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THE ROLE OF BANK CREDIT IN THE BUSINESS CYCLE

BY

KGABO MAPITSI MOLABE

Submitted in partial fulfilment of the requirements for degree Master of Management in Finance and Investments in Wits Business School of the University of the Witwatersrand

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ABSTRACT

This research paper examines an economy with debt and discusses the mechanism through which a financial crisis may arise, taking into account the business cycle theories as advocated by amongst others; Karl Marx, Friederich Hayek, and John Keynes. It is found that there are various channels through which financial crises may arise. Secondly, this research paper investigates the mechanism through which bank credit propagates and prolongs the business cycle. The analysis of the data reveals that post the crisis, recoveries are slower in developed nations versus developing nations and that the deeper the recession, the longer it takes for a country to recover. Thirdly, this research paper determines the critical debt level at which economies will start to recover, following a period of economic fragility. Finally, recommendations which could contribute towards the mitigation of causes and/or effects of economic crisis are made.

Key words: *Bank Credit, Business Cycle*

DEDICATION

This thesis paper is dedicated to my parents, Mr. Nkwane and Mrs. Noko Molabe, for their support and encouragement during my early stages of primary and tertiary education, which led to this stage. Thanks are also due to my siblings, Mrs. Mogoshadi Mabaleka, Dr. Boledi Molabe, Mr. Mahlatji Molabe and their children for support.

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DECLARATION

I declare that the Masters Thesis Paper hereby submitted in partial fulfilment of the requirements for the degree MMFI in Wits Business School of the University of Witwatersrand has not been submitted by me previously for a degree at this or any other University. Furthermore, that it is my own work in design and execution, and that all materials contained therein have been duly acknowledged.

Kgabo Mapitsi Molabe

List of Abbreviations

U.S. – United States

OECD – Organisation for Economic Co-operation and Development

MBO – Mortgage Backed Obligations

CDO – Collateralised Debt Obligations

GDP – Gross Domestic Product

CPI – Consumer Price Index

U.K. – United Kingdom

FRED – Federal Reserve Economic Data

NBER - National Bureau of Economic Research

BRICS- Brazil, Russia, India, China, South Africa

S.A. - South Africa

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1 CHAPTER ONE: INTRODUCTION

This chapter serves as a general introduction to the work and outlines the empirical rationale for this thesis. Section 1.1 discusses the background of the study. Section 1.2 reveals the research problem study. Section 1.3 presents the objective of the study. Section 1.4 presents the research questions. Section 1.5 presents the significance of the study. Section 1.6 reveals the outline of the study.

1.1 Background of the Study

The 2007-2008 financial crisis cast a dark cloud over global economies as the world experienced the most severe recession since the 1930s' Great depression (Elwell, 2013). It began in the United States (U.S) as a result of the subprime mortgage crisis, and soon spread to the rest of the world verifying the old saying that goes when America sneezes, the whole world catches a cold (Verick & Islam, 2010).

Several studies indicate that the financial crisis came as a shock to most individuals, with only a handful being able to predict it beforehand (Helleiner, 2011). More specifically, Verick and Iyanatul (2010) argued that on the eve of the crisis, OECD announced a higher than expected growth for all its partner countries for the period ending 2008.This validated an observation by Marx (1894) that "A Business always appears almost excessively sound right on the eve of a crash".

According to Byun (2010), the bursting U.S. housing bubble that began in 2001, was the starting point of the financial crisis. It emerged during a time where the U.S was experiencing extremely low interest rates due to its lax monetary policy (Taylor, 2014). As a result, Agarwal et al (2014) indicated that, banks begin to extend credit to subprime lenders. As can be expected, this led to an increase in the demand for houses and therefore, housing prices.

The sharp increase in credit extension meant that banks would soon be exposed to large loan books, as well as increasing their probability of default.

To defer their risk, banks repackaged the loans into securitized products such as Mortgage Backed Obligation (MBO) and Collateralised Debt Obligation (CDO) (Perrut, 2012). Likewise, Order (2010) highlighted that they divided these products into tranches and sold them to Investment Banks. Owing to the fact that these products were considered safe, they were highly rated by rating agencies such as Moody's, Standard and Poor, and Fitch (Benmelech & Dlugosz, 2010).

By 2006, subprime lenders had started to default (Wilse-Samson, 2010). Consequently, Levitin et al (2012) noted that homeowners started to sell their houses which results in supply outstripping demand. Typically, as supply increased, real estate prices declined. Moreover, Allen and Carletti (2010) showed that because the value of securitised products was heavily dependent on that of housing prices, securitised products also declined. As a matter of course, rating agencies soon began to downgrade these structured finance products (Bahana, 2010).

Eventually, other major investment banks such as Lehmans Brothers filed for bankruptcy and collapsed (Hoffmann, 2011). This collapse resulted in a financial markets panic and an increase in the risk premium to 6% from levels close to 0% (Muir, 2014). Banks then cut their credit supply (Aisen & Franken, 2010). A financial crisis broke out as a result of the credit contraction.

The various theories of the business cycle as advocated by some economists and scholars alike, amongst others, Karl Marx, Friedrich Hayek, as well as those referred to as the post-Keynesians and New Keynesians and Clement Juglar are interrogated. The interrogation is done in relation to the mechanism through which bank credit generates overexpansion and severe contraction in the economic activity, as well as determining the role of bank credit in propagating and prolonging the business cycle.

One of the earliest economists to study and theories the business cycle, Karl Marx (1889), showed that a crisis often arises from the interaction between credit and transactions. Additionally, he highlighted the fall in the rate of profit,

disproportionality and over-accumulation with respect to labour as other factors that could possibly lead to a recession (Tabb, 2010). Moreover, while some Marxist theories were of the view that inequality can lead to a crisis, others believed that it was the end result of a capitalist process (Goda, 2013). In conclusion, Marx identified poverty and restricted consumption as the ultimate cause of economic downturn (Sarkar, 2011).

Juglar (1862), on the other hand, described prosperity as the major cause of the crisis and the crisis as the major cause of prosperity. By the same token, he later went on to explain the theory of the business cycle based on the relationship between over-investment and over-confidence (Doshchyn & Giommetti, 2013). Further, Juglar identified real factors such as innovation, and rigidity of wages as other elements that can be used in explaining the crisis (Niehans, 1992).

Hayek (1931) examined the business cycle by addressing the impact changes in the quantity of money has on the roundaboutness of production. Additionally, he stated in his work, "*Price and Production"* (1931) that a loose monetary policy is bound to initiate an unsustainable boom which will eventually end in losses.

Also among the many theorists to analyse and investigate the business cycle were the post-Keynesians. Keynes, in his contribution to the "*Notes on the Trade Cycle*" (1951) highlights that the explanation for the source of economic fluctuations was the variation in the marginal efficiency of capital Skott (2011). Moreover, he points out demand deficiency (Mathieu, 2014), and price and wage rigidity as being another cause of recession (de Ridder, 2014).

The New Keynesians, Charpe, Flaschel and Proano (2012), whose theory builds from post-Keynesians, stressed three factors, namely; debt deflation effect, credit financed consumption boom, exhilarating debt effect and regarded them as the starting point of the economic fragility. In addition to the above influences, New Keynesians also identified wage and price rigidities, as the root cause of the crisis (Basu & House, 2015).

1.2 Research Problem

Banks have the tendency to over expand credit during periods of economic growth and to contract credit after a crisis (Chakanyuka, 2015). The impact of these credit expansions and contractions is economic upswings and downswings that eventually result in a slow recovery. Moreover, recoveries are often slower in countries with high current account deficits and/or countries with ineffective policy interventions. As highlighted by Babych (2011), the impact of the banking and financial crisis on economic output was twice as large as that of the currency crisis. Thus the recoveries of a banking and financial crisis are generally slower than that of a currency and political crisis (Howard, Martin & Wilson, 2011).

That being said, the GDP of the U.S and that of the Eurozone have barely recovered to their pre-crisis levels since the 2008 financial crisis, while that of the emerging markets were quick to recover (Ikeda & Kurozumi, 2014). Unemployment in these countries has also remained high following the crisis (Reinhart & Reinhart, 2010).

It has been observed that post the crisis, banks are reluctant to issue credit and often hold on to excess reserves. According to (Keister & McAndrews, 2009), pre the financial crisis, the excess reserves in the U.S. were about $15 billion. Post the collapse of major financial institutions; excess reserves had increased to more than $900 billion (Abou-Zaid & Mattingly, 2015). In the Eurozone, excess reserves also started to increase immediately after the onset of the financial crisis (Murta, Teresa, & Garcia, 2010). Banks of emerging markets had recorded high level of reserves even before the financial crisis hit their economies (Primus, 2013), however they also increased their reserve requirements when the financial instability arose (Saxegaard, 2006).

1.3 Objectives of the Study

The objective of this study is firstly, to investigate the mechanism through which bank credit generates overexpansion and severe contraction in economic activity. Secondly, the study aims to establish the role that bank credit plays in propagating and prolonging the business cycle. Lastly, this study seeks to determine a critical level of liquidity ratio below which banks contract credit and above which they expand credit. In order to do this, a comparison between the developed nations, namely; the U.S, the United Kingdom (U.K.) and Germany, as well as the emerging markets such as South Africa, Brazil and China was drawn. A descriptive analysis, where the quarterly time series data from the year 2000 to 2015 was used to show the expected correlations between bank credit and some of the business cycle indicators, based on the theories that were reviewed.

1.4 Research Questions

1. What is the mechanism through which bank credit generates overexpansion and severe contraction in economic activity?
2. What is the role of bank credit in propagating and prolonging the business cycle?
3. Is there a critical level of liquidity ratio below which banks contract credit and above which banks expand credit?

1.5 Significance of the Study

The findings of this study will assist organisations such NBER, policymakers, individual investors, business owners and managers to better predict economic downturns ahead of time. This further allows economic agents to plan for their businesses and/or countries in advance. Previous studies such as that of Lane and Milesi-Ferretti (2010) have showed that forecasters have at times failed to identify the crisis beforehand, as was the case with the 2008 recession.

The findings will also help governments to efficiently manage their policies. As an example, poor policy management by the Zimbabwean government has over the years led to serious economic downturns in Zimbabwe. According to

Ellyne and Daly (2013), the starting point of Zimbabwe's downfall was its fiscal indiscipline. How it happened was that the government frequently increased money supply to pay off its expenditures, thus creating an inflationary environment and eventually, hyperinflation (Asante, 2012). This left Zimbabwe in a state of emergency, with the withdrawal of investor's funds causing major currency depreciation, and ultimately a currency crisis (Kairiza, 2009).

The findings will further assist financial institutions, individuals, large corporations and governments to better understand credit and the damage it can cause to an economy if it is not properly managed. These will make individuals and corporates more cautious where credit is involved and persuade policy makers to tighten their banking regulations. According to Caprio (2013), governments tend to change regulations and/or impose tougher rules to existing regulations post any modern crisis, like the Great depression, U.S. Savings and Loans crisis as well as 2008 financial crisis.

In conclusion, these findings will be useful to the financial field as well as contribute towards the existing literature of the business cycle in both developed and emerging markets.

1.6 Outline of the study

The rest of this paper is organised as follows. Chapter Two describes the literature review. Chapter Three presents the research methodology. Chapter Four outlines and discusses the empirical results. Chapter Five draws conclusion from the study.

2 CHAPTER TWO: LITERATURE REVIEW

2.1 Definition of the Business Cycle

The study of the business cycles, as cyclical fluctuations of economic activity, dates back to the early contributions of American economists, Burns and Mitchells (Laubscher, 2014). Many have viewed their contribution to this study as the most insightful and the most intellectual. For this reason, it seems befitting to utilise their work and define the business cycle as:

“A type of fluctuation found in the aggregate economic activity of nations that organise their work mainly in business enterprises: a cycle consists of expansions occurring at about the same time in many economic activities, followed by similarly general contractions, and revivals which merge into the expansion phase of the next cycle” (Burns & Mitchells, 1946).

The classical analysis in Calgren (2014) highlights that the business cycle consists of two phases, being expansions and contractions, as well as two turning points, namely; the peak and trough. In addition, Male (2010) stated that while expansions occur during periods of economic upturns, contractions occur during periods of economic downturn. The turning points, that is, peaks and troughs, occur at a time when the economic growth equals the long-term growth trend (Sam & Joo, 2009).

Guerrero and Martinez-Ovando (2015), noted that the business cycle has a tendency to diffuse, meaning that, economic activities such as production, consumption spending and employment move concurrently. Additionally, Pagan and Harding (2011) showed that the business cycle turns to reoccur, that is, the trends of expansion, contraction, peak, and troughs repeat themselves. Hence, when most of economic activities reach the boom or recession, the economy would be expected to be near the peak or trough of the business cycle respectively.

Quite interesting to note, is that although most writers are of the view that business cycles occur in ten-year intervals and are equal in length, some are

of a different view. Jevons (1884), for one, argued that there was a ten-year interval between business cycles from the year 1700 to 1870 (Mosselmans, 2007). Juglar (1889) however, opposed this view and argued that the cycles are unique to specific countries and their economic activities. A recent study by Botha (2010) found clear differences between the business cycles of developed economies and those of developing economies.

2.2 History of the Business Cycle

It is worth noting that the business cycle dates as far back as the 19th century, and that by then, most developed countries had experienced, at least four serious financial crises (Jorda, Schularick &Taylor, 2015).

Dua and Banerji (2012) note that the task of identifying turning points of the business cycle by the National Bureau of Economic Research (NBER) in the U.S. has been going on since the early 1920s. Although this has been a consistent focus, it has proved difficult to identify, as some turning points have gone unidentified by economic agents for months after they occurred (Guisto & Piger, 2014). As a result, policymakers, businesses and consumers have made it a priority to determine when recession and expansions are likely to occur (Cross & Bergevin, 2012).

In order to do this, the NBER looks at indices such as the quarterly real-time GDP-based recession probability index and the monthly real-time multiple-indicator recession index (Stock & Watson, 2012). Alternatively, one could look at the fluctuations in the growth rate and the rate of unemployment as a measure of recession. A decline in the growth rates followed by an increase in unemployment over a few quarters would indicate a possible recession.

For instance, the economic growth of both developed, and developing economies shrank dismally in the months leading to, and after the 2008 financial crisis. The U.S real GDP contracted by 5.1% in the second half of 2009, as a result thereof unemployment rate rose to 10.1% (Elwell, 2013). United Kingdom (U.K.)'s real GDP fell by 6.4%, while unemployment rose by 7.8% (Bell & Blanchflower, 2010). Developing economies also took a knock

with South Africa's GDP shrinking by 3.4% in the second quarter of 2009 and the official unemployment rate rising to 24.5% (Padayachee, 2010). Brazil weakened by 4.2% in fourth quarter of 2008 and 0.9% in first quarter of 2009 (Weisbrot et al., 2014) and unemployment rose by 2.2% in the same quarter (Pochmann, 2009).

2.3 Theories of the Business Cycle

The concept 'business cycle' has different economists and scholars expressing varying theories about it, sometimes with similarities and differences found at some points. Although these theories differ with regard to the importance of monetary versus real factors (Zarnowitz, 1992), they also tend to overlap (Harberler, 1964). Some of the theories of the business cycle, such as Marxist theory, Hayekian theory and Keynesian theory as expressed by some economists and scholars are revisited in this chapter.

Karl Marx, a German philosopher, economist and socialist, was one of the first few, during his time to theorise about the business cycle. His theories, based largely on socialism, politics and economic activities laid the foundation for much of the current understanding of labour and its relation to capital.

The Austrian economist and philosopher, Friedrich Hayek was also considered one of the major economists of the 20th century. Like Marx, Hayek was often considered a socialist and a political philosopher. His theory was rooted in the quantity theory of money, which built on various other Austrian theories such as that of Menger, Wicksell and Bohm-Bawerk.

Unlike Marx and Hayek who were both economists, Clement Juglar was a medical doctor and statistician who hailed from France. He was also among the many academics to develop the economic theory of the business cycle in the 20th century and as a result, he has since been referred to as the father of the business cycle theory.

Another influential economist of the 20th century was the British John Keynes. His theory of aggregate demand, which revolves around the fact that aggregate

demand determines the overall level of economic activity, is said to have revolutionised the thinking within the macroeconomics discipline. Some economists and scholars still follow his theory to date.

The 2008 financial crisis, which arose as a result of a boom that started in early 2003, has reignited debates among various theorists regarding the true causes of a crisis. This boom had followed the downturns that had occurred in 2001, subsequent to the September 11 terrorist attacks in the U.S. Prior to that, global economies had last experienced a downturn in 1991, making it the longest expansion (10 years), since the 1961-69 expansion.

2.3.1 Marx and the Marxian School

2.3.1.1 Crisis Tendencies

"The Marxist crisis theory literature, which dates back to the late nineteenth century, has produced a number of different theories about the cause of capitalist crises, known as crisis tendencies" (Kotz, 2010, pp. 2). Marx divided these tendencies into three, namely; the tendency of profits to squeeze, the tendency for the rate of profits to fall and the overproduction/underconsumption tendency (Tabb, 2011). Although these tendencies had their separate followers, all Marxians had come to the conclusion that the cause of the crisis in all three approaches boiled down to contraction of profits.

According to Ongan (2011), the supporters of the "tendency of profits to squeeze approach'', asserted that the fluctuations in economic activity occurs in the accumulation phase, due to the increase in labour and capital. During this stage, Marxians stated that the cost of capital and the cost of labour tend to increase as capitalists hire additional workers to increase their productivity (Dunhaupt, 2013). As a result, profits tend to take a knock as costs increase at a rate higher than the increase in returns (Hein et al., 2014). A crisis thus occurs due to the squeezed profits.

On the contrary, other Marxian followers like Freeman (2010); Potts (2011); Kiman (2012) identified the tendency for the rate of profits to fall as being the

root cause of the crisis. Accordingly, Marx defined the rate of profit as "the surplus value generated by the labour force divided by the cost of employing that labour force and the cost of physical or tangible assets and raw materials that are employed in production" (Robert, 2009, pp.29). The equation for this Rate of Profit, as highlighted by Marx (1993), can be depicted as follows:

$$\mathrm{r} = \frac{s}{c+v} = \frac{(s/v)}{1+(\frac{c}{v})} = ek$$

where r is the rate of profit, s is the surplus value, v is variable capital, c is constant capital and k is $\frac{1}{1+(\frac{c}{v})}$ *, the composite of capital*

In this approach, Marx considered the cost of labour as variable and that of capital as fixed (Maito, 2014). Accordingly, Marx (1894) stated that, as competition in the market increases, capitalists often substitute some of their workforce (variable cost) with technology, in order to reduce costs and maintain their profit levels. Moreover, Marxians highlighted that more spend on technology relative to labour will tend to reduce the worker's productivity as only labour hours worked overtime can add value (Kalogerakos, 2013). As a result, Harvey, (2015) highlighted that *c* constant capital turns to be greater than *v* variable capital, increasing the ratio *c/v*. Consequently, this causes a rise in the denominator (composition of capital) and thus a decline in the rate of profit, (Basu & Manelakos, 2010). A financial crisis breaks out as capitalists fall into bankruptcy and stop producing.

The third and final approach by Marx and Marxians, namely "overproduction/underconsumption" identified the inability to sell goods and services at prices higher than their cost price as a contributing factor towards a recession (Narouei, 2011). The logic behind this theory as highlighted by Marx, is that the most important thing for capitalists is making profits (Saad-Fihlo, 2002). As a matter of fact, Marxians highlighted that capitalists will often increase output as competition rises without taking into account the overall level of demand that prevails in the market, while they simultaneously lay off

workers (Sarkar, 2011). It would be expected after some time for this to lead to an increase in the unemployment rate and a decrease in consumption. Without consumption demand, inventory becomes idle, forcing capitalist to sell at prices below their initial input costs. Thus a crisis erupts.

There have been several debates among Marxians as to which of the three theories is the true Marxian crisis theory (Krätke, 2006). Goda (2013) for one, held the view that some Marxians, such as Engels, 1975; Kautsky, 1901-1902; and Luxemberg, 1913, were of the belief that the real Marxian crisis theory is that of overproduction/underconsumption. However, others like Hilferding, 1910 and Tugan-Baranowsky, 1893, viewed disproportionality as being the root cause. Although these debates have been going on for many years, they still continue to prevail in the present (Kuhn, 2013).

2.3.1.2 Inequality and its contribution to the business cycle

In addition to the three crisis tendencies identified above, Marx went on to identify income inequality and credit extensions as other factors that can be considered in explaining an economic crisis.

According to Lysandrou (2009), Marx stated that although labour contributes towards the profitability of capitalists, it also contributes towards its reduction through wages. Thus, a rise in inequality between capitalist and labour will often result in an increase in debt for consumers as they try to maintain their consumption (Wisman, 2013). Also, because labour costs cannot be avoided, capitalists will turn to utilise debt to pay wage cost. Eventually, capitalist's debt reaches a maximum and they can no longer afford to pay wage costs thus substituting labour for capital (Mah-Hui & Hoe, 2011). As expected and as highlighted in Marx's underconsumption theory, a crisis occurs due to the decline in investments and consumption spending.

Following the debate on the real crisis theory by Marxians, there was a further debate among fellow Marxians as to whether inequality played a role in explaining the crisis. According to Goda, Onaran and Stockhammer (2014),

some Marxians argued that income inequality has a hand in the crisis. On the contrary, other Marxians blamed the policy interventions that occur following the rising wages, as the cause of the crisis, but not the wages themselves (Rajan, 2010).

2.3.1.3 Credit and its contribution to the business cycle

An analysis of the business cycle by examining the exchange of credit between capitalists during production process as done by Karl Marx (1884), concluded that the production process is mainly financed by credit. Marx stated further that, for as long as credit continues to finance the production process, and profits are earned due to increasing prices, the production process will continue to flourish and in turn lead to an expansion of credit.

Furthermore, Marx (1894) highlighted that, if payments are delayed and markets subsequently come to a standstill, inventory will become unsalable leading to a decline in prices and cash inflows. Businesses will therefore start depleting their reserves in order to meet their debt obligations, while running a loss. At that point, the demand for credit is increasing as banks simultaneously hike their risk premium. As a sequel thereof, credit is contracted as banks lose confidence in the ability of households and firms to repay their debt. A crisis arises as a result of contracted credit and the drop in the average rate of profit.

2.3.2 Hayek and the Austrian School

Another school of thought to analyse and theorise about the business cycle was the Austrian School. One can probably infer from the name that this school of thought has its origins embedded in Austria, although most of its economists were American. Some of the earliest economists to follow this school of thought were Mises and Hayek. Mises and Hayek first developed their theory of the business cycle in the 1920s when the American economy was experiencing an economic boom. Shortly after that, in the 1930s, the stock market crashed and global economies suffered the worst ever recession.

Unlike Marx who critiqued capitalism and identified socialism as the solution (Foley, 2011), Hayek advocated for capitalism stating that socialism is

impossible (Denis, 2014). Further, Hayek critiqued Marx's socialist vision by highlighting the problem of economic calculation (Butgereit & Carden, 2011), that is, the fact that the abolition of property exchange, made it impossible for government planners to calculate economic value due to the absence of relative resource prices (Mises, 1920).

Similar to Marx, Hayek and his fellow Austrians used a combination of various theories to explain the fluctuations that prevail in the economic system. Some of these theories overlapped with those highlighted by Marx. According to Hagemann (2013), Hayek had identified five theories namely (1) Bohm-Bawerk's theory of capital, (2) Wicksell's theory of cumulative process (3) Cantilion effect, (4) Richardo effects and (5) Mises' theory of money as building blocks towards an economic crisis.

2.3.2.1 Bohm-Bawerk's theory of Capital

Bohm-Bawerk's theory of capital is based on the time consuming nature of the production process (Mccaffrey & Salerno, 2014) and that interest rates are positive. According to Felgendreher (2015), Bawerks stated three reasons for the positive interest rates to prevail in the market, (1) people value present goods more than they do future goods and therefore present goods are always traded at a premium, (2) People tend to underestimate future output relative to current output, and (3) Roundabout is productive, that is, the longer it takes to produce, the more the output. Of these three conditions, Bawerk's third condition was most often viewed as being complicated and also referred to as the most controversial.

According to this roundaboutness condition, as additional time is added towards the production process, output increases (Repapis, 2011). However, at a certain point, the increase in output will start to slow down and ultimately start decreasing (Banaras, 2010). At this point, Bawerk stated that the level of savings would be so great that they will take the subsistence fund to a level where the average period of production is stretched past that point. Thus, the rate of interest will therefore always be positive. In conclusion, Bawerk stated that the role of interest rates is to ensure that the length of time it takes

entrepreneurs to produce goods matches with consumer's demand (Bagus, 2010).

2.3.2.2 Wicksell's theory of Cumulative Process

Wicksell's quantity theory of money, builds on Bohm-Bawerk's theory of natural rates of interest and time (Goodspeed, 2012). It does not however, differentiate between the nominal and real interest rates. The starting point of this theory has always been the comparison of the marginal product of capital and the cost of borrowing. Accordingly, Wicksell stated that, if money rate of interest was below the natural rate of return on capital, (which he critiqued Marx for calling it the rate of profits), entrepreneurs would tend to borrow at the money rate of interest and invest in capital, thus increasing demand for all resources (Feldman, 2013). Further, Wicksell stated that the high demand in commodities will tend to lead to an increase in prices for all types of commodities (Choi, 2013).

2.3.2.3 Cantillon Effect

In contrast to Wicksell's theory, the Cantillon effect, focuses on the relative prices rather than all prices (Cheng & Simon, 2012). Cantillon (1755) highlighted that the increase in money supply affects relative prices rather than all prices. Accordingly, as the quantity of money rises, the investments for capital production by entrepreneurs tend to increase (Baeriswyl, 2014). Further, consumption spending also increases as a result, leading to a rise in the prices of the few goods and services where money was first spent when it initially entered the system (Bilo, 2015).

It is common practice that the central banks will at periodic intervals use monetary and/ fiscal policy to curb the level of inflation in order to boost economic growth. Practically this implies that the central banks will tend to adjust money supply and/interest rate (monetary policy) or adjust government spending and/taxes (fiscal policy) during inflationary/deflationary periods and during periods of high/low economic growth.

Similar to the New Classical Economists, initially Hayek did not believe in the implementation of fiscal and monetary policy by the government to bring the economy back to its full levels of employment, that is, he was of the view that the economies are self-correcting. However, Hayek and some economists like Lionel Bobbins, Theodore Gregory, and Arnold Plant who opposed this view, have since changed their minds.

2.3.2.4 Mises theory and its contribution to the business cycle

The theory of Ludwig Von Mises and Hayek stems from the combination of the two theories of Wicksell and Bohm-Bawerk, out of which was born what is now called the Austrian business cycle (Braun, 2013). This theory takes into account the impact of monetary policy on the economic system.

Accordingly, Mises and Hayek argued that during periods of low prices, i.e deflation, the central banks are enticed to pump quantities of money and credit into the banking system (Calvo, 2013). Banks would then lend this money to household and firms at interest rates below the equilibrium level (Lester & Wolff, 2013). According to Metrah (2014), Hayek held the view that this sends incorrect signals to the entrepreneurs as they began to (1) overinvestment, to take advantage of the low rates (known as Bohm-Bawerk in Austrian theory), (2) they believe that the low interest rates have occurred because consumers have substituted current consumption for savings, thus deferring consumption to the future, and as a result, they believe they can take long to produce their goods and services.

At the same time, consumer see this lower rates as an opportunity to borrow and further finance their consumer spending (Mrowiec, 2013). The rise in consumption and investment spending is expected to leads to an increase in relative prices (i.e., Cantillon effects). Eventually, credit becomes fully depleted as the boom reaches its peak (Ragnarsson, 2012). At this point, there is now a mismatch between consumption demand and the supply of final goods as the roundaboutness of production takes long to complete, and entrepreneurs

realise there have been malinvestments (Kuehn, 2013). Profits fall as entrepreneurs resort to laying off workers. A recession thus occurs.

2.3.3 Keynes and the post-Keynesian School

Similar to the Marxian school of thought, the post-Keynesians school of thought was divided into various approaches, namely; the fundamentalist approach, Minsky's financial instability hypothesis and the Kaleckian variant (Argitis & Michopoulou, 2010). What differentiates the three is that the fundamentalist and Minsky's financial instability concentrate on uncertainty and non-neutrality of money respectively, while Kaleckian variant focuses on workers, capitalist and rentiers (Lavoie, 2014). Moreover, the similarities lie in their emphasis for the rejection of Says Law, policy intervention and lastly, the belief that the bottom line in any macroeconomic activity is effective demand (King, 2013).

Skott (2011), in his paper on post-Keynesian theories of the business cycle, highlighted that the post-Keynesian emphasised endogenous shocks that prevail in the economic system as the cause of economic fluctuations, and not exogenous shocks as argued by the New Classical Economists. Over and above that, post-Keynesians stressed that markets are generally unstable, indicating the need for policy intervention at some point or another (Harris, 2013). This view was also contrary to that of the New Classical Economists, whose theory was embedded in laissez-faire markets, meaning that economies are self-adjusting and policy interventions are not required to bring them back to full employment levels (Gul, Chaudhry & Faridi, 2014).

The post-Keynesians theory pinpointed Aggregate Demand as the driving force of economic activity (Fontana & Sawyer, 2013). Its components consist of consumption spending, investment spending, government spending, exports, imports and money supply. These determine its strength and weakness within the economy (Terzi, 2010). According to Krugman (2012), any changes in factors such as wealth, expectations, the size of the existing physical stock, fiscal and monetary policy is bound to impact the economy through aggregate demand.

Although post-Keynesians were of the view that demand deficiency causes a slump, Hayek had argued that an economic downturn could only be caused by malinvestment as well as a mismatch that occurs between the demand of consumption and the time it takes for the roundabout process of production to yield the consumable product. Similar to the New Classical Economists, Hayek further chastised Keynes' view of policy interventions and stressed that less government intervention, allows for free markets and enables governments to run efficiently.

2.3.3.1 Fundamentalist Approach

According to Koutsobinas (2010), the Fundamental theory of the post-Keynesians asserted that the uncertainty that prevails in the market at a given time, could lead to a crisis. The post-Keynesians that follow this theory, stressed that the actions of economic agents today, depend on their future expectations (Davis, 2010). For example, some post-Keynesians, such as Krusell and McKay (2010), have maintained that a pessimistic view about the economy by consumers and entrepreneurs is bound to decrease their consumption and investment respectively. In due course, the decline in demand through the underconsumption, as also highlighted by Marx and limited investments spending, will thus result in the reduction of economic growth as production decreases and involuntary unemployment arises (Beaudry & Portier, 2013). A crisis occurs as a result thereof.

2.3.3.2 Minsky's Financial Instability Approach

Minsky's financial instability approach argued that uncertainty could also trigger a crisis through speculation (Beachy, 2012). On top of that, this approach stated that, during periods of high economic growth, credit demand tends to be on the rise (Greenwood-Nimmo, 2013). Economic agents take on additional risk over the passage of time, in the process, becoming more indebted (Minsky, 1980). Eventually, economic agents move from hedging (where borrowers can meet all debt obligations i.e. interest and payment) to speculation (where borrowers can only make interest payments and roll over their debt) and

ultimately to ponzi financing (where borrowers can neither pay their principal nor their interest payments) (Shefrin & Statman, 2011).

The longer the economy remains stable, the more the demand for ponzi financing (Caverzasi, 2014). The ponzi financing collapses after some time bringing down with it hedge funds and some financial institutions according to (Knell, 2015). Other economic agents also start to default on their loans at this stage (Solomon & Golo, 2014). By the same token Marx and Hayek asserted that Minsky's crisis occurs as a result of the interactions within the banking system. However, Hayek and Marx maintained that this was only one of many possible scenarios (White, 2015).

Like some Marxists, the post-Keynesians identified income inequality as another factor influencing the fluctuations of the economic activity. Although the Marx's approach targeted the demand and supply-side orientated theories, the post-Keynesians theory was demand-led (Palley, 2015).

2.3.3.3 Kaleckian Variant

Another theory of the post-Keynesian, which is the Kaleckian variant, highlighted that changes in income distribution such as workers, capitalist and rentiers can be the stumbling block towards achieving economic growth (Bortz, 2014). Although post-Keynesians income distribution approach highlighted three factors, it is worth noting that Marx's basic income distribution approach initially focused on the capitalist-worker distinction and does not distinguish between managers and shareholders though it was later done by neo-Marxians (Dutt, 2013).

Taking wages as a point of departure, the impact of changes in income distribution means that economic downturns can arise due to either an increase in wages or decrease thereof (Assous & Dutt, 2010). This theory can be likened to Marx's profit squeeze and rate of profits to fall approaches which identified the increase and decrease in wages as the major cause for profits to squeeze and for the fall in the rate of profits to occur. For instance, Kaleck showed that

an increase in real wage due to the bargaining power of labour, can lead to a profit squeeze through an increase in labour costs and the decrease in investment spending by firms, which ultimately results in a crisis (Hartwig, 2014). Alternatively, a decrease in wages could also lead to a crisis due to the decline in consumption that leads to a decline in economic growth through the decrease in aggregate demand (Onaran & Galanis, 2012).

The income of rentiers is another source of income as highlighted by Kaleck that could either directly or indirectly cause fluctuations in economic growth. For example, Kaleck indicated that an increase in shareholders return can results in a decrease of worker's wage share, further resulting in a rise in debt as workers borrow to finance their consumption (Traub-Merz, 2012). Moreover, Kaleck indicated that households become increasingly indebted, as they borrow to finance their consumption spending (Ashley & Wilson, 2009). A financial crisis is thus expected to break out through the over-indebtedness.

Alternative to the indirect effect is the direct effect. Usually, management tends to pay shareholders high dividends and further buy back the company's shares in order to increase the shareholder value (Hein et al., 2014). This in turn results in a profit squeeze and fewer funds available for investments leading to an increase in debt and further making it difficult for the firm to acquire additional debt (Hein et al., 2014). Eventually, a crisis arises as firms can no longer pay their debt.

Moving away from income distribution approach, Kaleck highlighted the interaction between profits and investments as the key argument for financial fragility. Accordingly, Kaleck stated that firms will tend to increase investments with the aim of increasing profits (Detzer & Herr, 2014). Further, he highlighted that firms require cash flows in order to fulfilment their debt obligations (Detzer & Herr, 2014). Moreover, cash flows depend on the success of the firm's investments (Detzer & Herr, 2014). When the economic activity peaks, investments will tend to plunge leading to the decline in cash flows. At this stage, firms can no longer pay off their debt obligations due to reduced cash flows (Toporowski, 2007). A crisis thus occurs due to over-indebtedness.

Although Marx and Keynes crisis theories overlapped more often than not, they differed in terms of Marx's idea that capitalism can be replaced by socialism. Keynes was totally against this notion and argued that socialism can never be an alternative for capitalism. Consequently, post-Keynesians have often been quoted as "trying to save capitalism".

2.3.4 Keynes and the New Keynesian School

Charpe, Flachel and Proano who are commonly known as New Keynesians also have their own perspective of the business cycle. They identified debt deflation, credit-financed consumption boom and the exhilarating debt effect as some of the major causes of the financial crisis (Charpe et al., 2012). Similar to Marx and post-Keynesians, New Keynesians pointed out that when households are over-indebted, banks tend to contract credit, which ultimately results in a crisis.

2.3.4.1 Debt Deflation Approach

The theory of debt deflation, as a source of the financial crises, was first introduced in 1932 by Irvin Fisher in his book "*Booms and Depression*". According to Fisher (1933), during periods of economic upturn, the economic agents tend to borrow excessively. This is so they can finance their consumption and investment spending. Over a period of time, these economic agents are likely to become over-indebted. Further, Fisher asserted that this sends a panic into the market as banks start to increase interest rates (Ashley & Wilson, 2009). The high interest rates will ultimately result in the drop in both currency and asset prices (Assous, 2013).

Consequently, the decrease in the currency value makes it difficult for households and firms to pay their debt as alluded by Assous (2013). Banks start to fail as both households and firms can no longer honour their debt obligations. In an attempt to cut down on costs, firms begin to lay off labour. Consumer spending thus starts to decrease due to consumer's lack of income. A financial crisis is thus likely to break out through the fisher effect (Shiller, 2011).

2.3.4.2 Credit-Financed Consumption Approach

In addition to debt deflation, New Keynesians went on to identify credit-financed consumption boom as another factor that contributes towards a possible recession. This theory can be likened to the income distribution theory that Marx and post-Keynesians, highlighted as another possible source of a financial crisis. Accordingly, New Keynesians highlighted that as household's income declines, their demand for debt tends to increase as they attempt to finance consumption (Barba & Parvetti, 2009). Over the passage of time, households become over-indebted. Banks cut down on credit supply as they become wary of household's ability to repay their debt obligations, and thus reduce the supply of credit (Charpe et al., 2012). A financial crisis thus arises as a result of contracted debt.

2.3.4.3 Credit Rationing Approach

Another theory the New Keynesians identified as the source of financial instability was Stiglitz's credit rationing. According to Stiglitz and Weiss (1981), banks are often reluctant to issue debt to households and firms as they worry about their ability to meet their obligations. As a result, thereof, banks are likely to increase their interest rate. Due to desperation, households and firms are willing to borrow at any rate, even if it means at the highest rate possible. If they cannot borrow at one bank, they will attempt to borrow at another, eventually borrowing at very high rates. Over time, this high interest rates result in major defaults by economic agents (Argawal et al., 2013). A financial crisis arises as a result.

Following these three factors identified above, other New Keynesians considered the impact of nominal and real price rigidities on economic fluctuations. According to Dobrescu (2012), New Keynesians asserted that a contraction in aggregate demand is bound to reduce the level of output in the economy. Consequently, firms will respond to the decline in output by either reducing their prices or by maintaining the current prices (Nikoloski et al., 2015). If firms reduce their prices (wages), this will lead to the sharp decrease in marginal cost during recession. Alternatively, if firms maintain high rigidity of

nominal variables, this will result in small decline in marginal cost and/or large decrease in marginal revenue thus squeezing profits. Eventually, a decline in profits and an increase in unemployment arise which results in a crisis (de Ridder, 2014).

The post-Keynesians and New Keynesians theorists have some similarities and dissimilarities in common. They are in agreement on the view that policy interventions are required to bring the economy back to its full employment level. They also have consensus on theories such as cost-based or implicit contracts. The major difference is the fact that post-Keynesians are totally against the view that prices are responsible for effective demand effects.

In conclusion, it is worth noting that, although these three theorists Marx, Hayek and Keynes contradicted each other, they were at some times in agreement. For instance, they were all immensely interested in the study of capitalism. Further, all these three believed that the business cycle was extremely difficult to predict and very hard to control once predicted. The most crucial similarity by these theorists and some other theorists, as highlighted in this study, was the vital role played by bank credit in the fluctuations of the economic activity.

2.3.5 Juglar's Business Cycle

Juglar theories were centred on the fact that an economic recession is a natural progression of an economic boom and further that an economic boom is a natural progression of an economic upturn. This means a recession can only occur, after there has just been an economic down turn.

Like Marx (1894), Juglar (1889) examined the business cycle by taking into account the interaction between credit extensions and prices. Unlike Marx however, Juglar did not consider the effect of poverty, debt–financed consumption and income inequality can have on the business cycle.

Legrand and Hagemann (2007) claimed that high levels of economic growth in developed countries lead to an expansion of credit by banks. Like Marx (1884),

Juglar (1889) stated that these credit extensions then lead to a rise in prices as a result of increased consumption. The higher prices make the domestic markets less competitive in comparison to foreign market (Niehans, 1992)

We expect inventories in the domestic market to accumulate as a result of higher prices relative to the foreign markets as stated by Marx (1894). Further Juglar (1889) suggested that creditors will start to default on their interest and principal payments which results in credit extensions and an increase in interest rates by banks (Legrand & Hagemann, 2007)

On the eve of the crisis after prices had been increasing throughout economic prosperity, they now reach their peak, and suddenly stop increasing (Juglar, 1889. The crisis breaks out in a form of financial panic with skyrocketing interest rates

3 CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter is organised as follows: Section 3.2 outlines the research design. Section 3.3 presents the research methodology. Section 3.4 reveals the sample selection. Section 3.5 describes the data collection procedures. Section 3.6 presents the data analysis. Section 3.7 discusses the problems relating to data.

3.2 The Research Design

This study was conducted in various countries. Furthermore, it used descriptive and causal research design to investigate and analyse the three hypotheses that were identified in Chapter One of this study.

These three hypotheses are:
(1) the mechanism through which bank credit generates economic fluctuations;
(2) the role of bank credit in propagating and prolonging the business cycle; and
(3) the critical liquidity level below which banks credit expands or contracts.

The various theories discussed in Chapter Two of this study pointed out a number of channels through which bank credit can affect the business cycle indicators and ultimately the economic growth. These theories further highlighted various business cycle indicators and that they can either be leading, lagging, or coincident indicators. The expectations for the transmission mechanisms for the 2008 financial crisis, and the business cycle indicators based on these theories are outlined below.

- **Leading Indicators** are indicators that usually change before the economy as a whole change. Money supply, bank credit, consumer confidence, are regarded as leading indicators.

- **Coincident Indicators** are indicators that change simultaneously with the changes in the economic activity. For instance, consumption

spending, interest rates, real estate prices and Stock Market indices are regarded as coincident indicators.

- **Lagging Indicators** are indicators that usually change after the changes in the economic activity. These include unemployment rate and inflation.

3.2.1 Expected Transmission Mechanisms

There are various mechanisms through which bank credit can be expected to lead to a financial crisis;

Firstly, in periods of economic upturns, an increase in bank credit is expected to lead to an increase in investment spending, which is likely to result in higher output. Concurrently, with higher bank credit, there is anticipation for high prices as consumption spending increases. Ultimately, in periods of economic downturn, an increase in bank credit is expected to lead to a decrease in prices as both investment spending and consumption are expected to decrease.

Alternatively, in the short-term an increase in bank credit is expected to lower interest rates. Furthermore, the inflation rate is expected to rise due to the expected increase in consumption and investment spending. In the medium-term, inflation rate is expected to further increase. Lastly, in the long-term both investment and consumption spending are expected to decline, while the expectation is that, interest rates will increase and inflation rate will decrease.

Finally, during the early phase of the business cycle, an increase in bank credit is expected to lead to an increase in consumer expectations. As a result, thereof, inflation rate is anticipated to increase due to the expected increase in consumption spending. Simultaneously, as interest rates are expected to be low, stock prices are anticipated to increase. Alternatively, in the late stages of the business cycle, an increase in bank credit is expected to lead to a decrease in consumer expectations, leading to a decrease in inflation rate and

consumption spending. Furthermore, with the expectation of increased interest rates, a decrease in stock prices is anticipated.

3.3 Research Methodology

Research methodologies can be classified into two broad categories: Qualitative and Quantitative. Qualitative research methodology was chosen for the purpose of this study. Further, a descriptive dynamic correlation between real GDP growth and various other business cycle indicators was explored in order to address the three hypotheses identified above.

The methodology of this study is divided into three steps. The first step entails the graphical representation of the transmission mechanism in developed and developing nations following an increase in bank credit. For instance, in case one theory says that bank credit increases, followed by an increase in investments, which further leads to an increase in production until bank credit has grown to a level where it can no longer increase and starts declining, thus leading to a crisis, it will be verified whether these sequence of events actually occurred in 2008 financial crisis. Furthermore, a Granger Causality test will be performed to determine whether the various business cycle indicators identified above are leading, coincident or lagging.

The second step is to identify critical level of liquidity ratio below which banks will start extending credit after there has been a recession. To do this, the liquidity ratios will be plotted against credit extensions to households and then an observation of the liquidity ratio will be done to determine the critical level.

The last step entails determination of the length and the depth of the financial crisis in developed nations and in the emerging markets and to determine the role played by credit. The number of quarters it takes for output to recover to its pre-crisis level will be considered in order to determine the length. Moreover, the peak to trough percentage decline in GDP will be calculated in order to determine the depth.

3.4 Sample Selection

The population of this study included a total of six countries. Three countries were selected from the developed nations and another three from the emerging markets. This sample selection was based on the countries with high levels of economic growth i.e. developed nations and countries experiencing rapid growth and industrialization i.e. emerging market. For the emerging markets, a selection was made from the BRICS nations. Moreover, a comparison between these markets was conducted mainly because in the past, there have been discrepancies in recoveries. Previous studies like that of Jorda, Schularick and Taylor (2015), noted that post the 2008 collapse, countries with high credit levels such as U.K, U.S, Spain and Ireland experienced much slower recoveries post the crisis compared to low credit level countries such as Germany, Switzerland, and the emerging Markets.

3.5 Data collection procedures

3.5.1 Source of data

Zarnowitz (1992) insisted that the investigation of the business cycle uses more often than not endogenous variables. As a result, the type of data to be employed in this thesis are endogenous variables such as real GDP, industrial output, Consumer Price Index, discount rate, money supply, stock market index, real estate property index, household's disposable income, consumer spending, unemployment rate, credit extensions to households and private sector. The quarterly data from years 2000 to 2015 is thus utilised.

The source for money supply, discount rate, credit extensions to households, credit extensions to private sector, consumer confidence, consumer spending, unemployment rate, real GDP and industrial output for the developed countries, namely U.S., U.K. and Germany (except money supply and interest rates) and emerging markets South Africa, Brazil, and China will be the FRED. The only quarterly data found for real GDP was that of the U.S, the rest was annual data. Thus, the quarterly real GDP for U.K., Germany, South Africa, Brazil and China was collected from the Bloomberg database. The money

supply for Germany, Credit Extensions to households for Brazil and consumer spending for China could not be found.

The stock market indices, real residential property indices, household's disposable income and industrial output for the developed countries and the emerging markets were sourced from Bloomberg. The liquidity ratios i.e. bank credit to bank deposits and, liquidity assets to deposits and short-term funding were sourced from the World Bank database.

3.6 Data analysis

The data collected was analysed by using Eviews.

3.7 Problems with the data

The data collected for this study was mostly available for the developed countries and unavailable for the emerging markets. Majority of the emerging market countries had some data missing and some of the data was completely unavailable for the period of the analysis.

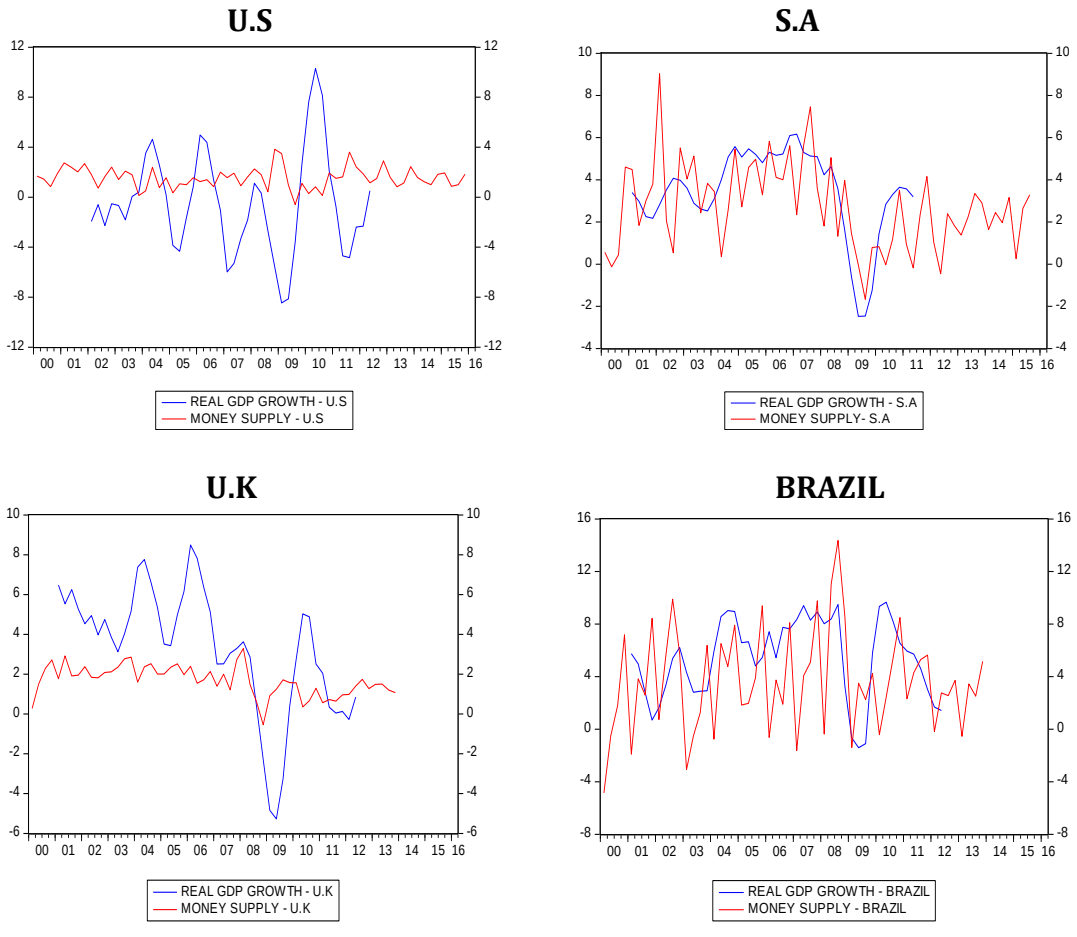
4 CHAPTER FOUR: EMPIRICAL RESULTS

4.1 Introduction

This Chapter presents the research results. The research results of this study will be presented in a form of graphs to represent the data that has been collected. Graphs were found to be appropriate because they summarise the transmission mechanisms into one picture. The Granger causality test will be performed in order to determine whether the variables such as Money Supply, Credit Extensions to households, Discount Rate, Consumer Confidence, Residential Property Prices, Stock Market Index and Consumption Spending lead, lag or coincide with the business cycle. The results of the Granger causality test are presented in the Appendix in a form of Tables.

4.2 The Transmission Mechanisms: Developed and Emerging Markets

Figure 4.1: Money Supply trends for the period 2000-2015 in developed and emerging market countries



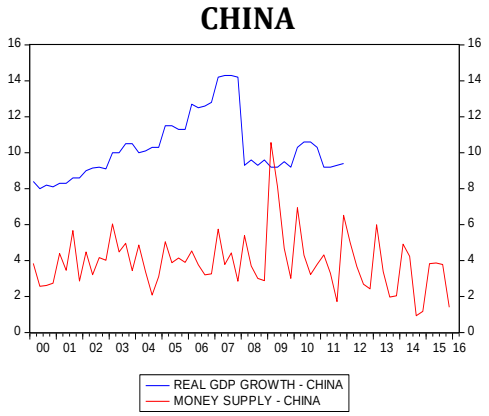
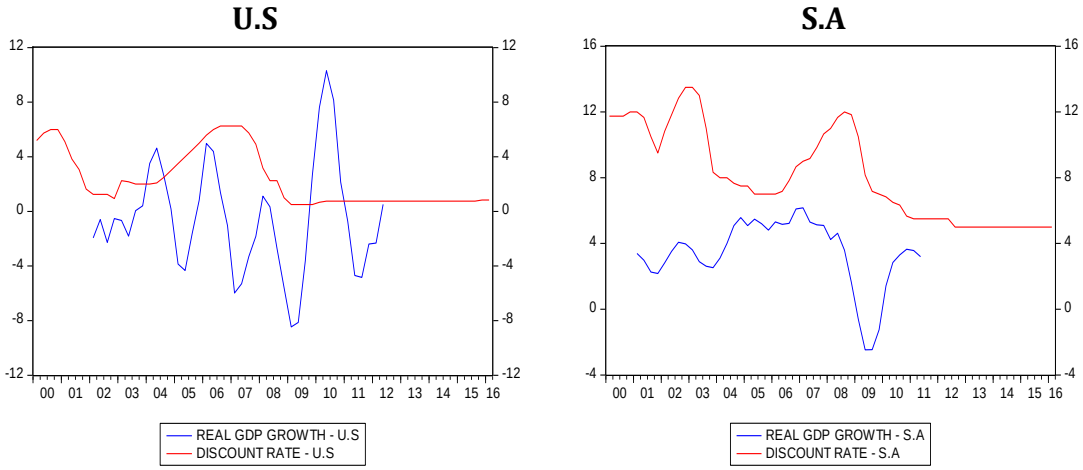
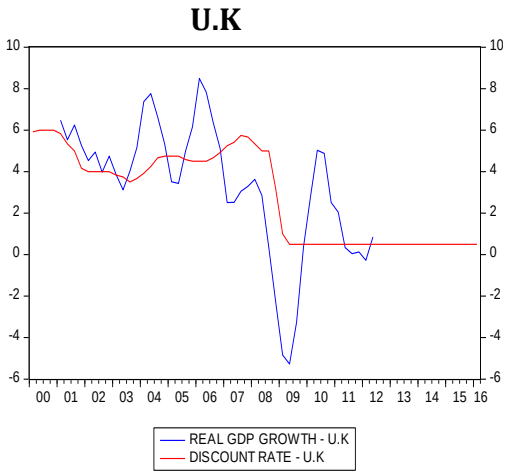
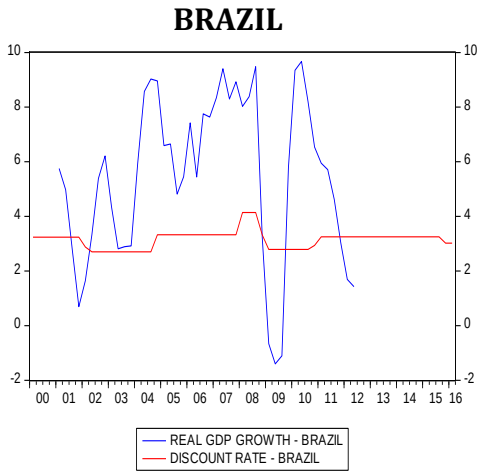


Figure 4.1 indicates a direct relationship between real GDP growth and money supply for developed nations; U.S and U.K and for emerging market nations; S.A, Brazil and China. It shows an increase in real GDP growth and money supply from early 2000 until early 2007 for the U.S, U.K, S.A and Brazil, with a huge drop in both variables during the 2008 financial crisis. Thereafter, both real GDP growth and money supply started to recover. Although China's real GDP growth was also increasing during that period, its real GDP growth dipped slightly while its money supply continued to rise.

Figure 4.2: Discount Rate trends for the period 2000-2015 in developed and emerging market countries







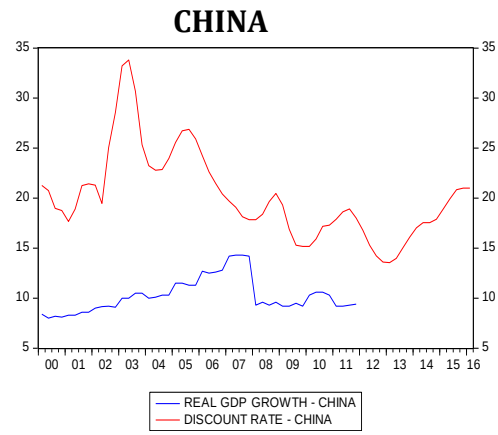


Figure 4.2 above highlights a positive relationship between real GDP growth and the discount rate in the developed countries namely; U.S and U.K before the crisis and no relationship thereafter. On the other hand, Germany and developing markets; S.A, China and Brazil showed a positive relationship throughout. From the year 2000, the discount rate in the developed and developing nations namely; U.S, U.K, S.A, Brazil and China had been increasing and started declining a few years just before the crisis. After the crisis, the interest rates started increasing again.

Figure 4.3: Credit Extensions to Households and Liquidity Ratio trends for the period 2000-2015 in developed and emerging market countries

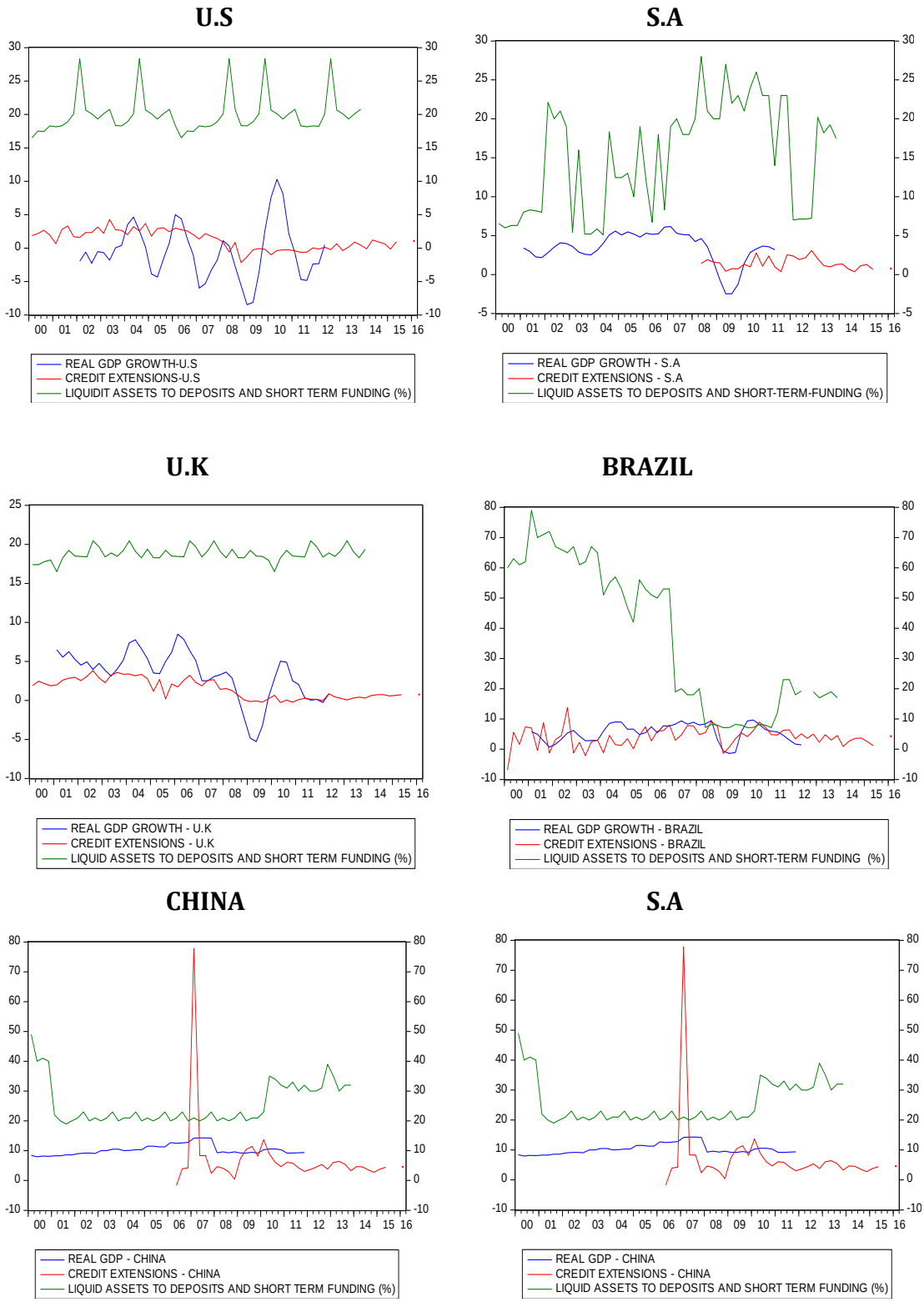
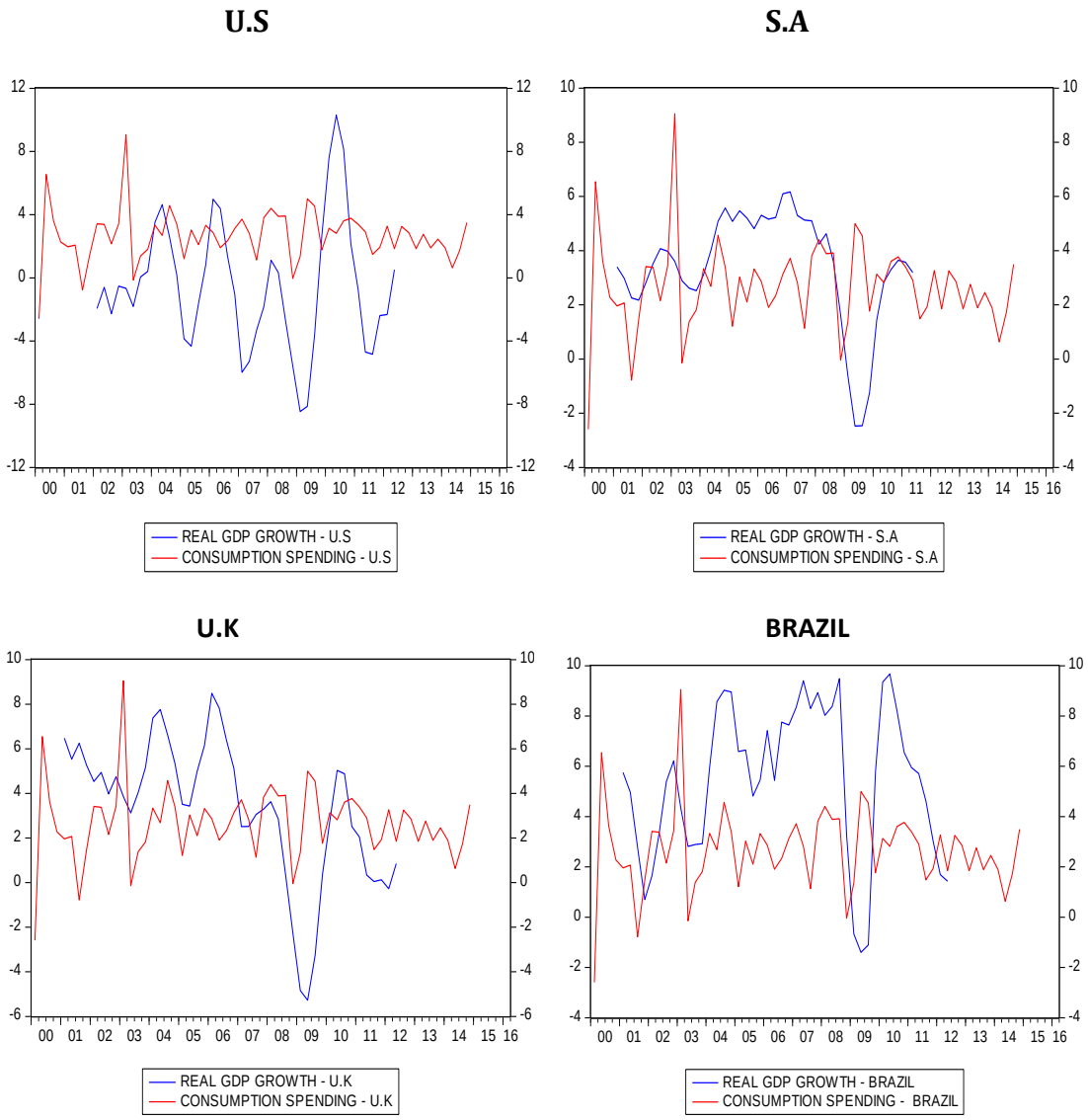
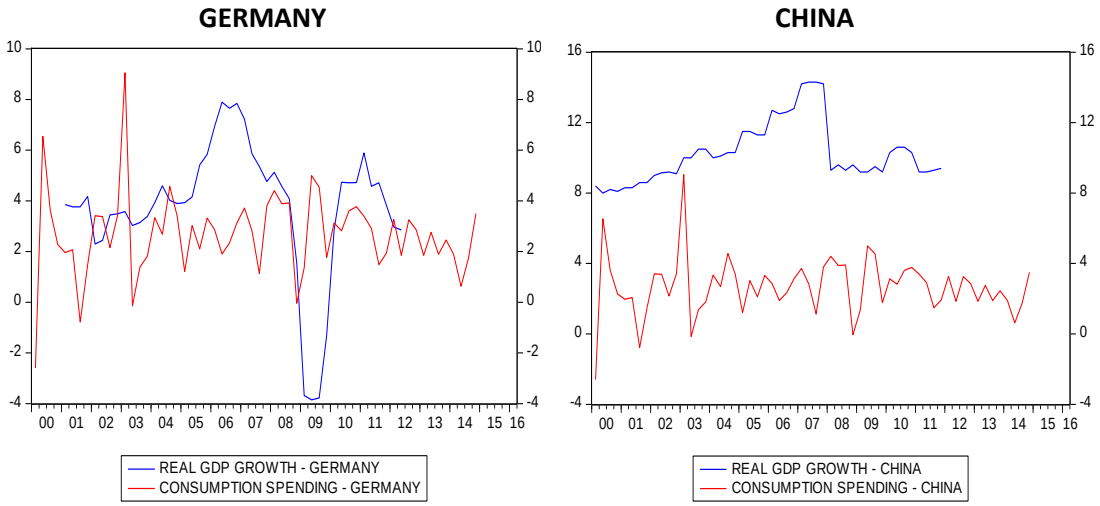


Figure 4.3 above highlights a positive relationship between real GDP growth and the credit extensions rate in the developed countries and in the emerging

markets. Further, it can be noted that in developed countries i.e. U.S, U.K and Germany credit start to decline when liquid assets to deposits decline below 75%, 73% and 36% respectively. In the emerging markets, namely; S.A, Brazil and China credit start to decline when liquid assets to deposits decline below 44%, 63% and 50%.

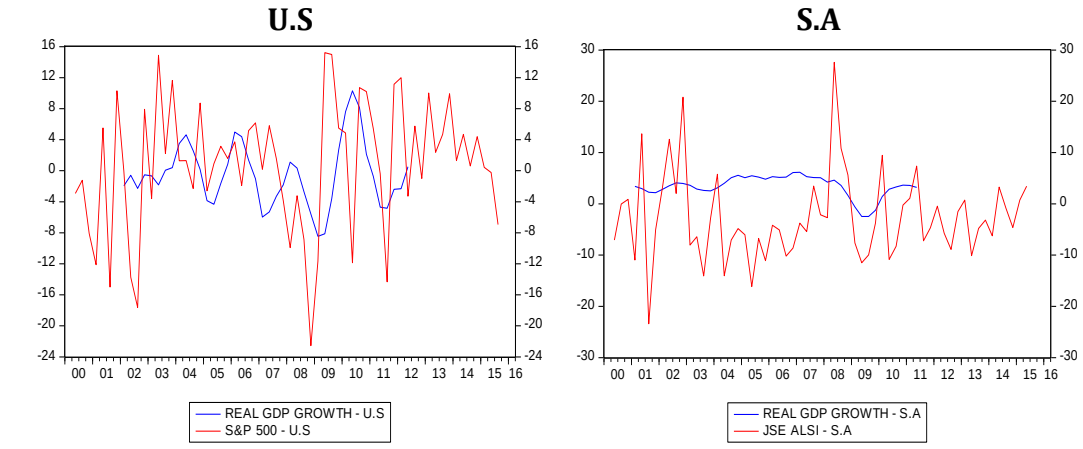
Figure 4.4: Consumer Confidence trends for the period 2000-2015 in developed and emerging market countries





Based on the Figure 4.4 above, real GDP growth and consumer confidence for developed countries; U.S, U.K and Germany and, developing countries; S.A, Brazil and China seemed to move together before, during and after the crisis. The consumption confidence for these countries started increasing from as early as the first quarter of 2000 as wealth was increasing and dipped during the 2008 financial crisis, recovering shortly thereafter.

Figure 4.5: Stock Market Indices trends for the period 2000-2015 in developed and emerging market countries



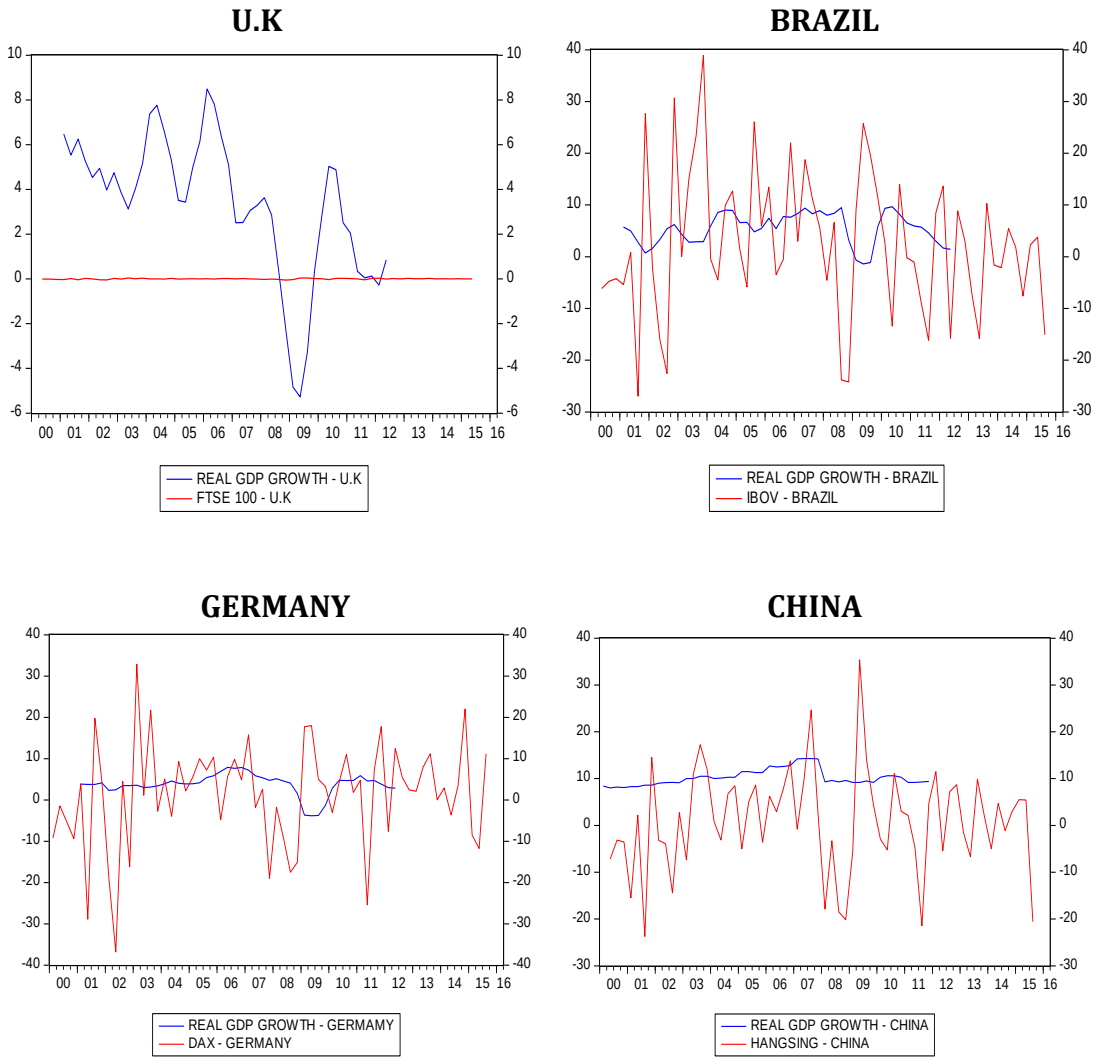


Figure 4.5 above depicts that there exists a direct relationship between real GDP growth and the stock markets in the U.S, U.K, Germany, S.A, Brazil and China. The stock markets in these countries had been increasing since 2000, dipping first in 2001 around the September 11 events, and then during the 2008 financial crisis.

Figure 4.6: Residential Property Prices trends for the period 2000-2015 in developed and emerging market countries

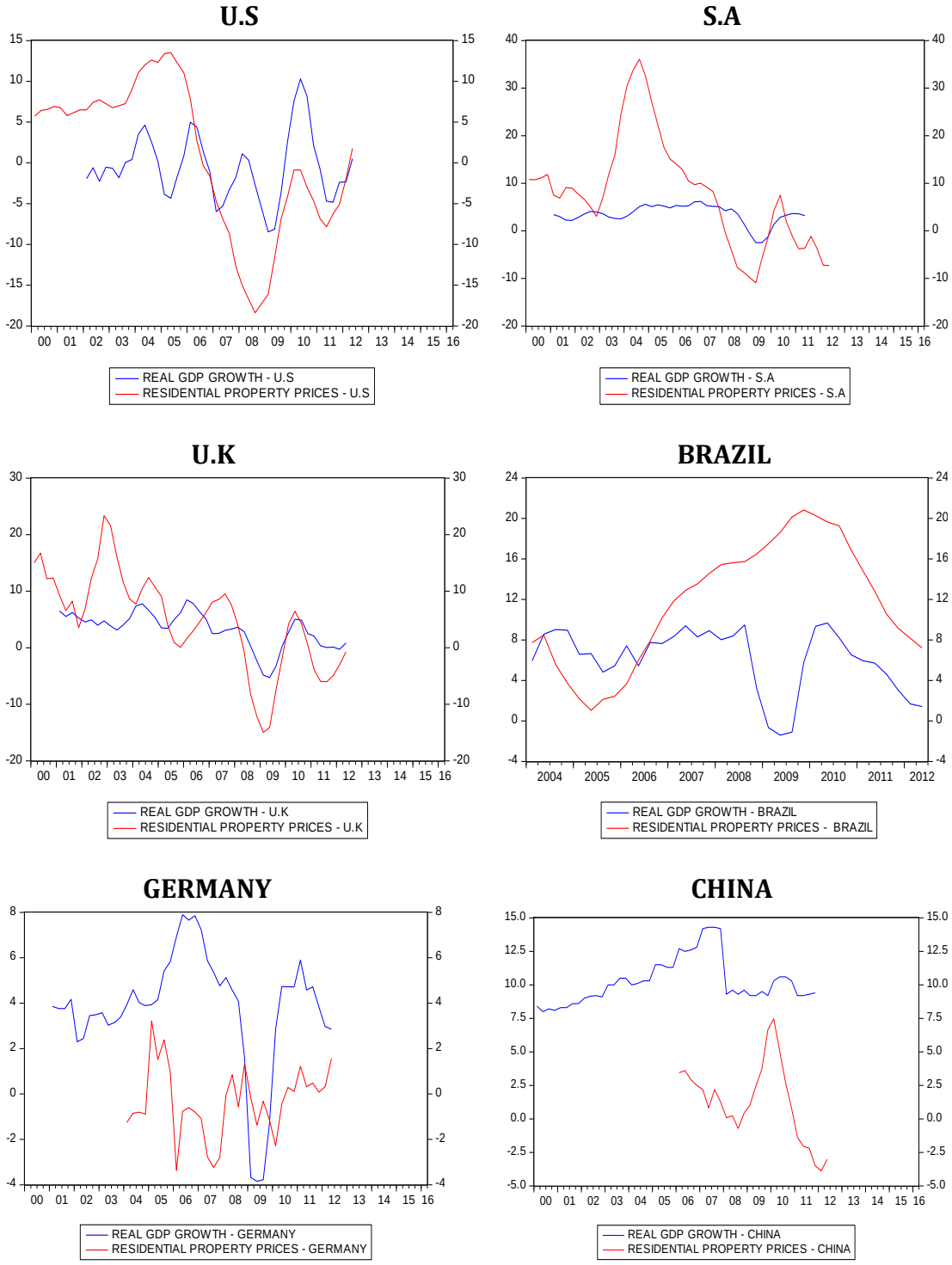
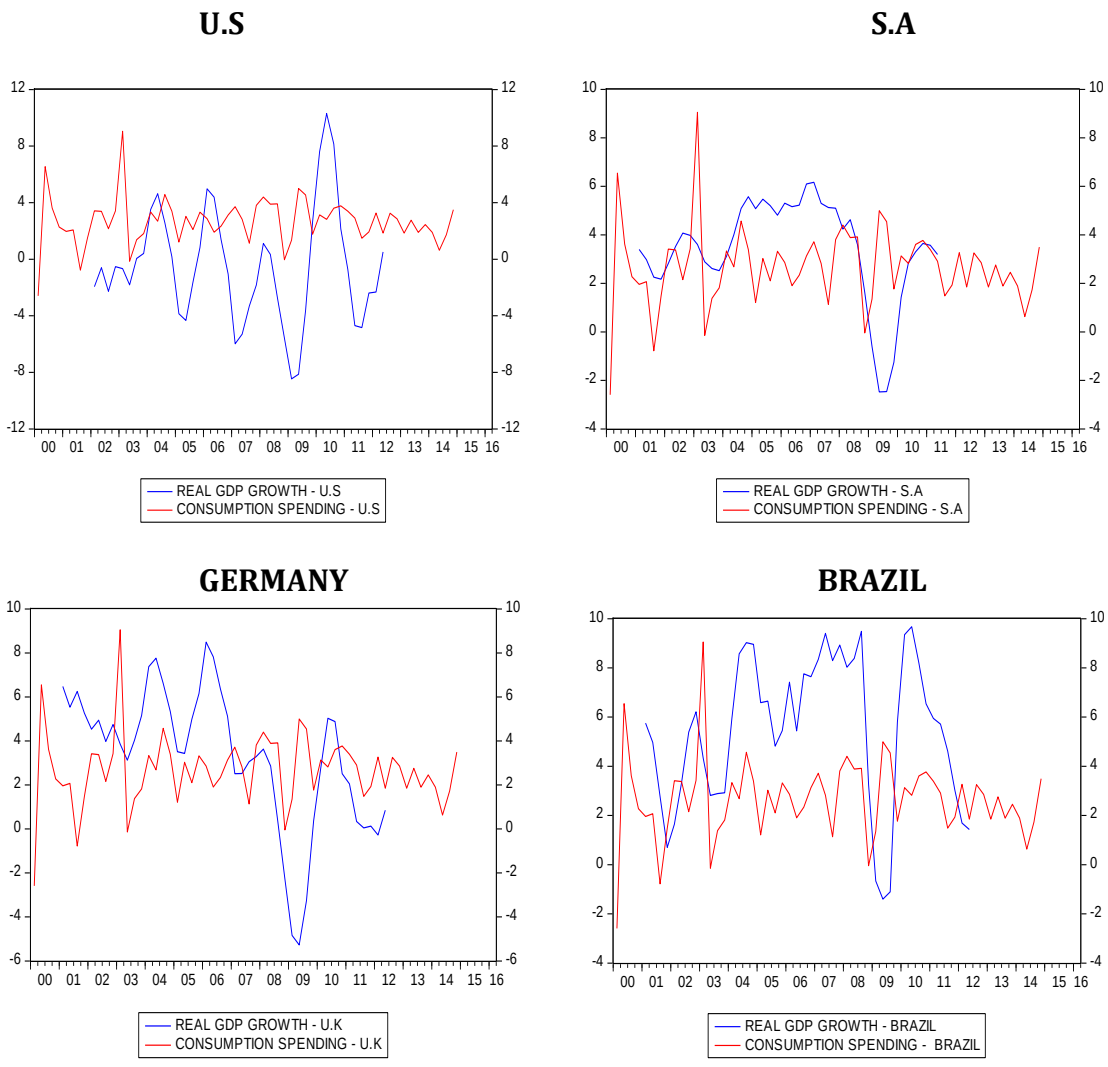
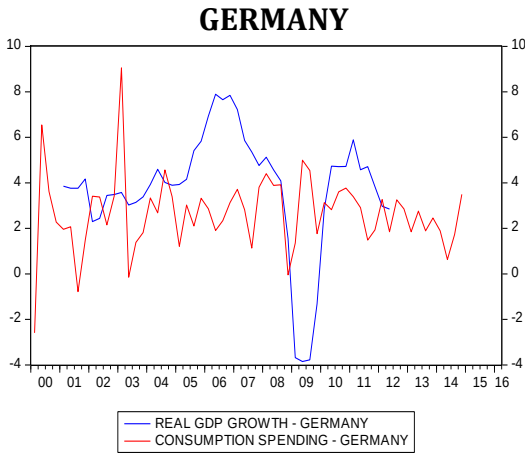


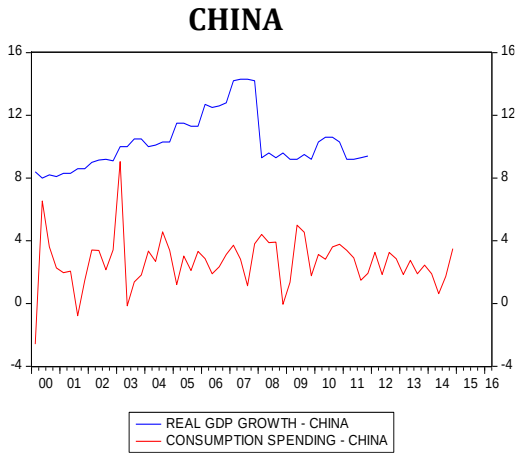
Figure 4.6 above shows that there is a positive correlation between growth and real residential property prices in the U.S and U.K and a negative correlation for Germany. Furthermore, it shows a positive correlation for the developing nations.i.e. S.A and China, and a negative correlation for Brazil.

From as early as 2000, the U.S, U.K and S.A seemed to be experiencing a real estate markets boom, with the prices shooting up and reaching a trough during the financial crisis. Germany's prices were also increasing during that period of time. Contrary, Brazil was initially experiencing a decline in real estate prices in the early 2000s, only starting to increase in 2005 and reaching a peak in 2009.

Figure 4.7: Consumption Spending trends for the period 2000-2015 in developed and emerging market countries







Based on the Figure 4.7 above, shows that real GDP growth and consumer spending for developed countries; U.S, U.K and Germany and, developing countries; S.A, Brazil and China seem to have a positive relationship starting from early 2000, throughout and after the crisis. Consumption spending had been increasing since then, experiencing a major dip in 2008 during the financial crisis.

4.3 Granger Causality Test Results

A Granger Causality test was performed at a 5% level of significance for both the developed and emerging markets between real GDP growth and the following variables; Money Supply, Credit Extensions to households, Discount Rate, Consumer Confidence, Residential Property Prices, Stock Market Index and Consumption spending. The following were found:

U.S

The results show a p = 0.0696 and a p = 0.0652 for money supply. In both cases, p > 0.05. Therefore, we fail reject the null hypothesis.
Further, the results also indicate a p = 0.77 and a p = 0.113 for discount rate. In both cases, p > 0.05. Therefore, we fail reject the null hypothesis.
Money supply, discount rate, stock market, residential property prices, credit extensions, discount rate, consumption spending and consumer confidence appeared to be insignificant.

U.K

The results show a p = 0.42 and a p = 0.02 for credit extensions. In the one instance cases, p > 0.05 and p< 0.05 in the other. Therefore, we fail to reject the null hypothesis and reject the null hypothesis respectively. Thus, credit extensions households' granger causes real GDP growth. Credit Extensions is a leading indicator.

Moreover, the results highlight a p = 0.06 and a p = 0.065 for consumption spending. In the one instance p> 0.05 and p<0.05 in the other. Therefore, we fail reject the null hypothesis and reject respectively. Hence, real GDP growth granger causes consumption spending. Consumption spending is therefore a lagging indicator.

The stock market, consumer confidence, discount rate and residential property prices all appeared to be was insignificant, while money supply granger causes growth. Money supply is therefore a leading indicator.

Germany

The results show a p = 0.67 and a p = 0.99 for credit extensions. In both cases, p > 0.05. Therefore, we fail reject the null hypothesis. Hence, credit extensions to households are therefore a coincident indicator.

The results show a p = 0.83 and p = 0.33. In both cases, p > 0.05.

Therefore, we fail to reject the null hypothesis. Therefore, the residential property prices in the U.K are therefore a coincident indicator.

Additionally, consumer confidence, consumption spending, stock market, and residential property prices appeared insignificant.

S.A

The results show a p = 0.0025 and a p = 0.3788 for money supply. In the one instance cases, p < 0.05 and p> 0.05 in the other. Therefore, we reject the null hypothesis and fail to reject the null hypothesis respectively. Thus, money supply is therefore a lagging indicator.

The results show a p = 0.0077 and a p = 0.83 for credit extensions. The p< 0.05 and p > 0.05 respectively. Therefore, we reject the null hypothesis and fail to reject the null hypothesis respectively. Thus, credit extensions to households are therefore a leading indicator.

Further, the discount rate, consumer confidence appeared to be insignificant while residential property prices and consumer spending were significant i.e. they appeared to be leading indicators

Brazil

The results show a p = 0.0079 and p = 0.46. Thus p < 0.05 in the first instance and p>0.05 in the second instance. We fail to reject the null hypothesis and reject null hypothesis respectively. This means that, the stock market in Brazil granger causes real GDP growth. Therefore, stock market a leading indicator.

Furthermore, the results show a p = 0.6729 and a p = 0.3259 for consumption spending. In both cases, p > 0.05. Therefore, we fail reject the null hypothesis.

Money Supply, discount rate, Credit Extensions, residential property prices, consumer confidence all appeared to be insignificant

China

The results show a p = 0.0171 and a p = 0.1324 for money supply. In the one instance cases, p < 0.05 and p> 0.05 in the other. Therefore, we reject the null hypothesis and fail to reject the null hypothesis respectively.

The results show a p = 0.57 and p = 0.55. In both causes, p > 0.05. Therefore, we reject the null hypothesis.

In addition, the discount rate, credit extensions, stock market, consumer confidence all appear to be insignificant. Consumption spending appeared to be significant i.e. it reflects a leading indicator.

4.4 The Length and Depth: Developed and Emerging markets

According to Cecchetti et al (2009), the contraction is defined as the period over which output is below its pre-crisis level. The length of the contraction is defined as the number of quarters it takes for output to recover to its pre-crisis level, while the depth is defined as the peak to trough percentage decline in GDP. The length and depth of the 2008 financial crisis in developed nations and emerging markets is depicted in Table 4.1 below.

Table 4.1: Length and Depth of the 2008 Financial Crisis

Financial Crisis of 2008			
	Starting point	**Length in quarters**	**Depth %**
U.S.	Third Quarter of 2007	13	-4
U.K.	Third Quarter of 2007	10	-6.4
Germany	Third Quarter of 2007	7	-9.27
South Africa	Third Quarter of 2008	7	-7.22
China	N/A	0	8.61
Brazil	Third Quarter of 2008	2	-6.22

Table 4.1 above depicts that the 2008 financial crisis was first felt in the developed countries that is United States, United Kingdom and Germany in the third quarter of 2007. It spread thereafter to emerging markets such as South Africa and Brazil in the third quarter of 2008. China was one of the few countries that managed to escape this recession.

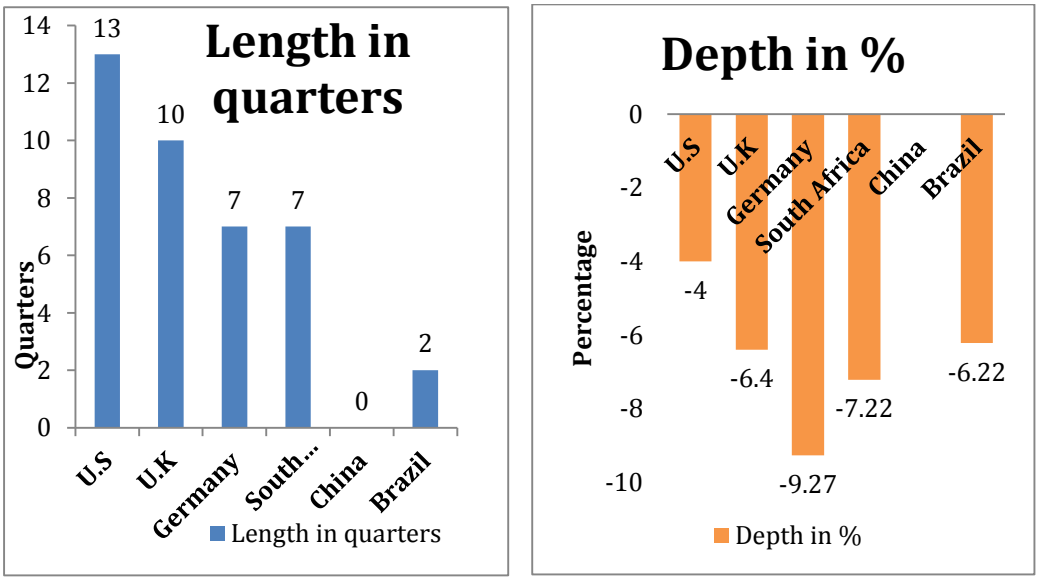


Figure 4.8 and Figure 4.9: Length and Depth of the 2008 Financial Crisis for the period 2000-2015

Figure 4.8 above, reflects that recessions are longer in developed countries compared to those that occur in emerging markets. Furthermore, Figure 4.9 above shows that the financial crisis was generally deeper in developed countries in comparison to the emerging markets.

4.5 Discussion of the Findings

Figure 4.1 to Figure 4.7 reflect the results of the transmission mechanism for the developed nations namely; United States, United Kingdom and Germany, and that of the emerging markets South Africa, Brazil and China. The results indicate that policy interventions such as monetary policy as highlighted in Hayek's theory, can be the starting point of a crisis. This point had not been acknowledged by Marx and Juglar, but it had been contradicted by New Keynesians and post-Keynesians theories that stated that policy interventions assist in bringing the economy back to full employment.

Furthermore, in support of Hayek's theory, the results reflected that as money supply increases, credit extensions to household sector also increased in the U.S, U.K and Germany. Like the developed markets, the results in emerging markets that is, South Africa, Brazil and China show that as money supply had been increasing, credit extensions to households in South Africa and Brazil also began to increase.

In addition, as noted in the Marxian, post-Keynesian and New Keynesian's theories, the results also pointed out in Figure 4.5 to Figure 4.6 that as economic growth in the U.S, U.K and Germany increases, asset prices (stock and real property prices) increased, which boosted consumer confidence. Moreover, in Figure 4.5 to Figure 4.6, the results also showed that as economic growth in South Africa, Brazil and China increases, asset prices i.e. stock prices and house prices rose, in turn boosting consumer confidence.

Moreover, the results showed that due to the increase in wealth (rising stock and real estate prices) and consumer confidence, consumption spending in the U.S, U.K, Germany, South Africa and Brazil rose further leading to high levels of inflation. This transmission, from higher wealth and consumer confidence to higher consumer spending had been noted in the post-Keynesian. Marx and New Keynesians had only considered income inequality effects but did not consider consumer confidence. Hayek on the other hand, had not

acknowledged either wealth or consumer confidence as having a contributing factor towards a crisis.

As highlighted by Marx, Hayek, post-Keynesians, New Keynesians and Juglar the results reflect further that as growth reaches its peak in the U.S, the U.K, Germany, South Africa, Brazil and China, credit extensions also reached their peak and began to decline. These credit contractions are ultimately followed by a crisis.

The Granger causality test identified money supply and credit extensions as leading indicators in the U.K and S.A and as a lagging indicator in China. These variables appeared insignificant in the U.S, Brazil, Germany and China. Consumer confidence and residential property prices had appeared to be leading indicators in the emerging markets; S.A and China, and insignificant for the rest of the other countries. Lastly, the stock market was identified as a leading indicator in Brazil and was insignificant for the rest of the other countries.

Based on these findings, and in analysis and comparison the theories discussed in Chapter Two, it is evident that the post-Keynesian theory best fits the descriptive data. This is due to the fact that a combination of its variants tackles most of the channels of the crisis transmission. For instance, the post-Keynesian theory looks at the speculation channel, the consumption/investment channel, income inequality channel and the uncertainty channel of the crisis transmission. The shortcoming with the post-Keynesian theory is that they believe that government interventions can assist in returning the economy back to full employment levels. However, it has been observed from the results that government policies may propagate a crisis.

To a certain extent, although not to the level of the post-Keynesian theory, the Marxian and New Keynesian theories do fit the descriptive data. The shortcoming with these theories is that they do not highlight the major role played by consumer confidence in the transmission mechanism. Similar to the post-Keynesian theory, Marx's theory highlights the speculation channel, the

consumption/investment channel, income inequality channel and the uncertainty channel of the crisis transmission. The New Keynesian theory on the other hand highlights debt deflation, credit financed consumption boom and income inequality.

Although, Hayek's theory touches some of the most important points, such as the link of money supply, credit extensions and inflation, it fails to highlight the linkages between credit, consumer confidence and income inequality and the role they play in the transmission mechanism of a crisis. Juglar's theory is seen to least fit the descriptive data. The main weakness with this theory is that it fails to highlight the linkages between policy interventions, credit, wealth, and consumer confidence in the transmission mechanism.

Finally, the research found that there is a critical level of liquidity ratio below which banks contract credit and above which banks expand credit. Moreover, this level is unique to every country and is also unique to the liquidity ratio under consideration.

5 CHAPTER FIVE: CONCLUSION

5.1 Introduction

This chapter is organised as follows: Section 5.2 presents a summary of the study. Section 5.3 presents the conclusions. Section 5.4 presents the recommendations.

5.2 Summary of the Study

The study was premised on the following research questions, namely:

- What is the mechanism by which bank credit generates overexpansion and severe contraction in economic activity?
- What is the role of bank credit in propagating and prolonging the business cycle? and
- Is there a critical level of liquidity ratio below which banks contract credit and above which banks expand credit?

As sequel to this, a theoretical framework of the concept business cycle was established on the notion that theory guides research. A detailed account of theories on the business cycle as advocated by various economists and scholars from different schools of thoughts was presented.

The descriptive dynamic conditional correlation method was used to answer these research questions.

The main objective of the study was therefore to examine the impact of bank credit in propagating and prolonging the business cycle and to determine the critical level of liquidity ratio below which banks contract credit and above which banks expand credit. This research attempted to find evidence in emerging markets namely: United States, United Kingdom and Germany as well as in the emerging markets namely: South Africa, Brazil and China over a 15-year period i.e. from 2000-2015, to respond to the research questions.

5.3 Conclusions

The empirical results of this study support some, but not all of the theories that have already been discussed in Chapter Two. The first question which is “What is the mechanism by which bank credit generates overexpansion and severe contraction in economic activity” was mainly answered in Chapter Two. The findings were that, there are various channels through which bank credit can lead to an overexpansion and over contraction of economic activity. Furthermore, that it has been found that these channels of transmission do not necessarily hold well for some developed countries, e.g. Germany and for some emerging markets, e.g. China.

It was further found that not all the theories that were discussed in Chapter Two best fit the model. The post-Keynesians theory has been observed to best fit the descriptive data followed by the Marxian theory and the New Keynesian theory. The Hayekian and Juglar theories failed to explain the impact of consumer confidence and income inequality in the crisis transmission mechanism.

The second research question which was addressed is “What is the role of bank credit in propagating and prolonging the business cycle”. This question was mainly responded to in Chapter Four of this study. It was found that an increase in bank credit will over time lead to a downturn in economic growth. Moreover, it was observed from the findings that countries with large debt levels economies like the U.S and the U.K, resulting in deeper recessions, Consequently, it took them longer to recover in comparison to emerging markets like South Africa and Brazil.

The third question namely: “Is there a critical level of liquidity ratio below which banks contract credit and above which banks expand credit?” was also answered in Chapter Four of the study. The results indicate that every country has a unique level of liquidity ratio below which credit expands and above which credit contracts. Furthermore, the results also showed that there are different critical levels for different liquidity ratios.

5.4 Recommendations

Finally, recommendations have been furnished on the basis of the findings, on the belief that if implemented they could contribute towards mitigating causes and/or effects of economic crisis. It is the belief of many that the business cycle has been recurring for many years and will continue to do so for many more years to come. Having said that, it is evident that countries and their governments cannot prevent a business cycle or a crisis from occurring. All what governments can do is to try and prevent long and deep recessions. As the empirical results have shown, the crisis tends to be longer in countries with deeper recessions. In order to mitigate such occurrence, the following recommendations are made, namely that:

5.4.1 Countries should maintain a sound and stable macroeconomic policy environment.

This means that the macroeconomic environment needs to provide a degree of predictability and certainty for economic agents in order for them to make informed decisions regarding employment, savings, investments and innovations. It further entails that fiscal and monetary policy vulnerabilities need to be minimized by keeping fiscal and current account deficit as low as possible. Moreover, it requires price stability i.e. low and stable inflation as well as inflation expectations. Lastly, for a stable macroeconomic environment, it is important to maintain a balance between national savings and investments in order to avoid economic vulnerabilities through the imbalances.

5.4.2 Countries need to reduce their exposure to liquidity and balance-sheet risks.

Countries can minimise their exposure to liquidity and balance-sheet risks by hedging against these risks using some derivative instruments such as options and swaps. Furthermore, there must be a defined risk management framework within which the risk is managed. In addition, a clear liquidity risk management and funding strategy must be agreed upon at an executive and non-executive board level. Moreover, operating limits to liquidity risk exposure must be adhered to.

5.4.3 Countries should ensure effective and efficient management of their foreign reserves

This entails that countries should ensure that reserves are readily available when needed. For instance, in a country with fixed exchange rate system, the country might be constantly operating in the foreign exchange market and might at any given time require reserves to be converted into foreign exchange. In countries with a free float exchange rate regime, authorities may need to utilise the reserves to ensure orderly markets. Further, countries may also utilise derivatives instruments to hedge against currency and interest rate exposure that their reserves may be exposed to.

5.4.4 Countries need to maintain a well-functioning financial system.

A well-functioning financial system is vital for sustaining economic growth. It requires banks and financial institutions to be properly regulated and well supervised. It also requires efficient financial markets, an ease of entry and exit as well as an absence of a monopoly. Lastly, a stable financial system requires an absence of market externalities, that is, cost that are not borne by the company e.g. pollution.

5.4.5 Countries need to have an appropriate exchange-rate regime.

This can be done by avoiding pegged exchange rate regime and moving more towards a flexible exchange rate regime. A flexible exchange rate regime will allow countries to better manage their monetary and fiscal policy.

It is concluded that the business cycle is a complex phenomenon which need co-operation from a plethora of stakeholders in a form of government sector, banking sector, household sector and firms in order to manage an economy properly.

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Appendix

Pairwise Granger Causality Tests

Date: 04/02/16 Time: 16:27

Sample: 2000Q1 2016Q1

Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
CONSUMPTION_SPENDING_U_S does not Granger Cause REALGDPGROWTHUS	40	3.02090	0.0616
REALGDPGROWTHUS does not Granger Cause CONSUMPTION_SPENDING_U_S		2.95432	0.0652
CONSUMPTION_SPENDING_U_K does not Granger Cause REALGDPGROWTHUK	44	0.13280	0.8760
REALGDPGROWTHUK does not Granger Cause CONSUMPTION_SPENDING_U_K		6.75518	0.0030
CONSUMPTION_SPENDING__S_ does not Granger Cause REALGDPGROWTHSA	44	7.04106	0.0025
REALGDPGROWTHSA does not Granger Cause CONSUMPTION_SPENDING__S_		0.99523	0.3788
CONSUMPTION_SPENDING__GE does not Granger Cause REALGDPGROWTHGERM	44	2.17061	0.1277
REALGDPGROWTHGERM does not Granger Cause CONSUMPTION_SPENDING__GE		1.64852	0.2055
CONSUMPTION_SPENDING__BR does not Granger Cause REALGDPGROWTHBRAZIL	46	0.39997	0.6729
REALGDPGROWTHBRAZIL does not Granger Cause CONSUMPTION_SPENDING__BR		1.15254	0.3259
CONSUMPTION_SPENDING_CHI does not Granger Cause REAL_GDP_CHINA	58	4.39618	0.0171
REAL_GDP_CHINA does not Granger Cause CONSUMPTION_SPENDING_CHI		2.10097	0.1324

Pairwise Granger Causality Tests
Date: 04/02/16 Time: 17:12
Sample: 2000Q1 2016Q1
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
HANGSING does not Granger Cause REAL_GDP_CHINA	45	1.16562	0.3221
REAL_GDP_CHINA does not Granger Cause HANGSING		1.44131	0.2486
IVOP does not Granger Cause REALGDPGROWTHBRAZIL	44	5.49050	0.0079
REALGDPGROWTHBRAZIL does not Granger Cause IVOP		0.77350	0.4683
DAX does not Granger Cause REALGDPGROWTHGERM	44	1.17175	0.3205
REALGDPGROWTHGERM does not Granger Cause DAX		0.22540	0.7992
JSE_ALSI does not Granger Cause REALGDPGROWTHSA	40	8.22072	0.0012

Pairwise Granger Causality Tests
Date: 04/02/16 Time: 16:14
Sample: 2000Q1 2016Q1
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
REALGDPGROWTHUS does not Granger Cause MONEY_SUPPLY_U_S	40	2.87825	0.0696
MONEY_SUPPLY_U_S does not Granger Cause REALGDPGROWTHUS		3.59595	0.0380
REALGDPGROWTHUK does not Granger Cause MONEY_SUPPLY___U_K	44	0.20089	0.8188
MONEY_SUPPLY___U_K does not Granger Cause REALGDPGROWTHUK		7.27228	0.0021
REALGDPGROWTHSA does not Granger Cause MONEY_SUPPLY___S_A	40	7.27181	0.0023
MONEY_SUPPLY___S_A does not Granger Cause REALGDPGROWTHSA		0.06177	0.9402
REAL_GDP_CHINA does not Granger Cause MONEY_SUPPLY___CHINA	46	0.04180	0.9591
MONEY_SUPPLY___CHINA does not Granger Cause REAL_GDP_CHINA		0.18507	0.8317
REALGDPGROWTHBRAZIL does not Granger Cause MONEY_SUPPLY___BRAZIL	44	1.36143	0.2682
MONEY_SUPPLY___BRAZIL does not Granger Cause REALGDPGROWTHBRAZIL		1.38758	0.2617
REALGDPGROWTHSA does not Granger Cause JSE_ALSI		0.17162	0.8430
FTSE_100 does not Granger Cause REALGDPGROWTHUK	44	2.86350	0.0691
REALGDPGROWTHUK does not Granger Cause FTSE_100		0.41652	0.6622
S&P500_100 does not Granger Cause REALGDPGROWTHUS	44	2.86350	0.9996
REALGDPGROWTHUS does not Granger Cause S&P 500	0.41652	0.6622	0
REALGDPGROWTHUK does not Granger Cause FTSE_100	0.41652	0.6622	0.0644

Pairwise Granger Causality Tests
Date: 04/02/16 Time: 16:52
Sample: 2000Q1 2016Q1
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
REALGDPGROWTHBRAZIL does not Granger Cause BRAZIL_CREDIT_EXTENSIONS	44	2.62384	0.0853
BRAZIL_CREDIT_EXTENSIONS does not Granger Cause REALGDPGROWTHBRAZIL		0.39785	0.6745
REAL_GDP_CHINA does not Granger Cause CHINA_CREDIT_EXTENSIONS	21	0.68785	0.5169
CHINA_CREDIT_EXTENSIONS does not Granger Cause REAL_GDP_CHINA		0.87747	0.4349

REALGDPGROWTHGERM does not Granger Cause GERMANY_CREDIT_EXTENSION	44	0.39932	0.6735
GERMANY_CREDIT_EXTENSION does not Granger Cause REALGDPGROWTHGERM		0.00298	0.9970
REALGDPGROWTHSA does not Granger Cause S_A_CREDIT_EXTENSIONS	11	12.1820	0.0077
S_A_CREDIT_EXTENSIONS does not Granger Cause REALGDPGROWTHSA		0.18722	0.8339
REALGDPGROWTHUK does not Granger Cause U_K_CREDIT_EXTENSIONS	44	0.92170	0.4063
U_K_CREDIT_EXTENSIONS does not Granger Cause REALGDPGROWTHUK		3.86763	0.0294
REALGDPGROWTHUS does not Granger Cause U_S_CREDIT_EXTENSIONS	40	0.10423	0.9013
U_S_CREDIT_EXTENSIONS does not Granger Cause REALGDPGROWTHUS		0.07077	0.9318

Pairwise Granger Causality Tests
Date: 04/02/16 Time: 17:29
Sample: 2000Q1 2016Q1
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
REALGDPGROWTHUS does not Granger Cause U_S__DISCOUNT_RATE	40	0.25556	0.7759
U_S__DISCOUNT_RATE does not Granger Cause REALGDPGROWTHUS		1.75516	0.1878
REALGDPGROWTHBRAZIL does not Granger Cause BRAZIL_DISCOUNT_RATE	44	1.90413	0.1625
BRAZIL_DISCOUNT_RATE does not Granger Cause REALGDPGROWTHBRAZIL		0.87170	0.4262
REAL_GDP_CHINA does not Granger Cause CHINA_DISCOUNT_RATE	46	0.14964	0.8615
CHINA_DISCOUNT_RATE does not Granger Cause REAL_GDP_CHINA		0.91192	0.4097
REALGDPGROWTHSA does not Granger Cause S_A___DISCOUNT_RATE	40	0.30946	0.7358
S_A___DISCOUNT_RATE does not Granger Cause REALGDPGROWTHSA		1.94067	0.1588
REALGDPGROWTHUK does not Granger Cause U_K___DISCOUNT_RATE	40	1.09663	0.3441
U_K___DISCOUNT_RATE does not Granger Cause REALGDPGROWTHUK		1.78656	0.1810

Pairwise Granger Causality Tests
Date: 04/02/16 Time: 17:50
Sample: 2000Q1 2016Q1
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
REALGDPGROWTHUS does not Granger Cause RESP_U_S	40	3.16110	0.0547
RESP_U_S does not Granger Cause REALGDPGROWTHUS		2.68163	0.0825
REALGDPGROWTHSA does not Granger Cause RESP_S_A	40	2.10111	0.1375
RESP_S_A does not Granger Cause REALGDPGROWTHSA		3.86488	0.0304
REALGDPGROWTHUK does not Granger Cause RESP_U_K	44	0.17665	0.8387
RESP_U_K does not Granger Cause REALGDPGROWTHUK		1.13561	0.3316
REAL_GDP_CHINA does not Granger Cause RESP_CHINA	22	0.57911	0.5711
RESP_CHINA does not Granger Cause REAL_GDP_CHINA		0.60322	0.5583

REALGDPGROWTHUS does not Granger Cause RESP__GERMANY	40	1.09663	0.3441
RESP__GERMANY does not Granger Cause REALGDPGROWTHGERM		1.78656	0.1810
REALGDPGROWTHBRAZIL does not Granger Cause RESP__BRAZIL	40	2.19098	0.1269
RESP__BRAZIL does not Granger Cause REALGDPGROWTHBRAZIL		2.02403	0.1473