**Masters Dissertation**

# Financial Development, Remittances, & Economic Growth: Empirical Evidence from Egypt

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Abstract

The relationship between remittances, financial development, and real growth in recent years has increasingly become a topic of interest for scholars and practitioners alike. With the ever presence of globalization, the migratory patterns have fundamentally changed. The migration of people no longer means their total isolation from their home country; but rather a new dynamic environment has emerged with the increased importance of remittances on social, economic and political transformation back in their countries of origins. In addition, the continuing development of the financial systems whether it be in the banking sector or the stock exchange has accelerated in the last few decades. It is important to point out to the accelerating trend in financial development and its impact on real growth. Equally important to highlight the extent to which the financial system influenced the remittance patterns.

By looking at Egypt as the country of interest from 1977 to 2014, the thesis investigates the role and impact of financial development and remittances on GDP. Egypt is chosen as the country of interest given its status as the biggest economy in North Africa and the third largest in the continent. Additionally, it is among one of the largest recipient of remittances from its expatriate population.

The empirical analyses are computed through using ARDL bound test proposed by Pesaran et al. (2001). Banking and stock exchange sectors are used as the two relevant proxies representing the financial development.

The evidence showcase that a significant stock exchange led growth does indeed exist while it fails to observe a similar pattern for banking led growth nexus. In addition, under stock exchange led growth remittances contributed positively toward real GDP per capita while under banking led growth, a negative relationship was foreseen, which points to the existence of a substitution effect between formal baking sector and the informal market. The inefficiency in the banking sector ensued from misallocation of credit, corruption, and pressure from business elite and politically connected individuals have negatively influenced banking operations. On the other hand, the stock exchange was less prone to these issues possibly because of a larger presence of foreign investors; it was better protected by a more strong regulatory and governance system.

# 1. Chapter One: Introduction

In recent decades the nature and impact of migration has, owing to globalization, become more complex. Migration was traditionally viewed as the movement of people from one location to another with no continuation of economic linkages between the adaptive country and the original homeland. Globalization, in conjunction with technological progress, has dramatically reduced the persistence of the isolation and separation. Unlike before, migration does not mean complete loss of contact to the mother country and can be better described as the establishment of a linkage between the adoptive and donor country. Such interaction has had major economic ramifications for states, especially in the developing world. It has subsequently created a new set of opportunities and challenges for the countries implicated. For example, the increasing remittance inflows from the adoptive countries to mother countries are a direct consequence of such migration patterns. Not only do migrants seek a better lifestyle in their adoptive countries, but by establishing a financial channel to their family members back home, they try to positively influence their donor countries as well.

In recent years, the role of remittances has attracted increased attention (given the financial liberalization and the financial innovations). Remittances, or *migrant transfers*, are defined as the inflow of money (in the form of foreign currency) from workers in host countries to family and friends in the donor countries. The inflow of remittances to many middle income countries (such as Egypt) constitutes an important source of foreign exchange, and exceeds the amount received through Official Development Assistance (ODA) schemes (World Bank, 2014a). Analyzing the effects of initiatives that promote financial development is important, since the financialization of the real sector in emerging markets - as a policy designed to formulate growth for the south - is considered a major pillar of the Washington Consensus (Williamson, 2004).

In addition, the harmonization of the global economy in the post Bretton Woods's system, with a push towards implementation of market liberalization and reforms, as well as the internationalization of the financial environment (subjugated by multilateral bodies such as the World Bank and the International Monetary Fund) has had significant

consequences for both the developed and the developing world. To a large degree, the legacy of the initial Washington consensus had mixed results on financial liberalization schemes designed for the developing countries. An excessive reliance on market fundamentalism and the exploitation of liberalization and privatization as the ends rather than the means have often been criticized as the failures of the Washington Consensus. It did not link the liberalization policies to the development initiatives and enhancement of economic growth in the developing world (Stiglitz, 2005). The program's initial limitations highlight the importance of macroeconomic stability and the role of quality institutes for the program's success (Zagha & Nankani, 2005). Indeed, the long-term success of countries such as Morocco in implementation of the reforms highlights that liberalization can achieve its objectives under a suitable environment with commitment toward facilitation of appropriate structural transformations. If indeed financial development (as a result of liberalization policies under suitable conditions) has a positive influence on long-term growth, it is of interest to observe its interaction with remittances. Especially considering that in the current era the role of remittances is increasingly becoming more relevant. Furthermore, financial development can be expressed from both a banking led and stock exchange led nexus. In respect to the remittances, it is of relevance to observe which financial channel has a more fundamental impact on real growth.

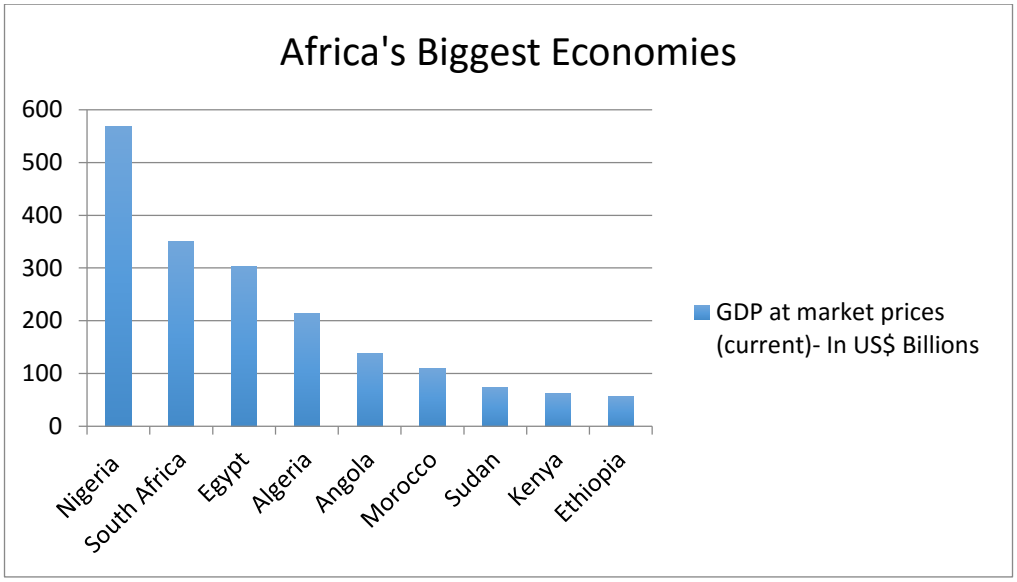
This thesis will investigate the role and impact of financial development on real growth, resulting from financial liberalization schemes. Both banking led and stock exchange sectors are considered as the financial channels of interest in the analysis. It will also investigate remittances in relation to economic growth as the two parameters of interest. Egypt will be used as the country of interest. The appropriate model will be based on a Cobb-Douglas production function, through employing an autoregressive distributed lag model. It will try to determine if financial development in an environment bound by the increase relevance of remittances has any meaningful impact on the real growth for Egypt. It will also test the relationship between remittances and the real growth as well. This will be done through looking at Egypt's economic structural

transformations in the last 6 decades and the country's experience with different forms of governance as the qualitative background to the quantitative metrics analysis.

## 1.1 Scope

This thesis focuses on the impacts of financial development and remittances on Egypt, paying particular attention to the socioeconomic dynamics of this North African country. Egypt is the economic powerhouse of the region, and procures large sums of remittances. It is North Africa's largest economy. It is the continent's third largest economy after Nigeria and South Africa, with an annual output of $302 billion USD dollars (World Bank, 2015a).

**Table 1.**




Source: World Bank, 2015a[1]

Additionally, it is among one of largest recipients of remittances. According to 2013 data, Egypt was the sixth largest recipient in the world with an inflow net worth of $17 billion USD dollars; second only to Nigeria in the continent[2] (World Bank, 2014a). The received personal remittances constitute over 6% of Egypt's gross domestic product both in 2013 and 2014 (World Bank, 2015b).

[1] Based on the latest available World Bank data (2014 estimates)
[2] Nigeria approximately received $21 billion USD dollars in the same period

Like many of its middle-income country counterparts, Egypt embarked on a series of World Bank-IMF sponsored financial liberalization initiatives starting in the 1990s (Elsayed, 2013). It is of interest to analyze the impacts of such initiatives on the economic progress of the country when, according to some analysts, Egypt has performed well in capturing and harnessing the positive benefits of the reforms (Ebrahim, 2006). It was not, however, immune to the revolutions that sprang the region in 2010/2011, when the public's dissatisfaction about economic conditions played a pivotal role in social unrest

## 1.2 Research Objective

This thesis aims to analyze the impact of financial development and remittances on real economic growth. It has already been well established that the development of the financial system positively contributes to an increase in the inflow of remittances (Gazdar & Kratou, 2011). For example, the increasing relevance of the Western Union and the facilitation of cross boarder capital movement under less restrictive capital control environments all lead to a rise in capital inflow. However, this thesis takes a slightly different approach. It will look at how the implementation and progression of financial development interacts with the inflow of remittances on the basis of facilitating real long-term economic growth. It aims to analyze the impact of remittances on economic growth and accordingly look at the dynamics of such a relationship with respect to the development of the financial system (both the banking and stock exchange sectors). In other words, it will test if the prevalence of remittances is seen as a complement or a substitution (barrier) for further development of financial system and how the dynamics of this relationship ultimately influence the aggregate real economic growth.

## 1.3 Motivation

The relationship between finance and economic growth has always been a question of interest among both classical and contemporary economists. In *The Wealth of Nations,* Adam Smith (1776) famously linked the lowering of transactional costs through

innovation to economic growth. The creation and improvement of financial arrangements was seen as the channels that had the capacity to facilitate such arrangement (Smith cited in Levine, 1997a). Smith (1776) identified this concept as a monetary arrangement. Money (as a financial parameter) reduces transaction costs more than other forms of trading such as barter and thus can enhance efficiency (Department of International Development, 2004). Among contemporary economists, Schumpeter (cited in Mallick & Marjit, 2008; Kenourgios & Samitas, 2007) follows Smith (1776) by arguing that financial development and well-functioning banks can provide a suitable platform for dynamic entrepreneurial activities, and hence provide appropriate conditions for facilitating greater economic growth. In addition, McKinnon and Shaw (cited in FitzGerald, 2006; Mallick & Marjit 2008) also support the argument that the financialization of the economy, through development and enhancement of an efficient financial sector, can contribute to economic growth. They discussed how inefficient financial markets could, in turn, limit economic development (McKinnon and Shaw cited in Mallick & Marjit, 2008). Robinson, in contrast, (cited in Kenourgios & Samitas, 2007) questions the direction of causality and argues that financial development plays an insignificant role as a contributing factor toward economic growth. For him, "financial development [does] not motivate economic growth and only shows the development rate of real sector" (Robinson cited in Mehrara & Ghamati, 2014: 77). Robinson (cited in Mehrara & Ghamati, 2014; Elsayed, 2013) argued for a reverse causality, where with expansion of the economy, the financial sector develops to meet the increasing demand for financial services.

With the implementation of financial liberalization reforms under the umbrella of the World Bank-IMF-led structural adjustment schemes in the developing world (including Egypt) it is of interest to investigate how the financial reforms have impacted growth trends. It is worth noting that Egypt's unique socioeconomic characteristics have influenced the perceived connection between financial development and growth, if data could establish a significant relationship in the first place. In addition, by incorporating remittances as a parameter of interest, given the significant contribution of such a parameter to the Egyptian economy, it is worth assessing how remittances influence

real growth. In other words, given the implemented reforms toward greater financial deepening in Egypt in the 1990's, will the corresponding model reveal the role of remittances in respect to economic growth?

The background literature on the relationship between remittances, financial development and growth give mixed results. Giuliano and Ruiz-Arranz (2005), by conducting a panel data based on more than 70 countries recognized a complementary relation between remittances, financial development and economic growth. In addition, a number of other studies - discussed in the literature review section of this thesis - also supported Giuliano and Ruiz-Arranz's (2005) findings. However, other academics such as Rioja and Valev (2004), and Thiel (2001) argue the contrary. They maintain that the relation between these parameters of interest is not as clear-cut as some of the findings would suggest. The unique socioeconomic dynamics of each country and region play a fundamental role in influencing the results. For example, they argue that the socioeconomic dynamics of African countries somewhat differ from other developing regions when it comes to migrant transfers, and can consequently influence the results. The data specific to Egypt, therefore, will be focalized in this thesis

## 1.4 Methodology

The thesis employs the autoregressive distributed lag (ARDL) model to test the existence of co-integration among the respective variables in the long run. Given that the main aims of the thesis are to examine the relationship between real growth as the dependent variable with other parameters of interest, it is appropriate to use and incorporate the results under a growth production function model. Accordingly, the model used is based on the Solow model of economic growth using a Cobb-Douglass production function.

The model will look at the relationship between financial development and real economic growth from both the banking sector as well as the stock market. The broad money as the percentage of GDP will be used as the proxy for financial development in the banking sector. Likewise the total value of stock traded as the percentage of GDP will be used as the proxy under Stock Exchange scenario. Other independent variables

will be Remittances as the percentage of GDP, Capital, and population (as the proxy for labor given lack of available data)[3].

## 1.5 Thesis Structure

The rest of the thesis is structured as follows:

Chapter 2 provides background information to Egypt's Economic history. It will provide an overview on the general economic dynamics of the country and will describe economic policies implemented by the Egyptian government and the central bank.

Chapter 3 provides the literature review with respect to the main theme. In this section, the theoretical aspects of economic growth, remittances, and financial development will be analyzed in depth. This thesis has drawn its inspiration from a variety of sources and academic papers related to the topic of interest. It provides an insight toward the economic theory used to deliver the necessary framework in explaining the mechanism behind understanding the model and consequently the question of interest. The incorporated literatures provide a comprehensive and diverse viewpoint not only from Egypt, but also from other low and middle-income countries concerning how remittances and financial development impact the overall real growth in the respective countries. Thus, they act as a control group by enabling the research to compare the thesis's finding with other case studies to provide the sounding background explaining how and why the findings corresponded to or differed from other cases in the used methodology and Egypt's own unique socio-economic environment. Furthermore, Egypt was chosen as the principle case study in this thesis since, in addition to the country's importance as a major recipient of remittances, its status as a major regional economic powerhouse is as a result of country's significant informal market structure. This is a major difference that distinguishes Egypt (along with other African countries) from other middle-income states. Even though the developing world's informal market represents a large and significant sector, its size in Africa is much greater. Unlike Africa, where the informal market is still mostly comprised of petty trading, for example in Asia

[3] Through manipulation of the model as demonstrated in chapter 4, real gdp and capital will be set on per capita basis ( in this cases per capita is also used as a proxy for labour)

and Latin America, the informal market is moving toward capturing higher value added services in industries such as retail trade, tourism, and telecommunication (Onyeiwu, 2015). In the 1990s, during the same period as the implementation of financial liberalization reforms, it was estimated that up to 69% of the new entrants into the labor market in Egypt were absorbed by the informal sector (Wahda, 2009). Thus, it is of interest to analyze the broadening up of financial system in such an environment. Additionally, a significant amount of remittances flown into Africa are believed to be transferred through informal channels rather than the official banking and financial institutions (Gupta, Pattillo & Wagh, 2007). The informal remittances flown into Sub-Saharan Africa is estimated to be around 45 to 56% of the total amount (Owusu-Sekyere, 2011). However, this number is much lower in Egypt, which corresponds more to the levels of Latin American countries than Sub-Saharan Africa (Owusu-Sekyere, 2011; Jureidini et al., 2010). It is perceived that only up to 22% of remittances sent into Egypt are transacted through informal networks (Jureidini et al., 2010). Given Egypt's push toward the development of its financial sector in the last two decades and the fact that the formal financial channels play a more pivotal role in Egypt in transmitting the inflow of remittances into the country, it is worth examining how the relationship between remittances and financial development is associated with the economic growth.

Chapters IV and V provide the model specifications, methodology, data and empirical findings respectively. It justifies why ARDL was chosen as the appropriate model. Additionally, it provides a detailed overview of the required conditionality's behind the application of the model. It also outlines post-estimation statistical findings. Consequently, the findings will be tied to the economy theory and the arguments presented in the literature review, with the aim of delivering a comprehensive analysis with respect to both the quantitative and the qualitative components of the thesis, to engage with the main question. The final chapter will conclude the thesis by providing a summary of the findings and the major discussion that were presented throughout the paper.

# 2 Chapter Two:

## An Overview of Egypt's Political & Economic Situation

The economic history of Egypt can be divided into three separate phases. Each differs from one the other, and is predominantly distinguishable by the dominant political order in each. In order to understand the reasoning behind the major liberalization push of the 1990's under President Mubarak's modernization scheme, it is important to analyze and provide the necessary background to the economic condition of the country under the Nasser and Sadat regimes.

### 2.1 Political Economy

#### *2.1. I The Nasser Era: Nationalization & Public Sector Expansion*

In 1952 the Egyptian military, led by Gamal Abdel Nasser, deposed the last Egyptian monarch, king Farouk I in a coup. It established the *Arab Republic of Egypt.* The monarchy, and in particular the last dynasty that ruled Egypt from 19$^{th}$ to mid-20$^{th}$ century, was the vestige of a colonial era that represented the interests of the West, and Great Britain in particular. The post-World War period was characterized by anti-colonial and revolutionary feelings. Like many of the newly independent African and Asian states, Egypt pursued a nationalistic socioeconomic policy with a strong emphasis on the role of government as the vanguard of public interest in steering economic activities. The main tenets of the new government was to put an end to imperialism and the interests of former subjugators, end feudalism in rural areas, and terminate capitalistic control of economic entities. In addition, the establishment of a powerful militarist class and the promotion of social justice and democratic values were on the agenda (Waterbury, 1983).

The regime was successful in achieving its political goal of enhancing and maintaining army's position at the top of Egyptian's sociopolitical hierarchy. With the exception of the brief and controversial presidency of Mohamed Morsi in 2012-2013, all other heads of state, including the current president, Abdel Fattah El-Sisi, hail from the army. However, the original economic policies had dreadful consequences. The

*Egyptianization* of the economy, through the active role of government in the business sector through nationalization of assets contributed to the decline of economy. Similar to other newly independent postcolonial African states, the aims of such policies were to obtain self-efficiency by following an import substitution agenda through the rapid expansion of the public sector under the direct and rigid rule of the state (Nagarajan, 2013).

The nationalization of economic entities, including financial institutions and corporations had its root in the political crisis that emerged as the result of World Bank and Washington's refusal to provide pledged funds for the construction of the Aswan Dam. With the creation of the state of Israel and the subsequent hostilities between the two neighbors, the West imposed an arm embargo on Egypt. Egypt, in turn, turned to the Soviet block for the purchase of supplies. Such a move was not received well in the West. In retaliation the promised funds for the construction of the Aswan dam were withdrawn. Nasser therefore nationalized the Suez-canal, which up to then belonged to the French-owned Suez Canal Company (Nagarajan, 2013). The ensuing Suez crisis and Egypt's political victory in holding onto the channel set the precedent for further nationalization. By the beginning of 1957, financial institutions such as commercial banks, foreign trade agencies and insurance companies were nationalized. By 1961, the national bank, major commercial corporations (including major shipping companies, construction firms, and heavy industries) all became state-owned enterprises. Nasser's objective was to decrease the influence of foreign and domestic oligarchs and elites by restructuring the Egyptian institutions in a way that served the interest of all, instead of a few (Nagarajan, 2013). However, what emerged from the nationalization was a crisis bound by poor economic performance. As early as 1964 it was apparent that the industry performance was headed toward a major breakdown (Djoufelkit-Cottenet, 2008). Without private capital inflow and adequate foreign direct investment into the country, and as the result of Egypt's push toward state capitalism, the Soviet Union became major financier of Nasser's regime. However, with the fall of Khrushchev in 1964, Soviet support became increasingly unreliable. In an environment dominated by economic cronyism, inefficient allocation of resources, poor export performance, and

low saving rates, the consequence of Soviet fallback was the emergence of a twin deficit crisis. The increasing fiscal gap along with severe balance of payment deficit exposed the flaws in Nasser's state capitalism. Even though the system initially was successful in stimulating industrialization and in increasing the social welfare of all, it soon became evident that it was not possible for the apparatus to maintain the status quo without major reforms (Nagarajan, 2013).

*2.1.II Infitah and Limited Liberalization*

The economic liberalization in Egypt can at best be described as timid, cautious, and prolonged. It spanned over the last 4 decades, starting with the reforms of late 1960s-70s. Following the administration's recognition of the flaws and the unsustainability of initial economic policies, Egypt reconsidered its foreign and economic strategy. With the withdrawal of Soviet support and the deterioration of fiscal and balance of payment accounts, it approached the IMF to negotiate for a credit loan. IMF required the implementation of structural adjustment programmes (SAP) as conditionality for the provision of the credit (Nagarajan, 2013). Under the proposed package, Egypt was required to devaluate its currency by 40 percent, and increase taxes (Waterbury, 1983). At the time, IMF's requirement was not aligned with Egypt's ideology. As a result, negations were initially fruitless. However, with the persistent severity of situation, especially after the disastrous consequences of the 1967 war with Israel, the regime had no choice but to turn toward liberalization of the economy (Nagarajan, 2013).

In 1970, when Nasser died unexpectedly, Anwar Sadat stepped up as the head of state. Sadat was a pragmatist more than he was an ideologist. Unlike Nasser, Sadat did not pander to populist rhetoric and did not support Nasser's socialist policies. He recognized the need for an alliance with the private capital and accordingly took the appropriate step by revising Nasser's economic policies (Ranko, 2015). Yet, he recognized the power dynamics in the post Nasser era, with people within the government's hierarchy and on the streets still following the old dogma. For example, as Jeswald Salacuze (2003: 123) states " Regardless of Sadat's speeches inviting foreign capital to Egypt, many Egyptian officials continued to bring their old ideology to the negotiating table and thereby

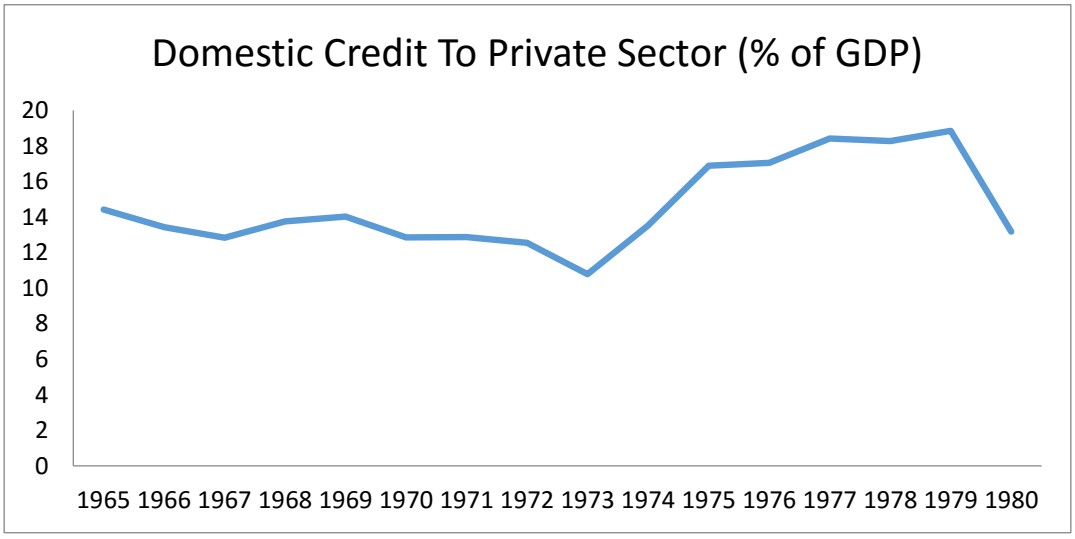
obstructed deal making." Radical reforms, therefore, would have resulted in discontent. The food riots of 1977, for instance, highlight the dilemma that Sadat's administration had to face.

The *deNasserization* of the economy took place with the *Infitah* or open door policy. It was initially designed to enhance economic growth and solve the fiscal and balance of payment crisis through a fusion of domestic and foreign capital by strengthening the role of the private sector (Ansari,1986). It was in accordance with the Washington Consensus policy prescriptions, which were tailored to satisfy creditor's demands. The IMF and oil-rich Arab countries became major financiers of Egypt. With the influx of oil money into the region as a result of oil price hikes in the 1970's, Sadat was determined to seize the opportunity: he promoted Egypt as a viable investment location aimed at the Gulf States. Consequently, his open door policy was partially designed to achieve this (El Beblawi, 2008). In order to secure the funds, Gulf States imposed the condition that Egypt accepts the IMF reforms. Unlike Nasser, Sadat initially accepted the package. The IMF was highly critical of the widely granted subsidies by the Egyptian government, and demanded their reduction. The subsidies included a wide range of endowments such as basic goods and food (Sachs, 2012). Following the announcement of subsidy cuts, anti-IMF protests erupted all over Egypt, with dozens killed and hundreds injured and arrested. In addition, the riots had significant economic and political consequences for the country. Economically, Sadat found himself in a crossroad between continuing with the reforms and cutbacks (thus subjecting his government to further discontent), or to halt his economic policy (which could have resulted in the dissatisfaction of the emerging bourgeois class and of the donors) (Ansari, 1986). Sadat implemented a moderate policy, which ensured the continued stability through limited liberalization. In the aftermath of the protests, therefore, the governments experimentation with reforms were more restrained and cautious (Sachs, 2012; Ansari, 1986).

The success of Sadat's *open door policy* was disappointing. "When he left the scene, Egyptians had neither a liberalized and well-functioning economy nor a liberalized polity" (Nagarajan, 2013: 28). The program was initially successful in attracting foreign capital. However, by the early 1980's, the country had relapsed into recession (El

Beblawi, 2008). The *infitah* policy, through initial capital inflow, resulted in the creation of a small private sector in small and medium size enterprises, especially in real estate and tourism sector (El Beblawi, 2008). However, it had failed to push adequate investment into the manufacturing sector. The relaxations of investment laws on its own were not adequate to attract private capital when the macroeconomic environment remained volatile (Djoufelkit-Cottenet, 2008). The collapse of the agreement with the IMF in the aftermath of the 1977 riots, along with administrations subsequent cautious approach toward reforms, hindered meaningful structural changes. For example, the provision of domestic credit to the private sector was at an increasing trend prior to the 1977. However, in the aftermath of *IMF riots* it diverged back (World Bank, 2016a).

**Table 2.**




Source: World Bank, 2016a

Despite the programs rhetoric, public expenditure was on the rise, with no sign of fiscal deficit reduction and "the public sector kept tight reins of all commanding heights of the economy; major industries, transport, banks, insurance, foreign trade, and so forth" (El Beblawi, 2008: 4).

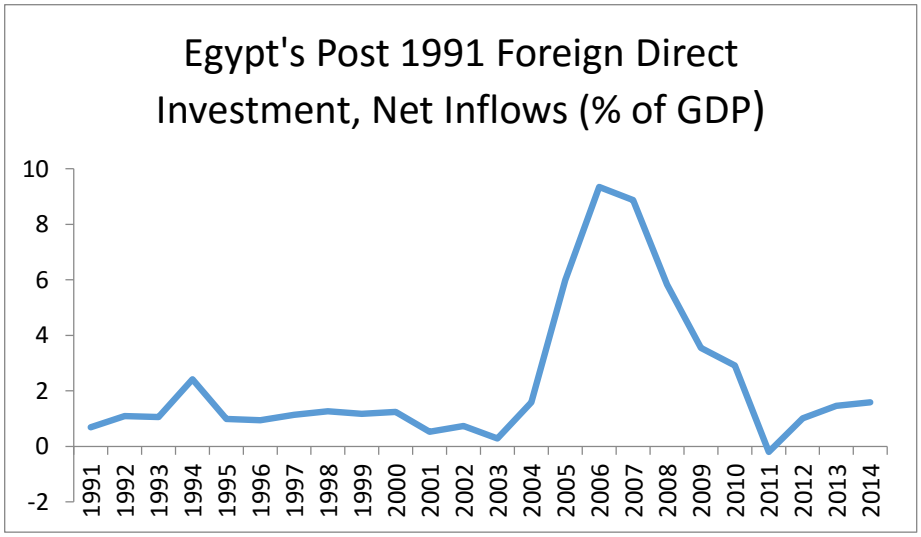
### *2.1.III Liberalization and Revolution*

Mubarak assumed the power after Sadat's assassination in 1981. Much like the transition of power between Nasser and Sadat, Mubarak's economic policies in his early

years of his presidency were overshadowed by the of previous administration's economic legacy. In addition, the oil price collapse of the 1980's caused exogenous shocks (Nagarajan, 2013). Despite the infitah's reforms, the role of the public sector and the government in economy was still large, with private sector remaining marginalized. In addition, the oil price shock adversely impacted the fiscal and balance of payment deficits, and subsequently pushed the country into further recession (Nagarajan, 2013; El Beblawi, 2008). The rocky relationship between Egypt and its creditors, notably the IMF and the ongoing negations over a comprehensive package dominated much of the scene in the 1980s. It was not until 1991 that Egypt reached an agreement with the IMF and The World Bank as part of an Economic Reform Structural Adjustment Programme (ERSAP) (Elsayed, 2013). On top of tackling deficits and promoting macro stability, the program prioritized the creation of an environment where the development and further enhancement of the private sector would be facilitated (Djoufelkit-Cottenet, 2008). Additionally, it intended to "encourage the productive capacity of the economy and rationalisation of resource allocation by promoting market mechanisms and the private sector in both investment and production" (Djoufelkit-Cottenet, 2008:7). With the exception of the public enterprise entities that were declared to be of national interest, all other government holdings were subjected to privatization. Between 1991 and 1998, 94 of 314 public enterprises were privatized with 109 more sold off between 1999 and 2003, generating 17.3 billion Egyptian pounds in the process. Through association with international bodies and establishing treaties with European Union, the World Bank (WB) and regional bodies such as the Common Market for Eastern and Southern Africa (COMESA), and Arab Maghreb Union (AMU), Egypt moved away from its previous import substitution policy in the direction of adhering free market principles (Djoufelkit-Cottenet, 2008). In order to finance the deficit, the Egyptian Central Bank (ECB) engaged in an excessive open market operation according to the ERSAP outline. The motive behind this strategy was to finance the budget deficit as well as to tackle the inflation resulting from the policies from the 1980s. In the short term, ECB's action led to a decline in private investment as the result of the rise in interest rates, and subsequently slowed down the growth rate. Total investment to GDP declined from 28.7% in 1980 to

16.7% in 2011. Not surprisingly, given the cutbacks of state-run enterprises, public sectors contribution as a share of the GDP significantly decreased as well (Elsayed, 2013). In the long run, the public investments share of total investment continued its decline from 55% in 1991 to 38% in 2011 while in the same period, private investment's share rose from 45% to 62% toward restructuring of the economy (Elsayed, 2013). The foreign direct investment as a share of GDP also increased from 0.68% in 1991 to high of 9.34% in 2006 prior to the global financial crisis and the revolution; though in the post-revolution environment, due to the perceived instability, the FDI has decreased back to the 1% range (World Bank, 2015c). However, the decline is expected to remain temporary if the current administration could ensure the stability of the country in the coming years. The budget deficit as percentage of GDP initially reduced from 17.2% in 1991 to 1% in 1998 (Central Bank of Egypt, 2015), however it has since risen. The deficit reached 8.4% in 2008, 14% in 2012 respectively (International Monetary Fund, 2010; International Monetary Fund, 2015). The comparative growth results between pre and post liberalization era also demonstrate a mixed picture in respect to effectiveness of the reforms toward economic growth.

**Table 3.**



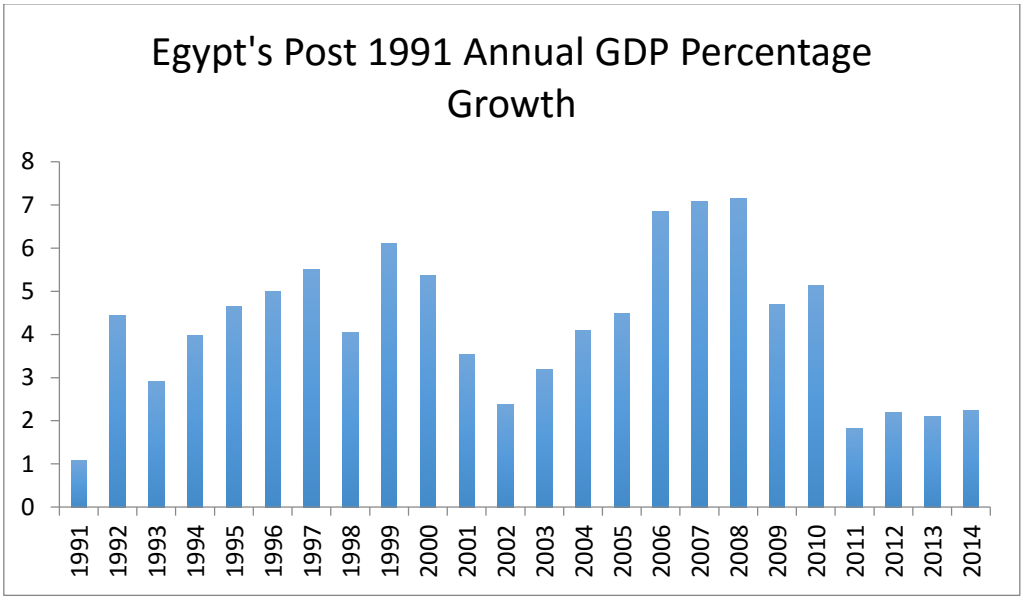

Source: World Bank, 2015c

Between 1968 and 1990, the economy grew on an average of 5.95% while between 1991 and 2014, the annual growth was recorded at 4.16% (World Bank, 2015d). It is easy to pin the decline on the decreasing role of public sector investment in an

environment where investment through private sector had not adequately reached its capacities. It is important, however, to highlight that both previous decades were hit by various exogenous shocks that had a substantial impact on the economies of the both emerging and developed countries. Notable examples are the Asian financial crisis of 1997, the oil price collapse of 1998, and the international financial crisis of 2008. From the political side, the Luxor terrorist attacks of 1997 severely impacted the tourism sector, which in turn reduced the foreign reserves, causing a reduction of the available credit. In addition, "the shortage of foreign exchange and lack of confidence in the government increased the rate of dollarisation of the economy (from 17.3% in 1999 to 28.4% in 2004) and induced Egyptians to send or keep their foreign exchange holdings abroad" (Djoufelkit-Cottenet, 2008: 9).

The Arab spring uprising, along with the volatile post-revolutionary period, especially in the period between Mobarak's ancien regime and the rise of Sisi created an uncertain environment, which distorted the economic trends of the country. It resulted in the drop and stagnation of FDI levels as well as the fall in the growth rates. Prior to the revolution, between 2004 and 2010, in spite of the global financial crisis the country grew on an annual average rate of 5.63%. However, after the revolution, the growth rate declined to 2.08% between 2011 and 2014 (World Bank, 2015d).

**Table 4.**

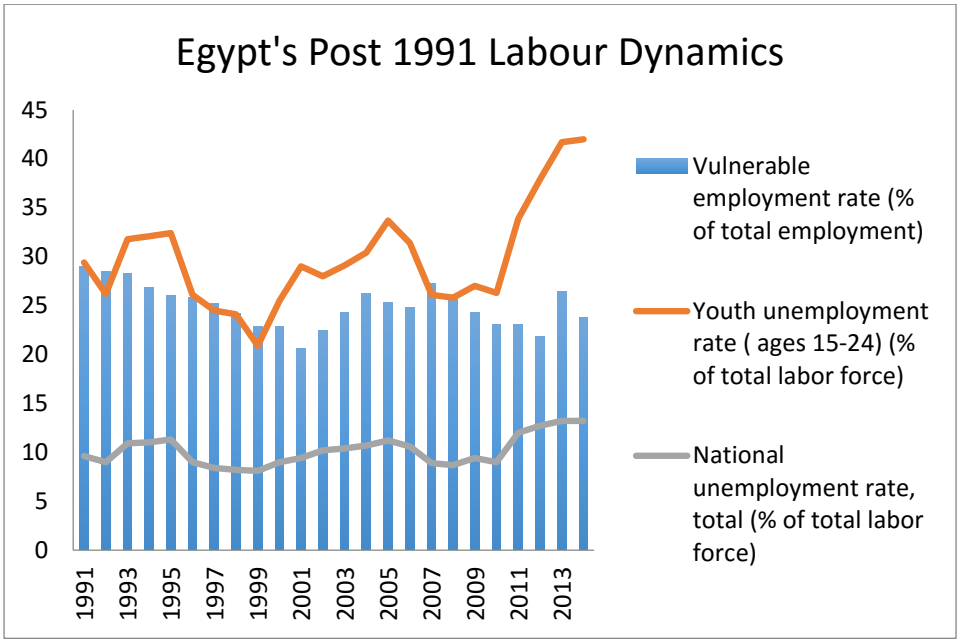



Source: World Bank, 2015d

The revolution was an exogenous shock, and like any other shocks the short-term negative consequences can be evaded through the application of appropriate policies. However, commitment to maintain a stable sociopolitical and economic environment is key in facilitating the return to high growth levels. Nevertheless, establishing a steady macro environment is not adequate to fundamentally impact the living condition of the population. The revolt against Mubarak's regime was fueled as much by the grim social conditions as they were by resentment toward the repressive prerevolutionary political environment. For example, the youth unemployment rate (between ages of 15 and 24) from 1991 to 2011 was on average at 30% while the national unemployment rate for the same period on average was at 10% (World Bank, 2016b; World Bank, 2016c). In addition, the vulnerable employment as percentage of total employment, defined as the unpaid family workers or self-employed was estimated to be around 24.93% (World Bank, 2015e). Post-1991 liberalization reforms largely failed to facilitate the transition between a consistent and fast improving macro environment into the real side of the economy. Ultimately this was a driving factor in fueling the discontent of the old regime. To ensure a secure and stable future, the new administration should recognize that liberalization and an effective macro environment in itself is not enough for real development and it needs to be channeled to the real side of the economy.

Development of the financial sector and application of financial deepening as part of a broader liberalization reforms has had noteworthy implications on the real GDP growth. In addition, remittances have also played a role in the economic history of Egypt, especially starting with the 1970's *Infitah* reforms (Elseoud, 2014). The narrative of financial deepening and remittances in Egypt, and especially their relationship to real growth will be discussed in chapters 4 and 5, where the thesis will provide both the chronological and conceptual aspects of these parameters in relation to the economic history of Egypt as explained in chapter 2.

**Table 5.**




Sources: World Bank, 2016b; World Bank 2016c & World Bank, 2015e[4]

## 2.2 Post-1991 Financial Reforms Review

### *2.2.I The Banking Sector*

Egypt's banking sector reforms were intended to both liberalize the financial activities (introduced with the first phase) as well as refine the monitoring and regulatory system. Prior to the implementation of the Washington Consensus, the banking sector was heavily regulated. The more liberal regime of the post-1990 was set to eliminate the discriminatory practices against the private banks, foreign financial intermediates as well as to minimize the preferential treatment of public entities. Originally, public enterprises were not allowed to approach the private financial intermediates without first consulting the public banks. In addition, "Administrative credit allocation was phased out and Treasury bill auctions were used to manage liquidity and indirectly provide a reference interest rate to the financial markets" (El-Shazly, 2001: 4). Among other reforms, the reserve liquidity requirements held by the banks were lowered. From a height of 30%, the liquidity rations were lowered to 20% (El-Shazly, 2001). More rigid

[4] The *vulnerable employment* missing datas (years 1991, 1992, 1996, 2008, and 2014) manually estimated by the author

financial solvency measures were enforced as regulatory supervision to strengthen the compliance of the system.

However, despite these reforms, major structural problems continue to exist within the banking sector. The reforms have largely failed to succeed on their objective. Many of the liberalization policies were not significant, as their implementation was *light* in nature. For example, although the reserve requirements were lowered, they were still relatively higher than the international standards (El-Shazly, 2001). A higher reserve ratio in turn means less availability of capital for lending out and consequently a lower multiplier effect. Under the program, the restructuring of public enterprises has been relatively slow and limited. They continue to carry and accumulate none-performing loans, mostly held by state owned banks. El-Shazly (2001: n.d) argues that:

> Backed by the government, the [Egyptian] state banks were not subjected to strict banking supervision with the result that they had to build up substantial loan-loss provisions under the 1990s reforms. Because this would adversely affect their profitability in the shorter run, the banks sought a relatively slow adjustment to the new regulatory regime.

In addition to continuing a culture of *moral hazard* by the public enterprises, the consequence of the slow adjustment was that the public banks continued excessive risk taking business activities (hence prone to larger share of none reforming loans) with public enterprises owned by the state, limits the outflow of loans that could otherwise have had used in more optimal ways. Thus, it decreases the efficiency of the system. As Elsayad (2013) argued, the system is still bound by a preferential treatment of clients who are among the business elite or who are politically connected.

Another major limitation of banking sector reforms is the indication that despite the program's push for liberalization, the state still plays a dominant role. Well into 2000s the banking sector continued to be dominated by the public sector banks. Until the start of the second reform phase, the four market dominating banks were still state owned. The state continued to be the majority shareholder in more than half of 35 join

ventured banks, and even among privatize banks the state maintained shares. Under the second phase of reforms, the state did however push for greater liberalization. For example, the foreign owned banks increased from 5 in 2004 to 15 in 2008 (Elsayad, 2013). However, a combination of the 2008 global financial crisis followed by the 2011 Egyptian revolution deterred the impact of reforms. Furthermore, the proposed regulatory reforms in the banking sector had limited effect. Factors such as the inefficiency in commercial judicial system infrastructure, the continuance of the imposition of none preforming loans by state-run banks, the existence of structural problems with capacity building and training, insufficient transparency, and a biased regulatory environment are among some of the problems related to the governance mechanism (El-Shazly, 2001). The preferential treatment of business elite and politically connected individuals continued even after the second phase. In fact, by some estimates they experienced a greater environment with higher benefits during the second phase at the expanse of SMEs.

### 2.2. II The Stock Exchange

Egypt is considered to have one of the oldest stock markets in the continent dating back to the creation of the Alexandria stock exchange in 1883, and the Cairo stock exchange in 1903. Up until the establishment of the republic, Egypt was internationally considered to have a premier stock market operation. For example, during World War II it was considered to be the fifth most active in the world. However, with the rapid nationalization process and closed economic environment, the stock market lost the prestige that it once held, and deteriorated rapidly (Elsayad, 2013). In addition, the infitah policies of the Sadat era did not adhere to much needed reforms and stayed closed off to foreign activities. According to Bolbol et al. (2005), there was an absence of adequate governance and regulatory mechanisms for governing security laws, a lack of investment protections and a biased tax code system from the market side. It was not until the reforms of the 1990s that new blood was injected into the stock market. Elsayad (2013: 138-139) stated:

> [The] Egyptian stock market started to grow very rapidly as an alternative channel for corporations to finance their capital needs and whiteness a significant growth in the size, activities and liquidity indicators… Henceforth, financial liberalisation policies and particularly stock market reforms encouraged strong and rapid growth at the stock market capitalization.

The market capitalization as percentage share of GDP rose from 7.8% in 1992 up to 103.1% in 2007. However, with the start of the global financial crisis in 2008 and the Arab spring in 2011, it subsequently fell (Elsayad 2013). The reforms aimed at the stock market had more success in achieving more meaningful transformation than they had for the banking sector. The greater involvement of foreign parties such as investors and corporations as well as stock market's greater link with the international financial intermediaries ensured sector's greater integration and transparency.

# 3. **Chapter Three:**

## Literature Review

This chapter reviews the theoretical aspects of the relationship between financial development, remittances and economic growth. It first provides an overview of eminent theories constructed by prominent economists such as Schumpeter, McKinnon, Shaw and Robinson with respect to the link between finance and real growth. Subsequently, it provides a review of the literature on remittances and real growth.

### 3.1 Finance, The Banking Sector & Real Growth:

The renowned Austrian-American economist Joseph Schumpeter was among the first economists to describe the relationship between financial services and economic real growth. He maintained that financial services are associated with an enhancement of economic growth (Schumpeter, 1911). Schumpeter drew the connection with respect to innovation and his theory of creative destruction. He claimed well-functioning credit and capital markets enable and allow the transfer of capital between creditors and claimants of capital (Schumpeter cited in Mazzucato, 2013). In other words, a well-established financial sector enables a higher volume of transactions and reduces the asymmetric information problem to create an easier setting for entrepreneurs to access funds. Thus, it facilitates technological innovation and economic development.

However, it was not until the highly acclaimed publications of Mckinnon (1973) and Shaw (1973) - treatises on financial liberalization and development - that the hypothesis entered mainstream economic discussions. Mckinnon (1973) and Shaw (1973) challenged the conventional macro-economic practices of the day pursued by a large number of developing countries, including Egypt (that favored protectionism and financial repression). The excessive involvement of the state in forms of “government regulations, laws, and other non-market restrictions prevent[ed] the financial intermediaries of an economy from functioning at their full capacity” (Reinert et al., 2009: 430). The repressive nature of protectionist policies such as concessional credit practice, credit control, liquidity ratio requirements, high bank reserve requirements,

and interest rate ceilings led to inefficiencies in the financial markets, adversely impacting the macro economic performance of developing states (Khan & Hasan, 1998; Elsayed, 2013). Mckinnon (1973) and Shaw (1973) were among the first wave of economists to coin, and extensively write about, the notion of financial repression. They presented a theoretical framework where financial liberalization is necessary as a primary condition for the facilitation and promotion of financial development (Mckinnon & Shaw cited in Elsayed, 2013). According to their argument, the real return on interest rates is lower in heavily controlled financial environments. The artificial capping of interest rates at low rates allows governments to issue debt at lower costs. This creates a moral hazard problem, whereby governments can be more irresponsible with their fiscal spending (Mckinnon & Shaw cited in Reinhart & Sbrancia, 2011). Moreover, such policy will accordingly discourage both savings and investments. Lower and negative interest rates mean lower opportunity cost of not saving and therefore less willingness to deposit the money. A less available pool of loanable funds will constrain investment. In turn it will lower the real growth rates (Khan & Hasan, 1998). Although, both Mckinnon (1973) and Shaw (1973) reach the same conclusion their methodologies are different in several ways. In Mckinnon's approach (cited in Chaiechi, 2014), a complementary relation between money and capital accumulation exists. Under the hypothesis, economic units are limited to self-finance resulting in indivisibility. It assumes that investors cannot borrow money and physical capital (in the form of deposit accumulation); will therefore become the transmitting channel to provide funds for the investments. In other words, the real deposit rates are the key to capital formation, which in turn funds the investment initiatives (Moore, 2010). The provision of flexibility to increase interest rates under the liberalization platforms will, in essence, work as the mechanism to make capital accumulation more attractive through depositing. On the other hand, Shaw assumed a substitution relation between money and investment (Shaw cited in Elsayed, 2013). In Shaw's model (cited in Chaiechi, 2014) investors are not confined to self finance and hence can collect required funds through incurring debt. The deposits stored by financial intermediaries are the backbone of the asset allocation employed by the banks. Banks lower their real costs through engaging in

risk diversification activities through spreading the loans. However, deposits fundamentally determine the size of available funds that banks eventually will lend out. Insufficient deposits can deter such process and consequently negatively impact the investment rates. Without an adequate amount of deposits, there will not be sufficient funds to finance all investment schemes. Shaw's debt intermediation model hypothesis suggests that an increase in interest will increase deposits and in turn increase the quantity of available loans for investment purposes (Shaw cited in Chaiechi, 2014).

Building on Mckinnon (1973) and Shaw (1973) findings, Kapur (1976) developed a model based on the role of capital as the transmission channel between finance and real growth. Kapur (1976) maintains the same reasoning with respect to the effect of interest rates on deposits. He argues that the bank credit generated through deposits "is used to finance new additions to the real working capital and fixed portion of depleted working capital whilst the remaining portion is self-financed" (Kapur cited in Elsayed, 2013: 27). In other words, the supply of bank credit promotes and enhances capital accumulation, which in turn enhances growth through the aforementioned means. Thus, the greater deepening of financial markets provides a greater prospect for accumulation of capital. However, Kapur's (1976) model also takes into account that while the growth of bank financing and implementation of some liberalization policies such as the reduction in reserve requirements maximizes the rate of economic growth, it can lead to higher monetary growth in turn and result in a fall in the velocity of circulation. This will ultimately increase the inflationary pressures in the absence of appropriate macro and monetary policies by the relevant authorities (Kapur cited in Elsayed, 2013). To combat this, Kapur (1976: 777) argues, "that the actual rate of inflation depends on inflationary expectations and on excess demand for output". He argues along with McKinnon (1973) that in the early stages of policy implementation, alternative monetary policy instruments are more appropriate, than reducing the rate of money growth. In the short term, an increase in the rate of nominal deposit rates will reduce the excess supply of money in the market by raising the demand for the real money. As the result, according to Kapur (1976: 779) "an immediate increase in the flow

of real bank credit and hence in real output" can be expected. Subsequently Kapur (1976: 779) comments that:

> the monetary authorities can proceed to gradually reduce the rate of monetary expansion as inflationary expectations decline, so that the flow of real bank credit need not decline at any time during the stabilization process and the short-run squeeze on working capital and real output be completely avoided.

Greenwood and Jovanovic (1990) analyzed the relationship between financial development and growth with respect to formalization of financial intermediaries. They stressed the role that financial intermediaries play in easing the facilitation of transfers (Greenwood & Jovanovic, 1990). Given the increasing importance of remittances as a vital source of finance, this is an important feature of intermediaries for developing and emerging countries. Hence, in addition to enabling a more efficient domestic transaction channel, the development of intermediaries facilitates "the migration of funds to the place in the economy in which they have the highest social returns" (Greenwood & Jovanovic, 1990: 1085). Thus contributing to a greater real growth. In addition, the financial intermediaries produce better information, and improve resource allocation (Levine, 2005). The decrease of the asymmetric information problem and the broadening up of services through generating greater access for the population incorporates business operations into the formal channel. For both businesses and individuals, it enables greater access to the financial instruments. Financial deepening fosters greater real growth and in turn growth itself accelerates the financial development. Accordingly, Greenwood and Jovanovic (cited in Levine, 2005) identify a two-way interaction channel between finance and growth .The direction of causality from finance to real growth is similar and follows the similar logic to those of Mckinnon (1973) and Shaw (1973). The channel from growth to further financial development is based on the idea of the cost and affordability of involvement with the financial intermediaries. The argument goes that in order to facilitate the offered amenities; financial intermediaries incur transaction costs, which they will pass down to the

customers. Thus, the existing costs hinder certain individuals from using the financial intermediaries (Levine, 2005). However, the increasingly real growth means "that more individuals can afford to join the financial intermediaries, which improves the ability of financial intermediaries to produce better information with positive ramifications on growth" (Levine, 2005 : 871). The further growth of financial intermediaries in turn minimizes the costs to lenders and thus over time become more inclusive to all (Greenwood & Jovanovic, 1990)

From an empirical perspective, through looking at a panel data of 35 countries over the period 1860 to 1963, Goldsmith (1969) established that financial intermediaries tend to develop in relation to size of the economy as countries develop and second that Non-bank financial intermediaries and stock markets grow in relation to the development of banking system and the size of the banks as countries expand economically. However, the ladder needs to be taken cautiously as it does not necessary hold in all cases. A series of other factors play a role in determining the causality ( Demirguc-Kunt & Levine, 2001 ). In other words, the facilitation of the right environment is essential for maintaining this relationship.

With respect to the relationship between financial development and growth, Goldsmith's (1969) findings were less firm. Even though he proclaimed the existence of a positive relation, he declined to conclusively assert that a correlation existed. Goldsmith owed his cautiousness to the lack of data, specifically problems with the quality of those available for a broad range of countries. (Goldsmith cited in Levine, 2005). In early 1990s, King and Levine (1993) extended Goldsmith's model by trying to reassert the question of the interest. They incorporated *Depth*, as a benchmark for the size of financial intermediaries, *Credit* to private enterprises divided by GDP, and *Bank*, as a measurement mechanism for the degree to which central and commercial banks reallocate credit as the parameters of interest (King & Levine, 1993). The underlying assumption is that, as the result of financial deepening, the financial systems engage more and facilitate greater credit transfer to the private sector and are "more engaged in researching firms, exerting corporate control, providing risk management services, mobilizing savings, and facilitating transactions than financial systems that simply funnel

credit to the government or state owned enterprises" (King & Levine cited in Levine, 2005: 890). Hence, because of their commitment to social innovation, acting as a lender of credit to the private sector, their actions can facilitate the right environment for greater productivity growth and capital accumulation. King and Levine (cited in Levine, 2005) indicated that on a long-term basis, and as a result of such activities a significant positive relationship between financial development and real growth can be foreseen.

Today's financial markets represent a more integrated and inclusive environment than ever before. There is no longer a linear relation from North to South as many southern corporations under the context of *emerging multinational corporations* (EMNC's) are extensively active both in the developing and developed markets. In such a setting, the development of a mature stock market is required to finance operational activities. In such junctions, credits through commercial banks are no longer a sufficient or primary means for businesses to finance their international activities. Similar to trends seen in the north, trade financing and the expansion of operations are also an underlying cause behind the development of the credit markets in emerging countries. The stock markets are increasingly becoming more interconnected and liberalized. Thus, with markets better connected to the global system, firms are no longer constrained to raise capital domestically: they can seek capital through alternative foreign channels that offer the best rate (Aggarwal, 1999). That means that both EMNCs as well as northern firms can participate in stock markets both in developed and emerging countries such as Johannesburg Stock Exchange (JSE), Shanghai Stock Exchange (SSE) or Cairo Alexandria Stock Exchange for securing liquidity.

According to Levine (1997b), the easing of capital flow restrictions or the reduction on the imposed limitation on repatriating dividends/ capital can in turn result in better and greater integration of stock markets internationally. The lowering of international investment barriers can greatly increase the inflow of foreign capital into the developing world and thus enhance the liquidity of stock markets, which would ultimately lead to greater economic growth. Levine (1997b: 1) comments that:

Although stock market volatility tends to rise for a few years after financial liberalization, greater openness to international capital has been associated with lower stock return volatility in the long run. Moreover, stock return volatility does not appear detrimental to long-run growth. Thus, if policymakers have the patience to weather some short-run volatility, liberalizing restrictions on international portfolio flows offers expanded opportunities for economic development.

In addition, a greater inflow of foreign investors requires an increased organizational capacity on behalf of local credit markets in the emerging countries. The increase in capabilities of greater standardization of the system requires the establishment of a firm legal system. This will ensure the protection of business interests, as well as support the greater and more specialized variety of financial instruments. Furthermore, it could enforce the improvement and upgrading of trading systems with respect to the establishment of a more sophisticated and smart system (Levine, 1997b). The leakage from the capacity and capability buildings indirectly influences and impacts other sectors of the economy as well. In return it transmits the gains toward accelerating greater real growth. In a sense, causality exists in both ways. On one hand, the globalization of credit markets enforces and pushes toward a more legal and regulatory environment to adequately support the business foundation, while in return the better civil justice further boosts investment, innovation, competition as the result, which vis a vis all lead to greater growth (OECD, 2015).

Demirguc-Kunt and Levine (1996) examined the relationship between finance and growth from a corporate finance perspective. As its size and capacity is expanding, the importance of stock market development is increasingly becoming a central issue for developing countries. For example, the market capitalization of listed companies as percentage of GDP in Egypt has increased from 3.8% in 1990 to 24.5% in 2014 (Mecagni & Sourial, 1999; World Bank, 2015f). The Egyptian case is not an isolated case. It represents a larger picture that showcases the maturity of financial markets in the emerging world in the last decades. Demirguc-Kunt and Levine (2001) set their hypothesis with respect to liquidity, concentration, volatility, and institutional

development in industrial and developing countries. They argue that as countries grow, a natural movement from the diminishing role of a central bank toward the increasing role of commercial banks and nonbank financial institutions becomes evident. This is particularly true for nonbank financial activities such as stock markets as the financialization of economy requires and increases the demand for sophisticated and specialized financial instruments. A central advantage of stock market in relation to stimulating economic activities comes from the opportunity that it provides in offering liquidity. Levine (1996: 7) comments that:

> Many profitable investments require a longer commitment of capital, but investors are often reluctant to relinquish control of their savings for long periods. Liquid equity markets make investments less risky and more attractive because they allow savers to acquire an asset –equity- and to sell it quickly and cheaply if they need access to their savings or want to alternate their portfolios.

Thus, it can impact the real growth in the long run. In addition, they observed that the developments of stock markets are connected to the debt-equity ratio of the firms. Firms in smaller and less sophisticated stock markets initially increase their debt equity ratio in the early stages of stock market developments. They have the tendency to issue more equity as well as to borrow more. The improvement of information quality and of monitoring controls makes creditors such as the financial intermediates more confident in lending out. However, as stock markets develop further, firms will substitute debt for equity (Demirguc-Kunt & Maksimovic, 1996). The firms with a high level of debt are seen with higher risk of default and bankruptcy, which limits their leverage in securing additional credit. Thus, the further development and maturity of stock markets gives corporations this opportunity to use the capital market to finance their operations. In addition, "as economy moves along its growth path, the use of more specialized and technologies will become more common. This will lead to a rise in the relative cost of monitoring, so that firms will reduce their investments [that] are generally associated with debt" (Demirgüç-Kunt & Levine, 1996: 235). The growth and maturity of the private

sector can, in return, create appropriate linkages in the local economy and stimulate it directly and indirectly. In addition, the expansion of the private sector can enhance Research and Development (R&D) initiatives and lead to a smarter economy with greater growth potentials in the long run.

Accordingly, "a liquid equity market allows savers to sell their shares easily, thereby permitting firms to raise equity capital on favorable terms. By facilitating longer-term, more profitable investments, a liquid market improves the allocation of capital and enhances prospects for long-term economic growth" (Levine, 1997b: 1).

The emergence of capital markets in the developing world follows the same natural process of financial development as happened in the north. The emergence of Emerging Multinationals such as Egyptian Global Telecom Holding or South African AngloGold Ashanti with primary holdings in the respective African stock markets points to the needs of financial development in the south. The financial development in the capital markets and their association with the creation of a stronger corporate environment are considered as a condition for further engagement of the southern financial system with the rest of the world. Thus, a main requirement to facilitate a broader and easier engagement of southern MNCs with rest of the world. In addition, Demirguc-Kunt and Levine (1996) presents the argument that banks and capital markets are not a substitute but rather a complement for each other. Their results show that "the degree of stock market development is positively related to that of bank development" (Odhiambo, 2010: 20). The differences in the nature of work and the channels that they provide credits are fundamentally varied enough to differentiate their respective clients given the different nature of their needs, yet through generating higher debt-equity ratios capital markets can create more business for the banks, which could be seen as the complementary role. Hence, it will be of interest to test if such a relationship will have a determinable impact on the overall growth.

Looking at Egypt specifically, and linking the quantitative and qualitative analysis with the country's banking sector development, along with the state of the nation; one can use the Schumpeterian (1911) theory, to forecast a positive relationship between the financial innovation and growth. In the Schumpeterian theoretical framework, the

liberalizations of the Sadat and Mubarak era should had led to an *innovative revolution* which in turn would have had a positive direct impact on the trajectory of growth trends in the country. The current reality, however, is that the Egyptian Research and Development (R&D's) and innovative capacities are underutilized. Poor planning, excessive bureaucratic meddling, and decades of neglect has left R&D and innovation in a bad state. The emerging private sector's link with innovation has also remained fairly shallow (Bond et al., 2012). The state of affairs in Egypt challenges the application of Schumpeterian theory. In the Egyptian case, the potential relation is not transmitted through the innovation channel as the rate and progress of innovation has remained quite shallow in the country. The Egyptian government has failed to provide adequate support in the last three decades (Bond et al., 2012). Nonetheless, opportunities do exist. It remains likely that Egypt could benefit from financial innovation. However, in order for this to be achieved appropriate policies need to be made. This thesis, therefore, aims to investigate other possible mechanisms.

Mckinnon (1973) and Shaw (1973)'s theory of financial repression is in line with the Egyptian narrative. Throughout the 1970s and the 1980s the (Egyptian) market was characterized by high negative interest rates and high fiscal spending's (El-Mikawy, 2002). Mohieldin (1995: 7) comments that:

> The gradual rise of nominal interest rates, during the partial liberalization period that accompanied the Infitah policy did not prevent the real interest rate from being negative and declining during the 1970s and l980s. It is interesting to find that real interest rates during the Infitah period of 1975-90 were generally lower than in the socialist period of 1961-74.

As argued in chapter 2, in spite of Infitiah's initial premises, the program had limited success in liberalizing reforms, particularly with regards to the banking sector. The government's continuing commitment to provide subsidies and therefore continue a fiscal deficit while refusing collaboration with the IMF represents what Mckinnon (1973) and Shaw (1973) saw as a macroeconomic challenge. Given Egypt's commitment to

reforms in the aftermath of 1991 negotiations, it will be of interest to observe if financial development is indeed correlated with growth. Chapters 4 and 5 will respond to this central proposition.

Using Egypt as a case study, Elsayed (2013) conducted an analysis of the impact of the respective financial channels on economic growth. His findings pointed to the significance of stock market development over the banking sector with respect to the overall effect on the economic growth. The credit market had a more conductive impact in comparison to the banking sectors in the long run. Elsayed's (2013) analysis shows that at the early stages of development, both the banking sector and financial development are equally important. However, with the progression and maturity of the financial environment, the stock market overtakes the banking sector as the significant force behind the finance led growth (Elsayed, 2013). The results are in contradiction to McKinnon's (1973) complementary hypothesis. That is, the implemented financial liberalization had a *negative* effect on savings and investment rates. The complementary hypothesis holds that the investments are constrained by savings and the availability of the funds in the pre liberalization period. However, the liberalization policies encourage households to increase their savings, which in turn leads to greater scope and deepening of the financial intermediaries. As a result, the deepening and expansion of the banking sector through higher reserves as a result of greater savings increases the available supply of credit and thus of investments (Elsayed, 2013). However, in the Egyptian Case as argued by Elsayed (2013 :126):

> The credit provided by the banks to the private sector during the financial liberalization period was not transformed into capital investment. Indeed, the financial liberalization policy that took place in Egypt constrained the available funds for the business sector through a private credit misallocation in favor of households rather than loans to firms and businesses that resulted in a lower capital accumulation and investment to GDP ratio.

In essence, the preferential credit supply scheme prefers the business elite and politically connected individuals and institutions at the expense of small and medium size enterprises (SME's). It prevents the latter from obtaining sufficient credits in an environment where public banks still dominate the scene (Bolbol, Fatheldina & Omran, 2005 ). The misallocation of credit limits the firms from obtaining and in return engaging in adequate entrepreneurial and investment activities. Furthermore, in an environment where more emphasis is put on connections and associations than merit, unrestricted access to credit for insiders is enabled. In this way the system is exposed to the emergence of moral hazard problem. The deregulation of the system in this environment has led to the rise in speculative activities of trading securities rather than securing the credits for physical investments. Thus the use of available credit resulting from liberalization were not efficiently used or put in place. In addition, the removal of entry barriers (given the existing moral hazard), and unchecked use of credits led to the accumulation of nonperforming loans and unbalanced portfolios in the banking sector (Elsayed, 2013; Bolbol, Fatheldina & Omran, 2005). The Egyptian case highlights the importance of the governance structure and the independence of a regulatory body to ensure that the appropriate channels are designed to benefit the economy as a whole rather than profiting only a few. Fundamentally it highlights that McKinnon's (1973) hypothesis is constrained to external factors such as an adequate supervisory and regulatory body to ensure the productivity of the system. However, the stock market presents another picture. The services and amenities that the stock market offers, as well as its targeted market are different from those provided by the banking system. Foreign investors play a greater role in the stock exchange, which in turn has been beneficial for promoting efficiency and has created a greater need for regulatory supervision (Bolbol, Fatheldina & Omran, 2005). The findings are in line with the presented theory of globalized influence on stock markets as argued earlier. In addition, the corporations move toward stock markets through the increasing share of market capitalization as an appropriate financing option at the expense of bank based provision of credit, which has resulted in the greater influence of the stock market on real growth (Bolbol, Fatheldina & Omran, 2005). The natural progression toward the stock market in

an environment bound by greater transparency and efficiency (compared to banking led finance) has been the reason behind the existing dynamics in Egypt. Elsayed (2013), in addition to Bolbol, Fatheldina, and Omran (2005) find a more significant relationship between stock market based financial developments to real growth than banking based. It is of interest, therefore, to compare this thesis's results with their respective papers and to observe if the same conclusion can be made.

The literature evaluated so far with respect to the finance growth nexus has been in favor of an existing linkage to a large degree. In case of contradictory findings such as the lack of a significant relationship between the banking sector and growth in the Egyptian case, the importance of institutional settings and the creation of an overall favorable setting with an adequate governance mechanism was highlighted. The lack of a significant linkage is, rather, the byproduct of circumstances and its environment than the lack of a meaningful relationship. In other words, the establishment of a significant finance growth nexus is dependent on the implementation and facilitation of an appropriate structure that supports the arrangement of the appropriate linkage.

However, many academics are critical of the simplicity of such an approach and argue that the relationship between finance and growth is much more complex than what it is initially perceived to be. It is affirmative that as argued a subset of different factors contribute and influence the relationship, but nonetheless even the environment and the contextual requirements are very case specific. What has worked in one place does not necessary work in another setting, and requires the implementation of distinctive structural modifications in respect to each region or country's unique socioeconomic background.

According to Rioja and Valev (2004), countries can be categorized under three distinctive classes. Hence, the perceived relationship between finance and growth vary for each country given their place according to their category. The first category or region is identified as countries with limited and low levels of financial development, the second category as intermediate and the third class as countries with mature financial system.

According to their findings, a significant finance-growth relationship was spotted among intermediate countries. In addition, a positive but more marginalized link among financially developed countries was also observed. In all their assessments, the results for countries at intermediate stages of financial development were much more significant compared to countries with already advanced financial systems through taking liabilities, liquidity, private credit and Commercial/Central Bank as proxies of interests (Rioja & Valev, 2004). This can be attributed to the theory of diminishing returns as when countries further progress, the marginal return from an extra *unit* of input becomes less significant (Greenwood & Jovanovic, 1990). However, the results for countries with low financialization levels were much less robust. The growth of financial deepening in some of these countries could result in negligible effects on economic growth (Rioja & Valev, 2004).

In other words, the relationship is not entirely clear regarding how further financial development impacts the real growth, which points to the earlier hypothesis that each country, especially those among this category are categorically different from one another.

The shift from private credit to growth appears not to be statistically significant for this group of countries. In addition, the rise in liquid liability has not helped the growth levels for low financially developed countries. However, the results demonstrate that the increase in size and scope of central bank operations are statistically significant with respect to growth levels. The finding is contradictory for intermediate and financially advanced countries that favor the expansion of commercial banks over central banks (Rioja & Valev, 2004). The underlying reasons behind the findings relating to low financial developed countries suggest:

> In developing countries, sometimes cheap and abundant credit has been issued by government directive or by official banks without many questions about the expected productivity of the project. As many of these projects later fail, the increase in Liquid Liabilities or Private may not lead to higher growth rates *(*Rioja, Valev, 2004 : 441) .

In addition, high inflationary levels - which are frequently observed in low financial developed countries - can adversely impact the development of financial systems, and in return lead to the breakdown of the finance-growth nexus. (Rioja & Valev, 2004). Michael Thiel (2001) also confirmed Rioja and Valey's (2004) findings. His analysis hints to a more significant finance-growth nexus relation at earlier stages of financialization and economic development. In addition, he also emphasizes the importance of capital productivity as a significant transmission channel (Thiel, 2001)

The developing states largely fall under least financially developed and or intermediate categories. Accordingly, Egypt - in the aftermath of 1990s reforms - is placed in the intermediate category. While in general Rioja and Valev's (2004) findings support Elsayed (2013) and Bolbol et al. (2005) findings that Egypt's financial development positively impacts growth, their findings on the role of commercial banks on growth yield different conclusions. Additionally, Barajas, Chami, and Yousefi (2013) support the argument that the banking led growth in the MENA (Middle East & North Africa) region, including Egypt, has not been successful in asserting a finance (banking) led growth. A quality gap in the banking system essentially exists that prohibits the access of a broad segment of firms to financial intermediaries. This, in turn, undermines the competition, and the efficiency of the banking system (Barajas, Chami, & Yousefi, 2013). On average the outreach of the banking sector in the region is 20-30% lower than other emerging developing countries (EDC). Additionally, the percentage of firms receiving credit from the banking channel is also significantly lower than those of EDC countries. This is especially problematic when considering that the firms credit constrains are 10% higher compare to other EDCs (Barajas, Chami, & Yousefi, 2013). These respective findings point to the disjunction between banking led finance and real growth. In addition to regulatory/supervisory characteristics in the nature of the banking system, the quality gap was identified as another underlying reason for the existence of the disjunction. Furthermore, the results suggest heterogeneity in results even among the group of countries that under Rioja and Valev's (2004) findings fall under a similar category. According to Barajas, Chami, & Yousefi's (2013) findings, variables such as dependency on oil, countries status as petroleum exporters or importers (or self sufficient) influence

the finance-growth nexus, which highlights the initial argument that countries cannot be generally categorized.

Another major concern and criticism of finance led growth is the potential volatility that financialization can bring. The Washington consensus led an aggressive push for liberalization in the 1990s in emerging states. It was, to a large degree, liable for the ensuing Asian, Argentine and Latin American crisis. The argument goes that by creating an environment of greater risk taking and leverage, especially in poorly regulated settings, the financial deepening increases the likelihood of volatility and exposes the economy to shocks ( Sahay et al., 2015). This especially has importance for developing and emerging states where the regulatory supervision in early and intermediate periods of financial development is less apparent. For example, the respective papers on Egypt (discussed earlier), highlighted that the supervisory mechanism and the governance of Egypt's banking sector was substandard, which created a suboptimal condition. However, the recent findings point to the existence of a non-linear relationship where the association between finance and the perceived volatility is varied on a subset of different factors. The recent findings conclude that financial development "initially lowers growth volatility, as it allows for an expansion of opportunities for effective risk management and diversification. [However], after a certain point, volatility begins to increase" (Sahay et al., 2015: 21). At the early stages of financial development, financial deepening enhances the economic growth. However, in time a more active and less repressed financial environment will lead to greater volatility as capital buffers are reduced. Nonetheless, at the intermediary stage the benefits and growth potentials that financialization brings outweigh the perceived volatility. The associate risks at this stage remain marginal compared to the perceived benefits. However, in the early stages, if such environment is not adequately structured, too much financialization and a fast-paced financial deepening without the implantation of adequate regulatory mechanism structures can result in the increase of risk and instability and lower growth (Sahay et al., 2015).

In other words, speed limits matter when it comes to the scope and pace of financial development. In addition, Dabla-Norris and Srivisal (2013) also find similar results

through analyzing the relationship by taking *private credit to GDP* as the proxy of interest. They established that the effects of financial deepening on advanced economies and the subsequent perceived volatility is as the result of misallocation of funds, implicit safety nets and aggressive risk taking business operation of the banks as financial development progresses (Dabla-Norris & Srivisal, 2013).

However, both papers argue that the progression of financial development on its own is not the source of volatility but rather 'hyper' financialization and a fast-paced financial deepening without the implantation of adequate regulatory mechanism structures is the source and the reason of increasing instability. Ceteris paribus, a tradeoff between *too much finance* and less stable growth exists. "Beyond a certain level of financial development the benefits to growth begin to decline and costs in terms of economic and financial volatility begin to rise" (Sahay et al., 2015 : 30). However, through the establishment of strong institutions with adequate governance mechanisms, and sound regulatory/supervisory environment the volatility can be minimized. Nonetheless the analysis points out that upon the establishment of a regulatory mechanism, the tradeoff between finance and volatility substantially declines (Sahay et al., 2015). In such a state, the deepening of financial environment in fact, contradictorily, has the potential to reduce and offset the volatility of output and consumption and investment growth and makes the economy more resilient to external shocks. The evidence suggests that a structured financial system acts as a shock absorber, mitigating the negative impact of the shocks on the growth (Dabla-Norris & Srivisal, 2013). The deepening of the financial system reduces the informational asymmetries and thus "lowers the sensitivity of financing conditions to changes in the net worth of borrowers, thereby reducing the amplification of cycles that occurs through the financial accelerator" (Sahay et al., 2015: 9). The argument is on the basis of the idea that the lessening of borrowing constrains as the result of financial development diversifies the risk shared among various agents and thereby alleviates the impact of exposure to shocks and increases economy capacity to absorb them. Thus, it provides a platform to engage in risk diversification while reducing the information asymmetries within the economy (Dabla-Norris & Srivisal, 2013). Furthermore, the unequal access to investment opportunities in financially

oppressed economies create market imperfections, which in turn aggravate the risk for companies unable to access sufficient credit. In these situations, the liquidity depth and size of liquidity holdings determine the company's resilience to contractionary market effects. The more liquid the firm is, the more they can flair out the shocks. Hence, a greater and more inclusive access as a result of the deepening of financial markets decreases the volatility on aggregate (Dabla-Norris & Srivisal, 2013).

All the papers established the importance of finance for intermediate financially developed countries (such as Egypt), especially in an environment bound by regulatory mechanisms. However, findings for countries with immature financial sectors are less coherent. The respective papers failed to establish homogeneous finance growth nexus findings. However, from a volatility point of view, Sahay et al. (2015) and Dabla-Norris and Srivisal (2013) conclude that less finance growth volatility exists in less financially developed countries. This thesis will not touch on the question of interest, as Egypt is identified in the intermediate band with coherent findings among all in terms of the significant relationship of finance growth nexus, but it will be of interest if further research should be done with respect to financially repressed countries.

### 3.2 Remittances, Finance & Real Growth:

In recent years, remittances have overtaken foreign aid as the most significant source of currency inflow into emerging countries (World Bank, 2014b). The literature over the connection between remittances and growth has been a highly contested subject with different papers both in favor and against the perceived existence of a significant relationship from remittances to economic growth. Given the role of finance both as a transactional channel and also as a substitute/ complement to remittances, it is worth analyzing remittances in that respect.

A major theme regarding remittances revolves around its relationship in respect to real growth channel. Remittances fill the void created as the result of inability to access official credit market due to asymmetric information problem faced by many underprivileged people in developing countries. Remittances are considered as a hard currency movement of money between earners- in foreign countries and household

spenders in recipient countries. To a large degree, the domestic socio economic conditions determine the migration patterns between south and the north. The Income differentials as well as demographic forces impact the migration patterns (Tuck-Primdahl & Ong, 2010). The lack of access to decent employment opportunities and quality wages, where it severely influences the household living conditions forces economic dominant members of the households to seek jobs elsewhere. Thus, remittances and migration patterns are more than merely an *economic equilibrating mechanism* as argued by Tuck-Primdahl & Ong (2010). They display the socioeconomic conditions of recipient countries, where the bleak domestic situations force the creation of economic migration. In such cases, the received remittances should not be viewed as an income supplement but rather as household income where it is primarily is used for day-to-day expenditures. "These are consumption expenditures on both necessary and discretionary items; the payment of debts; and, the purchase of non-productive assets, primarily housing and land" (Stahl & Arnold, 1986: 904).

A common criticism of remittances as an appropriate long-term growth parameter revolves around this concept: since remittances are mainly used for consumption purposes, it will have insufficient influence on investment patterns (Fayissa & Nsiah, 2010). In other words, they do not directed into capital formation. In line with other earlier economists such as Kindleberger (1967), and Bohning (1984) questioned the association between remittances and growth. For example, Bohning (cited in Stahl & Arnold, 1986) argued that it is more likely for remittances to be used for expenditure purposes than to stimulate innovation and innovative capabilities. Kindleberger (1967: 94) also stated that remittances are "invested in ways which contribute very little to economic growth"

While it is fair to say that to some degree only a small proportion of remittances are directed into productive investment, as found by Stahl and Arnold (1986), the consumption channel has the propensity to positively influence growth on its own nonetheless. Stahl and Arnold (1986) argue that the rise of consumption as the result of remittances can lead to the multiplier effect, which ultimately further stimulates the economy. For example, through looking at Asia as a case study, they observed that the

housing industry and the inflow of money into purchase or maintenance of houses usually constitutes a large portion of the expenditures of remittance money. In most countries "the housing industry has the highest ratio of domestic inputs to total inputs. [Thus]… expenditure on construction usually generates a large multiplier effect" (Stahl & Arnold, 1986: 916).

The inflow of remittances, which in turn increases purchasing power, has the capacity to stimulate the local industries through an increase in demand. This in turn means that the spent by consumers can eventually be channeled back to firms in the form of capital. There is a concern that a sudden increase in purchasing power in environments where the domestic industries are still in infancy can rapidly increase the demand and prompt a rise in imports. This would consequently, deteriorate and add pressure to balance of payment. However, these fears have largely been allayed in the recent findings. Al-Mukit, Shafiullah, and Sajib (2013: 55) argued that "remittances have no significant impact on the demand for imported goods rather import exerts a positive shock on the remittance of Bangladesh." Another study conducted on Greece (prior to its association with the European Union) also demonstrated that the increase in imports as the result of increase in remittances had an economically insignificant impact on the trade deficit. On the contrary, in line with Stahl and Arnold (1986), a positive multiplier effect could be observed. Remittances also led to the creation of 74000 jobs in the none-agricultural sector by 1971 (Glytsos, 1993). In light of these, despite the limited transition of remittances into banking style investment capital, remittances from the consumption channel nonetheless have the potential to benefit the economic growth in emerging and developing countries.

According to Giuliano and Ruiz-Arranz (2005), the connection between remittances and growth in developing countries is not completely clear-cut. Their findings suggest that the depth of the financial system determine the significance of the remittances on growth. In other words, it tests and highlights the effect with regards to remittances and financial development. They determined that remittances contribute to economic growth in environments where the financial sector is less developed (Giuliano & Ruiz-Arranz, 2005). In essence, they validate that a substitution effect exists between

remittances and financial development where the greater financialization of the economy decreases the dependency on remittances as a contributing factor to growth. Among less financially developed countries, where a sizeable number of inhabitants do not have sufficient access to financial intermediaries, remittances alleviate credit constraints for these marginalized sectors of the society. This results in the improvement and greater effectiveness of capital allocation, and subsequently of economic growth. In essence, the substitution and difference between formal financial channels and informal credit networks - where the merits behind receiving the credits are based on personal connections and family ties rather than institutional screening of applicant's financial history - it adequately takes away the information asymmetry imposed in a formal principle-agent problem. Hence, the easing of the liquidity constraints through inflow of remittances in such environments, under the investment transition channel, has the tendency to enable and increase the availability of funds for investment purposes (Giuliano & Ruiz-Arranz, 2005).

Through looking at 37 African countries between 1980 to 2004, Fayissa and Nsiah (2010) reached a similar conclusion as Giuliano and Ruiz-Arranz (2005) in terms of the importance of maturity of the financial system in determining the overall impact of remittances on real growth. They argued that, as a whole, remittances positively impact the real growth of the African states they analyzed. According to their findings, a 10 percent increase in remittances led to a 0.3 percent increase in GDP per capita income (Fayissa & Nsiah, 2010). Furthermore, the relationship is even stronger for countries where the financial systems are less sophisticated. Thus, the remittances acting as an alternative financial channel to overcome the liquidity constraints yield greater bearings (Fayissa & Nsiah, 2010).

In addition, compared to other forms of *external financing*, remittances indicate a greater contribution to economic growth. Their respective results conclude that foreign aid, one of the main cash sources for many smaller and underdeveloped African states had an insignificant and negative effect on economic growth. Likewise, *term of trade,* a proxy used for the openness of economy, measured as the sum of imports and exports to GDP exhibited an insignificant relationship (but positive) to economic growth.

Foreign direct investment also showcased a positive but insignificant relationship to economic growth in the sample of the African countries. On the other hand, the parameters used for measuring investment in physical and human capital and the spending on nutrition and health positively influenced the productivity, thus stimulating the growth over time.

Fayissa, Nsiah and Tadasse (2007:13) comment that:

> A policy implication which may be drawn from this study is that African countries can improve their economic growth performance, not only by investing on the traditional sources of growth such as investment in physical and human capital, trade, and foreign direct investment, but also by strategically harnessing the contribution the tourism industry and improving their governance performance.

It is expected that remittances will continue its steady and stable growth in emerging countries, including both Sub-Saharan Africa as well as the MENA region. It is forecasted that by the end of 2015, remittances in North Africa and the Middle East are to increase by 4 percent to reach $53 billion dollars. In addition, since 2013 remittance inflow to developing countries has remained larger than foreign direct investments (World Bank, 2014b). As a result, the African states can greatly benefit from such an inflow under the relevant policies.

Aggrwal, Demirgüç-Kunt and Peria's (2006) results find more conclusive evidence in respect to remittances and real growth. Their findings, based on research on 109 developing countries between 1975 to 2007, suggest that remittances and financial systems have a more complementary relationship than a substitution effect. Their conclusion to a certain degree contradicts other findings that proclaim remittances decreases as financial systems broaden. Aggrwal, Demirgüç-Kunt, and Peria (2006) argue that an increase in inflow of remittances lead to an increase in bank deposits which in turn lead to greater availability of credit. Thus, the provision of credit as an investment mechanism further stimulates the real sector. The empirical evidence supported "a causal relationship [that] a one percentage point increase in the share of

remittances to GDP suggests between a 0.35 and a 0.49 percentage point increase in the ratio of deposits to GDP, depending on the specification and the controls" (Aggrwal, Demirgüç-Kunt & Peria's, 2006: 18). In addition, from a qualitative approach, through observing municipality-level data for Mexico, a positive link was perceived between the size and input of remittances and financial development. In the municipalities where "a larger share of the population receives remittances, the number of branches, number of accounts, and value of deposits to GDP [was] higher" (Aggrwal, Demirgüç-Kunt & Peria's, 2006: 10)

Contrary to other findings presented thus far, Barajas et al. (2009) make a counter argument with respect to remittances as a promoter of economic growth. There is little doubt that remittances have the tendency to positively reduce poverty levels, from a macro perspective on a long-term basis. However, their empirical findings openly question the existence of a positive relation. As they stated, "the results show that, at best, workers' remittances have no impact on economic growth" (Barajas et al., 2009 : 1), their analysis concludes that there is a lack of robust evidence between remittances and economic growth in the long term. In particular cases, in fact, a negative relationship was detected. To distinguish their analysis from other papers, Barajas et al. (2009) approached the perceived relationship through mitigating their model by recognizing that in many incidents a two-way causality between remittances and growth exists. They identified two reasons behind such circumstance. According to Barajas et al. (2009: 9):

> [Firstly, the domestic growth] in the remittance-receiving economy can potentially drive remittance inflows. This can occur either through effects on migration, in which low economic growth leads to higher outward migration and higher remittances; or through altruistic behavior on the part of the existing migrant community, in which low economic growth in the home country leads altruistic migrants to increase compensatory transfers.

Secondly, the two-way causality can be the byproduct of a series of none-remittances commonly known as independent or *third* variables, such as international trade relations or domestic socio political environments (Barajas et al, 2009). For example, trade has the potential to influence the economy on its own through various channels such as the balance of payments. However, the trade relations can indirectly influence the migration patterns and subsequently the remittances as well. The countries with historical and firm trade relations are usually the ones that people emigrate to. Thus, the better the trade relationships the higher migration maneuvering will be. Upon recognizing the independent or *third* variable, the model attempts to control the parameters that theoretically influence both growth and remittances. The empirical analysis conducted for a period between 1970 to 2004 based on 84 countries shows that in less than half of the countries in the sample a positive and statistically significant growth can be detected. However, the results are economically insignificant. For the remaining of the countries in the sample, the relationship was negative. Barajas et al. (2009) maintain that the lack of an adequate transmission channel to diverge remittances into real investments is the reason behind the economic insignificance of remittances to real growth in the long run. They maintain that the multiplier effect from the increase in consumption is influential, but only has a short term effect rather than a steady long-term impact. From a long term perspective, the increase in purchasing power as the result of remittances inflow can alleviate poverty rather than significantly influence the real growth. Remittances in the long run thus further stimulate expenditure and consumption.

Through looking at the a sample of 7 Middle Eastern & North African (MENA) countries, including Egypt, Yaseen (2012) attempted to establish how remittances contribute to the economic development of the selected countries. Countries such as Egypt and Morocco are perceived to be among some of highly remittance-dependent countries, not only in the region but also in the world. Consequently, remittances for these countries represent a significant source of foreign exchange inflow (Yaseen, 2012). Remittances represent and constitute more than 5% of their GDP. For example, in Egypt,

between 2012 to 2014, remittances inflow was equivalent to 7.3, 6.6, and 6.8 percent's respectively (World Bank, 2015b).

Leading to his empirical analysis, Yaseen (2012) first provided a detailed breakdown, both on the perceived negative and positive consequences of remittances inflow to the receiving countries. One of the common fears over the remittances inflow is about its impact of *dollarization* of the economy. There are existing concerns that since the majority of the funds will enter the countries in forms of foreign currencies, this will in return lead to the depreciation of the local currency. In addition, the increase in consumption and demand also leads to an increase in domestic price levels. As argued in the last section, Yaseen (2012) also identified the property market as one of the primary sectors where it's vulnerable to remittance influence. However, he identified the investment in property market as *unproductive* and prone to create inflationary pressures (Yaseen, 2012). Hence, families who do not benefit from remittances inflow are worse off. From a positive side, the potential increase in deposit ratios and availability of credits was identified as the potential constructive remittances-growth channel. The transition of remittances into investment funds (through supply of credit) however dependents to the pro-cyclic or counter-cyclic economic situation of the domestic economy. The confidence and the perception of the earners over the state of economy influence their engagement with financial channels and the saving patterns.

Yaseen's (2012 : 11-12) empirical results conclude :

> through the financial development channel remittances are found to play a mixed role in MENA labor exporting countries. Through their negative interaction with credit they promote growth by substituting credit, thus improving the allocation of capital and hence accelerating economic growth They also, promote growth by complementing total liquidity.

In other words, his results are in line with Giuliano and Ruiz-Arranz's (2005) findings on the substitution effect of remittances for financial systems.

## 4. Chapter Four:

## Model Specification, Data and Methodology

### 4.1 Model Specification

This chapter will introduce the model and provide a detailed explanation of the methodological steps used toward the thesis. Although the main focus of the analysis is to investigate the perceived relationship between financial development, remittances and real economic growth, other parameters are included in the model as well. These are capital and labour, which have a major impact on economic growth. In addition, financial development and remittances interact with capital and labour, and should therefore be included in the model for enhanced precision. (Gounder, 2012).

Our model follows and is based on a Cobb-Douglas production function as extended by Jayaraman, Choong, and Kumar (2011). While the respective authors work focused on the Fijian economy, this thesis will apply their Cobb-Douglas model to Egypt.

The Cobb-Douglas production function follows as:

$$Y = AK^{\alpha}L^{\beta}$$

Where:

Y: Egyptian Real Gross Domestic Product

A: Stock of Technology

K: Capital Stock

L: Labour Supply

α: Output Elasticity of Capital

β: Output Elasticity of Labour

Through a simple modification, with Hick-neutral technological change and constant returns we derive the variables on the basis of per workers where:

$$Y = AK^{\alpha}$$

$$0< \alpha <1$$

Becomes:

Y: Egyptian Real Output Per Worker

A: Stock of Technology

K: Capital Per Worker

α: Output Elasticity of Capital

Respectively, as hypothesized by Jayaraman, Choong, and Kumar (2011), it is possible to incorporate and argue that:

$$A_T = f(T, REMIT, FD)$$

Where:

A: Stock of Technology

T=Time

REMIT: Remittances as Percentage of GDP

FD: Financial Development.

However, given our focus on the impact of financial development on real growth (both in the banking and the stock exchange sectors), financial development (FD) initially is identified as broad money in percentage of GDP (M2) - Proxied for the Banking sector and later altered to total value of traded stock as the percentage of GDP (S) – a stock exchange proxy.

Consequently, as Jayaraman, Choong, and Kumar (2011: 533) hold "The effect of REM and FD on total factor productivity (TFP) can be captured with REM and FD as a shift variable into the production function", the models to be estimated are given as:

(1) For *the banking sector* $Y_T = \left(REMIT_t^{\beta}\, M2_t^{\theta}\right)K_t^{\alpha}$

(2) *For stock exchnage* $Y_T = \left(REMIT_t^{\beta}\, S_t^{\theta}\right)K_t^{\alpha}$

It is important to note that for econometric analysis, all variables are transformed into natural logs. Hence, the final results are obtained and recite as a log-log function. Thus, the model will become:

(1) For *the banking sector* $LY_T = \left(LREMIT_t^{\beta}\, LM2_t^{\theta}\right)LK_t^{\alpha}$

(2) *For stock exchnage* $LY_T = \left(LREMIT_t^{\beta}\, LS_t^{\theta}\right)LK_t^{\alpha}$

Where:

LY: Log Real GDP Per Capita[5]

LREMIT: Log Remittances as Percentage of GDP

LK: Log Capital Per Worker

LM2: Log Broad Money as Percentage of GDP / LS: Log Total Value of Traded Stock as the Percentage of GDP

α: Output Elasticity of Capital

β: Elasticity of Remittances

θ: Elasticity of Broad Money (Equation 1) and total value of traded (Equation 2)

T: Time

4.2 Data

With the exception of capital, all other data are obtained from the World Bank (2015g) Egypt database. Real GDP per capita and Capital stocks are based on 2005 constant US prices. Capital stocks are gathered from the Federal Bank of St. Louis (2015). Due to lack

[5] Due to lack of available data for number of the workers in Egypt, population is instead used as proxy. Thus in reality Log Real GDP Per Worker is per capita

of reliable data for labour, population is used as the proxy instead[6]. For the banking sector, observations range from 1977 to 2014. However, the capital stock data are only available up to 2011. The last three years (2012-2104) are forecasted manually using moving average method. For the Stock exchange sector, observations are between 1985 and 2014. The smaller sample is the result of lack of data availability. In fact, the data (total value of traded stock) between 2012 and 2014 and 1985 to 1988 are manually estimated through the moving average forecasting (and backcasting) technique. The observations are enlarged by a couple of years in order to provide a better benchmark for the time series model. However, further enhancement was avoided in order to avoid the possibility of decreasing the accuracy of the estimations. Log Broad money as the percentage of *(Lm2)* is used as the proxy for the *banking sector led* financial development. It is defined as "sum of currency outside banks, demand deposits other than those of the central government, and the time, savings, and foreign currency deposits of resident sectors other than the central government" (World Bank, 2015h). M2 as percentage of GDP is considered as a standardized measurement of banking led financial development, used extensively in the academic field. Likewise, log total value of traded stock (LS) is used as the proxy for the stock market.

### 4.3 Methodology

The model is estimated by the Autoregressive Distributed Lag (ARDL) bound test approach to co-integration as formulated by Pesaran et al. (2001). Like other time series methods, such as Johansen's co-integration test, ARDL has the capability to examine the data and prove whether a relationship between parameters exists on a long-term basis. However, compared to Johannsen, especially given the nature of the thesis's data structure, ARDL has a number of advantages. Firstly, the results are less sensitive to sample size. It is a more reliable method when estimations are based on a smaller quantity of observations. Furthermore, it provides the freedom to apply the test regardless of whether the regressors are stationary at I(0) or integrated in the first order

[6] In line with Jayaraman, Choong, and Kumar (2011).

I(1) – as long as the regressors are found not to be at the I(2) order (Djoumessi, 2009). The method's unique characteristic of assessing the critical bounds of whether the findings signify an upper, lower bound or in between using an F-test provides a method to assess the existence of a short term or long terms relationship (Kyophilvong, Uddin & Shahbaz, 2014). Moreover, "it provides unbiased long-run estimates with valid t statistics if some of the model regressors are endogenous" (Kyophilvong, Uddin & Shahbaz, 2014: 4). In essence, the co-integration behind the ARDL model tries to validate or reject the existence of a long-term relationship between the parameters. In doing so, a set of procedures needs to follow to ensure the precision of the final estimations.

*4.3.I Stationarity*

In order to permissibly use ARDL as an appropriate model, we first need to ensure none of the respective regressors are of order I(2). The model only provides the flexibility to a mixture of only stationary I(0) with none stationary I(1) regressors. If the variables are found to be stationarity, a simple OLS estimate can be used. However, in a time series such circumstances rarely appear. Stationarity is defined as the incidences where statistical properties do not alternate over time. More formally, it means that "variance of a stochastic process do not depend on t (that is they are constant) and the autocovariance between Xt and Xt+τ only can depend on the lag τ (τ is an integer, the quantities also need to be finite)" (Nanson, 2006: 130). On the other hand, the none-stationarity regressors have the propensity to change over time, which is a more common phenomenon in time series. As the first step, it is important to ensure that none of the regressors are I (2). Thus, the Augmented Dickey-Fuller (ADF) unit root test shall be used to determine the integrated order of the variables.

The Dickey-Fuller results however are sensitive to the selected number of lags. In order to determine the number of lags within the ADF test, we first will need to execute vector auto regression (VAR) lag order selection criteria. The lag selection criteria are composed of Final Prediction Error (FPE), Akaike's information criterion (AIC), Schwarz's information criterion (SC), Hannan-Quinn Criterion (HQ), and LR tests. However, given

the asymmetric lag structure in vector auto regression, AIC and SC are recommended as the two prevailing used criteria, which shall be used and analyzed accordingly (Ozcicek & McMillin, 1999).

Once the Augmented Dickey-Fuller test is conducted to determine the stationarity properties of the model, thenceforth the model will be checked for the existence of a structural break, which refers to the presence of a broken trend (Stock, 1994). The structural break represents a divergence from the trend line as the result of a major shock on the economy. According to Perron (1989), the failure to test for the structural break has the tendency to lead to bias. It ultimately "reduces the ability to reject a false unit root null hypothesis. To overcome this, Perron (1989) proposed allowing for a known or exogenous structural break in the Augmented Dickey-Fuller (ADF) tests". (Glynn, Perera & Verma, 2007:65)

Consequently, using an Augmented Dickey-Fuller, we will conduct unit root test with the anticipation of the presence of a structural break. Following Perron's (1997) one break model, we will try to find a structural break through determining the break point endogenously.

*4.3.II Autoregressive Distributed Lag (ARDL)*

Once the preconditions required for the implementation of ARDL are satisfied, we proceed with the ARDL model to determine whether or not a long-term relationship exists among the selected variables. Accordingly, the appropriate number of lags will be chosen for the model. A unique feature of ARDL is that it allows testing for the existence of a long-term relationship between integrated parameters using the bound test developed by Pesaran et al. (2001). As argued by Jayaraman, Choong, and Kumar (2011), given the limited availability of observations, the bound test is the perfect method to determine long run co-integration. Pesaran et al. (2001) provide an upper and lower critical value bound in respect to 1%, 2.5%, 5%, and 10% levels of significance. As mentioned earlier, the thesis will use the 5% as its respective benchmark throughout the empirical analysis. The upper bound critical values are considered to be of I (1) order while lower bounds critical values to be of I (0). If the computed F-statistics is greater

than the I (1) value, long run co-integration among variables exists. However, if the F-statistics is smaller than I (0), the model demonstrated the lack of long run co-integration among variables. Likewise, if the F-statistics lay between I (0) and I (1) the results are deemed inconclusive. In other words, "If the calculated F-statistics exceed the upper bound, the null hypothesis of no co-integration among the variables can be rejected. If the calculated F-statistics fall below the lower bound, the null hypothesis of no long- run relation cannot be rejected" (Kyophilavong et al. 2014:9).

If the bound test confirms the existence of a co-integrating relationship between variables, it is possible to calculate the error correction term (ECT) and ultimately derive the long run results. The error correction term is defined as the speed of adjustment at which the divergents in short run as the result of the shocks; converge back to the long run equilibrium. In order for the error correction term to have a meaning and represent a convergence to long run trend following shocks, its result requires to be I) Significant, II) have a negative sign, and III) be less than 1.

A statistically insignificant value, meaning a p-value greater than the significance level ( 5% in our case), denotes that there is a substantial likelihood that the obtained results are caused as the result of *chance* or other factors not concerning the programmed model. The negative sign points to the stationarity of the system (Muller, 2004). Furthermore, the results are required to be less than one, as the variables are interpreted in percentage form. A value greater than one would otherwise mean a speed of adjustment of over 100%, which would be statistically unrealistic. Once the error correction term and the short run dynamic of the model is determined, we will observe the long term correlations.

*4.3.III Diagnostic & Post Estimation Tests*

Once the results and the perceived relation between incorporated variables are established, it is essential to subjugate the models to a series of diagnostic tests to determine their stability. Accordingly, Breusch-Godfrey Serial Correlation LM, Breusch-Pagan-Godfrey Heteroskedasticity and Q-statistic Probabilities Autocorrelation tests will be conducted.

By applying Q-statistic probabilities adjusted for 1 dynamic regressor, we will test for autocorrelation. It is of utmost importance for the errors in the models not to be serially dependent, as autocorrelation will impact the consistency of the models. Similarly, the robustness of the models is also tested through the application of the Breusch-Godfrey Serial Correlation LM Test to check for the existence of serial correlation. In working with the data, especially in time series, it is important to check for serial correlation as it can impact the efficiency of the OLS estimators. In other words, as stated by Williams (2015: 1):

> With positive serial correlation, the OLS estimates of the standard errors will be smaller than the true standard errors. This will lead to the conclusion that the parameter estimates are more precise than they really are. There will be a tendency to reject the null hypothesis when it should not be rejected.

Furthermore, by using the Breusch-Pagan-Godfrey test, we check for the existence of heteroscedasticity. Similar to other diagnostic checks, it is important for the models to be free of heteroscedasticity. This occurs if the variables of the error terms (whether they are conditional or independent variables) are not constant. If they are not, it can deflate and lead to bias in the results (Choi, 2008). Checking for heteroscedasticity therefore removes the likelihood of biased interference in the estimates.

Finally, to validate the statistical findings, the cumulative sum (CUSUM) and cumulative sum of squares (CUSUMQ) tests shall be applied to check for the stability of the models. Pahlevani, Wilson and Worthington (2005: 14-15) comment that:

> The stability of the regression coefficients is evaluated by stability tests [as] they can show whether or not the regression equation is stable over time. This stability test is appropriate in time series data, especially when we are uncertain about when structural change might have taken place.

If the plot of the results remains within the 5% critical boundaries, the none hypothesis, that is the confirmation of error correction model's stability cannot be rejected. On the contrary, in circumstances where the plot surpass the boundaries, the model is instable. Thus, we shall apply the CUSUM and the CUSUMQ tests.

# 5. **Chapter Five:**

## Empirical Findings & Discussion

This chapter discusses the findings alongside the methodology presented in chapter 4, subsequently analyzing the results. As argued in the previous chapter, the preconditions behind using ARDL test for co-integration first need to be satisfied. It needs to be ensured that none of the variables are of order I (2). In addition, the model needs to be tested for any structural breaks.

Therefore, an Augmented Dickey-Fuller unit root test with respect to the selection of appropriate lag orders through the implementation of vector autoregression (VAR) is conducted. Then the model is tested for structural breaks. Once the preconditions are satisfied, the ARDL test for co-integration is instigated. Subsequently, a series of diagnostic and post estimation tests are implemented to check for the accuracy of the model.

### 5.1 Empirical Findings

The first step is to determine the number of lags for the Dickey-Fuller unit root test. This is an essential and delicate procedure as the results obtained from Dickey-Fuller test are sensitive to the selected lag numbers. The lags are obtained through the execution of vector autoregression (VAR). The five lag selection criterias, as stated in the previous chapter, consist of Final Prediction Error (FPE), Akaike's information criterion (AIC), Schwarz's information criterion (SC), Hannan-Quinn Criterion (HQ), and LR test. For our purposes, we employ Akaike's information criterion to determine the optimal lag. The underlying reasons for that are: I. compare to Schwarz's information criterion, AIC provide better results and II. Computer generated AIC lag recommendations in most cases are in same lag order as with other criteria's (excluding SIC).

Consequently, based on AIC (tables 2 and 12 in the appendix), VAR Lag Order Selection Criteria recommends a lag of *3 for Log Real GDP per worker (LY), 1 for Log Remittances as percentage of GDP (LREMIT), 4 for Log M2 as percentage of GDP (LM2) / Lag 3 for*

*total value of traded stock as the percentage of GDP (LS) and lag of 4 for capital stock per worker (LK).*

Once the optimal lag orders are determined, an Augmented Dickey-Fuller unit root test (tables 3 and 13 in the appendix) is conducted to determine the ranking of the variables. At 5% level of significance, none of the regressors are stationary {or of order I(0)} at their level. Accordingly, they are found to be at order level I(1) after first differencing.

At 10% level of significance however, the broad money (M2) is revealed to be I(0). Nonetheless, given ARDL's permissibility to combine I (0) with I (1), this does not change anything. The 5% level of significance is used as a benchmark given its higher precision throughout the empirical analysis. Next, following Perron's (1997) one break model (table 4 in the appendix), the existence of structural breaks is tested. The ADF test confirms the existence of a structural break for log real GDP per capita, a growth proxy at 1991.

As discussed in section II, 1991 and the early 1990's in general represent an important shift in Egypt's Economic policies. After years of negotiation with the IMF, World Bank and other creditors, Egypt agreed to implement the liberalized Washington consensus reforms, marking a major turning point in the economic policy of the country. To factor in the existence of a structural break, a new binary dummy regressor is created, with zero's representing the years prior to 1991 and one's for post-1991 period.

Following the ADF and the test for structural breaks, we proceed with the implementation of ARDL model. The first step is to determine the appropriate number of lags. In accordance with Pesaran and Sheen's (1999) recommendation of choosing a maximum lag of 2 for the annual data, 2 as the respective lag number is chosen. It is of interest to note that lag of 2 is also recommended under Schwarz criterion (SIC) lag selection method when VAR Lag Order Selection Criteria is applied in the first model (table 5 in the appendix). It is important to proceed with a low lag number (such as two) as a higher lag order in ARDL translates into a decrease in the degree of freedom. A lower degree of freedom, in turn, decreases the precision of the results in the model as it has fewer observations. Thus, it is important to choose an optimal lag order (such as two) that offers the most adequate degree of freedom. Accordingly, the minimized

optimal lag order of (1, 0, 2, 1) for LY and dynamic regressors of LREMIT LM2 LK are respectively chosen. For the second model (stock exchange-led financial development) the same lag criteria procedure in respect to Peseran and Sheen's (1999) recommendation is followed with a lag of 2 being selected. In fact, having lag of 2 (as oppose to greater number of lags) for the second model is even more appropriate as the numbers of observations are even smaller. Any greater lag quantities given the limited availability of the observations will severely reduce the degree of freedom and impact model's precision. Lag of 2 provides the best estimation for the model. The minimize optimal lag order is identified as (1,2,2,1) for LY, LS, LREMIT, and LK respectively.

The ARDL bound test next determines if a long-term co-integration among variables exists (tables 7 and 15 in the appendix). The ARDL bound test demonstrates that at all levels, the F-statistics are greater than the upper bound values. Thus, the results for both models indicate the existence of a long run co-integration between the incorporated variables. Thereafter, the error correction term and long run results are determined. The error correction term obtained for the banking-led financial development model (table 8 in the appendix) is estimated to be at -.695, with a probability (p-value) of less than 5%. Hence, it shows a 69.5% speed of adjustment to the equilibrium, which signifies a relatively quick and significant adjustment. Similarly, the error correction term for stock exchange-led financial development (table 16 in the appendix) is statistically positive as well. The *error correction term* denotes a speed of adjustment of 67.4% toward the long-term equilibrium.

In respect to the long run co-integration results, the banking led financial development model (table 9 in the appendix) exhibits a very strong correlation between capital stock and real GDP per capita. The results indicate that a 10% increase in the level of capital stocks, increases the real GDP per capita by 4%. However, the relationship between banking-led financial development and remittances under the baking-led growth nexus is less optimistic. The quasi money (M2) as percentage of GDP demonstrates that, for a 10% increase in quasi money, the real GDP per capita will enhance by 0.4%. However, the results are statistically very insignificant and thus it is possible to reject the hypothesis of a positive link between banking led financial development and economic

growth. Furthermore, the empirical analysis illustrates that a 10% increase in the level of remittances decreases the real GDP per capita by 0.2%. Even though the results are statistically significant, economically a 0.2% decrease in per capita real GDP for a 10% increase in remittances (as percentage of GDP) has a very marginal impact and thus it is economically insignificant.

Banking Led Financial Development Growth
( Error Correction Terms & Long Run Coefficients)

| Error Correction Term | Probability |
|---|---|
| -0.695889 | 0.0000 |

Long Run Coefficients

| Variable | Coefficient | Probability |
|---|---|---|
| LREMIT | -0.021863 | 0.0053 |
| LM2 | 0.043369 | 0.1458 |
| LK | 0.480989 | 0.0000 |

However, remittances and the financial development proxy under the second model represent a different picture compared to the banking-led development (table 17 in the appendix). The remittances as the percentage of GDP (under the latter), are statistically significant and positive. A 10% increase in remittances as the percentage of GDP increases the real gross domestic product per capita by 0.4%. Furthermore, Unlike LM2-LS (the total value of traded stock as the percentage of GDP) has a positive contribution toward real per capita growth. A 10% increase in LS increases the real GDP per capita approximately by 0.6%. Similar to banking-led financial development, the capital stock is statistically significant in the second model. A 10% increase in the level of capital stock contributes approximately 3.3% toward the real GDP per capita growth. The next chapter will discuss the implications of the findings with regards to whether the results do indeed match the Egyptian socio-economic narrative.

Stock Exchange Led Financial Development Growth
( Error Coorection Terms & Long Run Coefficients)

| Error Correction Term | probability |
|---|---|
| -0.674116 | 0.0002 |

Long Run Coefficients

| Variable | Coefficient | probability |
|---|---|---|
| LREMIT | 0.044930 | 0.0025 |
| LS | 0.055143 | 0.0003 |
| LK | 0.326556 | 0.0000 |

Finally diagnostic and post estimation tests are conducted to ensure the stability and the performance of the models (10 and 18 in the appendix). The Q-statistic probability test suggests that there is no evidence of autocorrelation in both banking-led and stock exchange-led models. Additionally, the Breusch- Godfrey LM test confirms that the models are not serially correlated. Breusch-Pagan-Godfrey test demonstrates that the models are free of heteroscedasticity, and hence the residuals are normally distributed. For both CUSUM and CUSUMQ tests, the residuals in both models are within the 5% range and therefore confirm the stability of the models and the empirical results with it as well.

5.2 Discussions

The empirical results obtained under the ARDL framework development are indeed supported by the economic history of the Egypt. In addition, the differentials between banking-led versus stock exchange-led development are in line with other academic papers, including Elsayed (2013). The empirical results point to a statistically insignificant relationship between the banking sector and real growth, with a negative relationship with respect to remittances under the banking-led financial nexus. As chapter two has shown, the banking sector in Egypt is characterized by inefficiencies, preferential treatment of clients and a biased regulatory oversight. Even under the

reforms, the system continued to be bound by the misallocation of funds *away* from the available potentials to efficiently capitalize on the inflow and outflow of deposits. Accordingly, M2/GDP captured the up and downs in the model as a relevant proxy. Thus, given the existing problems with the adequate governance mechanisms and the system's continuing inefficiencies, the regression clearly demonstrated that the banking sector-led financial developments have been somewhat insignificant to the real growth. The results are indeed in line with both Bolbol et al. (2005) and El sayad's (2015) findings. Both papers argue that the banking sector is less conductive to the real economic growth in compression to the stock exchange.

The banking sector indicator also plays a fundamental role in establishing the nature of the relationship between remittances and real growth. In essence, in a model where financial development is defined as the banking sector, and it incorporates remittances as the other parameter of interest, the results showed that the remittances had a negative relation with the real economic growth- even though the relationship was economically insignificant. Despite the reforms, a significant amount of the remittance inflows still enter the country through informal channels. It is estimated that up to 62% of the remittances enter through the banking sector, while the remaining 38% enter through other means (Naga, 2015). According to a series of empirical analyses such as Das (2009), the relationship between remittances and investments in Egypt is perceived to be insignificant. Given that investment[7] is often identified as a main channel linking deposits to economic development and real growth, an insignificant relationship signals that the funds are not being allocated efficiently. Indeed given the nature of the banking sector in Egypt the results are understandable. This means that once they enter the banking sector through official channels, the remittances, are not being distributed efficiently as investment credits. In addition, remittances in Egypt exhibit counter-cyclical behavior, and the relationship between remittances and consumption is negative and statistically significant. Das (2009:12) comments that:

[7] Under the banking sector

Because, remittances have no positive impact on consumption and insignificant impact on investment, the negative remittances-growth coefficient suggests that the workers remit more during the period of economic downturn. This would tend to suggest that the migrants' motivation to remit in Egypt is not purely self-interest, but enlightened self- interest.

The remittances do not lead to capital accumulation by recipients, but rather it is used to weather hardship. Given the banking systems' inefficiency, and biasness in favor of business and political elite, they cannot rely on the banking sector for assistance. Thus, an increase of remittances as percentage of GDP in reality signals the economic hardship; where a higher percentage means more severe domestic economic conditions in the absence of opportunities for a large percentage of the population, which forces economic migration. Therefore, as Das (2009) and the results of this thesis showcase, a negative relationship exists between the level of remittances and economic growth.

With respect to the relationship between the stock market and real growth, as empirical evidence both from our findings as well as Elsayad's (2013) study show, stock market-led financial development and its subsequent impact on real growth represents a more significant correlation compared to banking sector-led financial development. Due to the greater involvement of foreign investors and enterprises in the stock market, it enjoys a greater and much more efficient regulatory system, which in turn has increased the confidence in the system. Hence, given the existing problems in the banking system, numerous large corporations rely on the stock market to raise capital (Elsayad, 2013). Higher capital ratios mean higher business operations, and subsequently greater growth. Furthermore, the greater involvement of foreign enterprises also translates into a greater dynamism for the system where there is an injection of foreign capital into the system through stock market as the medium. Accordingly, there is greater availability of capital for enterprises.

Under the stock market led financial development, remittances are positively related to the real growth rates. The findings are in line with the orthodox beliefs of monetary institutions such as the IMF. According to Billmeier and Massa (2007), on average, the

empirical findings for the Middle Eastern and central Asian countries such as Egypt indicate the existence of a positive relationship. The argument goes that a portion of the remittances is channeled into stock markets, which in turn increase the market capitalization rates. The study divided the countries on the basis of none resource rich and resource rich countries. The findings are particularly significant for none resource rich countries. In the case of Egypt, the study initially included the country as a resource rich country due to its abundance of natural gas and its status as a marginal net exporter of hydrocarbon (since 2005). However, they tested the results again by shifting Egypt into the none-resource rich category and obtained similar findings. It points to the significance of Egypt's stock market: regardless of its category, the stock market plays a pivotal role. Our initial argument that remittances exhibit a counter-cyclical behavior appears to be contradicted by the preceding argument in favor of capital accumulation. The reasoning goes that the terminology behind capital accumulation under banking led financial development is somewhat different from that of the stock market. We need to recognize the difference between the senders and recipients. Under the banking sector, the idea of capital accumulation is recognized from the standpoint of the recipients and not the senders. The recipients of remittances, rather than looking at it as an investment means, use the extra funds for survival measures. In other words, the money is sent to the families and they spend it in the way they wish to. However, it is important to recognize that not all sent remittances are directed to extended family members. A large amount is also sent back home for the purpose of investment. Up to 70% of the Egyptians abroad are identified to send money for personal and family reasons while 60% also send money for investment purposes. Around 8% specifically send the money for investment in the stock market (Zohry & Debnath, 2010). The banking sector, on the other hand, is not recognized as a viable investment opportunity for the expatriates. Thus, while there is a lack of capital accumulation from recipients into the banking sector, the evidence suggests there is a steady inflow directly toward the stock market by the expatriates (senders), which explains our results.

## 6. Chapter Six:

## Conclusion

Through using an autoregressive distributive lagged model (ARDL) under a Cobb-Douglas production function, the thesis investigates the role and the relationship of remittances and financial development in respect to the real economic growth. It looks at the perceived relationship between remittances, financial development and real growth through using banking led and stock exchange financial deepening as the two financial development proxies. It tries to establish which sector contributes the greatest toward real growth. The first chapter acts as an introduction. Providing the scope, research objective, motivation, methodology and thesis's structure. It sets up the direction that the paper will undertake. The second chapter provides the background information in respect to Egypt's political economy and the financial sector (banking and stock exchange) reforms. It provides a historical narrative on how the Egyptian economy progressed under different economic systems such as the nationalization of 1950s and early 60s, the limited liberalization of 1970s and 1980s and the implementation of Washington consensus reforms of post 1990s. In addition, it provides details on the legacy and the consequences of financial reforms implemented under the liberalization package negotiated with the International Monetary Fund and the donor countries. In order to understand the results obtained from the quantitative analysis and the logic behind of them, it is of utmost interest to first understand country's economic progression. Chapter three provides a comprehensive study on the available literature in respect to the topic of interest. It delivers theoretical literature review as well as empirical and country specific analysis. It is divided into two parts. The first parts provides the literature review in respect to financial development and real growth and then the remittances and growth. It starts by offering the thoughts of classics such as Schumpeter, Mckinnon and Shaw; who are considered as the pioneers of associating financial development with real growth. Mckinnon's (1973) complementary theory and Shaw's (1973) debt intermediation model are analyzed. In following, the work of other academics such as Kapur (1976), Greenwood and Jovanovic (1990), and various

publications of Aggarwal. Levine, Demirguc-Kunt, and others who have built upon Mckinnon and shaw's original treatise are analyzed. It sets forward the question on if the banking sector and stock exchange are seen as complement or substitution to each other. Furthermore, it provides the literature review of those who completely criticize the existence of a relationship. It critically analyzes all these claims, whether be negative or positive in respect to Egypt. Follow suit, in the second section, the thoughts on the perceived relation between remittances and the real economic growth is analyzed. Studies by Giuliano and Ruiz-Arranz (2005) and Fayissa and Nsiah (2010) support a positive relationship while the study by Barajas et al., (2009) rejects the existence of a robust relationship. Their works in respect to the Egypt's economic conditions are then further analyzed. Egypt is considered as one of the major recipient of remittances. The empirical evidence suggests that there are no significant remittance- investment causality from the banking sector in Egypt. However remittances have greater impact on real growth from the consumption channel and to some degree through the investment in the stock exchange (Zohry & Debnath, 2010). Chapter four and five provide the models specification, methodology and the data. As stated earlier, the models are based on a Cobb-Douglas production function with real GDP per capita ( as proxy for real per workers output) as the dependent variable with remittances as percentage of GDP, financial development and capital per capita as the independent variables. The first model uses broad money (M2) as the percentage of GDP as the proxy for the banking sector while the total value of traded stock as the percentage of GDP in the second model is used as the proxy for the stock exchange development. The results are base on a log-log estimation. For the first model, the time series ranges from 1977 to 2014 while for the second model the time span is between 1985 to 2014. In order to obtain the results, first it needs to be ensured that none of the variables are of second order ( I(2)). An augmented dickey fuller test in respect to appropriate selection of number of lags (through employing vector auto regression lag order selection criteria) is used to test for the stationarity of the variables. Next, the structural breakdown is tested, which a structural breakdown is identified in our dependent variable. Consequently, a dummy variable is introduced to offset the breakdown. Thereafter, the ARDL model is

implemented to determine if a co-integration exists through using the bound test. Subsequently, finding the short and long run results for each of the respective models. At the end diagnostic and post estimation tests are conducted to ensure the precision of the models. The estimated results are indeed in line with other findings such as Elsayed (2013). It demonstrate that the stock exchange led financial development contribute significantly toward real economic growth whereas even though positive, the relationship between banking sector finance growth and GDP per capita are statistically insignificant. In addition, remittances under the stock exchange led financial development yield and contribute greater toward real growth than under the banking sector. The in-placed governance and regulatory mechanisms and the mix results of country's experiment with liberalization under different administrations constitute the ration behind the findings. Egypt followed a period of economic isolation bound by nationalization policies after its transition into a republic in the 1950's. Within a few years it was known that system was not working and there was a push from both enteral and external players (such as IMF and the World Bank) for the liberalization of the economy. Even though limited liberalization was pursued under the *intifah* policy framework, it was not until 1990s that the country tried to greatly open its doors. However, this had mix results due to a lax regulatory system and the political interference forced by the business elite. The liberalization creates a disjunction in the performance between the banking and the stock exchange sectors. The stock exchange is more integrated with the global system and enjoys greater participation of foreign investors. Thus, this ensured a greater regulatory system with better supervision. However, due to its more limited interaction with the global system the banking sector on the other hand had been subjected to a biased regulatory system enforced by the politically tied business elite who use it to obtain preferential credit in the expanse of others (Elsayed, 2013). In addition, the state still plays a prominent role in the sector (Elsayed, 2013). As a result, the transition channels from banking sector to real growth are not in an optimal level as bound by inefficiencies and unproductive leakage. This indeed is also reflects on the difference in remittances results as well. In addition to stimulating consumption patterns, a certain percentage of the earned incomes abroad

by the Egyptian diaspora are send back to Egypt solely for the investment purposes in the stock exchange (Zohry & Debnath, 2010). The channeling of remittances into the banking sector is minimal, which is clearly reflected in thesis's results as well (as being economically insignificant). Hence, the quantitative findings reflect the country's realities. In terms of policy implication, the emerging theme from the thesis revolves around the notion and the importance of adequate governance and a regulatory mechanism within the system. Liberalization under a well established environment bound by governance can have much more meaningful impact that on its own. As seen with Egypt, a major factor behind stock market's greater impact on real economic growth than the banking sector is the results of a better supervisory system. Hence, Egypt's new administration should prioritize the implementation of a better regulatory system for the banking sector. In addition as Elsayed ( 2013) states:

> Although the Egyptian financial system has experienced extensive reforms since the early 1990s, there is still a lack of well-developed financial institutions that can provide a wide range of financial instruments which are more sophisticated and allow a high degree of diversification. Furthermore, due to their lack of credit history and the difficulties which banks face in identify the creditworthy SMEs in developing countries, the small and medium enterprises (SMEs) are blocked simply from obtaining sufficient credit from banks. In the meantime, financial markets are concentrated and dominated by large corporations and the business elite who can obtain more benefits from the financial sector

In addition to better governance mechanisms, due to years of negligence in the banking sector, further implementation of more sophisticated financial instruments are required. Likewise, currently an asymmetric information problem exists that it hinders many from obtaining the bank credits. The government needs to tackle the problem to broaden up the access of banking sector to everyone.

The thesis tries to contribute to the existing literature by merging financial development (in respect to its two proxies) and remittances in one model. Most of the available

literature, especially on Egypt only focuses either on financial development or remittances. This thesis tries to reduce the gap by incorporating these two equally important parameters in one model. To build upon this work, it is suggestible to expand the model by incorporating other parameters such as foreign direct interment, exchange rate or increase the observation years if could be obtained.

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**Appendix:**

**Table 1. Descriptive Statistics ( Banking Sector)**

| | LY | LREMIT | LM2 | LK |
|---|---|---|---|---|
| Mean | 6.902095 | 1.907042 | 4.396962 | 8.404772 |
| Median | 6.880311 | 1.900921 | 4.430818 | 8.352183 |
| Maximum | 7.362604 | 2.679892 | 4.578276 | 9.404349 |
| Minimum | 6.327744 | 1.049636 | 3.895297 | 7.204755 |
| Std. Dev. | 0.306775 | 0.464428 | 0.162102 | 0.610330 |
| Skewness | -0.071330 | -0.118086 | -1.601434 | -0.076618 |
| Kurtosis | 1.997455 | 1.913055 | 5.417570 | 2.144411 |
| Jarque-Bera | 1.623625 | 1.958941 | 25.49643 | 1.196229 |
| Probability | 0.444052 | 0.375510 | 0.000003 | 0.549847 |
| Sum | 262.2796 | 72.46759 | 167.0846 | 319.3813 |
| Sum Sq. Dev. | 3.482101 | 7.980644 | 0.972252 | 13.78262 |
| Observations | 38 | 38 | 38 | 38 |

**Table 2. VAR Lag Order Selection**

Endogenous variables: LY
Exogenous variables: C
Sample: 1977 2014
Included observations: 34

| Lag | LogL | LR | FPE | AIC | SC | HQ |
|---|---|---|---|---|---|---|
| 0 | -2.461540 | NA | 0.071773 | 0.203620 | 0.248513 | 0.218930 |
| 1 | 89.62030 | 173.3305* | 0.000338 | -5.154135 | -5.064349* | -5.123515 |
| 2 | 90.81040 | 2.170184 | 0.000335 | -5.165317 | -5.030639 | -5.119388 |
| 3 | 92.16573 | 2.391770 | 0.000328* | **-5.186220*** | -5.006648 | -5.124980* |
| 4 | 92.48623 | 0.546734 | 0.000342 | -5.146249 | -4.921784 | -5.069700 |

* indicates lag order selected by the criterion

Endogenous variables: LREMIT
Exogenous variables: C
Sample: 1977 2014
Included observations: 34

| Lag | LogL | LR | FPE | AIC | SC | HQ |
|---|---|---|---|---|---|---|
| 0 | -21.13818 | NA | 0.215323 | 1.302246 | 1.347139 | 1.317556 |
| 1 | 4.662275 | 48.56557* | 0.050069* | **-0.156604*** | -0.066818* | -0.125985* |
| 2 | 5.240597 | 1.054587 | 0.051344 | -0.131800 | 0.002879 | -0.085870 |
| 3 | 5.554771 | 0.554425 | 0.053491 | -0.091457 | 0.088115 | -0.030218 |
| 4 | 5.681870 | 0.216816 | 0.056369 | -0.040110 | 0.184355 | 0.036439 |

* indicates lag order selected by the criterion

Endogenous variables: LM2
Exogenous variables: C
Sample: 1977 2014
Included observations: 34

| Lag | LogL | LR | FPE | AIC | SC | HQ |
|---|---|---|---|---|---|---|
| 0 | 36.46237 | NA | 0.007271 | -2.086022 | -2.041129 | -2.070712 |
| 1 | 52.62535 | 30.42444 | 0.002980 | -2.977962 | -2.888176 | -2.947342 |
| 2 | 58.40434 | 10.53815 | 0.002251 | -3.259079 | -3.124400 | -3.213149 |
| 3 | 60.73460 | 4.112227* | 0.002083 | -3.337329 | -3.157758* | -3.276090 |
| 4 | 62.39477 | 2.832063 | 0.002005* | **-3.376163*** | -3.151698 | -3.299614* |

* indicates lag order selected by the criterion

Endogenous variables: LK
Exogenous variables: C
Sample: 1977 2014
Included observations: 34

| Lag | LogL | LR | FPE | AIC | SC | HQ |
|---|---|---|---|---|---|---|
| 0 | -25.21183 | NA | 0.273627 | 1.541872 | 1.586765 | 1.557182 |
| 1 | 79.88537 | 197.8300 | 0.000600 | -4.581493 | -4.491707 | -4.550873 |
| 2 | 104.8708 | 45.56166 | 0.000146 | -5.992400 | -5.857721 | -5.946471 |
| 3 | 107.3781 | 4.424628* | 0.000134 | -6.081064 | -5.901492* | -6.019825 |
| 4 | 108.9581 | 2.695258 | 0.000130* | **-6.115181*** | -5.890716 | -6.038632* |

* indicates lag order selected by the criterion

**Table 3. Augmented Dickey-Fuller test**

Null Hypothesis: LY has a unit root
Exogenous: Constant
Lag Length: 3 (Fixed)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -0.746845 | 0.8212 |
| Test critical values: | 1% level | -3.639407 | |
| | 5% level | -2.951125 | |
| | 10% level | -2.614300 | |

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(LY) has a unit root
Exogenous: Constant
Lag Length: 3 (Fixed)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -3.051015 | 0.0405 |
| Test critical values: | 1% level | -3.646342 | |
| | 5% level | -2.954021 | |
| | 10% level | -2.615817 | |

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: LREMIT has a unit root
Exogenous: Constant
Lag Length: 1 (Fixed)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -1.916898 | 0.3211 |
| Test critical values: | 1% level | -3.626784 | |
| | 5% level | -2.945842 | |
| | 10% level | -2.611531 | |

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(LREMIT) has a unit root
Exogenous: Constant
Lag Length: 1 (Fixed)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -4.686874 | 0.0006 |
| Test critical values: | 1% level | -3.632900 | |
| | 5% level | -2.948404 | |
| | 10% level | -2.612874 | |

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: LM2 has a unit root
Exogenous: Constant
Lag Length: 4 (Fixed)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -2.713125 | 0.0825 |
| Test critical values: | 1% level | -3.646342 | |
| | 5% level | -2.954021 | |
| | 10% level | -2.615817 | |

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(LM2) has a unit root
Exogenous: Constant
Lag Length: 4 (Fixed)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -3.425072 | 0.0174 |
| Test critical values: | 1% level | -3.653730 | |
| | 5% level | -2.957110 | |
| | 10% level | -2.617434 | |

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: LK has a unit root
Exogenous: Constant
Lag Length: 4 (Fixed)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | 0.140474 | 0.9641 |
| Test critical values: | 1% level | -3.646342 | |
| | 5% level | -2.954021 | |
| | 10% level | -2.615817 | |

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(LK) has a unit root
Exogenous: Constant
Lag Length: 4 (Fixed)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -4.090767 | 0.0033 |
| Test critical values: | 1% level | -3.653730 | |
| | 5% level | -2.957110 | |
| | 10% level | -2.617434 | |

*MacKinnon (1996) one-sided p-values.

**Table 4. Structural Break Test**

Null Hypothesis: D(LY) has a unit root
Trend Specification: Intercept only
Break Specification: Intercept only
Break Type: Innovational outlier

Break Date: 1991
Break Selection: Minimize Dickey-Fuller t-statistic
Lag Length: 3 (User-specified)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -4.524129 | 0.0404 |
| Test critical values: | 1% level | -4.949133 | |
| | 5% level | -4.443649 | |
| | 10% level | -4.193627 | |

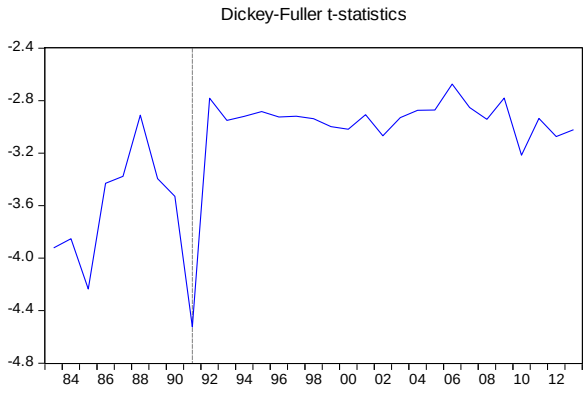



**Table 5. Lag Order Selection Criteria ( Banking Sector)**

VAR Lag Order Selection Criteria
Endogenous variables: LY LREMIT LM2 LK
Exogenous variables: C DULY
Sample: 1977 2014
Included observations: 34

| Lag | LogL | LR | FPE | AIC | SC | HQ |
|---|---|---|---|---|---|---|
| 0 | 107.2976 | NA | 3.42e-08 | -5.841033 | -5.481889 | -5.718555 |
| 1 | 253.2930 | 240.4631 | 1.66e-11 | -13.48782 | -12.41039 | -13.12039 |
| 2 | 293.2686 | 56.43618 | 4.28e-12 | -14.89815 | -13.10244* | -14.28576 |
| 3 | 311.4046 | 21.33640 | 4.32e-12 | -15.02380 | -12.50979 | -14.16645 |
| 4 | 344.3520 | 31.00938* | 2.09e-12* | -16.02071* | -12.78842 | -14.91840* |

**Table 6. ARDL (Banking Sector)**

Dependent Variable: LY
Method: ARDL
Sample (adjusted): 1979 2014
Included observations: 36 after adjustments
Maximum dependent lags: 2 (Automatic selection)
Model selection method: Schwarz criterion (SIC)
Dynamic regressors (2 lags, automatic): LREMIT LM2 LK
Fixed regressors: DULY C
Number of models evalulated: 54
Selected Model: ARDL(1, 0, 2, 1)

| Variable | Coefficient | Std. Error | t-Statistic | Prob.* |
|---|---|---|---|---|
| LY(-1) | 0.304111 | 0.144074 | 2.110791 | 0.0442 |
| LREMIT | -0.015214 | 0.005419 | -2.807532 | 0.0092 |
| LM2 | -0.062633 | 0.035599 | -1.759385 | 0.0898 |
| LM2(-1) | -0.067094 | 0.053117 | -1.263124 | 0.2173 |
| LM2(-2) | 0.159907 | 0.036636 | 4.364724 | 0.0002 |
| LK | 0.802191 | 0.089968 | 8.916407 | 0.0000 |
| LK(-1) | -0.467476 | 0.096476 | -4.845495 | 0.0000 |
| DULY | 0.004895 | 0.006271 | 0.780619 | 0.4418 |
| C | 1.865914 | 0.426590 | 4.374018 | 0.0002 |

| | | | |
|---|---|---|---|
| R-squared | 0.999038 | Mean dependent var | 6.933038 |
| Adjusted R-squared | 0.998752 | S.D. dependent var | 0.284182 |
| S.E. of regression | 0.010037 | Akaike info criterion | -6.152687 |
| Sum squared resid | 0.002720 | Schwarz criterion | -5.756807 |
| Log likelihood | 119.7484 | Hannan-Quinn criter. | -6.014515 |
| F-statistic | 3503.602 | Durbin-Watson stat | 2.216644 |
| Prob(F-statistic) | 0.000000 | | |

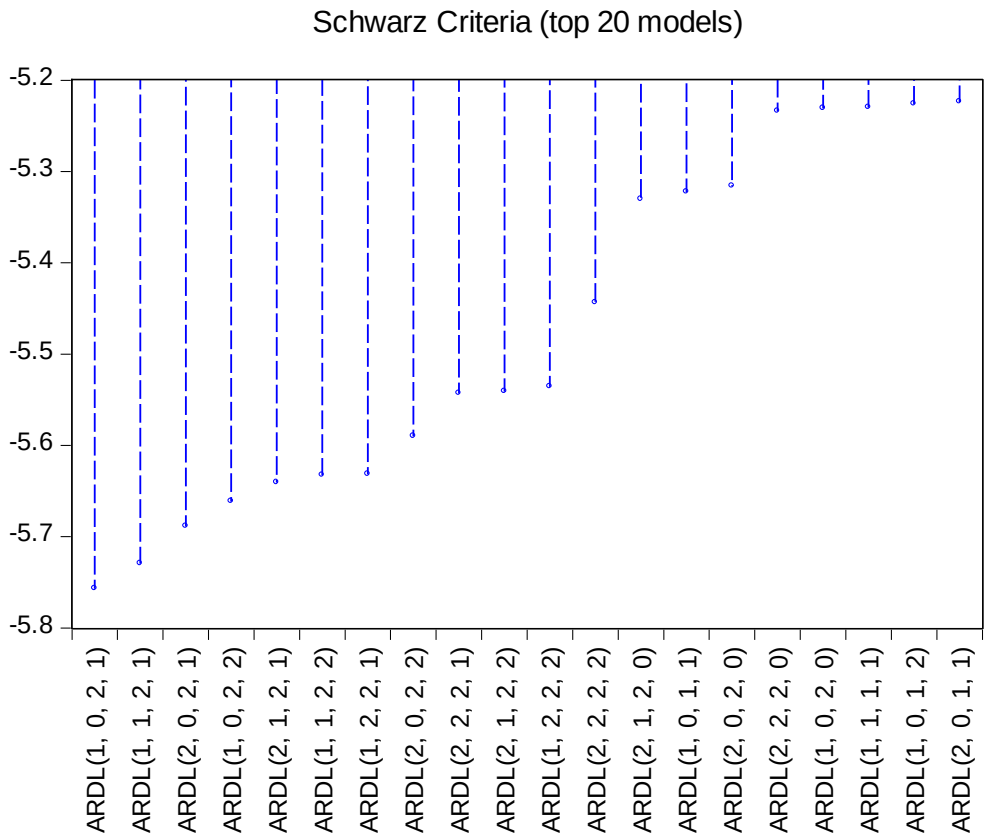



**Table 7. ARDL Bound Test ( Banking Sector)**

Sample: 1979 2014
Included observations: 36
Null Hypothesis: No long-run relationships exist

| Test Statistic | Value | k |
|---|---|---|
| F-statistic | 9.629645 | 3 |

Critical Value Bounds

| Significance | I0 Bound | I1 Bound |
|---|---|---|
| 10% | 2.72 | 3.77 |
| 5% | 3.23 | 4.35 |
| 2.5% | 3.69 | 4.89 |
| 1% | 4.29 | 5.61 |

**Table 8. ARDL Cointegrating Form ( Banking Sector)**

Dependent Variable: LY
Selected Model: ARDL(1, 0, 2, 1)
Sample: 1977 2014
Included Observations: 36

Cointegrating Form

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| D(LREMIT) | -0.015214 | 0.005419 | -2.807532 | 0.0092 |
| D(LM2) | -0.062633 | 0.035599 | -1.759385 | 0.0898 |
| D(LM2(-1)) | -0.159907 | 0.036636 | -4.364724 | 0.0002 |
| D(LK) | 0.802191 | 0.089968 | 8.916407 | 0.0000 |
| D(DULY) | 0.004895 | 0.006271 | 0.780619 | 0.4418 |
| CointEq(-1) | -0.695889 | 0.144074 | -4.830077 | 0.0000 |

Cointeq = LY - (-0.0219*LREMIT + 0.0434*LM2 + 0.4810*LK + 0.0070*DULY
+ 2.6813 )

**Table 9. ARDL Long Run Results ( Banking Sector)**

Long Run Coefficients

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| LREMIT | -0.021863 | 0.007204 | -3.034679 | 0.0053 |
| LM2 | 0.043369 | 0.028953 | 1.497902 | 0.1458 |
| LK | 0.480989 | 0.008078 | 59.545464 | 0.0000 |
| DULY | 0.007034 | 0.008764 | 0.802597 | 0.4292 |
| C | 2.681336 | 0.127056 | 21.103551 | 0.0000 |

**Table 10. Diagnostic Tests: Banking Sector (Banking Sector)**

Q-statistic probabilities adjusted for 1 dynamic regressor

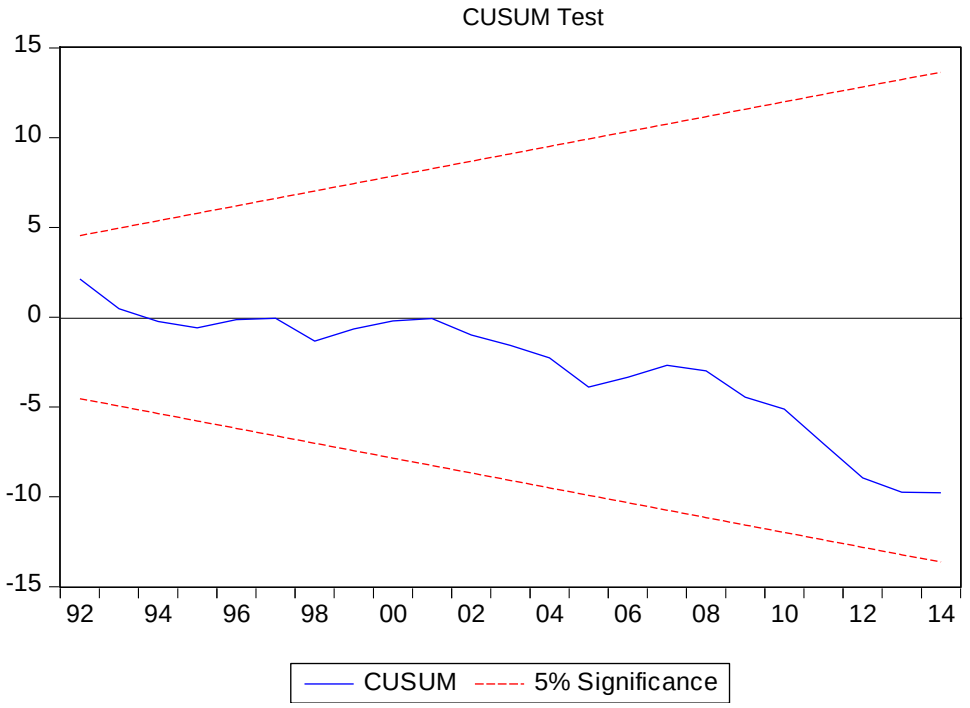
| | AC | PAC | Q-Stat | Prob* |
|---|---|---|---|---|
| 1 | -0.109 | -0.109 | 0.4624 | 0.497 |
| 2 | -0.029 | -0.041 | 0.4964 | 0.780 |
| 3 | -0.139 | -0.149 | 1.2970 | 0.730 |
| 4 | -0.130 | -0.170 | 2.0141 | 0.733 |
| 5 | -0.084 | -0.145 | 2.3257 | 0.802 |
| 6 | -0.220 | -0.319 | 4.5390 | 0.604 |
| 7 | 0.288 | 0.153 | 8.4633 | 0.294 |
| 8 | -0.082 | -0.146 | 8.7892 | 0.360 |
| 9 | -0.070 | -0.232 | 9.0345 | 0.434 |
| 10 | 0.185 | 0.142 | 10.841 | 0.370 |
| 11 | 0.011 | -0.007 | 10.848 | 0.456 |
| 12 | 0.004 | -0.076 | 10.849 | 0.542 |
| 13 | -0.180 | -0.083 | 12.774 | 0.465 |
| 14 | 0.106 | -0.009 | 13.478 | 0.489 |
| 15 | -0.063 | -0.062 | 13.736 | 0.546 |
| 16 | -0.074 | -0.016 | 14.112 | 0.590 |

Included Observations: 36
Breusch-Godfrey Serial Correlation LM Test:

| | | | |
|---|---|---|---|
| F-statistic | 0.778368 | Prob. F(2,25) | 0.4700 |
| Obs*R-squared | 2.110293 | Prob. Chi-Square(2) | 0.3481 |

Included Observations: 36
Heteroskedasticity Test: Breusch-Pagan-Godfrey

| | | | |
|---|---|---|---|
| F-statistic | 0.861635 | Prob. F(8,27) | 0.5595 |
| Obs*R-squared | 7.321582 | Prob. Chi-Square(8) | 0.5024 |
| Scaled explained SS | 3.332797 | Prob. Chi-Square(8) | 0.9118 |


CUSUM Test
15
10
5
0
-5
-10
-15
92
94
96
98
00
02
04
06
08
10
12
14
CUSUM
5% Significance

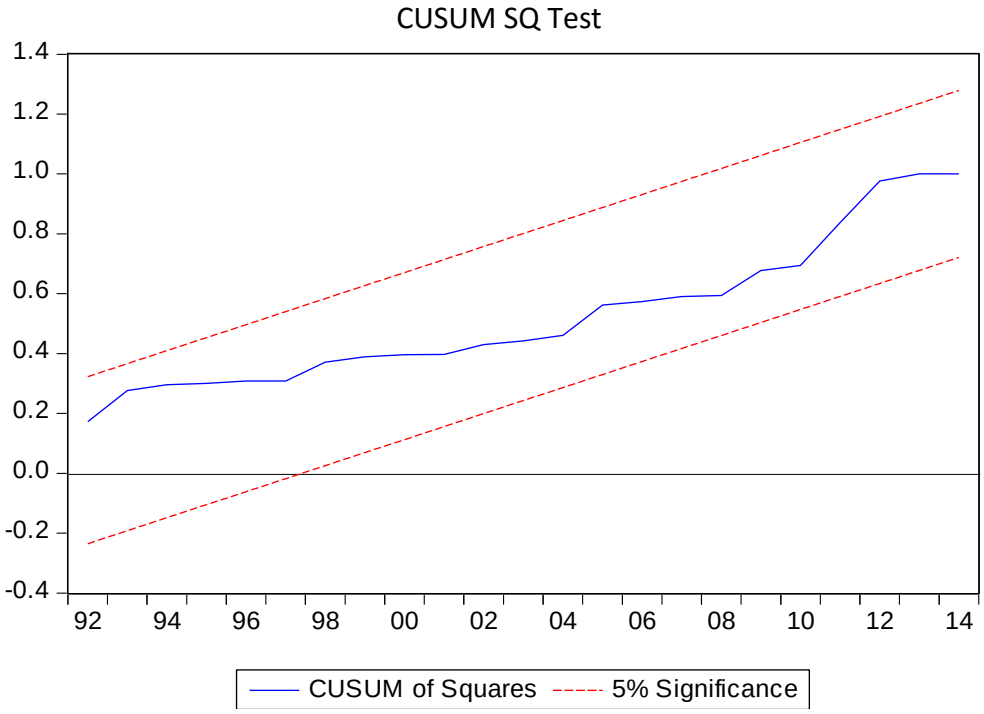

CUSUM SQ Test
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
-0.4
92
94
96
98
00
02
04
06
08
10
12
14
CUSUM of Squares
5% Significance

**Table 11. Descriptive Statistics ( Stock Exchange)**

Sample: 1977 2014

| | LY | LS | LREMIT | LK | DULY |
|---|---|---|---|---|---|
| Mean | 7.002026 | 0.829164 | 1.810356 | 8.602860 | 0.774194 |
| Median | 7.002430 | 1.663722 | 1.769422 | 8.564497 | 1.000000 |
| Maximum | 7.362604 | 3.688460 | 2.679892 | 9.404349 | 1.000000 |
| Minimum | 6.644051 | -2.942250 | 1.049636 | 7.921212 | 0.000000 |
| Std. Dev. | 0.240712 | 2.154835 | 0.448418 | 0.476468 | 0.425024 |
| Skewness | 0.152249 | -0.410633 | 0.154275 | 0.240740 | -1.311578 |
| Kurtosis | 1.669141 | 1.795916 | 2.111946 | 1.731819 | 2.720238 |
| Jarque-Bera | 2.407545 | 2.743883 | 1.141631 | 2.376805 | 8.988991 |
| Probability | 0.300060 | 0.253614 | 0.565064 | 0.304708 | 0.011170 |
| Sum | 217.0628 | 25.70409 | 56.12103 | 266.6887 | 24.00000 |
| Sum Sq. Dev. | 1.738268 | 139.2995 | 6.032368 | 6.810659 | 5.419355 |
| Observations | 31 | 31 | 31 | 31 | 31 |

**Table 12. Lag Order Selection Criteria**

VAR Lag Order Selection Criteria
Endogenous variables: LS
Exogenous variables: C
Sample: 1977 2014
Included observations: 26

| Lag | LogL | LR | FPE | AIC | SC | HQ |
|---|---|---|---|---|---|---|
| 0 | -49.70529 | NA | 2.893792 | 3.900407 | 3.948795 | 3.914341 |
| 1 | -13.35740 | 67.10380 | 0.190856 | 1.181339 | 1.278115 | 1.209207 |
| 2 | -8.250762 | 9.034821* | 0.139262 | 0.865443 | 1.010608* | 0.907246 |
| 3 | -6.718580 | 2.592924 | 0.133867* | **0.824506*** | 1.018059 | 0.880243* |
| 4 | -6.432275 | 0.462493 | 0.141760 | 0.879406 | 1.121347 | 0.949076 |

* indicates lag order selected by the criterion

**Table 13. Augmented Dickey-Fuller test**

Null Hypothesis: LS has a unit root
Exogenous: Constant
Lag Length: 3 (Fixed)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -1.758751 | 0.3918 |
| Test critical values: | 1% level | -3.699871 | |
| | 5% level | -2.976263 | |
| | 10% level | -2.627420 | |

*MacKinnon (1996) one-sided p-values.
Null Hypothesis: D(LS) has a unit root
Exogenous: Constant
Lag Length: 3 (Fixed)

| | | t-Statistic | Prob.* |
|---|---|---|---|
| Augmented Dickey-Fuller test statistic | | -3.340624 | 0.0232 |
| Test critical values: | 1% level | -3.711457 | |
| | 5% level | -2.981038 | |
| | 10% level | -2.629906 | |

*MacKinnon (1996) one-sided p-values.

**Table 14. ARDL ( Stock Exchange)**

Dependent Variable: LY
Method: ARDL
Sample (adjusted): 1986 2014
Included observations: 29 after adjustments
Maximum dependent lags: 2 (Automatic selection)
Model selection method: Schwarz criterion (SIC)
Dynamic regressors (2 lags, automatic): LS LREMIT LK
Fixed regressors: DULY C
Number of models evalulated: 54
Selected Model: ARDL(1, 2, 2, 1)

| Variable | Coefficient | Std. Error | t-Statistic | Prob.* |
|---|---|---|---|---|
| LY(-1) | 0.325884 | 0.142164 | 2.292314 | 0.0342 |
| LS | 0.021078 | 0.005267 | 4.001739 | 0.0008 |
| LS(-1) | -0.005184 | 0.006883 | -0.753212 | 0.4611 |
| LS(-2) | 0.021279 | 0.005608 | 3.794693 | 0.0013 |
| LREMIT | 0.021055 | 0.006512 | 3.233231 | 0.0046 |

| | | | | |
|---|---|---|---|---|
| LREMIT(-1) | -0.006177 | 0.007907 | -0.781281 | 0.4448 |
| LREMIT(-2) | 0.015411 | 0.005698 | 2.704478 | 0.0145 |
| LK | -0.070567 | 0.203269 | -0.347162 | 0.7325 |
| LK(-1) | 0.290704 | 0.188537 | 1.541890 | 0.1405 |
| DULY | -0.029967 | 0.005562 | -5.387879 | 0.0000 |
| C | 2.791416 | 0.450024 | 6.202818 | 0.0000 |

| | | | |
|---|---|---|---|
| R-squared | 0.999568 | Mean dependent var | 7.025310 |
| Adjusted R-squared | 0.999327 | S.D. dependent var | 0.230971 |
| S.E. of regression | 0.005991 | Akaike info criterion | -7.115497 |
| Sum squared resid | 0.000646 | Schwarz criterion | -6.596867 |
| Log likelihood | 114.1747 | Hannan-Quinn criter. | -6.953068 |
| F-statistic | 4160.260 | Durbin-Watson stat | 2.452519 |
| Prob(F-statistic) | 0.000000 | | |

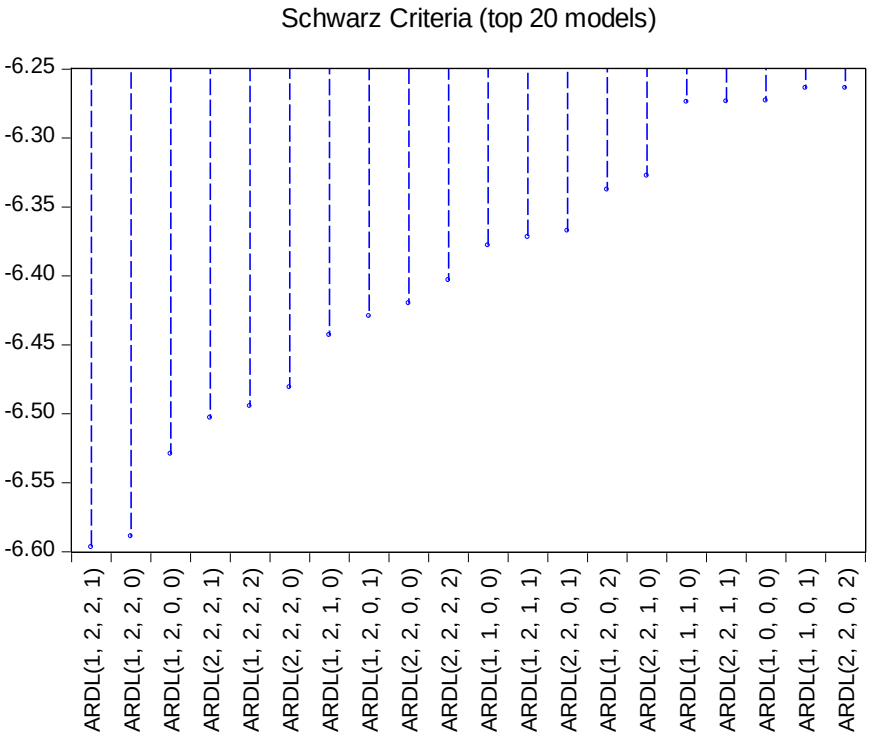



**Table 15. ARDL Bounds Test (Stock Exchange)**

Sample: 1986 2014
Included observations: 29
Null Hypothesis: No long-run relationships exist

| Test Statistic | Value | k |
|---|---|---|

| | | |
|---|---|---|
| F-statistic | 14.36895 | 3 |

Critical Value Bounds

| Significance | I0 Bound | I1 Bound |
|---|---|---|
| 10% | 2.72 | 3.77 |
| 5% | 3.23 | 4.35 |
| 2.5% | 3.69 | 4.89 |
| 1% | 4.29 | 5.61 |

**Table 16. ARDL Cointegrating Form (Stock Exchange)**

Dependent Variable: LY
Selected Model: ARDL(1, 2, 2, 1)
Sample: 1977 2014
Included observations: 29

Cointegrating Form

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| D(LS) | 0.021078 | 0.005267 | 4.001739 | 0.0008 |
| D(LS(-1)) | -0.021279 | 0.005608 | -3.794693 | 0.0013 |
| D(LREMIT) | 0.021055 | 0.006512 | 3.233231 | 0.0046 |
| D(LREMIT(-1)) | -0.015411 | 0.005698 | -2.704478 | 0.0145 |
| D(LK) | -0.070567 | 0.203269 | -0.347162 | 0.7325 |
| D(DULY) | -0.029967 | 0.005562 | -5.387879 | 0.0000 |
| CointEq(-1) | -0.674116 | 0.142164 | -4.741828 | 0.0002 |

**Table 17. ARDL Long Run Results (Stock Exchange)**

Long Run Coefficients

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| LS | 0.055143 | 0.012453 | 4.427929 | 0.0003 |
| LREMIT | 0.044930 | 0.012779 | 3.516030 | 0.0025 |
| LK | 0.326556 | 0.036226 | 9.014316 | 0.0000 |
| DULY | -0.044454 | 0.012674 | -3.507377 | 0.0025 |
| C | 4.140853 | 0.304924 | 13.579954 | 0.0000 |

**Table 18. Diagnostic Test ( Stock Exchange Sector )**

Sample: 1977 2014
Included observations: 29
Q-statistic probabilities adjusted for 1 dynamic regressor

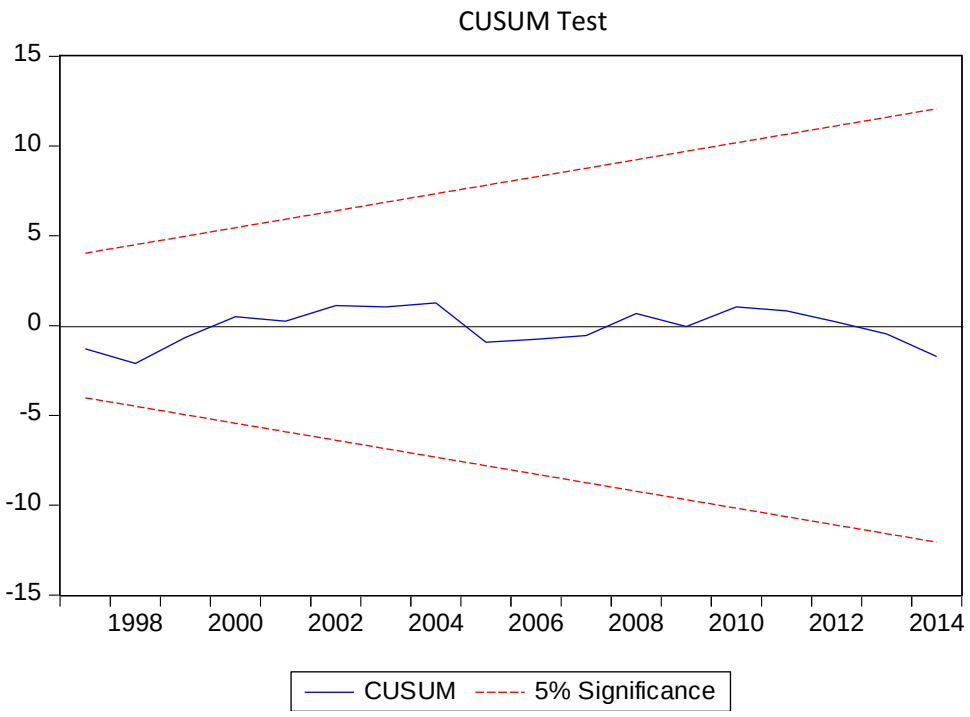
| | AC | PAC | Q-Stat | Prob* |
|---|---|---|---|---|
| 1 | -0.250 | -0.250 | 2.0024 | 0.157 |
| 2 | 0.051 | -0.012 | 2.0901 | 0.352 |
| 3 | -0.333 | -0.344 | 5.9180 | 0.116 |
| 4 | 0.060 | -0.129 | 6.0468 | 0.196 |
| 5 | -0.151 | -0.225 | 6.8990 | 0.228 |
| 6 | 0.121 | -0.126 | 7.4705 | 0.280 |
| 7 | 0.201 | 0.193 | 9.1158 | 0.244 |
| 8 | -0.149 | -0.189 | 10.061 | 0.261 |
| 9 | 0.057 | 0.020 | 10.207 | 0.334 |
| 10 | -0.332 | -0.305 | 15.416 | 0.118 |
| 11 | 0.104 | -0.199 | 15.954 | 0.143 |
| 12 | -0.020 | -0.028 | 15.975 | 0.192 |

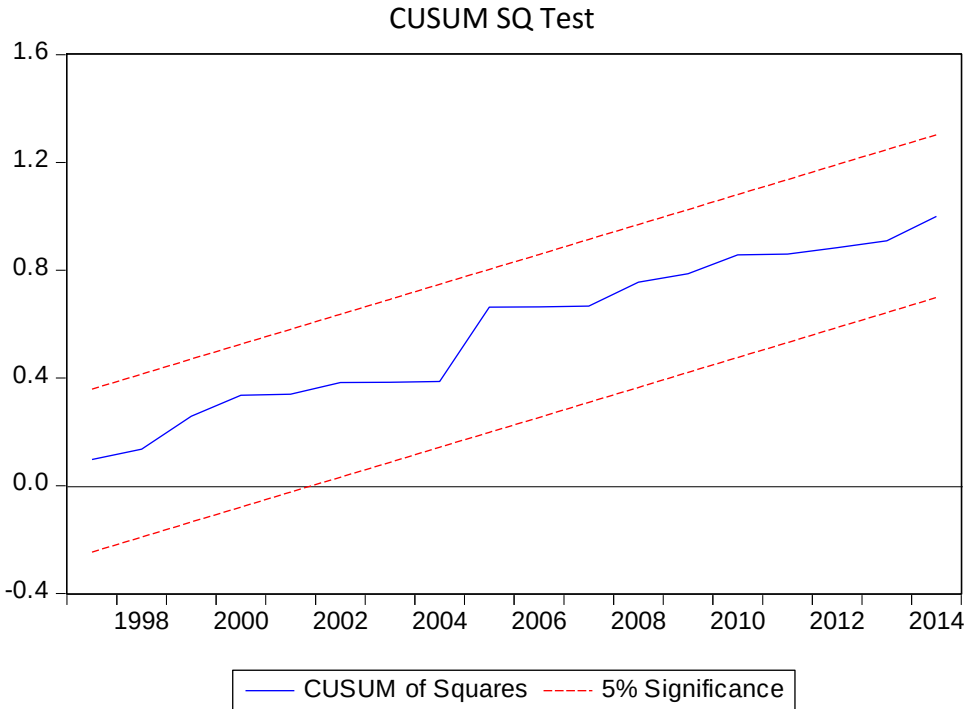
Included observations: 29
Breusch-Godfrey Serial Correlation LM Test:

| | | | |
|---|---|---|---|
| F-statistic | 1.495129 | Prob. F(2,16) | 0.2539 |
| Obs*R-squared | 4.566419 | Prob. Chi-Square(2) | 0.1020 |

Included observations: 29
Heteroskedasticity Test: Breusch-Pagan-Godfrey

| | | | |
|---|---|---|---|
| F-statistic | 1.404326 | Prob. F(10,18) | 0.2547 |
| Obs*R-squared | 12.70952 | Prob. Chi-Square(10) | 0.2404 |
| Scaled explained SS | 4.771603 | Prob. Chi-Square(10) | 0.9059 |


CUSUM Test
15
10
5
0
-5
-10
-15
1998
2000
2002
2004
2006
2008
2010
2012
2014
CUSUM
5% Significance


CUSUM SQ Test
1.6
1.2
0.8
0.4
0.0
-0.4
1998
2000
2002
2004
2006
2008
2010
2012
2014
CUSUM of Squares
5% Significance