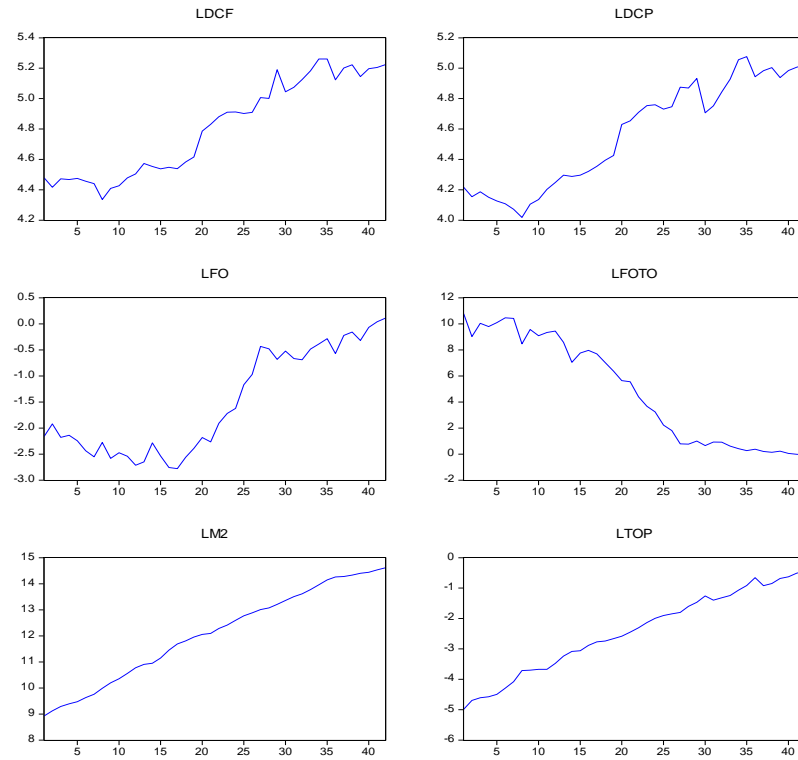
Figure 5: Graphical Picture of the Variables

Table 4: Descriptive Statistics: Series are in Logarithm Form

	Mean	Maximum	Minimum	Std. Dev.	JB	p-val. JB
LDCP	4.571567	5.075954	4.018184	0.350472	4.342817	0.114017
LDCF	4.807227	5.260928	4.335369	0.315403	4.560254	0.102271
LM2	12.07099	14.61596	8.929435	1.783711	2.965422	0.227021
LFOTO	4.824791	10.77811	-0.049623	4.051203	4.979491	0.082931
LTOP	-2.437683	-0.449460	-4.987330	1.351474	2.659763	0.264509
LFO	-1.520350	0.110406	-2.778698	0.996449	4.965876	0.083498

Source: Author. The null cannot be rejected at 5% level

Descriptive Analysis

This part analyses the descriptive statistics of the series. Table 4. Shows that natural

logarithm of M2 (broad money) has the highest mean average closely followed by

the interaction term the natural logarithm of capital flow – financial openness (LFO)

and the logarithm form of trade openness(LTOP): LFO×LTOP. Domestic credits

provided by the financial sector (LDCF) has the highest maximum value. The

estimations indicate that all the variables are normally distributed; this is given by

Jarque Berra probability value with the rejection of 5% critical level.

Table 5: Correlation Coefficients

	LDCP	LDCF	LM2	LTOP	LFOTO	LFO
LDCP	1.000000					
LDCF	0.986834	1.000000				
LM2	0.957968	0.952358	1.000000			
LTOP	0.946890	0.943777	0.996952	1.000000		
LFOTO	0.970410	0.972127	0.965169	0.964741	1.000000	
LFO	0.896666	0.929464	0.854080	0.850942	-0.930358	1.000000

The correlation coefficient series of Financial Development variables are more correlated with the interaction term of capital and trade openness with 0.97% DCP to FOTO and 0.96% DCF to FOTO which supported the Rajan and Zingles (2003) approach to robustness in the financial sector. The result indicates that while capital account and trade openness are significant factors in the case of South Africa, they also pose a positive influence in the financial development.

5.1 The Unit Root Result

The visuals plot of the interested variables of study indicating a trend and intercept triggers the interest in this research the unit root test was conducted by emulating the Augmented Dickey Fuller (ADF) and the Phillips-Perron Test. The results for the unit root test, is presented in table 6 & 7.

Table 6: Augmented Dickey Fuller Result (ADF)

Variables	Levels		Remarks	First Difference		Remarks
	Trend & Intercept (t-Statistics)	Intercept (t-Statistics)		Trend & Intercept (t-Statistics)	Intercept (T-Statistics)	
LCDP	-2.623221	-0.387441	NS	-6.222615*	-6.314954*	S
LTOP	-0.735293	-4.410525**	NS & S	-6.245058*	-5.603115*	S
LFO	-2.004940	0.178166	NS	-7.050263*	-6.671259*	S
LDCF	-2.76612	-0.397521	NS	-7.902358*	-8.012971*	S
LM2	0.182500	-2.154527	NS	-3.810432*	-4.562120**	S

Source: Extracted from Eviews 9

LNDCP is the natural log value of domestic credit to private sector to GDP, LNFO is the natural log value of financial openness to GDP, and LNTOP represents the log value of trade openness to GDP. However, NS represents the not significant of the probability value thereby accepting the null. The S denote the significant of the probability value thereby rejecting the null hypothesis at * 1%, ** 5%, **10% Eviews 9.0 is used in testing the data.

Table 7: Philips Perron Test Results (PP)

Variables	Levels		Remarks	First Difference		Remarks
	Trend & Intercept	Trend		Trend & Intercept	Intercept	
LCDP	-2.623221	-0.362945	NS	-6.343776*	-6.460434*	S
LTOP	-2.253435	-4.350375**	NS & S	-13.57051*	-8.178543*	S
LFO	-1.956562	0.186172	NS	-7.012507*	-6.659604*	S
LDCF	-2.703721	-0.249799	NS	-7.874627*	-3.810944*	S
M2	0.441738	-2.511250	NS	-3.946233**	-3.810944*	S

LNDCP is the natural log value of domestic credit to private sector to GDP, LNFO is the natural log value of financial openness to GDP, and LNTOP represents the log value of trade openness to GDP. However, NS represents the not significant of the probability value thereby accepting the null. The S denote the significant of the probability value thereby rejecting the null hypothesis at * 1%, ** 5% **10%Eviews 9.0 is used in testing the data.

Table 6 and 7 shows that the ADF and PP test statistics for all the variables in their levels. The result indicates that the variables are none stationary at level and with a variable that is stationary at level using the intercept and trend. It is estimated that all the variables are stationary at first difference. This implies that we can confidently conduct the ARDL methodology for our models.

Tables 8: The Lag Selection Criterion Estimates

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-81.45120	NA	0.000940	4.382113	4.552734	4.443330
1	113.4736	339.8688*	9.79e-08*	-4.793516*	-3.940408*	-4.487428*
2	123.2991	15.11615	1.38e-07	-4.476875	-2.941279	-3.925916
3	132.3731	12.09866	2.12e-07	-4.121695	-1.903613	-3.325866

ARDL Technique for Long Run Relationship

Table 9: Model 1 (LDCP=LTOP+LFO+LFOTO)

CRITICAL VALUE	Lag	F-statistics	7.143643
		Lower bound	Upper bound
1%		3.47	4.45
5%	1	4.01	5.07
10%		5.17	6.36

Table 6 shows that the F-statistic value is greater than the upper bound, therefore according Pesaran et al. (2001), the variables have co-integration and we can reject the null at 1%, 5%, 10%.

Table 10: Model 2 (LCDF=LTOP+LFO+LFOTO)

CRITICAL VALUE	Lag	F-statistics	5.967431
		Lower bound	Upper bound
1%		3.47	4.45
5%	1	4.01	5.07
10%		5.17	6.36

Table 10 shows that the F-statistic value is above the upper bound, therefore according Pesaran et al. (2001), the variables have co-integration and we reject the null.

Table 11: Model 3 (M2=LTOP+LFO+LFOTO)

CRITICAL VALUE	Lag	F-statistics	1.486962
		Lower bound	Upper bound
1%		3.47	4.45
5%	1	4.01	5.07
10%		5.17	6.36

Table 11 shows that the F-statistic value is less than the upper bound, therefore according Pesaran et al. (2001), the variables have no co-integration and we cannot reject the null.

The estimated results for table 9, 10 and 11 using the different model that comprises the dependent variables as the financial development variables, the computed result were emulated base on the lag selection criterion using the two prominent criterion, the Akaike Information Criterion (AIC) and the Schwarz Bayesian Information Criterion (BIC) from the unrestricted VAR model. Hence the model in table 1 indicated co-integration results of F-statistics greater than the upper bound (**7.143643**) even at 1% level of significance. The remaining model of table 10 and 11 fall below the upper bound with F-statistics of (**3.967431**) **and** (**1.486962**). According to Pesaran et al. (2001) three assumptions, the variables that fall below the bound test critical values have no co-integration and the F-statistics that fall above the critical values represent a co-integration while the F-statistics that fall within the critical values represent an inconclusive result. Therefore, the result of the three models as indicated above show that the model 1 in table 9 represent a co-integration and hence it will be emulated in this research.

5.2 Residual Diagnostic Test

Table 12: Residual Diagnostic Test

	F-Statistics	**Probability**
Breusch-Godfrey Serial Correlation LM Test:	0.756772	0.3915
Ramsey RESET Test	0.032766	0.8574

We cannot reject null of no serial correlation

Table 12 shows the normality of the model having tested using the Breusch-Godfrey Serial Correlation LM Test and Ramsey Reset Test with a p(value) of 0.3915 and 0.8574; all values cannot be used to reject the null of no serial correlation among the variables.
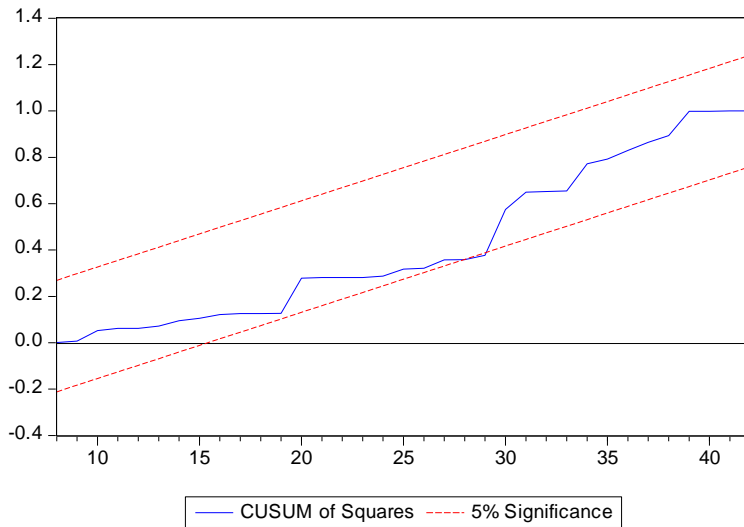
Figure 6: Plot of CUSUMQ Test for equation (7c)
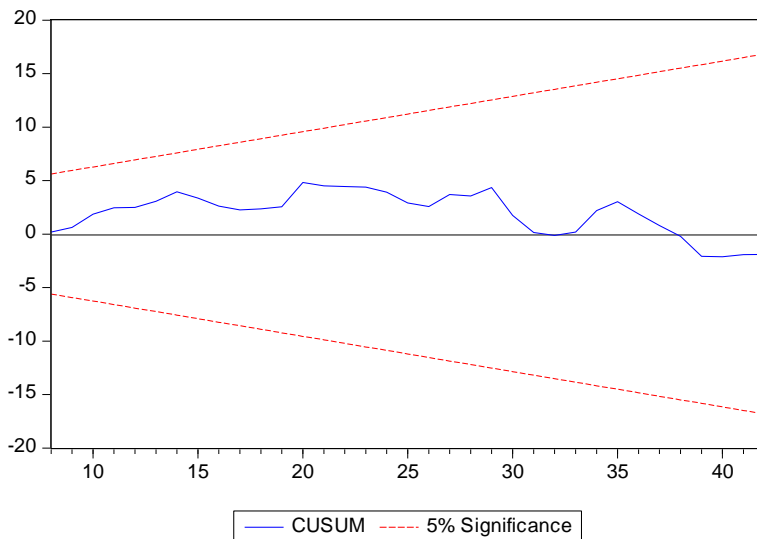
Figure 7: Plot of CUSUM test for equation (7c**)**

The plotted graph 6 and 7 of equation (7c) show the stability of the long run coefficient tested by the short run dynamics. When the equation (7c) is estimated, the cumulative sum of the recursive residuals CUSUM AND THE CUSUMQ tests are introduce to access the series stability (Pesaran and Pesaran (1997). The result indicates a stability of the coefficients; both the CUSUM and CUSUMQ reside within the critical band of 5%

5.3 ARDL Short-Run Dynamics

Table 13: ARDL Short-Run Dynamics

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LTOP)	0.385861	0.106682	-3.616942	0.0009
D(LFOTO)	0.078753	0.019099	-4.123292	0.0002
D(LFO)	0.161010	0.042455	-3.792471	0.0006
D(@TREND())	0.040578	0.010267	3.952160	0.0004
CointEq(-1)	-0.421075	0.120526	-3.493638	0.0013

Table 10 shows variables LDCP, LTOP, LFO are adjusted towards long run
equilibrium among at the speed of 42%. Hence there is a short run relationship
among variables.

5.4 ARDL Level Long runs Coefficients

Table 14: ARDL Level Long run Coefficients

Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LTOP	0.916371	0.353166	-2.594730	0.0137
LFOTO	0.187027	0.052405	-3.568866	0.0011
LFO	0.382378	0.147651	-2.589751	0.0139
C	0.706516	1.539478	0.458932	0.6491
@TREND	0.096367	0.034310	2.808735	0.0081

Table 14 show that there is a positive relation between LTOP and LDCP and the in
the case of South Africa. The estimate can be concluded that a 1% increase in LTOP
would lead to an increase in LCDP by 0.92%, also a 1% increase in the interaction
term of FOTO which is the base area of the model as proposed by Rajan and
Zingales(2003) according to them, capital account openness as well as trade
openness have a significant affect the financial development of a country; therefore

the estimated result supported the hypothesis by a 0.19% increase in LDCP in the

case for South Africa.

Table 15: Granger Causality Test

S/N	Lag	Null Hypothesis	F-Statistics(P-Value)	Conclusion
1.	1	LDCP does not Granger Cause LTOP LTOP does not Granger Cause LDCP	8.35(0.0063)* 7.61(0.0089)*	DCP→ TOP TOP→ DCP
2.	1	LFOTO does not Granger Cause LDCP LDCP does not Granger Cause LFOTO	6.34(0.016)* 11.09(0.0019)	FOTO→ DCP DCP →FOTO
3.	1	LFO does not Granger Cause LFOTO LFOTO does not Granger Cause LFO	3.14(0.084) 5.83(0.021)*	FO≠FOTO FOTO→ FO
4.	1	LFO does not Granger Cause LDCP LDCP does not Granger Cause LFO	0.23(0.633) 9.98(0.0031)*	FO≠DCP DCP→ FO

At %1 level of significance

Table 15 show the granger causality test result among the variables. The estimate

indicates a bidirectional relationship between LDC to TOP and FOTO TO LDCP

while LDCP help focast the LFO in a unidirectional way. The directions of the

forecast indicated a support that the interaction term FOTO an interaction term

proposed by Rajan and Zingales Hypothesis clearly show that financial development

variables (domestic credit provided by the private sectors) is heavily influenced by

the capital and trade openness in the case of South Africa

Chapter 6

6 CONCLUSION AND RECOMMENDATION

The research investigated the proposition or the theory that trade openness (international trade) significantly affects financial development. Therefore, the research used time series data on yearly basis between the periods of 1972-2014 on South African economy. In line with the previous research and recommendations, some financial development measures are included in this study such as the Financial Openness Indicator, defined as the sum of all capital inflows and outflows. This is extracted from International Financial Statistics CD Room 2016. The Trade Openness is measured by the sum of export and import as the ratio of GDP.

The research estimate confirmed that the financial development variables are positively correlated with the interaction term of capital and trade openness with 0.97%. This estimate proves that only one among the three financial development measures sustain the long-run relationship between financial and trade openness. The findings equally revealed that the two combined variables as an interaction term (FOTO), adopted from the previous literature have a positive and statistically significant relationships. Specifically, the impact of interaction term (FOTO) on domestic credit to all the various sectors accounted for 0.96% of South Africa's financial development. Similarly, the impact of interaction term (FOTO) on domestic credit to private sector only was 0.19% of South African's financial development. These findings imply that an increase in trade openness will lead to an increase in

domestic credit to all sectors and also to private sector due to inflow and out flow of the economic activities in South Africa thereby adding up to the economic growth. These results, therefore, echo the Rajan and Zingales (2003) major conclusion on the necessary criteria for financial development robustness towards strong economy.

More so, the finding of the long run causality test showed a bi-directional way between financial development and the trade openness. However, the interaction term included in the model testifies that causality happens as a result of the trade openness of South Africa's economy. It is also estimated that the South African economy will grow faster relative to its financial account openness which directly impacted positively in the domestic investments to create competitiveness in terms of production. Therefore, based on these findings, the study recommends the following:

(i)   South African government should pursue more macroeconomic policies that will open the economy to international trade. In this case, policies like tax reduction, trade liberalization and other neo-liberal policies should be encouraged.

(ii)   Government should ensure that adequate supports are given to all sectors (public and private sectors) in economy so as to stimulate financial development as well as accelerate growth process in South Africa.

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