NEAR EAST UNIVERSITY
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Financial Development and Economic Growth nexus: A comparative study between an oil exporting economy and an oil importing economy - cases of Kuwait and Hong Kong

HAMZA ALHASHMI IBRAHIM ALMASSRI

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To my family

ACKNOWLEDGEMENTS

ABSTRACT

Financial Development and Economic Growth nexus: A comparative study between an oil exporting economy and an oil importing economy - cases of Kuwait and Hong Kong

In three empirical chapters, the aims of the current thesis are to examine and compare the overall relation between financial development and growth in two Asian countries, one of which is an oil-exporting country, namely Kuwait, and the other is an oil importer, namely Hong Kong.

The first empirical chapter examines the short-and long- term influences of financial development on economic growth by applying the newly developed bootstrapping ARDL test technique. The results obtained confirm the existence of long and short-term relationships between financial development and economic growth in both countries. Therefore, natural resource prevalence does not influence the characteristics of the association between financial development and growth.

The second empirical chapter investigates the association and direction of the causality between financial system development and economic growth by utilizing a variety of Granger causality approaches to investigate both time domain and frequency domain causality. A causal relationship has not been detected between the series in the case of Kuwait by the Toda Yamamoto approach, while in the case of Hong Kong, there is a uni-directional causal relationship extending from financial development to economic growth. In addition, a one-way causality flowing from financial development to economic growth has been observed in each country when using the Fourier based Toda Yamamoto framework. When the frequency domain spectral causality test is employed, a bidirectional causal linkage is observed in both countries. Accordingly, the causality between financial development and economic growth had a similar direction in the oil-exporting and importing economies represented by Kuwait and Hong Kong, respectively.

The third empirical chapter re-investigates the association between financial development and growth of the economy utilizing a non-parametric method, specifically the quantile-on-quantile regression approach.

Quantile-on-quantile regression results provide an indication of a bi-directional causality between financial development and growth in both countries, thus confirming that the causal relationship between the two variables is similar in oil-exporting and importing economies, represented by Kuwait and Hong Kong in this case.

ÖZ

Finansal Kalkınma ve Ekonomik Büyüme bağı: Petrol ihraç eden bir ekonomi ile petrol ithal eden bir ekonomi arasında karşılaştırmalı bir çalışma - Kuveyt ve Hong Kong örnekleri

Calışmada, Asya kıtasında yer alan petrol ihracatcısı (Kuwait) ve petrol ithalat eden (Hong Kong) iki ülkenin finansal kalkınma ve ekonomik büyüme bağı gelişimi incelenmiştir. Çalışma üç ayrı bölümden oluşmaktadır. Birinci bölümde, önyükleme ARDL test tekniğini uygulayarak finansal gelişmenin ekonomik büyüme üzerindeki kısa ve uzun vadeli etkileri incelemektedir. Elde edilen sonuçlar, her iki ülkede de finansal gelişme ve ekonomik büyüme arasında uzun ve kısa vadeli etkileşimin varlığını göstermektedir. Dolayısı ile, doğal kaynaklara sahip olma durumunun finansal gelişme ile büyüme arasındaki ilişkinin özelliklerini etkilemediği gözlemlenmketedir.

İkinci bölümde, zaman alanı ve frekans alanı nedenselliğini araştırmak için çeşitli Granger nedensellik yaklaşımları kullanılmış, finansal sistem gelişimi ve ekonomik büyüme arasındaki nedenselliğin ilişkisi ve yönü araştırılmıştır. Kuveyt örneğinde Toda Yamamoto yaklaşımı ile seri arasında nedensel bir ilişki tespit edilmezken, Hong Kong örneğinde finansal gelişmeden ekonomik büyümeye uzanan tek yönlü bir nedensel ilişki olduğu saptanmıştır. Ayrıca, Fourier tabanlı Toda Yamamoto çerçevesi kullanıldığında her iki ülkede de finansal gelişmeden ekonomik büyümeye giden tek yönlü bir nedensellik gözlemlenmiştir. Frekans etki alanı spektral nedensellik testi

kullanıldığında, her iki ülkede de çift yönlü bir nedensel bağlantı olduğu saptanmıltır. Buna bağlı olarak, finansal gelişme ve ekonomik büyüme arasındaki nedensellik, sırasıyla Kuveyt ve Hong Kong'un temsil ettiği petrol ihraç eden ve ithal eden ekonomilerde benzer bir yöne sahip olduğu anlaşılmıştır.

Üçüncü bölümde ise, parametrik olmayan bir yöntem, nicel-nicel regresyon yaklaşımı kullanarak ekonominin finansal gelişimi ve büyümesi arasındaki ilişkiyi yeniden araştırmaktadır. Nicelik-niceliksel regresyon sonuçları, her iki ülkede de finansal gelişme ve büyüme arasında çift yönlü bir nedensellik olduğunu göstermiş ve bu nedenle, iki değişken arasındaki nedensel ilişkinin petrol ihraç eden ve ithal eden ekonomilerde benzer olduğunu teyit etmiştir.

Anahtar Kelimeler: Finansal Kalkınma, Ekonomik Büyüme, Kuveyt, Hong Kong.

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CHAPTER 1

INTRODUCTION

1.1. Background and Motivation

The long-term pursuit of economic growth and development has stimulated much research and examination of many factors that may strengthen economies and push them towards inclusive economic development and better living standards.

According to the first batch of neoclassical growth models, economic growth results from technical modifications originating from external sources, and the accumulation of capital and population growth [1], nevertheless, neoteric literature emphasizes the main turn of financial sector in attaining economic growth especially between developing countries (Baliamoune-Lutz, 2008; Bist, 2018). The emergence of the theory of endogenous growth[2] created increased attention in regard to the contribution of financial development in stimulating growth of economy. According to this theory, an effective financial system can promote growth by different channels because it helps to conquer market frictions resulting from various causes including the cost of transactions and the asymmetry of information.

The origins of the relationship between finance and growth are related to pioneering work of Schumpeter (1911). Schumpeter noticed through his study that the major factor of economic growth is the banking system, which is due to the turn of banking system in allocating savings, financing productive investments and thus promoting innovation. However, Robinson

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[1]. See Solow (1956) and Swan (1956)
[2]. See Romer (1986) and Lucas (1988)

(1953) argued that, with the growth of the real economy, an increased amount of financial institutions and services are created in order to satisfy the growing need for economic services provided by the finance industry.

According to Robinson, in line with the growth of the real economy, a greater number of financial services and organizations will become available in order to meet the calls of financial services, meaning that growth of the economy is triggered by developments in financial industry.

In the 20th century, economists have endeavored to define whether a causal linkage occurs between financial development and growth of the economy. Patrick (1966) studied the relatively specialized question in relationship to the causality between financial development and growth of the economy. Patrick suggested two different potential dimensions that could explain the relation between financial development and economic growth, referred to as the demand following and supply leading hypotheses. The demand-following hypothesis asserts that as a consequence of the growing need for financial services, economic growth supports the development of the financial sector, whereas, according to the supply-leading hypothesis, financial development imparts a positive influence on the expansion of the economy, meaning that the establishment of financial organizations and markets increases the provision of financial services, which subsequently stimulates the growth of the economy.

Patrick claimed that the development of the financial sector prompts actual investment innovation prior to the commencement of economic growth and as economic growth happens, the supply-leading hypothesis gradually has less significance, as it is substituted by the demand-following reaction.

Previous research, like the studies of Goldsmith (1969) as well as McKinnon (1973) and Shaw (1973) have provided strong evidence demonstrating the positive effects that financial development has on economic growth. In accordance with McKinnon and Shaw, adopting financial liberalization policies will lead to higher interest rates, prompting people to save more money. While such policies foster and stimulate the process of financial stimulation, they also facilitate the provision of loanable finance to private

businesses. As a consequence, the number of investments increases, along with the effective allocation of capital resources, and thus economic growth.

Moreover, recent studies have found similar results, for example, Greenwood and Smith (1997), Levine (1999), and Halicioglu (2007). For instance, Levine considers that financial development greatly develop advanced information production on potential investments, monitors investments, implements corporate governance, trade, diversification, management of risk, the mobilization and management of savings, and also facilitates the trade of services and goods. Hence, the influence of enhanced financial development on growth is founded on its effectiveness at mobilizing productive savings and the efficient allocation of resources. Additionally, productive financial services are improved by the stimulation of innovative technologies (King and Levine, 1993). Moreover, the impact of the activities is dependent on the quality rather than the quantity of the finance, where it should be considered that the competence of the financial systems could not be taken for granted.

By contrast, other studies indicate that economic growth stimulates financial development, which confirms the pioneering hypothesis by Ang and McKibbin (2007); Kar and Pentecost (2000). They point out that the boom in economic activities will raise the necessity for financial services and thus improve the system of finance.

However, some recent experimental studies have found contradictory results in regard to the finance-growth nexus. According to their findings, the relationship either had weakened or had disappeared. In this context, Rousseau and Wachtel (2011) concluded that the linkage between finance-growth has weakened over time and even became negative at times of economic crisis. Also one of the explanations for these changes in the relationship was Beck (2011), Nili & Rastad (2007) between several scholars who refer to the weak or negative effect of financial development on economic growth to the possibility of the curse of natural resources. For instance, Nili & Rastad (2007) argued that financial development has less effects on economic growth in nations who export oil in comparison to those who do not. They proposed that such a decline could not only be explained

by the strong dependence on oil, but also to the lack of efficiency of the financial organizations in oil-exporting nations.

Kaminsky and Reinhart (1999) considered that financial development is detrimental to growth as it destabilizes the financial markets. Moreover, Loayza and Ranciere (2005) examined the difference between the long and short-term effects in the finance-growth relationship. They have found a significant relationship in the short and long - term, which is negative in the short run and positive in the long term. As for Deidda and Fattouh (2002), they indicated that a non-linear relation exists, and they supposed that the influence of financial depth on economic growth varies between nations depending on their levels of income.

Therefore, based on the previous discussion, given the different results found in regard to the nexus between financial development and growth of the economy, it is critical that the relation is explored further.

In view of this ongoing debate, the main aims of the present thesis are to explore and compare the various aspects in the nexus between financial development and economic growth in two Asian nations, one is a developing oil-exporting country, which is Kuwait, and the other is an advanced oil-importing country, which is Hong Kong[3].

Similar to many developing nations, Kuwait has conducted many economic and financial reforms Kuwait's economic and financial reforms aim to achieve three major transformations related to the nature of the economy, its productive base, and the nature of its workforce.

These transformations are aimed at moving from a public sector-run economy to a competitive private-sector-led economy, diversifying the oil-based production base into a broad production base where financial, trade and logistics activities contribute to a high proportion of GDP and transforming the labour force structure from dependence on foreign employment to local employment.

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[3]. According to the World Economic Outlook (October 2019) for IMF, the annual growth rate in real GDP for the year 2019 in Kuwait was 0.6 and in Hong Kong, it was 0.3. Hence, Kuwait is ranked 36th in Asia in terms of growth rates, while Hong Kong is 38th.

On the other hand, Hong Kong is one of the most vital international financial centers in the world, as it has one of the most well developed financial systems, not only in Asia, but also globally. The financial sector in Hong Kong went through many developments and reforms over time until it achieved its global position. In addition, it has gone through many crises, perhaps the last and most powerful of which is the global financial crisis. Despite the impact of this crisis on many economies, Hong Kong's economy is considered one of the first Asian economies to recover from this crisis.

The motivation behind this study is the lack of theoretical and experimental studies that examine and compare the various in-depth and comprehensive aspects of the mutual interconnection between financial sector development and growth in oil-exporting and oil-importing countries.

Therefore, this study contributes significantly to bridging this gap in the literature, as it is the first study of its kind that compares the impact of financial development on economic growth in oil-exporting and importing countries, in addition to its application of modern econometric methods, which used for the first time in examining this relationship.

1.2. Objective

The major objective of the thesis is to explore, by using advanced econometric techniques, the interconnection between finance and growth in oil exporting and importing countries, specifically in Kuwait and Hong Kong. Specifically, the study explores the causality linkages and cointegration between financial development and growth in the real sector.

To achieve the aforementioned goals, different theoretical perspectives have been considered in regard to the linkage between finance and growth. Various schools of thought have distinct perspectives in regard to the finance/growth nexus.

More accurately, in order to process the primary study problem, the thesis examines three distinct but interconnected factors with respect to the linkage between financial development and growth. The researcher aims to achieve the study objectives by specifically focusing on Kuwait and Hong Kong:

1. To inspect the relation and the direction of causation between financial development and economic growth.

2. To investigate the short and long-term association between financial development and economic growth.

3. To comparison of the relationship between financial development and growth of the economy in the oil-exporting and importing economies.

4. To capture the complexities inherent in the association between financial development and growth by using more than one of the advanced econometric methods, to reach a comprehensive view of this relationship.

The aforementioned aims are then divided into various verifiable hypotheses, which will be evaluated experimentally in subsequent chapters. To summarize, within this thesis, answers are sought to the following fundamental research questions:

1. What effect does financial development have on economic growth in the long and short term?

2. Is there a causal relationship between financial development and economic growth? Moreover, if such a relationship exists, in which direction does it flow?

3. Is there a difference in the trend of the interconnection between financial development and economic growth in the exporting and oil-importing economies?

1.3. Methodology

The analytical and methodological approach that will be utilized for the purposes of this study is derived from experimental studies that focuses on issues of financial development and growth, to examine the research objectives. This study reviews the comprehensive experimental and theoretical literature that focus on and supports the contribution of financial development in the process of economic growth. In addition to giving, a brief review of the economic and financial sector in Kuwait and Hong Kong.

The research is partly based on quantitative analysis, where various descriptive statistics are used to generate greater clarity for the analysis, and the econometric techniques intensively used in the second part of the research, by using secondary data published by the World Development Indicators (WDI) dataset, the DataStream database, and the International Monetary Fund data (IMF). Various econometric models are formulated, which represent the foundations of the process of testing the hypotheses. Each of these techniques is explained in greater detail in the respective chapters along with the reasons for using them and their limitations.

In order to verify the different hypotheses and analyse the various empirical aspects of financial development/economic growth nexus, this study utilizes different econometric techniques in each of the three essays that constituent of the thesis as following:

1. The bootstrapping ARDL bounds testing approach introduced by McNown, et al. (2018).

2. Time and frequency domain causality tests

We will apply two types of time domain causality tests represented in the Toda-Yamamoto causality test, and the Fourier Toda Yamamoto causality test, and then we will utilize the spectral causality test in the frequency domain by Breitung and Candelon (2006) spectral causality test.

3. Nonparametric methods

We will apply nonparametric method represented in the quantile-on-quantile regression approach suggested by Sim and Zhou (2015).

1.4. Research Design

This thesis comprised of three essays that study the relationship between financial development-economic growth in Kuwait and Hong Kong from its various aspects, each of which is one of the thesis empirical chapters, in addition to the introduction and other chapters to form seven chapters together.

The second chapter reviews some theoretical works involved with the relationship that links financial development to economic growth. Specifically, this chapter focuses on reviewing distinct ideas about the causality between financial development and growth on the basis of the perspectives of different schools of thought.

The third chapter reviews the economic and the financial sector in Kuwait and Hong Kong.

In the fourth chapter, we will investigate the presence of cointegration effects in the short- and long- term finance/growth nexus by utilize the bootstrapping ARDL bounds test, developed by McNown et al. (2018).

The fifth chapter examines the causal linkage between financial development and growth in Kuwait and Hong Kong using two-time domain causality tests, and then we will use the frequency domain causality test.

The sixth chapter will explore different effects more in-depth manner between financial development and growth using nonparametric methods.

Finally, in the seventh chapter, we summarize the findings of this thesis. It also provides some suggestions and recommendations.

CHAPTER 2

THEORETICAL FRAMEWORK AND LITERATURE REVIEW

2.1. Introduction

In the recent history of economics, the interaction between financial development and economic growth has enticed a lot of interest between policymakers, because the most basic challenge for all economists is to comprehend the nature and causes of economic progress. In terms of the nexus between the development of the financial system and the mechanism by which an economy develops, there is a wide range of conflicting arguments. These conflicting views relate primarily to the importance of financial system, in specific the causality that exists between economic growth and financial development.

In accordance with The Financial Development Report (2009) financial development can be characterized as factors, policies,, and institutional arrangements key to efficacious financial intermediation and efficient markets, further to wide-ranging and deep access to capital and financial services.

The significance of financial development for economic growth has been argued in several studies. Levine (1997) and Hicks (1969), claimed that by promoting the mobilization of capital for enormous works, financial

development served an essential role in the development of industrialization in Britain.

Historically, Schumpeter (1911) pioneering research prepared the path for the financial sector's position in countries' economic performance. He found that financial intermediation is crucial to production growth as it has the ability to direct savings to investment opportunities with the maximum potential.

In addition, Schumpeter claimed that banks are the main influence in a capitalist system that supplies companies with funds of credit to flourish and to consumers to buy services and goods. He argued that businesses' availability of bank credit allowed them to participate in successful business practices like buying materials to manufacture real products and services. For customers, he claimed that their buying power to purchase goods and services is maintained and improved by having reasonably simple access to funding sources. Schumpeter was also of the opinion that the shortage of credit seriously suppresses the growth of financial sector and economic advancement.

A substitutional assumption proposed by Robinson (1952) argues that financial sector development may not produce growth in the economy but adjusts gradually to greater competition for financial services as the economy expands. As the growth of the economy has increased, agents require further of financial services, and further of financial products arise in response to this increased demand, contributing to growth in the financial system. Robinson's assumption is supported by other economists such as; Ireland (1994); Jung (1986) and Ghirmay (2004) and others.

Related to the perspective of Schumpeter, Goldsmith (1969) and Hicks (1969) argue that financial development is essential to promoting economic growth (Levine, 2003a). Their view indicates that policies aimed at expanding financial systems should be developed to encourage growth.

McKinnon (1973) and Shaw (1973) through 'financial liberalisation thesis' offered the greatest support for Schumpeterian view. They argued that capital misallocation, interest ceilings, low investment and ineffectiveness

were generally correlated with the financial repression policy that was widespread in less developed nations in the 1960s and 1970s. The credible option, therefore, is financial liberalization that promotes saving and investment, potentially leading to strong economic growth. Moreover, Shaw (1973) proposed the "debt intermediation" theory, which asserts that by lending and borrowing, financial intermediaries encourage investment and increase production growth.

Consistent with the Schumpeterian view, a framework was designed by Boyd and Prescott (1986) that stressed the vital function of banks to decrease information frictions and promote better resource allocation. Another conceptual approach that connects financial intermediaries and economic growth was also introduced by Greenwood and Jovanovic (1990). The capital in their model is supposed to be infrequent. They showed that financial intermediaries speed up growth by providing efficient capital allocation and improving the information on the firms. In the same context Pagano (1993), developed an endogenous growth model, It has been shown that the rate of economic growth positively relies mostly on the proportion of savings redirected to investment. He also proposed that proper vetting of fund applicants and beneficiary tracking contributes to more effective distribution of capital, and that financial services should promote the utilization and enhancement of otherwise excess capacity.

Likewise, King and Levine (1993) also presented experiential proofs on the established a significant association between financial development and higher growth rates, economic efficiency, and physical capital accumulation. In addition, their analysis shows the financial sector's essential role in driving economic growth by its effects on innovation. In like manner, in their study on the function of the financial sector in economic performance, Levine and Zervos (1998) argue that banks and stock markets stimulate the growth of the economy.

On the other hand, a completely different opinion emerges. Some contend that finance is completely insignificant in the growth process, while others point to the destabilizing influences of equity markets, the banks' negative

impact, and the financial crises. Moreover, many influential economists are dissent unwary financial liberalization.

Keynes (1936) argues that stock markets have destabilising influences on the economy because of its uneasy and speculative nature (Ang, 2008). While Morck et al (2000) show that, the development of the banking sector could have adverse effects on growth, in general. Minsky (1991) proposed his "hypothesis of financial instability" that the swift development of the economy induces more perilous demeanours and takes the economy to an expansion phase full of activities of speculative, then a period of stagnation ensues when bankruptcies begin.

Lucas (1988) also disputes that the role of financial factors in the process of growth of the economy is exaggerated by economists. Any plan designed to promote the development of the financial system would therefore be a waste of resources, since it distracts focus from more critical factors influencing economic growth, like established institutions, human capital, and the quality of economic policy.

After this theoretical discussion. Section 2.2 gives a brief overview on the economic growth nature and theories. Section 2.3 discusses the channels out of which financial development can stimulate growth. Section 2.4 discusses the Measurement of Financial Development. Section 2.5 delves into the causal link between financial development and growth. Section 2.6 explains the determinants of financial development. The Financial System and Structure are reviewed in Section 2.7. Finally, Section 2.8 displays the empirical literature.

2.2. Economic growth nature and theories: A brief overview

For economists, analysts and policymakers, economic growth is becoming a major concern. An economy's economic growth is not only considered to increase productive potential, but also to boost the people life type of that nation. Thus, the major subject of economists in the 18th and 19th centuries was the economics of development. The key aim of their study was to define the growth rates of various economies (Barro and Sala, 2003).

The perception of economic growth nowadays is very various from the past. There is an immediate necessity for developing nations for moving at a fast pace to achieve economic development. The perception of development, disparities and differences in people's living standards has increased. The development of inequality cannot be centered on a single nation, but it does exist, so the need for sustainable growth is essential.

Many preliminary concepts address the function of different variables in deciding the growth of the economy and what can eventually enhance that growth, but there is a shortage of linking theory.

2.2.1. Harrod-Domar Growth Model

Since the time of Adam Smith, several studies, perhaps most important of them the studies of Harrod (1939) and Domar (1947) have attempted to clarify the sources of economic growth, contributing to a deeper comprehension of this phenomenon. The idea of accumulating physical capital through investment and savings that reflected in high rates of output is at the core of this model.

Harrod-Domar's framework for balanced economic growth includes that economy operates in a mode of full employment of the labour and capital. Therefore Increasing labour unemployment contradicts the expectation of entire employment growth and is as well followed by poor demand and price deflation. Further, capital stock under-use pushes down profits, which is an incentive for investment, which reduces investment and demand for production.

The need for the full use of capital stocks as the economy expands points to the underlying dynamic mechanism outlined in the early 1940s by Harrod and Domar. The rate of investment is related to the amount of output through the multiplier, while growth rates of produces by changes in the stock of capital are also correlated with it. Consequently, the Harrod-Domar model indicates that the rate of growth of the economy relies, as in the capital-output ratio, on savings levels and efficiency of investment.

Furthermore, the presence of financial intermediaries plays a key role in meeting conditions for growth in the Harod-Dormar model. They promote the redeployment of economic savings and steer the capitals into investment projects with high returns.

Consequently, a well-functioning financial sector can stimulate capital flows, stimulating better resource allocation and positively affecting income and production, and hence economic growth.

2.2.2. Neoclassical Growth Models: Exogenous growth model

Solow (1956) and Swan (1956) developed the neoclassical growth model. The model is an expansion of the Harrod-Domer model with the adding of additional factors such as technical progress. Regarding the neoclassical model, capital stocks, labour, savings, investment, and technical progress are the main factors driving economic growth. For the majority of the experimental and theoretical literature about economic growth, the neoclassical growth model was the core building block where a various angle was put on the function of investment in the process of growth. Not only does this model incorporate more dynamic quantities of variables and fix the issue of fairly constant volatility, but it also indicates that long-term growth rates are largely contingent on exogenous technical progress (Romer and Chow, 1996).

Even so, Solow's implies that GDP is generated on the basis of a total production function technology that correlates possible production to levels of capital and labour inputs and to multi-factor efficiency, instead of stressing variable aggregation as a predictor of long-term growth.

According to Solow (1956), there is a need for a positive level of investment to maintain the size of the stock of capital and in order to face the decline in the value of capital by replacing it so that it stays stable in relation to the workforce. A well-developed finance industry is harnessing capital to profitable investment ventures, thus fostering the growth of the economy. Nations with higher levels of investment and capital levels per labourer would therefore relish higher per capita production levels.

The neoclassical theory justifies underdevelopment as a result of the inadequate distribution of resources resulting from wrong pricing policies and the country interfere excessively. Financial intermediaries, nevertheless, can assist in directing resources towards optimal allocation and can thus have a beneficial influence on economic growth.

The neoclassical theory, which has been sufficiently updated to take consideration of technical evolution, likewise tends to be broadly applicable to economies of advanced countries, given that the premise that full employment is continuously restored to scale and sustained, at least since the forties of the last century, is perhaps generally true in those countries. On the other hand, in developing nations, there is more scope of rising returns to scale.

The importance of financial institutions lies in their ability to accumulate savings and then provide these funds to the investors toward to profitable investment ventures. Thus, a more developed financial sector, based on the neoclassical growth model, will foster economic growth through savings mobilization, expenditure and technological change.

2.2.3. The endogenous growth model

It became clear in the mid-1980s that, theoretically, the neoclassical growth model was inadequate to evaluate long-term growth. The model without technology advancement projected that, because of declining returns to capital, the economy will gradually migrate to a stable state with zero growth in per capita. The only approach to address this issue was to extend the definition of capital, to cover human elements, and to presume all this shall not adhere to declining returns.

The proponents of endogenous growth assume that the causes of economic growth are endogenous this is in contrast to the neoclassics. The general trend of this model is that economic growth possible to produce without the need to rely on external factors such as changes in technology (i.e. Grossman and Helpman, 1990; Romer, 1989).

Lucas (1988) and Romer (1986) introduced the new endogenous growth theory. This theory justifies the long-run growth as stems from economic activities that produce new technological advances. Endogenous growth, therefore, is long-term growth at an unshakeable pace by economic system-centered forces, most of which control the opportunities and incentives for technological advancement (Freeman, 2002).

According to neoclassical thought, the source of economic growth is exogenous. This is justified according to Barro and Sala (2003) that technological developments causing the growth of the economy occur outside the theoretical goal of economics: to keep wages at the subsistence level. Therefore, technology increases exogenous growth in the economy, and the population raises until wages resumption to the subsistence level. The endogenous growth proponents stated, as claimed by Freeman (2002), that the origins of the growth of the economy were endogenous. Up to lately, endogenous growth researchers have put together a model for the purpose of analytically clarification the tools by which savings can influence growth.

Levine (1991) and Bencivenga and Smith (1991) were some of the first authors to suggest endogenous growth models as ways to identify mechanisms by that the financial system influence long-term growth. They stress the important role played by financial markets in transferring the risk of agents-both investment and liquidity risk. In accordance with them financial markets inject savings into more productive investments and on the other hand prevent the inappropriate dragging of capital invested in long-run ventures.

Within a plain endogenous growth model, Pagano (1993) utilizes the AK model in his analysis to suggest that rate of economic growth is significantly affected by saving rates. Berthelemy and Varoudakis (1996), on the other hand, suggest a theoretical model that included banks as the cournot oligopoly model, they claimed that the degree of competitiveness of financial intermediaries in the banking system is directly affected by the stable growth rate. In addition, they propose that the development of local education affects a strong positively the growth of the domestic financial sector.

Based on the endogenous growth principle, the economic growth rate will be greatly affected by the financial sector functions. These functions can have a significant influence on the extent and advancement of technology available in the economy by improving the utilization and likelihood of success of the innovation undertaken. In addition, because technology represents an essential component in new economic growth models, the economic output can be greatly affected by the financial system by savings mobilization.

The findings and strategies of endogenous growth theory, have contributed to the significant renewal of attention in the relationship between financial development and growth, where it showed that without exogenous technological progress there can be self-sustaining growth and that the rate of growth can be connected to income distribution, preferences, income distribution, technology, and institutional arrangements (Pagano (1993).

2.2.4. The Schumpeterian growth model

The Schumpeterian concept of economic growth is yet another component of the endogenous growth theory. According to this concept, the innovations in the entrepreneurial environment are the main catalyst for the growth of the economy. Moreover, the institutional environment influences these innovations. The emergence of the Schumpeterian growth theory began in the early 1990s, according to Dinopoulos (2006), inspired by extraordinary occasions growth rates, and the failure of the neoclassical growth model to clarify the long-term triggers of technological advance.

More specifically, the theory describes the core catalyst of strong economic growth is technological innovation. In stationary equilibrium, Schumpeter claims a competitive market economy. There is a perfect competition market equilibrium in such a stationary economy, with no gains, no rates of interest, no investment, no savings, and no joblessness.

A well-developed financial system will incentivize corporate insiders to promote technological advancement or innovation, by providing innovators with increased returns. This may explain why there is still a positive net present value in an active market. The financial system incentivizes

innovators by temporarily allowing them to enjoy monopoly profit, as a reward for the resource they spent and the risks they endured when starting innovation. However, if we allow innovators to permanently exploit technological advantages and generate monopoly profits, they may lose the drive to innovate in the future. Moreover, this may also drive investment away from the optimal level when company insiders abandon positive net present value projects due to their concern over the distribution of current shareholder value between potential new shareholders, which in turn may impede overall economic development. The financial system must walk the fine line between incentivizing the protection of innovators and encouraging the spread of technology fast enough to inspire the next generation of innovators. This makes it difficult for the financial system to serve innovation-intensive projects.

On his first thorough account of how financial transactions occupied a centric stage in growth of the economy, Schumpeter set aspects of economic intermediation at the core of economic development. He avoided modern financial activity formulation and then used banking as an illustration. Use the term development, rather than using the term economic growth. Services offered by financial institutions are fundamental for economic development and technological innovation.

2.3. The channels over which financial development can stimulate the growth of the economy

In the economic growth process, the financial system is an important factor in impact and guiding investment and savings choices and thus growth (Demirguc and Levine, 2001). A more developed financial system mean the stronger the distribution of financial resources and the monitoring of productive borrowers would be.

Pagano (1993) believed that there are four ways in which, under the basic endogenous growth model, the financial development may affect economic growth. First, it will improve investment efficiency. Second, the efficient financial sector decreases the cost of transactions, thus increasing the share of savings harnessed into productive investment. The liquidity of investments

is increased by an efficacious financial sector. Finally, the development of the financial sector might either encourage or reduce savings.

Amongst the most important experts of the financial sector's relationship with economic growth is Ross Levine (1991, 2018). Theoretically and experimentally, Levine has attempted to demonstrate the trend of causation association between financial markets and economic development. In fact, Levine has discovered directories that financial institutions are a crucial and fundamental part of the mechanism of development and that notions that believe that the financial sector is not affecting growth in the real sector should be abandoned.

Levine (1997, 2004) distinguishes five fundamental mechanisms by which economic growth can be spurred by financial progress. Levine claims that the mechanism of economic growth may be influenced by every one of the five major roles of the financial system, that arise from particular market frictions. These channels are:

2.3.1. Facilitation of risk management.

By facilitating risk management, financial systems promote economic growth. Financial institutions and markets might evolve given the abundance of specified information and transaction expenses in order to enable the trading, pooling of risks and hedging, with repercussions for allocation of resources and growth. Financial institutions can increase liquidity and lower the risk of liquidity. Banks will raise investment in high-yielding illiquid assets and enhance competitiveness by mitigating liquidity risk, in accordance with Levine (2004).

Since there are specific costs associated with transactions and information, financial systems and their processes may evolve in order to boost risk trading, hedging and accumulating in a way that redistributes assets and thus encourages growth. Costs arising from asymmetries of information and costs of transactions may impede liquidity and increase its risk that usually generated because of the errors associated with an exchange medium's

conversion of assets. These uncertainties consequently generate conditions for markets to emerge that increase liquidity.

In accordance with Levine (1998), financial structures that allow individuals to project risks effectively are therefore likely to trigger a move towards planned higher-return businesses. Consequently, financial institutions reduce liquidity risk through their capacity to promote trade (Levine, 1997)). Inter-temporal risk can also be enhanced by financial systems. The theory also has concentrated on the beneficial role intermediaries perform in facilitating inter mitigate intertemporal homogeneity risk (Levine, 1997).

Risks that cannot be varied at a given point of time like the macroeconomic crises can be varied through generations. By engaging with a long-term outlook and providing yields that are considerably lower in economic booms and significantly higher in stagnant times, a financial system may foster intergenerational risk-sharing (Levine, 1999).

2.3.2. Savings mobilization.

The finance industry boosts the economy through savings mobilization, implying the aggregation of capital from incompatible investment savers (Levine, 2004). It is, however, expensive to mobilize the savings of many different savers. Considering the cost of transactions and information associated with the mobilization of savings from several agents, various financial frameworks may alleviate uncertainty and promote pooling, hence having a significant impact on economic development (Levine, 1997)

2.3.3. Information production and allocation of capital.

Financial systems compile, store, and generate information about feasible investments, unlike individual savers and borrowers (Levine, 1996, 2005). This decreases the expense of collecting, processing and generating information and increases the optimizing resource allocation.

The production with insufficient information or failure of information results to substandard capital allocation. The financial systems have the capacity to

supply low-cost information that encourages capital to inflow to higher- value (Levine, 2005b).

2.3.4. Facilitation of the interchange of goods and services.

The financial system encourages exchanges, thus fostering economic growth. Specialization, technical advancement, and development can be encouraged through financial services arrangements that reduce transaction costs (Smith, 1776). Modern financial systems have the potential to transfer the money value almost effortlessly from one party to the latest, regardless of the gap between the market participants. This encourages and smooths business with expansive effects on the growth of the economy.

2.3.5 Control over corporate governance and monitoring of managers.

Developed financial institutions contribute to optimal capital allocation and thereby promote the growth of the economy. The degree that capital suppliers can efficiently track and control how capital is used, according to Levine (2005), has consequences for savings and capital allocation decisions at the state scale (Levine, 2005).

2.4 Measurement of Financial Development

Experimental studies on economic growth and financial development nexus indicate that the researchers have used many proxies of financial development.

Goldsmith (1969) employed the proportion of financial institutions' assets to GDP. While the proportion of liquid liabilities to the gross domestic product was used by King and Levine (1993) as a representation of the size of financial intermediaries and the credit to the private sector to GDP as an Indicator of financial intermediaries' operations.

In 13 OECD members, Neusser and Kugler (1998) used investment banks, pension funds life and casualty insurance, lending and saving associations, and banks to evaluate the depth of financial development. The effect of financial development in five industrialized nations was analysed by Rousseau and Wachtel (1998) and financial development indicators included

commercial bank assets, total assets of saving institutions and commercial banks, pension funds, and insurance companies. While Levine and Zervos (1998) utilize measures of stock exchange liquidity, and Rother (1999) utilizes the proportion of private sector credit to the monetary base and the money multiplier.

In the same context, four financial development indicators were employed by Pill and Pradhan (1995) where it includes real interest rates, monetary base, private sector bank credit, and broad money. They argue that credit to the private sector is the only factor, which can be presumed to associate directly with financial development. Huang (2006) used operating expenses of banks, liquid liabilities, and net interest margins to represent the banking system, as well market influence represent by three variables; equity market capitalization, total values exchanged, and the turnover ratio.

Several studies have concerned the proportion of various types of monetary aggregates to assess financial development, such as the broad money (M2) and the liquid liability (M3) as a proportion to GDP to reflect the financial industry's aggregate size and depth. These indicators are commonly used due to their availability as a measurement of financial development. The framework of McKinnon (1973) and Shaw (1973) is the main base to use of monetary aggregates, this reveals that the monetary economy reflects a highly developed capital market. Under this hypothesis, this indicator is used by many authors as financial depth (King and Levine, 1993b; McKinnon, 1973; Samargandi et al., 2014; Shaw, 1973).

Nevertheless, in accordance with Ang and McKibbin (2007), however, though the readily accessible monetary aggregates are commonly used in calculating financial deepening as a proportion of nominal GDP, when taken separately, It cannot be considered good measures. That is due to they do not be reflect the capability of the financial system to transfer money from depositors to investment. While Kar and Pentecost (2000) figure out that in developing economies, the broad stock of money encompasses a significant portion of currency outside the banking system. In certain situations, an improvement in this percentage suggests greater use of currency than bank

deposits. Therefore, the currency in circulation should not be included in a sound measure of financial development.

Last but not least, Pill and Pradhan (1995) clarify that traditional financial deepening measures, like the broad-money-to-gross domestic product ratio, could provide deceptive indications about the effectiveness of financial reforms and their effect on the real activity. They argue that such metrics neglect significant aspects such as the extent of public borrowing from the domestic financial system, the nation's openness to capital flows, the competitiveness of the banking sector, and the growth of non-bank financial intermediation.

Consequently, certain researchers (Alkhuzaim, 2014; Kar and Pentecost, 2000; Puatwoe and Piabuo, 2017) recommended assessing financial development by the proportion of bank deposits to the nominal GDP as a quality assessment of financial development, where It reflects the financial industry's domestic assets and estimates the total scale of financial institutions.

Likewise, credit to the private sector as a proportion of GDP is also one of the measures that is widely utilized (Samargandi, Fidrmuc and Ghosh, 2014). The capability of the financial sector in providing funding to the private sector is more accurately specified in this ratio. However, the position of the stock market, which is a good channel for mobilizing savings for investment, is not captured by these ratios. The value of this mechanism based on the assumption that it accounts for loans given to the private sector that allow funds to be used and distributed to more efficient and profitable operations. It eliminates government sector loans and central bank loans and is thus a more reliable measure of the savings that financial institutions funnel to the private sector.

Rioja and Valev (2004) believe that commercial banks will be better able to evaluate the effectiveness of projects and then show the perceived value of commercial banks as opposed to central banks in savings distribution. They then use another indicator, commercial bank versus the central bank, which

is characterized as the assets of commercial banks split by commercial banks plus the assets for the central bank.

In order to determine financial depth, Arestis et al., (2001) utilized stock market capitalization. Many theoretical frameworks suggest that long-term growth enables be encouraged by stock markets, which promote specialization, also information acquisition, and distribution and can decrease the expense of savings mobilization, thus fostering investment.

Recently, the IMF has established a unified financial development indicator (Sahay et al., 2015) this indicator summarizes the development of financial institutions in terms of efficiency, accessibility, and depth, and it extends to include various financial institutions (Svirydzenka, 2016).

2.5. The causal link between financial development and economic growth

Another origin of controversy between economists concerning the relationship between finance and growth is the problem of causality.

The significant link between financial development and long-term economic growth has been demonstrated by a vast amount of experimental literature (Fry, 1995). There was, nevertheless, a lot of controversy about the causal correlation between economic growth and financial development, which showed substantial differences across nations and highlighted institutional factors as a critical indicator of this connection.

Patrick (1966) innovated the principles of 'demand-following' and 'supply-leading' dimensions of financial development. In addition to supporting the bidirectional causality hypothesis developed by Lewis (1955). In the economic literature survey, four trends of causation can be found regarding the relationship between financial development and economic growth

2.5.1. Supply-leading Hypothesis

The supply-leading perspective implies that economic growth is positively influenced by financial development, and this means that the expansion of

financial institutions and the provision of financial services will increase the pace of real economic growth.

Several prominent economists support theoretically and empirically the supply leading hypothesis (i.e. Goldsmith, 1969; Hicks, 1969; King and Levine, 1993a; McKinnon, 1973a; Miller, 1998; Peia and Roszbach, 2014; Shaw, 1973 among others). Financial development, nevertheless, is only one variable between several other variables influencing economic growth rates. Therefore, the assumption that a well-functioning financial sector is essential but alone is not enough to realize economic growth. Many economists assume that, among many other growth-inducing variables, a well-functioning finance system is deemed to be a major element. The advanced financial sector enhances the accumulating of savings; information acquisition; offers risk diversification; and controls investments, ensuring that there are no specific obstacles to the growth of the economy. Financial development, therefore, triggers strong and prolonged economic growth rates.

Bencivenga and Smith (1991) suggested that effective financial markets could improve the ability of a borrower, leading to greater finance industry trading efficiency and, thus, per capita income levels. They also suggested that the improvement of the financial sector could stimulate the pace of economic growth by growing market liquidity

Financial development, on the other hand, could be an obstacle to economic growth and might negatively influence the economy. The causal link, however, extends from financial development to economic growth. These findings have been reached by several empirical studies (i.e. Bernard and Austin, 2011; De Gregorio and Guidotti, 1995; Caporale et al., 2009; Stiglitz, 2002).

There are several interpretations of the inverse relationship, McKinnon (1973) and Shaw (1973) perceive the inverse relationship as caused by financial repression, while some economists (for instance, Krugman (1993); Singh (1997) proposed that the financial sector may have a destabilizing influence on financial excesses that lead to financial crises and instability of

the financial markets. On the other hand, some studies explain it by the influence of the threshold on the finance-growth nexus (Arcand et al., 2015; Law and Singh, 2014). According to this view, financial development is useful for economic growth even a particular threshold, but once this threshold is reached, an increase in the development of the financial sector resulting in a decrease in growth.

2.5.2. Demand-following Hypothesis

Based on this view, the causality relation runs from economic growth to financial development.

In reaction to variations in economic growth, financial institutions, and markets of capital developing and adapting with the passage of time. As sectors of the economy develop and grow the need for more capital and advanced financial institutions increases as a basic effective source for companies to start up and grow rather than relying on retained earnings and personal fortunes. Financial development is thus driven by demand. Robinson (1952) proposed, unlike Schumpeter, that financial development follows growth.

Many economists (see, for example, Kuznets, 1955; Friedman and Schwartz, 1963; Demetriades and Hussein, 1996; Ghirmay, 2004; Apergis, Filippidis and Economidou, 2007) emphasized the demand-following hypothesis.

2.5.3. Feedback Hypothesis: Bi-directional causality

According to this hypothesis, there is an amalgamation between the two previous approaches, which based on the path of economic development. Thus, according to this, the supply-leading hypothesis will prevail in the precocious phases of development, but after achieving economic development, the demand following will prevail. In contrast, there is a greater likelihood of bi-directional causality between growth and financial development at advanced development stages (Apergis et al., 2007).

Empirically, the economic growth and financial development nexus were inspected extensively in various intervals. Most economists, before the

nineties of the last century, reported a positive relationship between these two variables (i.e. Goldsmith, 1969; Khan, Qayyum, & Sheikh, 2005; McKinnon, 1973, among others).

As a consequence of the advancement of growth models in the early nineties, new kinds of endogenous growth models were presented that takes into account the financial sector. These models focus on the importance of financial intermediation in increasing growth by improving the efficiency of resource allocation. Endogenous growth theories indicate a mutually beneficial relationship between financial development and growth, as opposed to McKinnon and Shaw's thought that advocates the supply-leading perspective.

The models of endogenous growth support the bidirectional linkage between financial development and the growth of the economy. Moreover, at higher levels of financial sector development, the competence of resource allocation improves and information frictions decrease, which contributes to the accumulation of capital and the growth of the economy. Moreover, the demand for financial intermediation and financial institutions increases with the progress in the level of economic development, which will positively affect the increase in financial development. The bi-directional causality hypothesis has been supported by many scholars (I.e. Sachsida, 2001; Fase and Abma, 2003; Abu-Bader and Abu-Qarn, 2008; Kapingura, 2013, among others).

2.5.4. The neutral hypothesis

Proponents of this approach like Lucas (1988), believe that there is no link between financial development and the growth of the economy, and the influence of financial factors on the growth has been exaggerated.

Real factors regulated the theory of economic growth, while financial factors were inherent in the history of the financial institutions. There is, therefore, no correlation between financial development and growth, and neither of them has a much impact on the other (Singh 1997).

Nevertheless, another economic component is responsible for the observable connection between these two variables. For example, as each of them

follows their own concept and route, their financial sector is rising at the same time as the economy is growing.

Lucas (1988) and Singh (1997) suggested that the growth of the economy is not affected by financial institutions and that financial development may reflect the promotion of the development of the economy. This trend was also supported by Andersen and Tarp (2003); Bloch and Tang (2003); Chang (2002); Ram (1999); Stern (1989).

2.6. Determinatives of financial development

The widespread emergence of financial systems in societies underscores the importance of the services they provide. The significance of the financial sector to the economy and the distribution of economic opportunities makes it more essential to plan and control its production. There is a huge body of economic literature that focuses on financial development determinatives. The emerging financial development assessment literature consists of two separate lines of reasoning. The first research category assesses financial development as the justification for the findings observed, that is, the scale, depth, and access of financial systems, and the second research category covers the structural, market, political situation, and the stability of the financial sector.

2.6.1. Institutional and Business Environment

The environment of the Institutional comprises the financial system's rules, legislation, laws, and supervision. A good institutional environment enhances the trust of investors in order to draw further investment. Under good governance, and institutional setting can be powerful and lawful.

Acemoglu et al., (2005) proposed the Endowment theory, and they imply that the disparities in economic systems are the key factors to determine economic and financial development. Strong institutional conditions have been preserved by developed economies consequently, investors feel that their investments are safe.

In developing countries, in contrast, investors sense very cautiously before investing because of the poor institutional environment. Over time, investors in such economies can often worry about ambiguous and complex laws. Host countries' representatives, however, say that foreign investors want to maximize gains and that they leave when the first sensor of a crisis. The suspicion also rises to a degree that business transactions may not occur, even though both participants will gain from this. One of the biggest obstacles in financial development is weak institutions. According to Porta et al., (1996) strong levels of financial development are reached by countries with a stable institutional framework and investor protections.

In order to attain maximum standards of financial development, regular checks of the financial sector with accredited foreign audits are advised. It is proposed that international standards and international rating agencies should be classified by banks. To reinforce their capital controls, several countries are pursuing the Basel law. These initiatives will significantly boost an economy's financial condition (Barth et al., 2008).

Furthermore, the physical and technical infrastructure, the number of qualified employees, and the low cost of production gives a strong business environment. Such characteristics reinforce financial structures and thus improve financial development. In addition, the presence of trained employees helps boost the efficiency of financial services (Outreville, 1999).

2.6.2. Financial Stability

One of the most commonly discussed topics in the economic literature is financial stability. It can be described as "a state of affairs in which there are rare episodes of uncertainty" (Allen and Wood, 2006).

The concepts of financial stability are diverse. Most of them express that financial stability is all about the lack of system-wide instances in which the financial system does not work. It is also about financial systems' resistance to stress.

A financial system's stability and soundness are critical for assessing financial development. The main factor in this context is financial regulation.

These regulations, firstly, guard towards structural risks resulting from interrelationships and interdependencies in the financial sector. In that scenario, the inability of one institution may result in the fail of the market or the financial system as a whole.

Secondly, financial regulations safeguard buyers of fraudulent activities; such happens when suppliers attempt to take advantage of their superior experience or understanding and try to hide buyer information that may adversely affect their purchasing conduct.

The cost involved with currency crises, structural bank failures, and sovereign debt crises include financial health. A financial system that is heavily monitored and controlled can be very efficient, but such a managed system can also inhibit financial innovation and development (Herring, 2003).

2.6.3. Financial Liberalization

Arestis (2006) indicates that financial liberalization is seen as a combination of the following elements: the privatization of state banks and financial institutions, the assurance of free admission into the finance industry and the sovereignty of central banks, elimination of credit management instruments, and the creation of a system for regulating loose interest rates. The deregulation of financial markets could result in better capital distribution, higher capital levels, and higher productivity.

Following the McKinnon-Shaw model, numerous researches have been carried out to research the impact of financial liberalization on financial development over the past three decades, which implies that there are a variety of conflicting concepts that see financial deregulation in various forms. The concepts of pro-liberalization illustrate the idea that minimum reserve thresholds and interest rate management instruments is seen as taxes, resulting in a deterioration of the whole finance industry and less competition (Fry, 1995).

Directly opposed to this perception, other studies performed greater weight on the imbalance of data on financial markets (Jaramillo et al., 1993).

Financial liberalization, nevertheless, may not inherently result in financial development.

Another case regarding financial liberalization is that financial markets and the banking system may be fragile. The empirical evidence suggests that nations with more liberalisation financial structures are more potential to experience a banking crisis. Nevertheless, if economic structures are well established, the risk is minimized (Kunt and Maksimovic, 1998).

2.6.4. Openness policies.

a. Trade Openness:

Some recent studies hold the argument that strategies that foster external trade accessibility tend to improve financial development[4]. A strong increase in trade and capital account deregulation has been noted to be beneficial for the welfare of the country, resulting in openness to foreign trade and capital flows that might expand its financial markets.

If we examine trade openness well, an open finance system will boost the export and import sectors. This financial system will tackle private industry savings, enable the economy to specialize and benefit from economies of scale, resulting in cost reductions. This will encourage entrepreneurs to develop ventures that are profitable. Therefore, financial development leads to openness in trade. This can, however, also be seen in a reverse way; Do and Levchenko (2004) emphasized that the financial development of the country is an endogenous variable so that it can be affected by trade.

Huang and Temple (2005) argue that the rise in the openness of the market of goods has catalytic effects on the evolution of financial development. Beck et al., (2003) further pointed out that certain economies with stronger financial structures are more likely to have more exports of manufactured goods to GDP and merchandised exports. Levine (2001) demonstrates that relaxing the constraints on global portfolio flows would reflect positively on the liquidity of stock markets and enable more foreign-based banks to have a positive influence on the efficiency of the inner banking structure.

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[4]. See Do and Levchenko (2004); Huang and Temple (2005)

b. Capital Account Openness:

Chinn and Ito (2002) suggest that capital control is strongly related to the financial development of the nation. The study discusses the relation between the openness of capital accounts and financial development. The researchers are able to examine the significance of capital accounts openness for financial development. The findings were summarised for developed economy countries where stock market value exchanged is the measure for financial development and for emerging market countries too.

Levine (2000) analyses if the deregulation of the banking industry will lead to the reduction of financial constraints and external capital premium costs, investment incentives, and financial development.

Klein and Olivei (1999) highlights the propensity of capital account liberalization to improve growth by influencing and expanding the financial system. As the paper says that the deregulation of the capital account nations to a reduction in the cost of transactions and information asymmetry, it also facilitates the efficient distribution of resources in significant financial funds and decreases the existence of moral risks in management behaviour. Consequently, the study shows that openness in the financial system can improve the financial sector's effectiveness. In addition, the paper argues that the openness of capital accounts is a critical parameter in developing global standards and strong professional qualifications between countries for the financial sectors. In developed economies, the 'flight to quality' also contributes to creativity and strengthens the financial sectors.

Voghouei et al., (2011) figured out that capital market deregulation would relate to both capital inflows and outflows. Accordingly, a country's financial openness should be measured using a wide image of openness steps.

Bekaert and Harvey (2002), on the other side, present indications that opening up the stock market to international investors makes stock yields more unpredictable and more closely linked to the return of the world market.

2.6.5. Political Economy Factors

The policy position underlines the role of variables in the political economy in fostering financial development. Voghouei et al., (2011) shows that political parameters directly affect financial development, and furthermore play a substantial role in improving the institutional and transparent atmosphere of a country.

The view of politics and finance proposed by Beck et al. (2001) emphasizes that the financial system of a nation is more prone to be improperly established within hierarchical, authoritarian, closed democratic regimes than in countries with free electoral democracy, with open and highly competitive government controlled under regulation and law-based constraints.

Rajan and Zingales (2003) propose that economic and financial development can be the result of political independence and democracy. Siegle et al., (2004), furthermore, disputes that the democratic system may be seen as a driver of development. The study concludes that democratic institutions are often better, calmer, and more motivating than dictatorial states.

The study indicates that electoral freedom and political independence will promote financial development by stimulating the establishment of powerful institutions including a check and balance mechanism, and restrictions governed by laws.

La Porta et al., (2002) propose that a more evolved financial system exists in countries with an electoral democratic system. As the researchers emphasize, the critical element of such inter-correlation is that democratic states have a limited propensity to preserve public control of financial institutions, which promotes financial development itself.

2.7. Financial System and Structure

Many considerations have been added in the scope of the literature on financial systems to clarify the variations in financial structures across nations and over time. In the financial structure and growth literature, there are four opinions; they can be listed in the following.

2.7.1. Bank based financial system

According to the banking-based financial system, financial intermediaries have the ability to assume all the major roles that the financial system performs such as dealing with risks, monitoring investments, and mobilizing resources.

Banks are essential, as they appear to minimize information problems and increase the allocation of resources, advocates of banking-based economies assert. In reality, banks are more successful than stock markets in enhancing the corporate governance and allocation of resources in the initial stages of the growth of an economy (Bhide, 1993).

Arestis and Demetriades (1996) indicate that financial systems based on the bank are in a finer way position to fix asymmetric information, volatility, and principal-agent relationship issues arising from flaws in the financial market than market-based systems.

Compared to financial markets, the key benefit of banks is their capacity to minimize market information asymmetry, as banks promote and encourage economic agents to obtain and process information in a way that enhances the financial market. Hence, banks enable reduce market failures arising of asymmetric information by managing ethical risks, exercising control over businesses, and promoting effective monitoring of corporate activities by developing strong and long-term relationships with entrepreneurs, supervisory managers, and businesses, thereby improving the efficiency of resource allocation and corporate governance (Luintel et al, 2008).

In addition, banks do have the capacity to collect and process information at a cheaper cost about managers and organizations and exploit scale economies in providing a broad variety of information around possible borrowers, projects monitoring, and supervision of managers. This would encourage banks to collect further information on managers, institutions, and markets than on shareowners in financial markets by collecting information at a low cost. This results in a positive influence on the efficient allocation of credit (Allen, 1990).

On the other hand, supporters of bank-based systems, claim that market-based systems have inherent flaws that hurt the distribution of capital and economic performance. In advanced markets, information is disclosed instantly to lenders generally, which discourages lenders from allocating resources to companies. Thence, developing the market further than developing banks may actually delay the incentives to link innovative projects that enhance economic growth.

In addition, liquidity in capital markets may also have a detrimental impact on resource distribution, as an investor can sell his securities cheaply in liquid markets, meaning that he has no incentive to undertake costly corporate governance that will efficiently distribute resources. Banks will do a better job in return to finding companies, supervising managers, and financing industrial expansion (Levine, 2005b). Additionally, some economists suggest that economic growth might be negatively influenced by the more liquid stock markets. Jappelli and Pagano (1994) argue that a raise in stock exchange liquidity might minimize savings rates by minimize uncertainty and negatively influence the growth of the economy. Whereas Grabel (1997) suggests that risky short-term and high-risk investments that in consequence discourage long-term investment and capital accumulation can be induced by well-functioning financial markets.

2.7.2. Market based financial system

Market-based systems advocates argue that stock markets offer risk management, react promptly to capital requirements, minimize banks' counterproductive monopoly control, and contend that through growth-enhancing ventures, the competitive nature of markets stimulates innovation (Levine, 2001).

The market based financial system depends on highlighting the benefits of financial markets to boost economic growth and, further, they highlight the shortcomings of financial systems based on banks. Supporters of this approach believe the superiority of to market-based financial systems superior bank-based financial systems because it responds faster to shocks and is more able to identify and isolate troubled companies in order to avoid

their negative impact on the economy (Rajan and Zingales, 2003). Additionally, they argue that it is through the ability to facilitate risk management well-functioning financial markets have the potential to boost growth (Beck and Levine, 2004).

Various theoretical and experimental investigations have stressed the importance of the stock market as a stimulus for growth. Levine and Zervos (1998) concentrate on the distinct position of the stock market in the financial system, wherein banks offer services that are different from stock markets and claim that there is a positive connection between the stock market development index, that comprises of scale, liquidity and global economic integration. Whilst also Atje and Jovanovic (1993) suggest that the relationship between stock market development metrics, and economic growth is significant and positive.

Lastly, advocates of market-based financial systems contend that banking systems have limited risk diversification capabilities, whereas markets have a broader range of risk management solutions that allow more flexibility for dedicated risk reduction tools, whereas risk management services can only be offered by bank-based systems.

As a result, banking-based financial systems tend to be more conservative and unwilling to fund emerging technology and ambitious ventures, thereby hindering investment levels and long-term economic growth, whilst financial markets offer an incentive to finance these critical projects, thereby boosting investment capacity and technological innovation (Singh, 1995). In particular, by spreading the investment costs and thus splitting risks between sundry investors, it gives investors a chance to expand and manage risks of new projects, as every one of them affords a small part of the risks equal to the amount spent (Rousseau and Wachtel, 2011).

In addition, banks pay very low rates to depositors, which in effect has recessionary consequences on credit and, subsequently, on economic growth. In addition, they may be motivated to collude against shareholders by the strong relationship between the major powerful banks and the directors. This inhibits the degree of competition, the efficacy of the distribution of

capital, the practice of corporate control, and thus the rate of economic growth (Huang, 2010).

2.7.3 Financial services view

In reality, the opinions of financial services are in line with the views of the bank-market based views. Even though it accepts together, it mitigates their significance in the context that the disparity between the two financial structures is less significant than originally understood; financial services alone are much more concerned with the way they offer them.

From the perspective of financial services, the problem is not the source of funds. Instead, it is the establishment of a setting where financial services are delivered adeptly and effectively. The focus is not on the form of financial structure, but on the creation of properly performing banks and markets.

In such situations, financial dealings are generated to mitigate market failures and provide financial services to facilitate the allocation of savings and risk management, analyse future investment opportunities, exercise corporate control, and improving liquidity.

In terms of promoting economic growth, the established experimental literature does not endorse any form of the financial framework in terms of which systems are the most stimulating economic growth. Cross-country and industry analysis, however, advocate a positive relationship between growth of and the general plane of the evolution of the financial sector, instead of the structure of financial institutions (Beck et al, 2003).

Peia and Roszbach (2014) pointed out that the positive influence of finance on the economy cannot be guaranteed if banks and the equity markets are incompetent. Since banks and markets offer multiple aspects of the financial system, they do not contend, but they promote the financial system. Thus, according to this view, the importance should be focused on developing a financial mechanism that significantly improves both structures.

Beck et al., (2000) investigated the linkage between economic development and financial structure across countries of different components. The findings

confirm that financial structure is insignificant not expound variations between countries in the trend of the rate of economic growth, industrial output, or firm expansibility.

Beck and Levine (2004) suggested that a higher economic growth rate is favourably correlated with the stock market and banks and that stock markets give various financial services than banks.

Levine (2003b) discusses and analyses experimental literature, which investigates the finance-growth nexus. The findings show that stock markets and banks are not equal as they supply the economy with various financial functions, that is, the financial services supplied by stock markets are significantly various from those supplied by the banks.

2.7.4 Law and finance View

The perception of law and finance notes that the form of financial system is of least significance, but more important is the legal compliance of contracts.

The framework to law and finance deems finance like a collection of contracts specified by legal rights and the standard of legal compliance. In that meaning, in the development of the financial system, legal factors, and the law of corporate play a key turn. In addition, the characterization of the nation's financial system compliance with legal criteria is vastly superior and offers a good picture of the variations in financial systems across nations than the differences between financial systems based on banks and those based on markets. Consequently, the banking and stock markets would be easier to operate with a well-functioning legal system. Thus, as defined by the legal system, the general level and characteristics of financial services offered by the financial sector enhance the capacity of resource distribution and boost economic growth (Beck et al. 2002).

Porta et al. (1996) claim that the financial framework is influenced by legal considerations and legal security laws for investors. Although there is a little gap between countries in terms of the development of the financial system, countries with civil law appear to have less advanced capital markets relative to countries to common law. In addition, Glen et al., (2000) investigate the

effects of legal variables and the law of corporate in demonstrating the transformation and development of the financial market over the last two decenniums. Their findings note that in many nations, the law of corporate and legal sources have failure to clarify the development of the financial system and that legal regulations and the law of corporate pursue economic changes and not vice versa.

Lastly, Beck et al., (2001) addressed the impact on the financial system of the legal framework, financial statements, and political features. They concluded that nations that have legal systems work well and high-level financial data (which are often developed countries) usually have a market-based financial system. Whereas, less developed countries that usually have a legal framework less-developed are probable to be dominated by a banking-based system. Allen and Wood (2006), nevertheless, present proof that the needs and demands of the real economy effect by the financial system and the laws and legal environment.

2.8. Empirical literature

There are a wide variety of contradictory claims in the economic literature pertaining to the connection between the development of the financial system and the process by which an economy grows. Such conflicting theories contribute primarily to the significance of the financial system, especially the causality between growth of the economy and financial development. The evolution of the theory of endogenous growth has led to a strong emphasis on the role of financial development in growth process, this has a consequence in an increased focus within the industry on the relationship between growth and finance.

Experimental models were remarkably evolved in the 1990s after King and Levine's (1993b) ground breaking research. Most empirical studies indicate a strong correlation between financial development and economic growth, utilizing evidence for different nations and times. This will not however mean that economic growth is necessarily exogenous to economic growth or that the relation is constantly good or solid (Levine, 1997). In addition, because of

unclear conclusions, the experimental findings do not have any effect on policy choices.

After discussing the main theoretical views, in this section, we will attempt to discuss the experimental literature. The studies contained in the current section are organized according to the econometric methods used so that the first subsection covers evidence from the cross- country, while the second subsection deals with the studies of time series. Finally, the third section covers the panel studies on the relationship between financial development and economic growth.

2.8.1. Cross-Country Studies

Cross-country studies were the first proposals to examine experimentally the correlation between financial development and economic growth. These analyses utilize cross-sectional data methodology to analyse this relationship. The data includes values for every nation that are primarily the medium of the variable values for a particular time.

Goldsmith (1969) introduced the first experimental study of the connection between economic and financial development by analysing data from 1860 to 1963 on 35 nations. He found that rapid economic growth frequently goes hand in hand with rapid financial development.

Using the technique of graphic analysis and OLS, as well as, using financial intermediation or financial depth assessed as a proxy for financial development. Goldsmith found a positive correlation between financial development and the economic activity level and proposed that by allowing effective intertemporal distribution of resources, financial markets promote growth. In the study itself, he figured out the flaws since it does not systematically regulate other variables that affect economic growth. Furthermore, Levine (1997) implies that perhaps a 35-country-sample is too restricted to reliably grasp the attribute.

Utilizing data for 80 nations over a 30-year, it was systematically monitored to control other variables that affect long-term growth, like initial income, human capital, or macroeconomic and political stability. King and Levine (1993c)

develop other metrics of financial development have been developed, alongside the liquid liabilities ratio to GDP, like lending to non-financial private firms over GDP and lending to non-financial private companies divided by total credit.

King and Levine (1993c) identified a "strong and reliable connection between the level of financial development and the ongoing and prospective rate of economic growth". Over period of study, the researchers reduced the average annual GDP growth on the initial value of the development of the financial sector in 1960. The study concludes, on the grounds of this correlation, that the link between growth and financial development is not just a modern connection. Finance not only follows growth; finance seems to be necessary to lead economic growth.

As stated by Ray (2010), the study's drawbacks are primarily two. First, although the research demonstrates that financial factors affect growth, it does not address causality issues properly. Second, the research relies on one component (banks) of the financial system.

The relation between equity and stock markets and long-term growth was examined by Levine and Zervos (1998). In order to determine the relation between stock market growth and the growth of the economy, they create different indices of the advance of the stock markets, such as the turnover ratios. Other future growth variables, such as the development of the financial system, are also under their influence. The outcome revealed that the first degree of liquidity stock market and the first degree of banking development are positively linked to the growth of economy, productivity growth rate, and capital appreciation.

In addition, there is no correlation between bank and market based financial structures. In addition, both structures are substantially entering growth regressions that implies they have distinct characters. They further notice that the correlation between stock markets, institutions, and growth flows strongly by growth in productivity rather than by the accumulation of physical capital and that stock market size is not highly linked to growth, accumulation of capital, or total productivity component.

Other studies consider some drawbacks of the method to Levine-Zervos. Firstly, the essential topic of causality is not explicitly investigated. Secondly, the estimated ordinary least square (OLS) correlation is potentially affected by simultaneity bias and does not even monitor fixed effects in the country. Thirdly, as Levine (2005b) figures out, there are a few liquidity assessment issues. Finally, other elements of the financial system, like bond markets or funding provided by non-financial entities are exempted from the study.

Levine et al., (2000) used metrics of the legal structure as an alternative indicator of financial development implements. These initiatives were developed by La Porta et al., (1996) and determined if the commercial regulations of a county originate from the tradition of British, French, German, or Scandinavian law. In 1960-1995, they utilized data for 71 nations, so there would be one analysis per nation, by using variables of legal origin as dependent variable. Their major aspect is that there is a strong link between financial development and growth, that is not attributed to simultaneity bias.

Furthermore, La Porta et al. (2002) employed the grade of government control of global banks, that presents strong evidence of the correlation between economic growth and financial intermediaries, finding that financial development, productivity, and growth are lower in nations with high control of banks by the government. The authors clarify that government control contributes to the misallocation of resources.

Privatization may also lead to credit allocation becoming more efficient and competitive. In addition, privatization might lead to greater competition, increasing the opportunities for firms to borrow. Still, relative to government-owned banks, borrowing rates in privatized banks are typically higher. On this measure, good ratings suggest relatively more privatized banks.

In addition, Beck et al, (2000) sought to reduce simultaneity bias utilizing instrumental variables, while not taking stock market changes into account in the study, only a limited number of countries were considered. Although Rousseau and Wachtel (2000) made some changes given past errors by implementing a panel estimator established by Arellano and Bond (1991),

that effectively removed all prejudices as a result of overlooked country effects and causality bias.

In an effort to overcome the statistical deficiency of past studies, Beck and Levine (2004) employed 3 independent models of the framework to a panel data of forty nations for the period 1976 to 1998. They showed that not only statistically, but also economically, financial development had a considerable impact on growth of the economy. In summary, their findings affirm the considerable of financial development in boosting prospects for economic growth, and this conclusion is not attributable to prejudices triggered by parallel or unnoticed country-specific consequences, that are weaknesses, which may have been the topic of previous works and their performance.

A cross-section analysis such as the instrumental variables method was conducted by Alfaro et al, (2004) employed both banking and stock market parameters for the period 1975 to 1995. Important positive coefficients were found for the relationship of foreign direct investment with different financial development initiatives. Their findings for additional controls and experimental measurement of parameters have been strong.

The connection regarding financial development and growth carried out by King and Levine (1993c) was re-examined by Rousseau and Wachtel (2011) and similar methods were used to broaden the set of data to 2004. In the preceding fifteen years, it was revealed that the financial development and growth connection suggested by King and Levine (1993) was not evident Rousseau and Wachtel (2011) noted that financial deepening has a positive effect on growth as long as it is not achieved in severity and as long as the crisis episodes are eliminated, the financial development and economic growth relationship stays unchanged.

Using a sample of 15 African countries during the period 1995-2010, Assefa and Mollick (2017) utilizes capital and stock market depth to examine the association between finance and growth. Their findings show that foreign direct investment and portfolio flows have stimulating effects on economic growth in the study countries.

Recently, and by employing new measures of financial development, Yang (2019) re-used the methodologies applied by the studies of King and Levine, 1993; Levine and Zervos, 1998; Rousseau and Wachtel, 2000; Xu, 2000, to examine and compare the relationship between finance and growth between two groups of middle-income and a group of high-income countries. The study confirmed that financial development contributes significantly to economic growth through the channels of physical capital stock and total factor productivity; in addition to finding a causal relationship between stock market development and the growth for all three groups of economies.

The key findings of pure cross-country studies, epitomizing, frequently indicate that financial development has a positive influence on growth. Nevertheless, due to the requirements of the econometric techniques used, some studies found deficiencies and have used the pure cross-country model to analyse the relation between financial development and growth.

In the scope of the King and Levine (1993) research, Demetriades and Hussein (1996) described some of these limitations as the unfounded presumption that each market has a steady path of growth, overlooked variable bias, sample selection bias, and countries' improper weighting. Furthermore, Thangavelu and Jiunn (2004) pointed out the fact that cross-country research failed to effectively monitor the heterogeneity of cross-countries and the endogeneity of the independent variable, leading to significant outcome differences. In addition, certain investigators use instrumental estimation techniques of variables to comply with endogeneity bias, but with average data, this technique is inadequate.

Other limitation was stated by Thiel (2001) highlighting the significance of providing long time series for evaluation of the relation. Economic growth is a long-term process demanding an adequately long time series to examine the relation between finance and growth, and because initiatives for financial development may not generally be correlated with short-term growth, the timeframe must be carefully selected.

In short, these results alert of uncertain, incomplete and weak results obtained from cross-country surveys. Therefore, cross-country empirical research provides minimal policy advice lacking high-quality data across nations and a clear idea of each country's financial background (Ang, 2010). For this cause, authors have found country-specific analyses of time series to address these constraints. (See Kirkpatrick; 2008, and Ang, 2008).

2.8.2. Time Series Studies

Different time series methods were used widely in the literature to explore the course of causation and the correlation between financial development and growth. The aim of these studies was primarily to investigate the specifics of a given country or countries. Since finding data is challenging for certain countries, many of the studies are limited by those countries. Time series methods contend with the scope of a particular nation and provide the ability to explain and examine the trend of causality

Arestis and Demetriades (1997) investigated how the institutional environment affects the nexus of finance and growth in 12 emerging and emerged economies over the period 1949-1992. They revealed that nations with identical financial structures and policies will vary in relation to their government performance; also, based on how policy is applied and the efficiency of institutions, it is likely that the identical financial policies would operate differentially in different nations.

Kar and Pentecost (2000) on finance-growth nexus in Turkey, employing five different financial development indicators and using the Granger-causality test, they showed that the direction of causality is inconsistent depending on the financial development measure employed.

Later, with a view to assessing the nexus between stock market development and the growth of the economy, Arestis et al., (2001) performed a study on different nations, using data from five advancing economies. Their findings showed that both banks and stock markets are necessary to activate an economy's growth; there is more intensity in the influence of the latter.

Lutz (2008) studied short-term dynamics and long-term relationships for three North African countries between financial development and real production. Cointegration models, as well as VECM models for four financial development indicators, were employed. The results of the causal test showed that causal tendency was varied.

Samargandi et al., (2014), through the ARDL boundary test, examined the influence of financial development on growth in Saudi Arabia. They collected one financial development metric by principal component analysis (PCA). Their findings indicate a good association with the expansion of the non-oil industry for financial development. Furthermore, the results of the expansion of the oil sector and the gross domestic product are either weak or insignificant.

In order to evaluate the influences of financial development on Cameroon's economy, Puatwoe and Piabuo (2017) employed ARDL estimating approach relating to financial development steps. The results revealed a positive short-term relationship between monetary mass, government expenditure and growth, whereas a negative short-term correlation between bank deposits, private investment and growth was found. Nevertheless, in the long term, it has been found that each of the metrics of financial development has a positive influence on economic growth.

Based on a vector autoregression approach, Aydi and Aguir (2017) examined the linkages between growth and financial development for different economies in the Southern Mediterranean region. Their studies have shown a long-term relationship among variables.

Moyo et al., (2018) investigated the mutual relations between finance and growth in Brazil, by utilizing the Nonlinear Autoregressive Distributed Lag (NARDL) model. by distinguishing between the influence of the banking indicators and the influence of the stock market indicators on economic growth, the study concluded that there is a difference between financial development indicators in their impact on the growth of the economy, where the banking sector indicators effect on economic growth negatively, while stock market indicators affect economic growth positively.

Using five measures of financial development and employing the ARDL approach, Odhiambo and Nyasha (2020) explore the dynamic causal relationship between finance and growth in Uganda. The findings reveal that the direction of causation varies according to the measure of financial development used.

While much research in time series enhances finance-growth literature, they are also experiencing massive issues, particularly due to the short periods of calculation used because of data restrictions. For emerging economies data is scarce, this deficiency of time series analyses is more apparent. An additional drawback is overcorrecting patterns, which leads to a downward slope in the correlation. The misstatements of Granger causality are often a concern with time series research. If the lagged values of a variable in Granger causality tests help to forecast another variable's actual value, so the relationship between cause and effect is not explicit (Ang, 2009).

2.8.3. Panel data studies

Panel estimations have been widely used by experts in the field of economics in recent years, which have permitted them to take both time dimensions and cross-section into consideration, for the purpose of overcoming the econometric deficiencies associated with purely cross-sectional studies.

The use of panel data rather than time series and cross-country data offers particular advantages (Beck and Levine, 2004).

First, adopting this approach allows the incorporation of both cross-sectional and time-series differences in the data. Secondly, such an approach also enables researchers to avoid biases related to cross-country regressions. In these regressions, the undetected effect specific to the country forms part of the error term such that the relationship between the explanatory and response variables yields biased coefficient estimates. Thirdly, as opposed to estimators that are purely cross-sectional, in which the endogeneity of all explanatory variables is not controlled, panel data allows instrumental variables to be utilized for each of the regressors, thus producing estimates of the relationship between finance and growth that have increased accuracy.

Similar to cross-sectional and time-series studies, a significant amount of researchers who have used panel data have reported that financial development positively influences growth by employing various panel methods and datasets. Random effects (REs), fixed effects (FEs), panel autoregressive distributed lag model (ARDL), and generalized methods of moments (GMM) are frequently utilized when conducting panel analysis. Additionally, estimators applied often include GL and OLS.

Benhabib and Spiegel (2000) used a panel estimator for the purpose of exploring the relation among distinct kinds of financial-intermediary-development indicators and measures growth. The findings indicated that there is a positive correlation between such indicators and both overall factor productivity and capital accumulation (physical and human).

The panel data approach was used by Loayza and Ranciere (2005), who demonstrated that the short- and long-run relationships between financial development and growth exhibited certain differences. Their findings revealed that significant rises in the lending of banks in the short run could in fact trigger crises in the finance and banking sectors. Hence, they reached the conclusion that although finance and growth are positively correlated in the long term, the same might not apply in the short term.

Christopoulos and Tsionas (2004) explored the finance and growth relation in the context of 10 emerging economies by applying panel cointegration analysis. Their primary conclusion was that the evidence did not point to a two-way causality, while a long-term causal relationship was detected from financial development to growth. In addition, according to their thorough analysis of the properties of the data, a single equilibrium relation was present among financial deepening, growth of the economy and certain macro-economic variables.

Liu and Hsu (2006) used the generalized method of moments (GMM) methods as well as PCA to investigate the association between finance and growth for Taiwan, Japan, and Korea. Their findings indicated that the Taiwanese economy was positively affected, whereas the effects were negative in the cases of Japan and Korea. In addition, development of the

Taiwanese stock market had a greater influence on the growth of its economy in comparison to Japan and Korea. Barajas et al., (2013) re-investigated the finance and growth link. Specifically, they used GMM dynamic panel methodology for 150 nations for 31 years and investigated if the positive effect that financial development has on growth varies according to the particular area, level of income, or state. The findings provided a prop for the assertion that financial development has a positive effect on growth. Nevertheless, the finance-growth relationship is observed to vary in terms of strength according to the specific area, level of income, country, and whether the country exports oil or not. In countries whose income is lower, as well as countries that export oil and particular areas of the MENA region, the positive linkage is weaker. This diversity is more due to banking sector variances than stock market developments, which could include distinct regulatory systems, ownership of banks, the competitiveness of the banking industry, and the extent to which financial services and institutions can be accessed.

Peia and Roszbach (2014) re-explored the experimental relation between finance and growth by distinguishing between stock market and banking sector development. By applying a combination of causality and cointegration tests to twenty-two developed economies, they identified that advancement of the stock market generally causes both economic and output growth.

Conversely, Samargandi et al. (2015) re-investigated the finance and growth relation for a panel of fifty-two middle-income nations. The findings reached through the use of pooled mean group estimations suggested that excessive finance can negatively impact growth in such countries.

Kirikkaleli (2016) conducted analysis on the long- term and causal relationship between economic and financial stability for seven Balkan states and identified a positive long- run relation between the variables. Sharma and Kumar (2018) explored the nature of the causation between finance and growth for specific states in India by a panel error correction model (PECM), and cointegration tests. Both Pedroni and Westerlund tests of cointegration yielded proof of a long-run association between financial development and respective indicators of economic growth. The study findings highlighted the

pivotal contribution of credit offered by banks in the achievement of growth in the long term in different states.

Taip (2018) conducted empirical analysis to ascertain whether economic growth is triggered by financial development or growth merely precedes financial development in transition economies within Europe by applying various econometric approaches. The results provided evidence to suggest that development of finance is a contributor factor in the rise of real GDP in 20 transition economies in Europe. According to their recommendations to policy-makers, improvements should be made to institutions and incentives should be put in place to promote competition within the financial sector. Recently, Asteriou and Spanos (2019) examined the financial development-growth nexus in the context of the financial crisis that recently occurred by employing a panel dataset including 26 EU countries for the timespan between 1990 and 2016. When the crisis period was excluded, it was identified that financial development promoted economic growth, whereas an adverse effect was observed at the time of the crisis. They stated that in 2008 and 2009, financial stability was supported by banks' capital adequacy. In addition, during the time of the subprime crisis, the growth of the economy was constrained by liquid liabilities.

Finally, like previous econometric techniques, panel data estimation is not without some weaknesses. For instance, panel data is characterised by issues pertaining to the collection of data, distorted results caused by measurement inaccuracy, selectivity issues, as well as the limited time dimension that is normally included in the datasets (Baltagi, 2008). In addition, according to Demetriades and Andrianova (2004) contended that when conducting panel regressions, if country-specific effects remain unchanged, this would yield a spurious overall relationship as a result of differences between countries as opposed to within countries over time. Therefore, it is essential that caution is applied when making policy inferences from such analyses.

CHAPTER 3

ECONOMIC AND THE FINANCIAL SECTOR IN KUWAIT AND HONG KONG: AN OVERVIEW

3.1 Introduction

Prior to performing research in which different countries are compared, it is essential that the extent to which their different financial sectors are developed is determined, in addition to their varying degrees of economic development. This is critical as it can influence the relationship in addition to the direction of the causality between financial development and economic growth. It can also facilitate a more thorough comprehension of a case when attempting to analyse or interpret econometric test results.

Therefore, this chapter provides an overview of the Kuwaiti and Hong Kong economies. In addition, it discusses the financial sector development in the two states. The chapter is separated into two major sections. Section one includes a short summary of the Kuwaiti economy, while the second section concerns the Kuwaiti financial sector. This section is divided into three subsections, the first of which covers the Kuwait Banking System. Within the framework of this section, an overview is given on the Kuwaiti banking sector and its stages of development, in addition to its role in the Kuwaiti finance sector. The second subsection deals with the non-bank financial institutions and insurance companies in Kuwait in terms of its components and the role it plays in the finance sector. The third subsection relates to the securities market in Kuwait, its development, and the role it plays in the economy.

The second major section concentrates on financial development in Hong Kong and is also separated into two sections. The initial section commences by summarising the Hong Kong economy, while the second section focuses on giving a brief review of the financial sector in Hong Kong.

This section is further separated into three sub-sections: Each subsection gives a general idea of the financial sectors within Hong Kong, beginning with banks and non-banking financial institutions and ending with the securities market. Lastly, Section 3.6 presents some concluding comments.

3.2. Overview of the Kuwaiti Economy

The economy of Kuwait can be differentiated from other countries around the world in terms of its magnitude and the way in which it is structured. For example, with respect to magnitude (i.e., population and territory), it is considered a small country compared to the rest of the world but has extensive hydrocarbon resources (predominantly oil) and it ranks very high globally in terms of its per capita income.

Further, the labour market in Kuwait is dualistic (nationals vs. expatriates), its public sector is comparatively big, and the country's non-oil production base is limited (Alawadhi et al. 2018).

Kuwait's economy depends heavily on the oil sector that was discovered in 1938 and exportation, which started in 1946; furthermore, the state sector controls the majority of the economic activities, such as oil, transport, telecommunications, utilities, and financial services. The country owns 6% of the oil reserves found globally and it is the seventh largest oil exporter in the world (Eni Spa, 2018). The oil sector contributes in excess of 50% of the GDP and 90% of total exports (Central Statistical Bureau .2017).

The Kuwaiti economy has been affected by both local and outside shocks that have occurred in recent history due to the fact that it is exposed to worldwide markets; the most significant shock was caused by the invasion of Iraq in 1990, which destroyed physical and industrial infrastructure, interrupted economic activities and led to a significant reduction in foreign

assets, the liquidation of which enabled the economy to be restructured (Barakat and Skelton, 2014).

Because Kuwait is covered by desert and has almost no water, over 75 percent of its drinking water has to be distilled or imported. As a result, Kuwait imports over 96 percent of its food, and agriculture contributed less than 1% of the non-oil GDP in 2018 (Al-Sabah, 2017).

Due to the increased prices of oil, there has been a budget surplus in Kuwait for the majority of the period after 1970. According to Kuwaiti law, all annual budget surpluses are moved to the General Reserve Fund (GRF), which is responsible for financing any annual budget deficits. Additionally, taking into account future generations' rights the wealth of the country provided by oil, the Future Generation Fund was set up by the Kuwaiti Government in 1976. According to this law, 10% of the revenues generated by the state are allocated to the FGF, and no expenditures or outlays are permitted from either the fund's assets or the yearly income they produce (Bahgat, 2010). The manager of the Future Generation Fund and the General Reserve Fund, which are Kuwaiti assets, is the responsibility of the Kuwait Investment Authority (KIA), who make investments in local and international assets. Based on estimations of the Sovereign Wealth Fund Institute, in June 2018, the KIA holdings amounted to US $592 billion, thus making it the fourth biggest sovereign wealth fund globally (IMF, 2019a).

3.3. Kuwaiti financial sector

The financial system in Kuwait is big and well established. In addition to specialised and commercial banks that form the basis of the system, new financial companies and investment funds are now emerging, along with insurance funds as well as a functioning stock exchange. With the exception of the insurance sector, local institutions provide a broad variety of modern services (IMF, 2004b). At year-end 2018, the value of the overall disclosed assets of the financial system in Kuwait was reported to be $248 billion. Financial services and produces were being provided by a total of 110 financial institutions within the country. The largest sector is banking, whose share amounts to approximately 89%. The second-largest sector is

investment firms, which have a share of around 9%. The remaining firms are active in the areas of insurance and exchange (CBK, 2018b).

The financial system is centred around banks, where Islamic finance is dominant. After the Global Financial Crisis, the importance of non-banking financial firms, predominantly investment companies, has been diminishing. The insurance industry lacks development: its assets contribute under 1% of the country's GDP (IMF, 2019a). Although traditional finance is dominant, the Islamic banking industry is a key global player with respect to its proportion of consolidated banking assets (40 percent), while the management of 55 percent of assets held by investment companies is based on the principles of Islamic finance (CBK, 2019).

Prior to the introduction of the Kuwait Dinar in 1960, the official currency in the country was the Gulf Rupee. The Kuwaiti dinar has the highest currency value in the world, as the exchange rate was set at 3.33 USD per KD (Zahlan, 2016).

From 1975 to 2002, an exchange rate policy was adopted by the Central Bank of Kuwait (CKB) that pegged the currency to a weighted basket of the main countries with whom Kuwait maintained financial relations and conducted trade. The outcome of this policy was that the exchange rate of KD with primary global currencies remained relatively stable. From 5 January 2003 to 19 May 2007, the decision was made to peg the KD to the US dollar. However, on 20 May 2007, this decision was reversed and the exchange rate was again pegged to an unrevealed weighted basket of currencies of countries with whom Kuwait engaged in financial and trade relations. The CKB claimed that this decision was intended to protect the national currency's purchasing power after all efforts aimed at absorbing the negative impact of the depreciation of the US dollar against other key currencies were unsuccessful.

After the establishment of the Gulf Bank and Commercial Bank of Kuwait in 1960, expansion of the banking network in the country occurred. This motivated the government in Kuwait to set up a supervisory entity, which is responsible for overseeing the banking sector within the country and issuing

the national currency. Therefore, the Monetary Council of Kuwait was formed, that was the foundation of the Central Bank of Kuwait that was established in 1968 (Lanjawi, 2019).

3.3.1. Kuwait Banking System

The banking sector dominates the Kuwait financial sector, which is comprised of twenty-three commercial banks, eleven of which are domestic banks including five traditional banks, five completely Islamic banks and a single specialised bank (The Industrial Bank of Kuwait). The remaining 12 institutions are affiliated with international banks (CBK, 2017). When combined, traditional banks accounted for 58% of the assets of the domestic banking sector in 2018. There is a high level of concentricity in the sector, as the two biggest banks hold approximately 50% of all assets, loans and deposits of domestic banks. The operations of international banks are conducted via branches, and they hold under 4% of the total banking assets (CBK, 2019).

Moreover, the total number of local banks' onshore branches reached 413 by year-end 2018. Meanwhile, the number of local banks' overseas branches totaled 16 branches (IMF, 2019a). The Kuwaiti banks maintain a significance presence in multiple international locations, with the overall assets of their international branches and subsidiaries amounting to 22% of the aggregated banking system. In terms of systems, the capital adequacy ratio (CAR) was continually significantly over the minimum threshold of 13 percent from 2011 to 2017, with the ratio fluctuating between 17.5 and 19 percent (CBK, 2017).

The local banking sector in Kuwait was originally established at the beginning of the 1940s, which makes it one of the oldest financial services sectors between Gulf states (Zahlan, 2016). The Bank of Kuwait and the Middle East was the first to start lending in the country, which was established by a consortium of investors from Britain in 1941.

In the period that followed, several new banks were founded in Kuwait. For example, in 1952, the NBK was established by Kuwaiti businessmen,

whereas the launches of both the Gulf Bank and Commercial Bank of Kuwait occurred in 1960.

In the period before and after independence (in June 1961), the government conducted a complete overhaul of the financial system in the country. The Kuwait Currency Board, which the government established in 1960, was responsible for overseeing the process of developing and managing the nation's new currency, the Kuwait dinar. One year after this in 1961, the dinar entered into circulation and is still the currency of Kuwait. Law No. 32, which was enacted by the government in 1968, led to the dissolution of the KCB and its replacement with the newly-formed CBK. This law also led to the formal introduction of the country's first all-encompassing regulatory framework, and still provides the foundation for modern banking and financial regulation, despite being modified and revised on a number of occasions since its establishment (Limam, 2016).

Because of its significant reliance on the public sector and oil revenues, the potential to exploit investment opportunities other than in the narrow fields of real estate and trade remains limited. Consequently, bank lending is predominantly concentrated in consumer loans, real estate, construction and trade finance to the detriment of industrial lending. Another factor that limits the lending potential is the proportion of expatriates in the overall population, who are largely unable to take advantage of bank credits as a result of different regulations such as those associated with corporate ownership and real estate. The absence of economic diversity along with the surplus liquidity caused by the considerable revenues derived from oil exports have led to numerous speculative bubbles. The 1982 stock market crash, which was caused when one of the worst speculative bubbles in the Kuwaiti economy burst, saddled the banking sector with a substandard portfolio containing non-performing loans. Hence, an intervention was made by the government for the purpose of bailing out the financial system by what has been named the "Difficult Debt Settlement Program". (Craig, 2019). As it was not possible to trade or discount these government debt bonds, it might have influenced the banks' profitability. Additionally, the issue of debt settlement caused banks to become increasingly averse to the risks associated with big lending

operations, which may have caused them to miss opportunities to generate profits.

In the early nineties, the Iraqi invasion of Kuwait (1990-1991) led to the destruction of the financial system in the country. During the invasion, banks were forced to close, non-Kuwait employees left the country, the theft of capital and additional assets occurred, and a large amount of financial documents were destroyed. At the end of the war in the beginning of 1991, the absence of records led to a situation in which Kuwaiti citizens could not access their banking and savings assets. The government again intervened, collaborating with domestic institutions to design a plan for recovery, write off losses and enable citizens to access their money.

By the middle of the 1990s, as a result of the support provided by the Ministry of Finance and the CBK, the recovery of the majority of domestic banks from the impacts of the conflict was mostly complete. Expedited economic growth in the region was highly beneficial for the banking sector in Kuwait, which, similar to other financial sectors in countries in the Gulf region, experienced significant growth from the end of the 1990s onwards. The banking sector in Kuwait experienced rapid expansion at this time, largely due to increased oil prices, an inundation of state-led infrastructure and real estate development, and elevated stock market returns.

3.3.2. Non-Bank Financial Institutions and, Insurance companies in Kuwait

Non-Bank financial institutions are defined as financial bodies that offer non-bank financing and investments and largely consist of investment and exchange firms (IMF, 2004b).

As indicated by Capital Standards, 100 investment firms currently operate in Kuwait, where 54 of them with adhered to the principles of Islamic Sharia provisions and the remainder function as classical investment firms with the combined supervision of the CBK and Capital Markets Authority (CMA). Certain firms are also listed as asset management firms, investment holding firms, and investment banks. The CBK has responsibility for the financial

activities in which these companies engage in addition to 41 exchange firms (CBK, 2019).

Although the activities of standard investment funds are primarily centred on international markets, Islamic investment firms, which have experienced recent expansion, are largely focused on the domestic market. Overall, both Islamic and standard investment firms are highly capitalised, with approximately 32 and 30 percent of the total assets, respectively. The CBK is responsible for licensing and supervising investment firms; 27 of such firms are also listed in the KSE and must abide by the relevant rules and regulations.

The Kuwaiti insurance sector is relatively small, with an overall premium revenue of $1.7 billion in 2018, or about 1.2 percent of GDP. The market is served by 33 insurance firms that the Ministry of Commerce and Industry regulates, but only seven of them are listed on the stock exchange. Non-life insurance products constitute approximately 76% of the market, while the remainder comprises insurance products (IMF, 2019a).

The four biggest national firms have significant capital and profits, where the majority of their income is earned through investments and reinsurance commissions as opposed to underwriting from their own accounts.

3.3.3. Securities Market in Kuwait

The Kuwait stock exchange is now the most active in the Arab region with respect to turnover ratios. Four bodies are responsible for regulating the stock exchange in the country (Boursa Kuwait): the Kuwait stock exchange, the Central Bank of Kuwait, the Ministry of Finance and the Ministry of Commerce and Industry (IMF, 2004b).

In April 1977, the first formal stock exchange opened in the country, which took the form of an over-the-counter market. From its establishment until 1982, the stock exchange experienced a number of speculative boom-bust cycles, at which time a speculative blowout linked to a different unofficial market named the Souq Al-Manakh effectively ended investor liquidity (Craig, 2019).

The government reorganized the exchange as the KSE or Suq-al-Awraq al-Maliyya in 1983 (IMF, 2004b). During the remainder of the 1980s, the KSE continued to decline, even though greater than 50% of the market shares were owned by different government agencies.

After its operations were suspended as a result of the invasion of Iraq in 1990, the exchange opened again in September 1992, but only started to experience significant growth subsequent to 1995. In November 1995, an automated trading system was implemented by the KSE that was intended to permit increased trading volumes. In 1996 the Central Bank applied measures to limit consumer credit, which effectively decelerated the market growth.

This was followed by the reintroduction of a forward market in 1998. Gulf Cooperation Council (GCC) citizens were first permitted to trade on the KSA in May 1988, and this was extended to international investors in August 2000 (IMF, 2004a). At the end of 2002, the total amount of companies listed on the exchange reached 70 with an overall capitalization of $24.7 billion, thus rendering it the second biggest stock market in the Arab world (CBK, 2005).

In preparation for the upcoming privatisation effort, the market has undergone a series of technical upgrades and restructuring moves. In May 2017, for instance, the exchange instituted a T+3 settlement cycle, requiring investors to settle their security transactions within three business days of the trade date (CBK, 2019). This change brought Kuwait in line with global settlement standards.

The second stage of the market's strategic reformation was enacted in April 2018, when the bourse was reorganised into three new market segments, namely a premier market, main market, and an auction market (CBK, 2018a). Each listed security was assigned to one of the new segments, based on a range of criteria, including capitalisation, years in operation, regulatory compliance and liquidity, among others.

Broadly speaking, large companies with high liquidity and a strict record of compliance and transparency have been listed under the premier market

heading, while firms with low liquidity are listed under the auction market. All other companies are listed on the main board. The CMA reforms also included updated listing requirements and the issuance of a new rulebook for listed companies. Market segmentation is common practice at most prime exchanges around the world and provides greater investor protection.

Also, during 2018, Standard and Poor's rating agency and Dow Jones Indexes both upgraded the bourse to Emerging Market status as of 23rd September 2019, citing its active role in stimulating the Kuwaiti money market and its adoption of the latest international standards. This promotion followed Boursa Kuwait's implementation of the FTSE Russell classification system and its adoption of a set of measures, in cooperation with the Capital Markets Authority (CMA) and Kuwait Clearing Company (KCC), related to clearing and settlements (IMF, 2019a). Morgan & Stanley Capital International (MSCI) also included Boursa Kuwait into its annual review list for 2019 classification, following which it also nudged the market up to an Emerging Market. In November 2018, the bourse launched a system for trading in non-listed company shares, known as the Over the Counter (OTC) system to facilitate trading in non-listed shares and curb red tape through complete automation.

As of the end of June 2018, there were 175 securities listed on the exchange in total, according to data reported by Boursa Kuwait (Al-Kandari and Abul, 2020). Of these, 16 firms were listed on the premier market, 146 were on the main market, and 13 on the auction market. Market capitalisation in the same period registered $92.4 billion, down slightly from $92.6 billion at the end of 2017.

Boursa Kuwait's main trading indices showed a considerable drop from 2017, with a total value of traded shares at $13.507 billion against $18.670 billion, which is a drop of 27.7% and $5.163 billion (CBK, 2018a). Trading volume also dropped to 21.36 billion shares against 50.22 billion shares, which is a decline of 28.86 billion shares and 57.5%.

3.4. Overview of the Hong Kong Economy

Hong Kong was colonised by the United Kingdom in 1841. A free-enterprise economy gradually developed within Hong Kong, which transformed it into an Asian trading hub. After being transferred to China in 1997, Hong Kong has continued in a similar vein, according to the "one country, two systems" established by the 1984 agreement, which afforded Hong Kong an increased level of autonomy in all areas apart from foreign and defence policies for half a century (Chiu et al., 1997).

The economy of Hong has free market characteristics, ranked as having the most freedom on a global basis between 1995 and 2019 (Miller et al. 2020). Hong Kong is significantly dependent on trade and finance with other countries as the total volume of services and goods trade, which includes a large proportion of re-exports, is approximately four times the size of its GDP. Despite its small size, according to global rankings, Hong Kong was the seventh biggest trading entity in 2018 (WTO, 2019). No tariffs are imported products in the country. Furthermore, quotas and dumping laws do not exist (Zhang, 2005).

Due to the scarcity of natural resources in the country, it is necessary to import most food and raw materials. As a consequence of its connection with the Chinese mainland, Hong Kong relies on the adjoining country for the supply of food, water and raw materials (Shirley, 2014). Historically, China has been Hong Kong's most important source of trade, where approximately 50% of the country's overall trade by value is conducted with China. Due to its limited space and territory, Hong Kong has collaborated with China for the purpose of establishing big and labour-intensive production facilities. This offers particular benefits as the lower wages in China cause a significant reduction in the production costs of its exports, thus increasing their competitiveness in global markets. Additionally, dependence on China has assisted Hong Kong with penetrating the vast and expanding market in China, which has become the largest globally and one that many advanced economies are striving to enter (Feenstra and Hanson, 2004).

The open nature of the economy in Hong Kong has increased its exposure to economic conditions around the world. Its ongoing dependence on international trade and investment means it is susceptible to renovated volatility in international financial markets or deceleration in the worldwide economy, where the most significant events may include the Asian Financial Crisis (1997) as well as the Global Financial Crisis (2007-2008).

The sovereign wealth fund of Hong Kong is one of the biggest in the world, namely The Hong Kong Exchange Fund, which is officially called "The Hong Kong Monetary Authority Investment Portfolio", the management of which falls beneath the responsibility of the Hong Kong Monetary Authority. It was founded in 1935 for the purpose of supporting the Hong Kong dollar (Bernstein et al. 2013). The fund is ranked fifth in the world, according to the data of a report by the Sovereign Wealth Fund Institute, which specializes in studying government investments and sovereign funds, and its holdings reached US $522.6 billion in 2018.

3.5. Hong Kong financial sector

Hong Kong has one of the most vibrant international financial hubs globally, ranked number one in the World Economic Forum's Financial Development Index. It comprises an interconnected framework of markets and institutions that offer a broad variety of services and products to domestic and foreign clients and investors. The operations of the financial markets in Hong Kong are governed by effective and transparent regulations that conform to global standards(Schenk, 2002). The markets are also characterised by their elevated levels of liquidity.

The Hong Kong government ensures that it only applies minimal interventions in terms of the market functioning and has aimed to create conditions that are conducive to effective business operations. As its taxes are low and uncomplicated, this creates an environment in which businesses can implement new initiatives and innovate (KPMG, 2019). The ruling of the law and fair market policies are strongly emphasised. International businesses are not prevented from accessing the market, and both capital

and information are allowed to flow freely. The fact that exchange controls are applied differentiates Hong Kong from its peers (Porter, 2008).

According to the Global Financial Centres Index issued via the Z/Yen Group and China Development Institute in March 2019, Hong Kong was in the third position. The country is also presently the 12th largest biggest international banking centre in terms of external assets, the sixth-biggest foreign exchange market with respect to turnover, the sixth-biggest stock market in market capitalisation, and the second-biggest fund management centre in Asia in terms of assets- undermanagement.

As the economy of Hong Kong has become increasingly integrated with China over the past 20 years, it has experienced a structural transformation, transitioning from an economy based on manufacturing to one centred around services. The financial services sector has been identified as a "pillar" industry that will be a critical factor in driving employment and output growth.

The economy of Hong Kong is promoted by the government as a favourable business centre for renminbi (RMB) internationalisation. Residents of the country are allowed to set up savings accounts denominated in RMB, Hong Kong has issued corporate and Chinese government bonds denominated in RMB, trade settlements in RMB are permitted, and investment programs like the Renminbi Qualified Foreign Institutional Investor Program were originally launched in Hong Kong (Hong Kong Monetary Authority, 2016). Additionally, Hong Kong has become the preferred destination for Chinese companies who want to be listed internationally. As of 2015, approximately half of the companies listed on the Hong Kong Stock Exchange were from China, and around 66% of the market capitalisation of the exchange was attributed to such firms. In the last 10 years, in line with the relocation of the manufacturing sector of Hong Kong to the Chinese mainland, rapid growth has been witnessed in the service sector.

As a result of Hong Kong's status as a global international financial hub, the financial services industry is still a key economic pillar, contributing around 18.9% of the country's GDP in 2017.

The financial services sector is comprised of firms that provide banking, insurance and additional financial services. As of 2017, the financial services sector's overall value added totaled $429.2 billion, which equated to 18% of nominal GDP at basic prices. The banking industry is a critical component of the financial services sector. In 2017, the contributions of this industry to the overall value added and employment of the whole financial services sector amounted to 63% and 40%, respectively (IMF, 2019b).

An official declaration made on November 9, 1935 made the Hong Kong Dollar the national currency, which was fixed against the British pound at a rate of 1 pound to HK$16 (Latter, 2004). Currency issuance is performed by the Government along with three domestic banks, a process which is supervised by the country's de facto central bank, the Hong Kong Monetary Authority (HKMA). The HKMA functions in the manner of a central bank, and provides authorisation to three commercial banks to issue Hong Kong dollars, namely the Bank of China, HSBC, and the Standard Chartered Bank (Chiu, 2003).

In 1972, the link between the Hong Kong dollar and the British pound was disengaged after the British Government made the decision to float the pound sterling. Subsequently, the Hong Kong dollar was linked with the US dollar for a short period, initially at HK$5.65 to the US dollar, which was then changed to HK$5.085 in February 1973.

As the US dollar was losing strength, the Hong Kong dollar was permitted the freedom to float in November 1974. Although the initial period was fairly successful, the experience of a floating rate regime was not a comfortable one (Latter, 2004). Therefore, the Hong Kong dollar was once again fixed against the US dollar at the rate of HK$7.80.

3.5.1. Hong Kong Banking System

Hong Kong boasts one of the biggest representations of international banks globally; such institutions originate from 34 different countries and incorporate 78 of the 100 biggest banks in the world. Combined, they facilitate a wide network containing approximately 1,245 domestic branches,

not including their main business location within Hong Kong. These banks are engaged in a broad variety of wholesale and banking activities (KPMG, 2019).

With regard to external transactions, Hong Kong is the ninth biggest centre of international banking in the world, and only Japan is considered larger in Asia. The banking industry is a critical factor in the establishment of Hong Kong as a primary loan syndication centre in Asia.

A specific aspect of the Hong Kong banking system is its three tiers, which comprises three kinds of banking institutions: licensed banks, restricted license banks and companies that take deposits, which have the authority to accept deposits from members of the public. According to the Banking Ordinance, they are generally defined as authorised institutions. Various constraints apply to the different tiers of deposit-taking institutions (Ho and Odhiambo, 2013). Only licensed banks and restricted licensed banks can be called banks. Apart from authorised institutions that are permitted to receive deposits within Hong Kong, international banks can set up domestic representative offices in the country. Nevertheless, such offices are not authorised to conduct any banking activities in Hong Kong, and their remit is predominantly limited to liaising between the foreign banks and their Hong Kong's clients.

The structure consisting of three tiers allows institutions with strong foundations that are not eligible for a full banking license to request to be authorised as a restricted license bank or a company that can take deposits to allow them to take deposits or engage in investment and wholesale banking activities. The purpose of this structure is to warranty that only institutions that are deemed suitable are responsible for deposits made by the public.

The licensing criteria are periodically reviewed to make sure that they take into account the evolving requirements of the regulatory environment and conform to the developing global standards.

A total of 211 institutions operate within the banking industry, the assets of which amount to US$2 trillion, which equates to 70.5% of the GDP. On 30 April 2018, 175 licensed banks, 19 restricted license banks, and 17 deposit-taking companies were operating. In combination, a network containing in excess of 1,300 domestic branches is operated by these institutions. Additionally, foreign banks maintain 61 domestic representative offices within Hong Kong. Overall, the assets of the banks total greater than US$1 trillion (KPMG, 2019).

The banking sector is highly concentrated. The four biggest banks' total assets represent approximately 50% of the overall banking system assets; furthermore, around 74% of the total business receipts and additional income of the whole industry were attributed to the leading 20 authorised institutions with respect to business receipts and additional income in 2016 (HKMA, 2019). With approximately 35% of the overall assets of the banking system, overseas branches engage in a variety of business models, where some are group liquidity hubs, some are investment banks, and others participate in local banking activities, where 27% of local lending is attributed to such banks.

As a critical actor in Hong Kong's foreign exchange market, the banking sector makes a major contribution to the country's position as one of the biggest foreign exchange centres in the world. The foreign exchange market in Hong Kong is developed and dynamic, the evolution of which has been triggered by the lack of exchange oversight in the country as well as its beneficial location based on its time zone. Connections with international hubs allow the global trade of foreign exchange to occur without interruption on a continual basis.

The functions of the central bank have been distributed among various private and public agencies. The Hong Kong Monetary Authority was founded in 1993. It was generally perceived to be the central bank of Hong Kong.

The legal framework for supervising the banking sector in Hong Kong conforms to global standards. Prior to December 2006, the capital adequacy

ratio in Hong Kong was based on the Basel I agreement, and after that, it moved to Basel 2 controls until December 2012, which was followed by the adoption of Basel III controls. The capital adequacy ratios of local banks are already higher than the requirements of Basel, as the capital adequacy ratios ranged between 13.4% as a minimum in 2007 and a maximum of 20.7% in 2019 (KPMG, 2019). On the other hand, international banks that are represented by branches have no obligation to have capital in Hong Kong.

Significant financial policy measures were implemented in order to promote a competitive environment in the banking sector. For example, interest rates were deregulated, the policy that international banks could only have one branch was relaxed, and criteria for entering the market became more flexible. The rules governing interest rates were fully operational unto 1994, at which time, initial relaxation of the rules occurred as a result of the removal of the interest limit on particular kinds of time deposits. Subsequent to the economic recovery in Hong from the impacts of the financial crisis in Asia, the Hong Kong Monetary Authority implemented measures aimed at completely abolishing the interest rules to increase the level of market competitiveness.

The success of the banking and financial services economy in Hong Kong banking and financial services economy is primarily due to its non-discriminatory low tax regime. The reduced rates of tax are supported by the lack of various different kinds of taxation. Hence, apart from specific situations, withholding taxes, taxes on interest, capital gains tax as well as VAT or sales tax are not applied, while income generated external to the jurisdiction cannot be taxed within Hong Kong according to the "territorial principle".

3.5.2. Non-Bank Financial Institutions and, Insurance companies in Hong Kong

Hong Kong is the biggest venture capital centre in the Asian region. It has the second biggest concentration of venture capital professionals in the region and manages about a fifth of the overall capital pool in the area. The industry is marked by its international and offshore characteristics (Meyer, 2015). In

July 2018, the yearly survey of fund management activities performed by the Securities and Futures Commission reported that such business in the country reached over US$1.3 trillion.

Based on the findings of a study by the Securities and Futures Commission (SFC), in 2018, 62% of all investment funds (apart from REITs) originated from outside. Nevertheless, assets managed within Hong Kong constituted more than 50% of the total asset management business. In 2018, 67% of all assets managed within Hong Kong were invested in the Asia-Pacific region, totaling US$688 billion, where US$323 billion was in Hong Kong, US$155.5 billion in China, US$68.5 billion in Japan and US$141.1 billion in other Asia-Pacific countries.

The insurance sector is huge with significant diversification. In 2019, Hong Kong was ranked second globally in terms of insurance penetration (19.74% of GDP) and second also with respect to insurance density (US$9,706 per capita). The insurance sector incorporates a total of 160 licensed insurers, where 13 of the leading global insurers are operating in Hong Kong (Staib et al., 2020).

A large proportion of insurers in the sector have foreign owners (approximately 72 percent of all assets). Based on provisional statistics issued by the Insurance Authority, the overall gross premiums of the insurance sector in Hong Kong amounted to US$68.6 billion in 2018. There is significant concentration in the long-term insurance industry (incorporating life insurance and annuities) (OECD, 2019).

3.5.3. Securities Market in Hong Kong

The securities market in Hong Kong is characterised by its activity and liquidity. Controls are not imposed on the movement of capital, while capital gains and dividend income taxes are not applied.

As of June 2019, the stock market of Hong Kong was the third biggest in the Asian region and the sixth biggest globally with respect to market capitalisation (Hong Kong Monetary Authority, 2019). At the same time, the Hong Kong Exchanges (HKEx) included 2,382 listed companies, 743 of

which were Chinese (accounting for 56 percent of the overall capitalisation) 722 from Hong Kong and from the remainder were predominantly Asian, with an overall market capitalisation of approximately US$4.2 trillion, which represents 1,000 percent of GDP. Additionally, the overall market value of outstanding debt issues amounted to US$154 billion for 355 issues (HKMA, 2020).

The market in Hong Kong is one of the most dynamic in the world with respect to initial public offerings, as a total of US$36.7 billion was raised in 2019. Furthermore, the highest volume of RMB liquidity outside China is hosted by Hong Kong.

The money market in Hong Kong mainly comprises the interbank market, where the Hong Kong Interbank Offer Rate provides a significant indication of short-run fund prices in Hong Kong (FSTB, 2020).

Since 2009, Hong Kong was the leading country in terms of IPO funds raised. Products traded in the stock market vary and include shares, various funds and debt securities, and others (HKMA, 2018).

As of 31 March 2020, 54 international market operators had received authorisation to act as automated trading service providers for the purpose of offering their trading and/or clearing services to Hong Kong institutions (FSTB, 2020).

CHAPTER 4

THE SHORT AND LONG TERM FINANCE AND GROWTH RELATIONSHIP

4.1. Introduction

Based on the discussion in previous chapters, in this chapter, we investigate the cointegration relation between financial development and economic growth taking into account the price of oil and some other variables that are believed to have an impact on the relationship. In addition, we use the financial development indicator created by the International Monetary Fund.

The economic literature postulates that in a world where the flow of capital is increasing, a well-regulated financial system in which savings are efficiently channelled to investment is crucial. Financial systems are critical for the mobilization and efficient allocation of savings and resources to productive sectors of the economy as well as for satisfying the varying needs of lenders and borrowers. Hence, a robust financial system is pivotal for promoting growth in the economy and there must be effective integration into policies for development. Many types of research have focused on Finance and growth relation. In fact, early writers on this relationship utilized financial systems in the context of endogenous growth theory to investigate this relationship. One of the most prominent of these writers is Schumpeter (1911), who tightens the importance of the financial sector development to support economic growth, where he concluded that the financial system and

well-functioning financial institutions are critical for the ability to achieve sustained economic growth, based on the assumption that innovation processes are influenced by a combination of money, credit, and finance. (Knell, 2015).

After the pioneering work of Schumpeter, the relation between financial sector development and economic growth has been thoroughly tested and an enlarging volume of empirical research has detected indications of a strong association between financial development and growth of the economy (e.g., Lutz, 2008; Beck et al. 2000; De Gregorio and Guidotti, 1995; Ghirmay, 2004; Goldsmith, 1969; McKinnon, (1973); Shaw, 1973; Patrick, 1966; Peia and Roszbach, 2014; Puatwoe and Piabuo, 2017). These researchers investigated whether financial development causes economic growth (supply leading) or vice versa (demand following). It has also been questioned whether in fact economic growth and financial development cause one another (bidirectional causality) or whether a causal relationship does not in fact exist (Rufael, 2009).

In this context, this chapter takes the available indicator of financial development recently released by the International Monetary Fund (IMF) to explore the existence of cointegration relationship between financial development and economic growth in the context of a pair of Asian nations, where one is developing and an oil exporter (Kuwait), and the other is developed and an oil importer (Hong Kong), for the time span covering 1980 to 2017. The findings will show whether the difference in the economic structure between countries resulting from the presence of natural resources (oil for Kuwait) affects the existence and directional nature of the relationship between financial development and economic growth. To achieve this aim, this study utilizes the bootstrapping autoregressive distributed lag (ARDL) bounds test suggested by McNown et al., (2018) to investigate the relationship between financial development and economic growth.

This chapter offers various contributions to the extant body of literature and has various unique aspects. Until now, extant empirical studies have placed emphasis on a certain relationship between economic growth and financial

development, where financial system development is measured by individual or multiple financial indicators, or even by using principal component analysis (PCA) to combine multiple indexes to get a single indicator for financial development. Nevertheless, in reality, financial development is a phenomenon comprised of multiple different facets. Hence, it is hard to conceive that a solitary basic aggregated financial measure could adequately generate a comprehensive visualization of financial development (Cole, 1988). Additionally, the use of varied proxies of financial development could produce significantly different results. Therefore, the present study is of particular importance as it uses the financial development indicator developed by the IMF, which covers financial development better than individual indicators.

The second unique aspect of this chapter is that it applies the newly developed bootstrapping ARDL bounds testing approach proposed by McNown et al. (2018). It is possible that firm results were not inferred by past researchers who adopted the classical ARDL technique in their empirical studies (Ouyang and Li, 2018). Therefore, this study employs a type of ARDL tests with greater robustness for the purpose of analysing the cointegration relation between financial development and economic growth more thoroughly as well as to prevent imperfect outcomes or erroneous conclusions.

Thirdly, this chapter makes a comparison of the connection that links financial development and growth in two nations, which are characterized by different economic structures (Kuwait and Hong Kong). Many nations have differences with regard to their financial and economic structures, the extent to which their financial institutions are concentrated, the magnitude of financial institutions and instruments, the degree to which financial intermediaries are efficient, the amount of financial transactions and the efficacy of the financial regulatory framework (Ang, 2008). Thus, this study seeks to explore whether the nexus between finance and growth is affected by different economic structures with respect to oil reserves.

The remaining parts of this chapter are arranged in the following manner. Section 4.2 explains the methodological approach used in our research. Section 4.3 describes the data and also presents and discusses the experimental findings. Finally, Section 4.4 concludes the chapter.

4.2. Methodology

In recent years, scholars have generally preferred the cointegration technique for studying the causality that exists between different variables (Sam et al. 2018). According to Wang and Fasano (2002), the cointegration or error-correction framework offers a more thorough approach for testing the nature of the causal relationship. Therefore, most of the studies often use the traditional ARDL bounds test developed by Pesaran et al. (2001) for testing the cointegration relationship among variables as the majority of the applications include economic variables whose integration order is either mixed or unknown. The ARDL model provides greater flexibility with regard to implementation in cases where the integration order of the data series is not unique. It is possible to apply this model to variables with different integration orders, such as I(0) or I(1). On the other hand, it cannot be applied if one of the variables is I(2). Furthermore, in the case of smaller datasets, its application is considered reliable for producing consistent outcomes. (Haug, 2002). Additionally, when a lag must be selected for both the dependent and independent variables, an increased amount of options are offered and it is capable of handling any problems of endogeneity that may arise.

Nevertheless, certain assumptions were made by Pesaran et al., (2001) when they developed the bounds testing method, including the exogeneity of the independent variables as well as a pair of cointegration tests: the general F test on all variables at the lagged level in addition to the t-test for the dependent variable at the lagged level, where it is necessary for the dependent variable to be of order I(1) and there should be no degenerate cases for a reliable conclusion to be drawn. Degenerate cases materialize in the event that either of the dependent or independent variables at the lagged level are determined to have statistical insignificance from the ARDL equation error correction term. The cointegration relationship is invalidated in

the case where either dependent or independent variables at the lagged level have statistical insignificance. Nevertheless, as proposed by McNown et al. (2018), scholars tend to disregard these assumptions, which could lead to deceptive results. Furthermore, in the traditional ARDL bounds test, it is assumed that no feedback occurs between the dependent variable and the regressors. Nonetheless, in numerous situations, it is not plausible to make the assumption that any series within a particular model has weak exogenous.

Therefore, this study used the bootstrapping ARDL test cointegration technique proposed recently by McNown et al., (2018) in order to investigate the cointegration association among the variables and primarily to investigate the nature of the relation between financial development and economic growth for the cases of Hong Kong and Kuwait. The bootstrap approach is now more frequently used for testing hypotheses in econometric analyses due to the fact that the critical values the test produces are generally more precise than asymptotic ones[5]. Additionally, the bootstrapping ARDL bounds testing method does not exhibit sensitivity to the variables' integration order and it is more conducive to dynamic time-series models with multiple explanatory variables and smaller sample data (Nawaz et al., 2019)

The innovative aspect of this approach that it resolves the problems of insufficient power and size experienced by the traditional ARDL bounds test for Pesaran and Shin (1999) as well as Pesaran et al. (2001) (Pata, 2019). This approach additionally incorporates a novel test to strengthen the F test and T test, based on the conventional framework developed in the ADRL bounds testing approach. The benefit of the supplementary test is that it is capable of overcoming the dependence on the presumption of a dependent variable with order I(1) to eliminate the degenerate case. This diminishes the possibility of erroneous conclusions drawn from traditional unit root tests with minimal power, therefore provides a better view of the cointegration status of the model. Furthermore, it is also possible to use the bootstrapping ARDL

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[5]. See (Singh, 1981; Beran, 1988)

approach for dynamic models with multiple independent variables (Shahbaz, et al. 2018).

The traditional ARDL model proposed by Pesaran et al., (2001) is a dynamic individual equation error-correction specification. Generally, an ARDL with three variables (p, q, r) can be formulated as:

$$y_t = \sum_{i=1}^{p} \alpha_i y_{t-i} + \sum_{j=0}^{q} \beta_j x_{t-j} + \sum_{k=0}^{r} \gamma_k z_{t-k} + \sum_{i=1}^{s} \tau_l D_{t,l} + \mu_t \qquad (4.1)$$

Where i, j, k, and l are indices of lags and t denotes the periods of time, y_t represents the dependent variable, and x_t and z_t stand for the independent variables, $D_{t,l}$ is a dummy variable, α_i is represented the coefficient on the lag of the dependent variable, and β and γ denote the lagged dependent variable's coefficients, and τ is the dummy variable's coefficient. Finally, μ_t denotes the error term with finite variance and zero mean.

It is possible to re-parameterize and express Equation (4.1) in an error correct form in the following way:

$$\Delta y_t = \varphi y_{t-1} + \gamma x_{t-1} + \Psi z_{t-1} + \sum_{i=1}^{p-1} \lambda_i y_{t-i} + \sum_{j=1}^{q-1} \delta_j x_{t-j} + \sum_{k=1}^{r-1} \pi_k z_{t-k} + \sum_{l=1}^{s} \omega_l D_{t,l} + \mu_t \qquad (4.2)$$

Where $\varphi = \sum_{i=1}^{p} \alpha_i$, $\gamma = \sum_{j=0}^{q} \beta_j$ and $\psi = \sum_{k=0}^{r} \gamma_k$. At this point, $\lambda_i, \delta_j, \pi_k$,

and ω_l account for the associated functions in Equation (4.1). Deriving Equation (4.2) from Equation (4.1) involves the conventional renormalization process utilized in the transformation of a vector autoregression (VAR) at level into its error correction form.

Estimation of Equation (4.2) can be performed utilizing a constant term (ĉ) in the unconditional model as follows:

$$\Delta y_t = \tilde{c} + \tilde{\varphi} y_{t-1} + \tilde{\gamma} x_{t-1} + \tilde{\psi} z_{t-1} + \sum_{i=1}^{p-1} \tilde{\lambda}_i y_{t-1} + \sum_{j=1}^{q-1} \tilde{\delta}_i x_{t-1} + \sum_{k=1}^{r-1} \tilde{\pi}_i z_{t-k} + \sum_{l=1}^{s} \tilde{\omega} D_{t,l} + \tilde{\mu}_t \qquad (4.3)$$

According to McNown et al. (2018), there is cointegration between y_t, x_t and z_t that necessitates that the three null hypotheses listed below be rejected:

a) The F1 test is founded on all pertinent error-correction terms (H_0: $\varphi = \gamma = \psi = 0$ versus H_1: $\varphi, \gamma, \psi \neq 0$).

b) *The F2 test is founded on each of the independent variables* (H_0: $\gamma = \psi = 0$ versus H_1: one of γ or $\psi \neq 0$).

c) The T-test is founded on the lagged dependant variable (H_0: $\varphi = 0$ versus H_1: $\varphi \neq 0$)

In the traditional ARDL approach, the bounds test critical values are only generated for the F1 and T tests, while the test statistic for the F2 test on lagged independent variables are disregarded. Through the application of the bootstrapping ARDL approach developed by McNown et al., (2018), it is possible to generate critical values for each of the tests simultaneously, while to create robust empirical outcomes, the critical values proposed by McNown are used.

4.3. Data and Empirical Results

4.3.1. Data and preliminary results

Yearly data for Kuwait and Hong Kong is utilized for the period between 1980 and 2017. All data were sourced from the World Development Indicators (WDI) dataset as well as the IMF.

The variables of interest include an economic growth indicator represented via real GDP per capita in constant 2011 US dollars (LG) as the dependent variable and the IMF's Financial Development indicator (FD) as the independent variable. In addition, some important determinants of growth suggested by the existing literature are incorporated into the model for controlling any possible misspecification[6].

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[6]. See for example (Adu et al., 2013; Ibrahim and Alagidede, 2018; Jalil, et al., 2010; Puatwoe and Piabuo, 2017; Samargandi, et al., 2014, 2015; Sanogo and Moussa, 2017)

The explanatory variables are: Gross fixed capital formation as a proportion of GDP (FC) to account for investments made in physical capital; Trade openness (exports plus imports) to GDP (TO), which reflects the extent to the which the economy is open to trade and captures the effects of international factors on economic activity; The international crude oil price (OP) measured as average annual OPEC crude oil price (in US dollars per barrel); Lastly, General government final consumption spending as a proportion of GDP (GC), which reflects the volume of public goods furnished by the government, while it additionally denotes the distortionary impacts of taxation and public expenditures. Each of the variables was transformed into natural log to resolve the dimensional differences between the series (Shahbaz et al., 2016).

Table 4.1. Reports the summary statistics for the data series.

Country	Variables	Mean	Median	Maximum	Minimum	SD	Skewness	Kurtosis	JB
Kuwait	LG	11.01	11.04	11.28	10.46	0.18	-1.24	4.42	12.91
	FD	-1.03	-1.07	-0.62	-1.41	0.20	0.42	2.22	2.10***
	GC	3.12	3.12	4.33	2.41	0.39	0.81	4.25	6.65
	TO	4.56	4.55	4.96	4.40	0.10	1.81	8.42	67.28
	OP	3.48	3.34	4.70	2.51	0.66	0.48	2.03	2.93***
	FC	2.84	2.80	3.67	2.37	0.28	0.84	3.69	5.18**
Hong Kong	LG	10.01	10.01	10.54	9.28	0.37	-0.36	2.16	1.96***
	FD	-0.49	-0.35	-0.23	-1.22	0.29	-1.60	4.30	18.8
	GC	2.11	2.15	2.40	1.73	0.17	-0.31	2.14	1.79***
	TO	5.60	5.49	6.09	5.13	0.29	0.27	1.72	3.05***
	OP	3.48	3.34	4.70	2.51	0.66	0.48	2.03	2.93***
	FC	3.21	3.19	3.51	3.02	0.14	0.49	2.10	2.83***

Note: JB stands for the Jarque-Bera test of normality. **, and *** indicate significances at the 0.05, and 0.1 levels, respectively.

The findings shown in Table 4.1 reflect the descriptive statistics for the data series. All of the variables for Kuwait and Hong Kong have low variations evidenced by small standard deviations.

The skewness test result indicates that most variables' data are either fairly symmetrical or moderately positively skewed. In addition, all variables had low and positive kurtosis; the signs of non-normal distribution are clear in some of the variables because of excess kurtosis. This finding enhanced by Jarque-Bera test findings. Using this test, it is possible to reject the null hypothesis of normality for some variables in Kuwait (LG, GC, TO) and Hong Kong (FD), while it is accepted for the rest of the variables.

Table 4.2. Unit root tests results.

Country	Variables	Level			1st difference		
		ADF	DF-GLS	KPSS	ADF	DF-GLS	KPSS
Kuwait	LG	-2.72*	-2.26**	0.09	--	--	--
	FD	-3.39*	-3.31**	0.08	--	--	--
	GC	-2.24	-1.5	0.13*	-3.20**	-2.62**	0.20
	TO	-3.66***	-3.83***	0.32	--	--	--
	OP	-2.16	-1.81	0.16**	-5.82***	-5.98***	0.11
	FC	-4.15***	-3.85***	0.12	--	--	--
Hong Kong	LG	-1.92	-1.53	0.12*	-5.18***	-5.29***	0.09
	FD	-1.82	-1.50	0.19*	-4.30***	-4.57***	0.11
	GC	-2.09	-0.50	0.59*	-5.24***	-2.64***	0.16
	TO	-0.97	-0.09	0.68*	-5.29***	-5.37***	0.10
	OP	-1.12	-1.16	0.45*	-4.50***	-5.95***	0.16
	FC	-1.92	-1.15	0.35*	-3.80***	-3.80***	0.08

Note: ***, ** and *, indicate significances at the 0.01, 0.05, and 0.1 levels, respectively.

It is possible to apply the bootstrapping ARDL framework without the requirement to perform a unit root test. However, the unit root is tested to ensure that the integration order for all variables is either I(0) or I(1), because the existence of variables of I(2) will invalidate the computed bounds testing statistic (Pesaran et al., 2001). Consequently, the following unit root tests are used: Augmented Dickey-Fuller (ADF), Dickey-Fuller generalized least squares (DF-GLS), and Kwiatkowski-Phillips-Schmidt-Shin (KPSS).

Table 4.2 shows the findings of the unit root tests for Kuwait and Hong Kong. The results for Kuwait show that some variables are stationary at level and others stationary at their first difference, while the Hong Kong variables are all stationary at their first difference, thus indicating that the variables are of mixed order: I (0) and I (1).

4.3.2. Bootstrap ARDL Cointegration test results

Subsequent to affirming the integration order of each of the variables, we now examine the cointegration utilizing the bootstrap ARDL test method developed by McNown et al. (2018) for both Kuwait and Hong Kong. The order of lags for bootstrap ARDL specifications is chosen on the basis of the Schwarz information criterion (SIC) to show the optimal lag length. The empirical findings for the bootstrap ARDL are reported in Table 4.3.

The bootstrapping ARDL statistics represented by the F and t-tests for the lagged dependent and independent variables shown in Table 4.3 suggest that the null hypothesis of no cointegration could be rejected for both countries.

Where financial development (FD), trade openness (TO), oil price (OP), gross fixed capital formation (FC), and general government final consumption expenditure (GC) are treated as the independent variables. Hence, the output indicates robust evidence supporting the existence of a long-run equilibrium cointegration association between the variables under examination in both countries.

Table 4.3. Bootstrap ARDL cointegration test results.

	Bounds testing approach to cointegration						Diagnostic tests		
Country	Estimated models	Lag	Break	FpSS	TDV	TIV	Q-Stat	LM (2)	JB
Kuwait	LG= f (FD, GC, TO, OP, FC)	(4, 4, 3, 3, 1, 2)	1991	3.99*	-2.67**	-2.30*	6.81	0.13	10.50
Hong Kong	LG= f (FD, GC, TO, OP, FC)	(4, 3, 4, 4, 2, 0)	2008	8.27**	4.04***	5.13***	10.44	0.46	6.95

Notes: ***, ** and *, indicate significantly at the 0.01, 0.05, and 0.1 levels, respectively.

The diagnostic tests highlight the robustness of the obtained outcomes. As indicated in Table 4.3, the lack of serial correlation is supported by the Breusch-Godfrey LM test statistics. In both countries, there is no rejection of the null of no serial correlation, which shows the independency of each observation on each variable. The normal distribution is documented using Jarque Bera test statistics, while the evidence of non-rejection of Q statistics validates that the variables are all independently distributed (residual is white noise).

4.3.3. Long-run estimation results

The estimated long-run results are displayed in Table 4.4. According to our findings, it is clear the influence of financial development on the growth in Kuwait and Hong Kong is positive and statistically significant. Ceteris paribus, a 1% rise in FD is accompanied by growth of 0.1799% and 0.2759% in the Kuwaiti and Hong Kong economies, respectively. Furthermore, the increasing influence of enhanced financial development on growth occurs after two years in Kuwait and one year in Hong Kong.

Hence, we can say that Hong Kong's economy has benefited more from financial development than Kuwait's economy. An explanation for this outcome could be that the financial sector in Hong Kong has reached a

greater level of development compared to the Kuwaiti financial sector, where the financial sector plays a major role in Hong Kong's economy. Since the late seventies of the last century, Hong Kong has been considered the financial core of the Asian region, and is ranked third after New York and London in terms of the size of its financial market (Ashwani and Sheera, 2018). In addition, to the number of global banks working in Hong Kong make it a world leader and it is the ninth largest global banking centre with regard to the amount of external transactions and ranked second in Asia behind only Japan (Meyer, 2009).

Table 4.4. Long run results.

	Kuwait	*Hong Kong*
Constant	9.04***	3.83***
GC(-1)	-0.28*	0.30***
GC(-2)	0.01	--
FD(-1)	0.03	0.27**
FD(-2)	0.17*	--
FC(-1)	0.01	0.09
FC(-2)	0.19	--
OP(-1)	0.11**	-0.07
OP(-2)	0.03	--
TO(-1)	0.22	1.01***
TO(-2)	0.22	--
Dum	0.46***	-0.01*
R-squared	*0.88*	*0.98*
F-statistic	*4.4***	*271.2***
Long-run stability diagnostic tests		
Jarque-Bera	1.26	0.41
Breusch-Godfrey LM	0.27	0.60
CUSUM	Stable	Stable

Note: Dum signifies the dummy variable corresponding to the break date of 1991 in Kuwait and 2008 in Hong Kong. Optimal lag is selected using SIC information criteria. ***, ** and *, indicates significantly at the 0.01, 0.05, and 0.1 levels, respectively.

The association between government final consumption expenditure and growth of the economy is different in the two nations; it is negative and statistically significant at 10% level in Kuwait, but positive and statistically

significant at 1% level in Hong Kong. A 0.3067% rise in economic growth in Hong Kong is fostered by a 1% increase in general government final consumption expenditure if all else is the same. However, its effect in Kuwait is negative on economic growth by 0.2857%.

Therefore, it is possible to state that government expenditure in Kuwait impedes economic growth. This result has empirical semantics in several studies. For example, Barro and Martin (2003); Folster and Henrekson (2001); Hajamini and Falahi (2014); Hasnul (2016); Heitger (2001); Nurudeen and Usman (2010). Heitger (2001) claimed that the negative influence of government expenditure on growth of the economy can be explained by excessive government spending, while Barro and Martin (2003) ascribed the negative influence of government expenditure on growth to the inefficient public sector or various bad governmental practices including corruption. Last but not least, Hajamini and Falahi (2014) reported that subsequent to exceeding the threshold, the influence of government spending on economic growth transforms from positive to negative.

In addition, some variables appeared as statistically significant in one country without the other, as oil prices appeared to assert a positive statistically significant effect on Kuwait economic growth (0.1149%) at the 5% level of significance, while the same variable (oil price) was negative and statistically insignificant in Hong Kong. This outcome is indeed consistent with theoretical and experimental predictions and it is similar to Ghalayini (2011) which indicates that in countries that import oil, there is a negative association between rises in oil prices and economic growth, whereas ceteris paribus, there is a positive association for countries that export oil.

Conversely, as the partial coefficient for Hong Kong is significant, this indicates that the competitive outside conditions promote economic growth, where trade openness manifests positive statistical significance in Hong Kong (1.0123%) at 1% significant level, while it was not statistically significant in Kuwait. With regard to the gross fixed capital formation variable, it was found to have no statistical significance in either country. The empirical results for Hong Kong are consistent with Ashwani and Sheera (2018), who

determined that there is a positive statistically significant long-run relationship between trade openness and economic growth in Hong Kong, whereas the gross fixed capital formation does not significantly impact growth in the long term. Similarly, the findings for Kuwait partially support the results of Iheanacho (2016) who found that trade openness and gross fixed capital formation were all insignificant in the long-run in terms of their effect on economic growth for Nigeria.

We can explain the insignificant gross fixed capital formation based on neoclassical growth theory (Solow, 1956), which states that it is not possible to sustain long-term growth solely by capital deepening due to the fact that reduced returns to physical capital are observed, and in order to resolve this problem, the complementary impacts of human capital and/or public capital within production are required (Samargandi et al., 2015).

The influence of the dummy variable on growth of the economy also varies within the two nations; it is positive statistically significant in Kuwait, while negative statistically significant in Hong Kong. This result is logical if we know that the dummy variable in Kuwait is related to the period of the Iraqi invasion of Kuwait in 1991 and the period that followed was the stage of reconstruction, which was associated with a rise in the rates of economic growth resulting from increased government expenditure and investment (Alawadhi, et al., 2018). Therefore, the positive effect of the dummy variable is expected. However, the dummy variable in Hong Kong is associated with the period of the financial crisis in 2008, which had negative effects on growth rates that spanned several years. This fact justifies the negative link between the dummy variable and growth.

The long-run model has statistical significance at 1% level in both countries and is thoroughly explained by the independent variables, as evidence by the elevated R^2 values, which are 88.87% and 98.19% for Kuwait and Hong Kong, respectively. In addition, the absence of serial correlation is confirmed, while it is revealed by the diagnostic analysis that the error terms are normally distributed for Kuwait and Hong Kong.
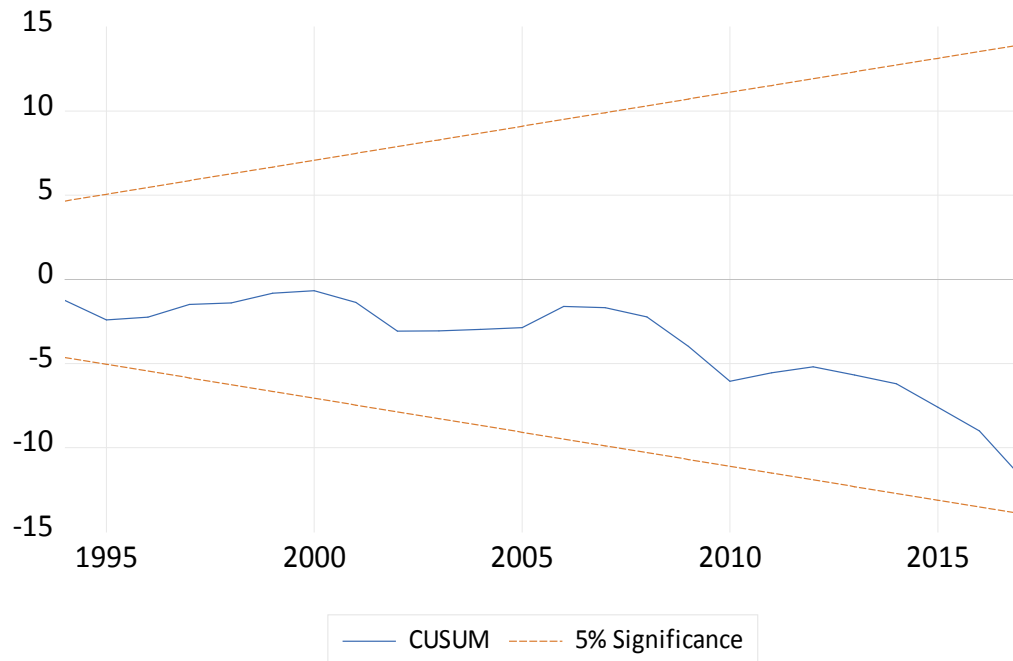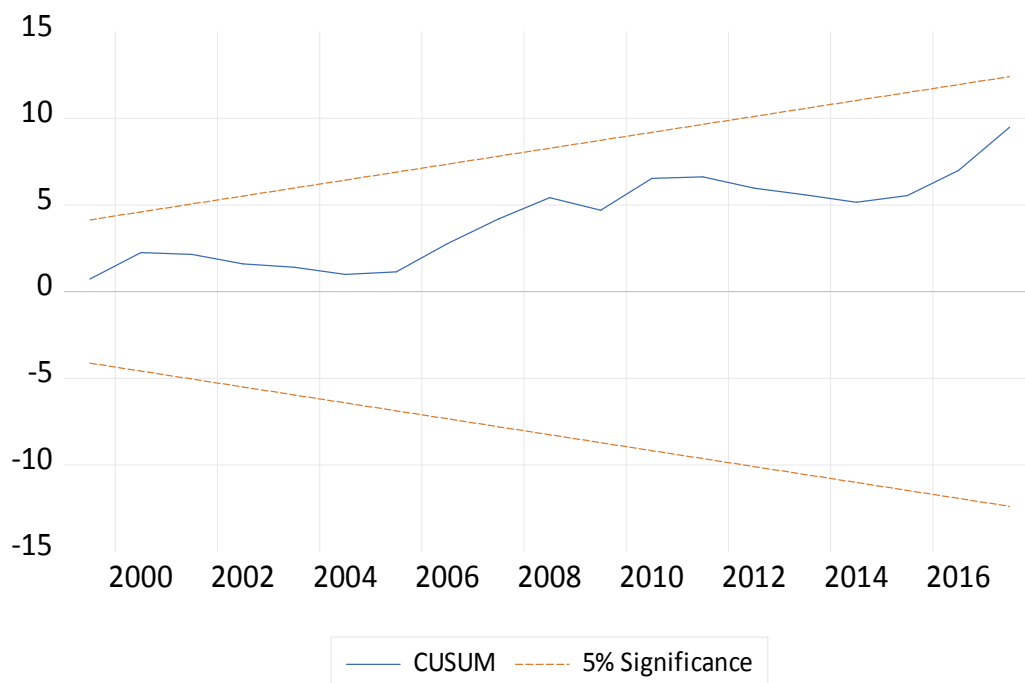
Figure 4.1. CUSUM. Long run for Kuwait

Figure 4.2. CUSUM. Long run for Hong Kong.

The stability of the long-run model is also confirmed via the CUSUM test, that is founded on the cumulative sum of the recursive residuals. The CUSUM

test in Figures 4.1 and 4.2 shows the blue lines are situated between the 5% significance lines, thus indicating the stability of the long-run parameters.

4.3.4. Short-run estimation results

The empirical outcomes based on the short-run analysis are shown in Table 4.5. It can be observed that financial development has a positive statistically significant influence the growth of the economy in the short run for both Hong Kong and Kuwait.

Table 4.5. Short-run results.

	Kuwait	Hong Kong
Constant	0.02	0.03***
Δ GC(-1)	-0.38*	0.02
Δ GC(-2)	0.15	--
Δ FD(-1)	0.08	0.05**
Δ FD(-2)	0.24**	--
Δ FC(-1)	-0.02	-0.11*
Δ FC(-2)	0.33**	--
Δ OP(-1)	0.18**	-0.03
Δ OP(-2)	0.25**	--
Δ TO(-1)	0.79**	0.26**
Δ TO(-2)	0.17	--
DUM	-0.02	-0.01*
ECM(-1)	-0.56***	-0.41***
R-squared	*0.89*	*0.8*
F-statistic	*17.4****	*2.8***
Short-run stability diagnostic tests		
Jarque-Bera	1.53	1.49
Breusch-Godfrey LM	1.23	1.67
CUSUM	Stable	Stable

Note: Dum signifies the dummy variable corresponding to the break date of 1991 in Kuwait and 2008 in Hong Kong. Optimal lag is selected using SIC information criteria. ***, ** and *, indicates significantly at the 0.01, 0.05, and 0.1 levels, respectively.

The error correction term (ECM_{t-1}) estimation is found to be negative and statistically significant at 1% level for both countries, which corroborates the long-run association between financial development and growth, including

other determinants of economic growth. The error correction term estimate indicates that short-run divergences converge in the long run by 41% in Hong Kong and 56.14% in Kuwait. This shows that close to 56% of disequilibrium in economic growth in Kuwait and 41% in Hong Kong can be offset by the short run adjustment in the same year.

The short-run model is found to have statistical significance at the 1% level in Kuwait and 5% in Hong Kong, while the high value for R^2 suggests that economic growth is effectively explained by the independent variables in the short run for both Kuwait and Hong Kong. Furthermore, the diagnostic tests indicate that there are no problems for the short-run model. The outcomes show the absence of non-normality in the model. No evidence is found showing a serial correlation in the short-run model.

The short-run estimate's reliability is verified through the application of the CUSUM tests, the results of which are shown in Figure 4.3 and Figure 4.4. It can be observed that the CUSUM test plots for both nations lie between the critical bounds at 5% level, thus confirming that short- term estimates are reliable.
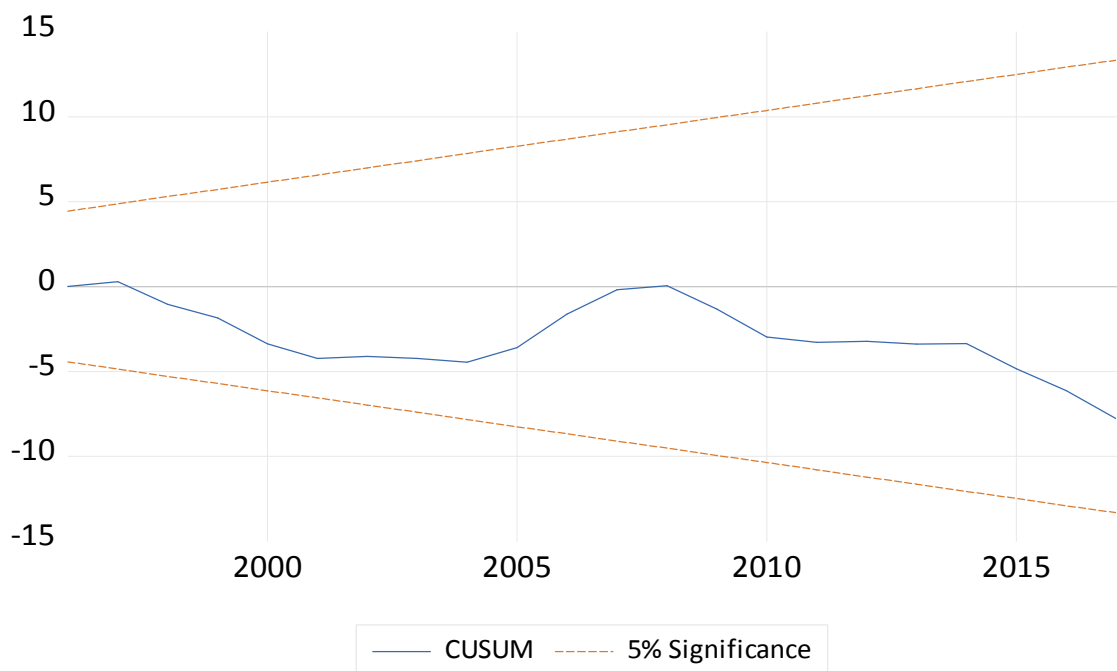

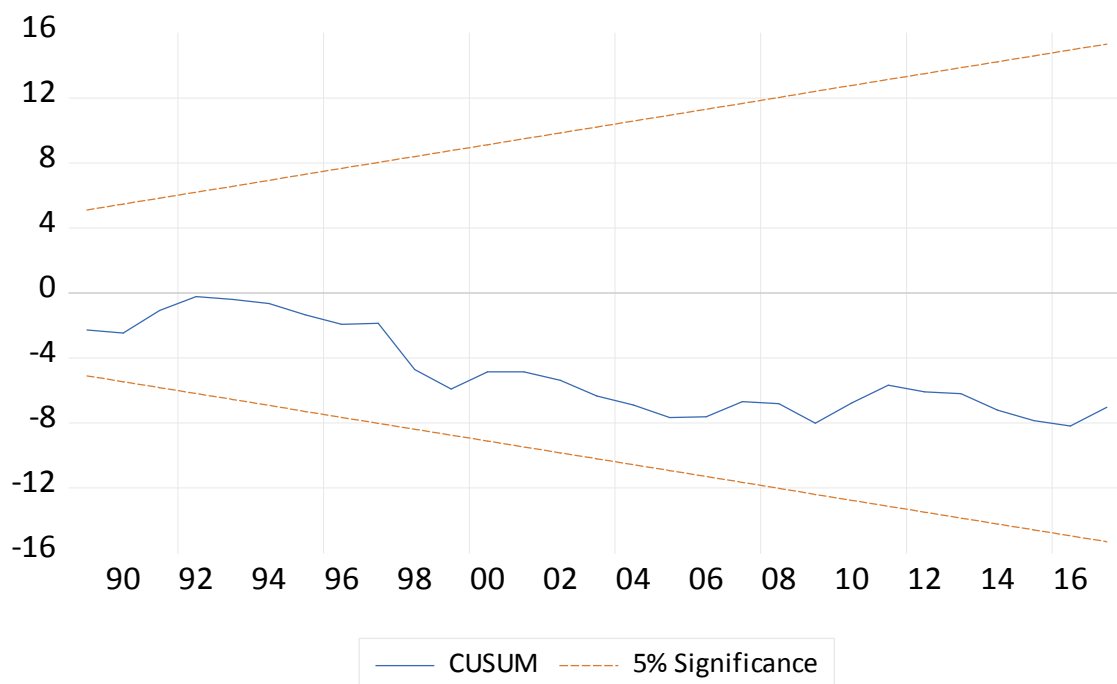**Figure. 4.3.** CUSUM. Short-run for Kuwait.

Figure. 4.4. CUSUM. Short-run for Hong Kong.

4.4. Conclusion

The current chapter has investigated the impacts of development of the financial sector on economic growth in two nations with comparable levels of economic growth but different in the economic structure, namely Kuwait and Hong Kong for the timespan between 1980 and 2017.

The researcher employed the IMF's financial development indicator to explore the association between finance and growth and relied on the application of the bootstrapping ARDL bounds test technique proposed by McNown et al., (2018) for the purpose of examining the cointegration between the variables. Compared to standard cointegration approaches, bootstrapping ARDL offers a more thorough and robust method for testing the cointegration between variables within a time series model.

The empirical findings confirm the presence of cointegration, which supports the existence of long-run relationships between the variables in both countries. The results for Kuwait and Hong Kong indicate the existence of a

positive significant association between financial sector development and growth.

As well as the positive influence of financial development, the long-run outcomes with regard to the economy in Kuwait indicated a positive and significant impact on economic growth for each of the oil prices and dummy variable, and a negative for general government final consumption expenditure variable. On the other hand, Hong Kong's long-run results have shown that the general government final consumption expenditure and trade openness have a positive statistically significant influence on economic growth, while both oil prices and the dummy variable have negative effects.

Additionally, the short-run results support the influence of financial development on economic growth in both nations. Furthermore, it was found that oil prices, fixed capital formation, and trade openness promote the growth of the economy in Kuwait. However, the general government final consumption undermines economic growth.

As for Hong Kong, the outcomes show that gross capital formation and the dummy variable reduce economic growth, whereas it is promoted by trade openness.

Therefore, our findings support the supply-leading hypothesis, and it can also be stated that the different economic structures within countries do not influence the effect that financial development has on economic growth, and the prevalence of natural resources (represented by oil in our study) does not influence the characteristics of the association between financial sector development and economic growth.

With regard to policy implications, the positive linkage between economic growth and financial sector development suggests that the financial systems within Kuwait and Hong Kong should be developed. For example, the respective financial sectors should establish financial institutions that are capable of introducing novel financial products and services that can function efficiently and effectively in order to maximize the potential advantages of the financial system while simultaneously supporting the growth of the economy.

CHAPTER 5

THE DIRECTION OF CAUSALITY BETWEEN FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH

5.1. Introduction

As we explained in the previous chapters, studies on the direction of a causal relationship between economic growth and financial development did not reach a consensus on the direction of this nexus, therefore, this chapter's purpose to examine the association and the direction of causality between economic growth and financial development in the case of Kuwait, and Hong Kong through tests of causality in the time domain and frequency domain. To determine if the causal relationship runs from economic growth to financial development or vice versa or it is a bi-directional causal relationship.

Specifically, the present chapter experimentally investigates the causal relationship that exists between economic growth and financial development within particular economies, namely Kuwait and Hong Kong, taking into account that there is no study in the literature exploring this causal relationship in these two countries. For this purpose, the current chapter utilizes diverse causality approaches to generate robust results concerning with this relationship h in both time and frequency domains during the period 1991-2017. The first method applied is Toda-Yamamoto causality test developed by Y.Toda and Taku Yamamoto (1995). As conventional causality

techniques that purpose to find sudden shifts are insufficient in terms of their ability to capture progressive structural alterations (Küçükkaplan et al., 2018). The second method in this chapter is the Fourier approximation with Toda and Yamamoto (1995), which was suggested by Nazlioglu et al. (2016). The third method after applying tests of causality in the time domain is the spectral causality test within the frequency domain as suggested by the Breitung and Candelon (2006), which improves the methodological approach developed by Geweke (1982) and Hosoya (1991).

Through the employment of the previously mentioned methods to examine the causal relationship between financial development and economic growth in Kuwait and Hong Kong as oil-exporting and importing economies, the present chapter contribution to the present literature is multifaceted and it attempts to fill the gap in several ways.

Therefore, this chapter contributes to the existing literature through exploring the role of the financial sector to know whether deepening this sector enable participate to economic growth or not in oil-exporting and importing economies. In addition, due to the lack of enough time series data particularly for developing nation's economies, the literature lacks experimental studies on the association between growth and finance through time-series data. The existed cross-country studies have consistently confirmed the causal effect of the financial sector development on economic growth. Given that, the simultaneous framework utilization, which has the ability to consider financial development and growth as endogenous variables, seems more convenient. The other contribution of this chapter signifies the importance of providing comprehensive and authoritative results. Application of time series approaches adopt in this framework provides mixed evidence on the causal relationship between the variables under examination. Most studies investigating the causal relationship between financial development and economic growth have depended on the usage of the standard form of Granger causality test that is defined based on the time domain. However, considering the causality in the frequency domain, suggested by Breitung and Candelon (2006), is also important as it provides low-frequency (long-term) and high-frequency (short-term) causal linkages between the two

series. As far as the author knows, this chapter is the first attempt to test the essence of the causal relationship between financial development and economic growth in Kuwait and Hong Kong through the application of Toda-Yamamoto, Fourier Toda-Yamamoto approximation, and spectral causality tests.

The remaining parts of this chapter are arranged in the following manner. Section 5.2 explains the methodological approach. Section 5.3 describes the data and also presents and discusses the experimental findings. Finally, Section 5.4 concludes the chapter.

5.2. Methodology

5.2.1. Financial Development Indicator and Principal Component Analysis

As we explained earlier in the survey of the experimental literature, several indicators were utilized as a proxy of financial development. In this chapter, we will create a financial development indicator utilizing principal component analysis method (PCA)[7] based on five commonly utilized indicators in the financial literature[8]:

- Broad money as a proportion of GDP.

- Liquid liabilities as a proportion of GDP.

- Bank deposit as a proportion of GDP.

- Domestic credit provided to the private sector as a proportion of GDP.

- Stock market capitalization as a proportion of GDP.

The principal component analysis is a method utilized to decrease the variables number to a small number of major components by means of dimensionality reduction methods, that can reverse utmost of the information

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[7]. See (Adu et al., 2013; Ang & McKibbin, 2007; Çoban & Topcu, 2013; Hussain & Chakraborty, 2012; Jalil et al., 2010; Ouyang & Li, 2018; Puryan, 2017; Samargandi et al., 2014; Samargandi et al., 2015).

[8]. See for example (Jung, 1986; King and Levine, 1993b, 1993a; Abu-Bader and Aamer S. Abu-Qarn, 2008; Puatwoe and Piabuo, 2017).

on the original variables (Abdi and Williams, 2010). This method was first suggested in Pearson's work (1901) and then developed by Hotelling (1933).

The objective of the PCA is to use the original variables p and then determine the integration of these variables to generate new variables. The previous variables are not related in order of their importance and interpret the differences in the data well. This demonstrates that the indicators measure distinct "dimensions" of the data. Moreover, the new variants are the principal components. In the PCA, there is an expectation that the differences in the majority of the new variants will be too small (see Savić, 2006).

5.2.2. Causality tests

To achieve the aim of this chapter, we first apply two time domain causality tests represented in the test for causality developed by Toda and Yamamoto (1995), as well as the Fourier Toda Yamamoto causality test proposed by Nazlioglu et al. (2016). Second, we use the spectral causality test in the frequency domain by Breitung and Candelon (2006), which improves the methodological approach developed by Geweke (1982) and Hosoya (1991).

a. Toda–Yamamoto Causality test

The primary purpose of Toda-Yamamoto (TY) causality test is to overcome the issue of spurious asymptotic critical values when causality is examined on series that are either cointegrated or non-stationary (Alimi and Ofonyelu, 2013). The test proposed by Toda and Yamamoto (1995) presumes the form of a Modified Wald test statistic for linear restrictions on certain parameters of an augmented VAR (p + d) at levels, where d is the highest surmised integration order in the system and p is the optimized lag length. The aforesaid test is particularly appropriate in conditions where the order of integration is not known or it is not necessarily the same, or the integration order is more than two (Kónya, 2004). Another advantage of this test is that it do not necessitate pre-testing of the time series for cointegration attributes provided the integration order of the procedure is not more than the actual lag length of the model (Bel et al., 2014).

The augmented VAR (k+d) formulation inclusive 2 variables can be written as[9]:

$$\begin{pmatrix} FD_t \\ LG_t \end{pmatrix} = \begin{pmatrix} \alpha_1 \\ \alpha_2 \end{pmatrix} + \sum_{i=1}^{k} \begin{pmatrix} \beta_{11,i} & \beta_{12,i} \\ \beta_{21,i} & \beta_{22,i} \end{pmatrix} + \begin{pmatrix} FD_{t-i} \\ LG_{t-i} \end{pmatrix} + \sum_{j=1}^{dmax} \begin{pmatrix} \beta_{11,k+j} & \beta_{12,k+j} \\ \beta_{21,k+j} & \beta_{22,k+j} \end{pmatrix} +$$
$$\begin{pmatrix} FD_{t-k-j} \\ LG_{t-j-k} \end{pmatrix} + \begin{pmatrix} \varepsilon_{1t} \\ \varepsilon_{2t} \end{pmatrix} \quad (5.1)$$

Where, *dmax* is the maximum integration order for the series in the system, k is optimal lag lengths of FD_t and LG_t, ε_{1t} and ε_{2t} are the errors terms that are expected to be white noise.

At first, it is needful to determine the maximum integration order (*dmax)* of the time series (Dong et al., 2019), utilizing ADF, and KPSS tests. Thereafter, we can define the optimal lag length (k) of the VAR model in the process of the VAR in levels between the variables in the system by employing various lag length criteria (Ahmed et al., 2015) like the Hannan-Quinn information criterion (HQ) or Schwarz information criterion (SC). Next step, the modified Wald procedure has been used to test the VAR (k+d) model for causality.

b. Fourier Toda-Yamamoto Causality test

Nazlioglu et al. (2016) propose a simple approach that considers breaks (both sudden and gradual) when performing a Granger causation analysis, through extending the Toda-Yamamoto test with progressive structural shifts employing a Fourier approximation. By facilitating the application of a low amount of low-frequency elements, the Fourier approximation approach does not require any knowledge in regard to the characteristics of the structural breaks (Gormus, Nazlioglu and Soytas, 2018). Therefore, the Fourier Toda-Yamamoto approach resolves the issues connected to the unclear amount of structural breaks and occurrence dates that are inherent to traditional causality testing procedures (Gokmenoglu, Kirikkaleli and Eren, 2018).

$$\alpha(t) = \alpha_0 + \sum_{k=1}^{n} \gamma_{1k} \; sin\left(\frac{2\pi st}{T}\right) + \sum_{k=1}^{n} \gamma_{2k} \; cos\left(\frac{2\pi st}{T}\right) \qquad (5.2)$$

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[9]. See (Toda & Yamamoto, 1995).

Where n is the number of frequencies, γ_{1k} and γ_{2k} measures the height of the frequency wave (amplitude) and the speed of the wave disappearance process (displacement) respectively[10].

In Equation 5.2, we can test the absence of a causal relationship as in Equation 5.1 by the Wald statistic based on 2 distribution. Additionally, by this specification, employing the Fourier approximation, we can consider any potential structural breaks with unknown date and shape.

c. Breitung and Candelon Spectral Causality test

The primary distinction between approaches in time and frequency domains is that the former reveals when a particular fluctuation occurs in a time series, whereas the latter estimates the extent of the specific variation within the time series (Gokmenoglu, et al, 2018). For studies involving shorter series, seasonal trends could have importance and the frequency domain permits the elimination of these fluctuations. Additionally, this approach facilitates the observation of non-linearities and causality cycles, which is the causality in low or high frequencies (Farné and Montanari, 2018).

Building on previous research by Geweke (1982) and Hosoya (1991), Breitung and Candelon (2006) proposed a statistical process for testing the non-causality process at a stipulated frequency (ω_o) (Mermod and Dudzeviciute, 2011). The process allows the researcher to observe the manner in which the relationships between macroeconomic variables differ based on frequency, and partially because, as with the classical Granger causality test, the test of Breitung and Candelon (2006) is founded on a group of linear constraints on the coefficients of the vector autoregressive (VAR) model (Yamada and Yanfeng, 2014).

The measurement of causality proposed by Geweke (1982) and Hosoya (1991) can be expressed as:

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[10]. See (Nazlioglu, Gormus and Soytas, 2016, 2019; Gormus, Nazlioglu and Soytas, 2018) for more details.

$$M_{FD \to LG}(\omega) = \log\left[\frac{2\pi fLG(\omega)}{\left|\Psi_{11}(e^{-i\omega})\right|^2}\right] = \log\left[1 + \frac{\left|\Psi_{12}(e^{-i\omega})\right|^2}{\left|\Psi_{11}(e^{-i\omega})\right|^2}\right] \qquad (5.3)$$

In equation (5.3), if $|\Psi_{12}(e^{-i\omega})|^2 = 0$, then Geweke's measure will equal zero and FD does not Granger cause LG at frequency ω. Breitung and Candelon (2006) proposed this test by redeveloping the relation between LG and FD within VAR(1) equation as shown below[11]:

$$LG_t = \alpha_1 LG_{t-1} + \ldots + \alpha_p LG_{t-p} + \beta_1 FD_{t-1} + \ldots + \beta_p FD_{t-p} + \varepsilon_{1t} \qquad (5.4)$$

Where α and β represent the coefficients of the lag polynomials.

The H_0 verified by Geweke $M_{FD \to LG}(\omega) = 0$, is correspondent to the H_0 of

$$H_0: R(\omega)\beta = 0 \qquad (5.5)$$

Where $\beta = [\beta_1, \ldots, \beta_p]'$ represents the vector coefficients of FD and R(ω) is

$$R(\omega) = \begin{bmatrix} \cos(\omega)\cos(2\omega)\ldots\ldots\cos(p\omega) \\ \sin(\omega)\sin(2\omega)\ldots\ldots\ldots\sin(p\omega) \end{bmatrix} \qquad (5.6)$$

Geweke's null hypothesis simplified by Breitung and Candelon (2006) so that normal F-statistics can be used to test causality in the frequency domain. The F statistic expressed as F(2, T − 2p) for ω ∈ (0, π), where 2 represents the number of restrictions and T represents the number of observations[12]. Taking into account that Breitung and Candelon (2006) indicated that the frequency domain test is robust for the lag-augmented Granger-causality test suggested by TY (Çevik et al, 2019).

5.3. Data and Empirical Results

This study is quarterly data covering the time period from 1991 to 2017 obtained from the DataStream database and include two variables: the real per capita GDP in constant US dollars for the year 2011, which is used in

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[11]. See (Geweke, 1982; Breitung & Candelon, 2006)

measuring economic growth and one indicator of financial development[13] obtained from the PCA application of five commonly used indicators of financial development[14].

Table 5.1. Principal component analysis

Country	Component	Eigenvalues	Difference	Proportion	Cumulative Proportion
Kuwait	1	3.04	2.07	0.76	0.76
	2	0.96	0.96	0.24	1.00
	3	0.00	0.00	0.00	1.00
	4	0.00	-	0.00	1.00
Hong Kong	1	4.53	4.15	0.90	0.90
	2	0.37	0.29	0.07	0.98
	3	0.08	0.08	0.01	0.99
	4	0.00	0.00	0.00	1.00
	5	0.00	-	0.00	1.00

Observations: 108

Table 5.1 displays the PCA results. The results of the analysis indicate that PCA explains nearly 90% of the standardized variance in Hong Kong and 76% in Kuwait. Thus, the primary principal component is utilized as an indicator of financial development for the purposes of this research due to the fact that its explanatory power is the highest and it is referred to as FD and it is able to capture the majority of the data from the source dataset.

Table 5.2 shows the descriptive statistics of the time series variables, where FD is an indicator of financial development, and LG is an economic growth indicator, which is the data for real GDP per capita rescaled through natural logarithms for the purpose of statistical analysis.

The statistics in this table show that the FD has a large variation, while the LG has low differences in both countries. This can be seen through the

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[13]. The stock market capitalization as a proportion of GDP indicator excluded to obtain the financial development indicator for Kuwait, as the financial system in Kuwait based on banks as well, due to the unavailability of data for this indicator.

[14]. See (Abu-Bader & Abu-Qarn, 2008; Alkhuzaim, 2014; Arcand et al., 2015; Lutz, 2008; Jung, 1986; Kar & Pentecost, 2000; King & Levine, 1993b, 1993a; Liang & Zhou, 2006; McKinnon (1973); Shaw, 1973; Puatwoe & Piabuo, 2017; Samargandi et al., 2014).

differences between the maximum and minimum values plus standard deviations. While it is possible to make some conclusions in regard to the natural distribution based on findings of the kurtosis and skewness tests which are enhanced by Jarque Bera test findings which indicate that the variables in both countries reject the assumption of normality at all levels of significance.

Table 5. 2. Reports the summary statistics for the data series.

Variables	Kuwait		Hong Kong	
	LG	FD	LG	FD
Mean	4.81	-0.86	8.81	-2.06
Median	4.81	-0.71	8.77	-0.45
Maximum	4.91	0.95	9.17	3.91
Minimum	4.51	-4.17	8.45	-2.82
Std. Dev.	0.06	1.04	0.21	2.13
Skewness	-3.02	-0.58	0.13	0.30
Kurtosis	14.62	3.48	1.47	1.69
Jarque - Bera	771.78	7.11	10.75	9.35
p-value	0.00	0.03	0.00	0.00
Observations	108	108	108	108

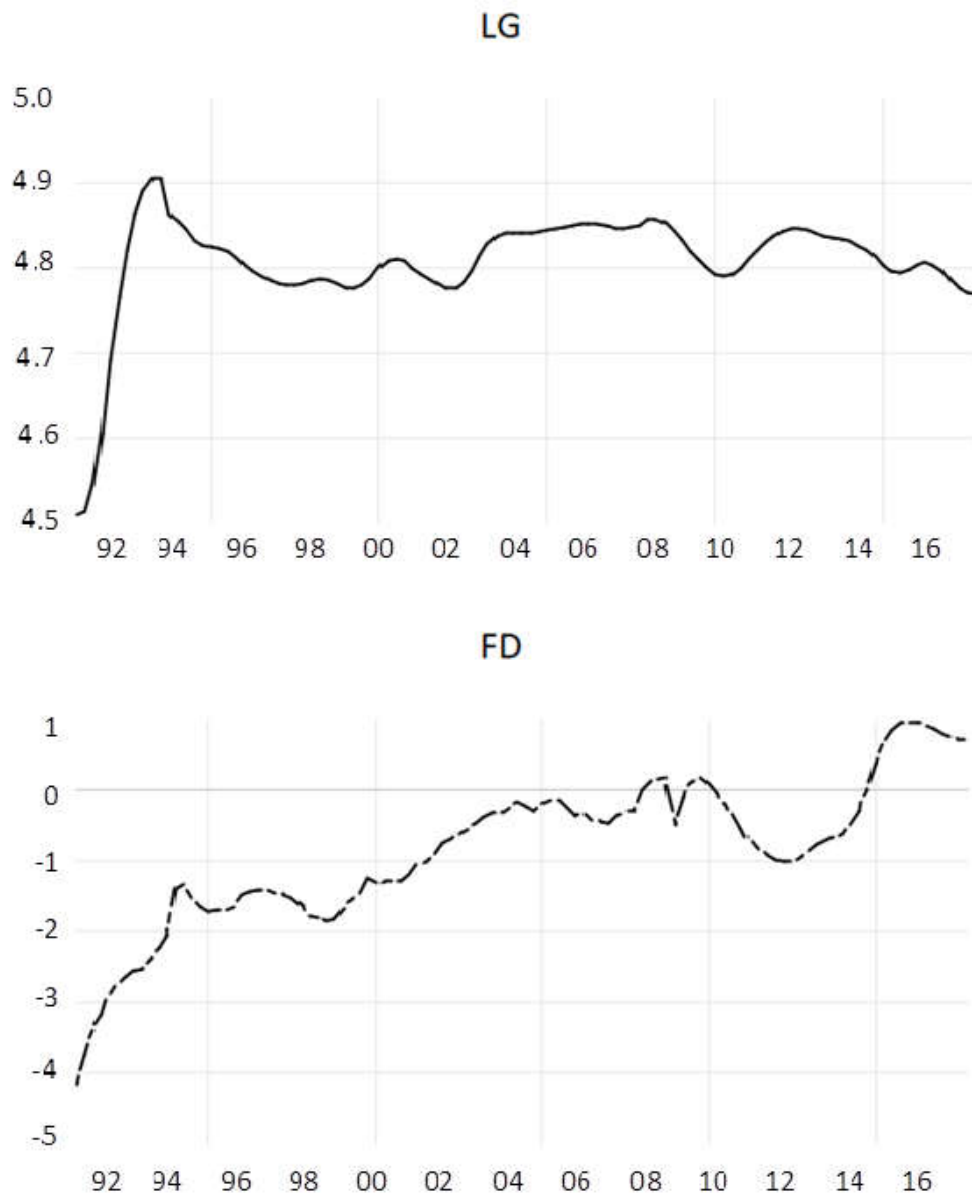Note: p-value is in harmony with the test of normality based on the Jarque-Bera test.

LG

FD

Figure 5.1. The evolution of LG and FD in Kuwait

LG

FD
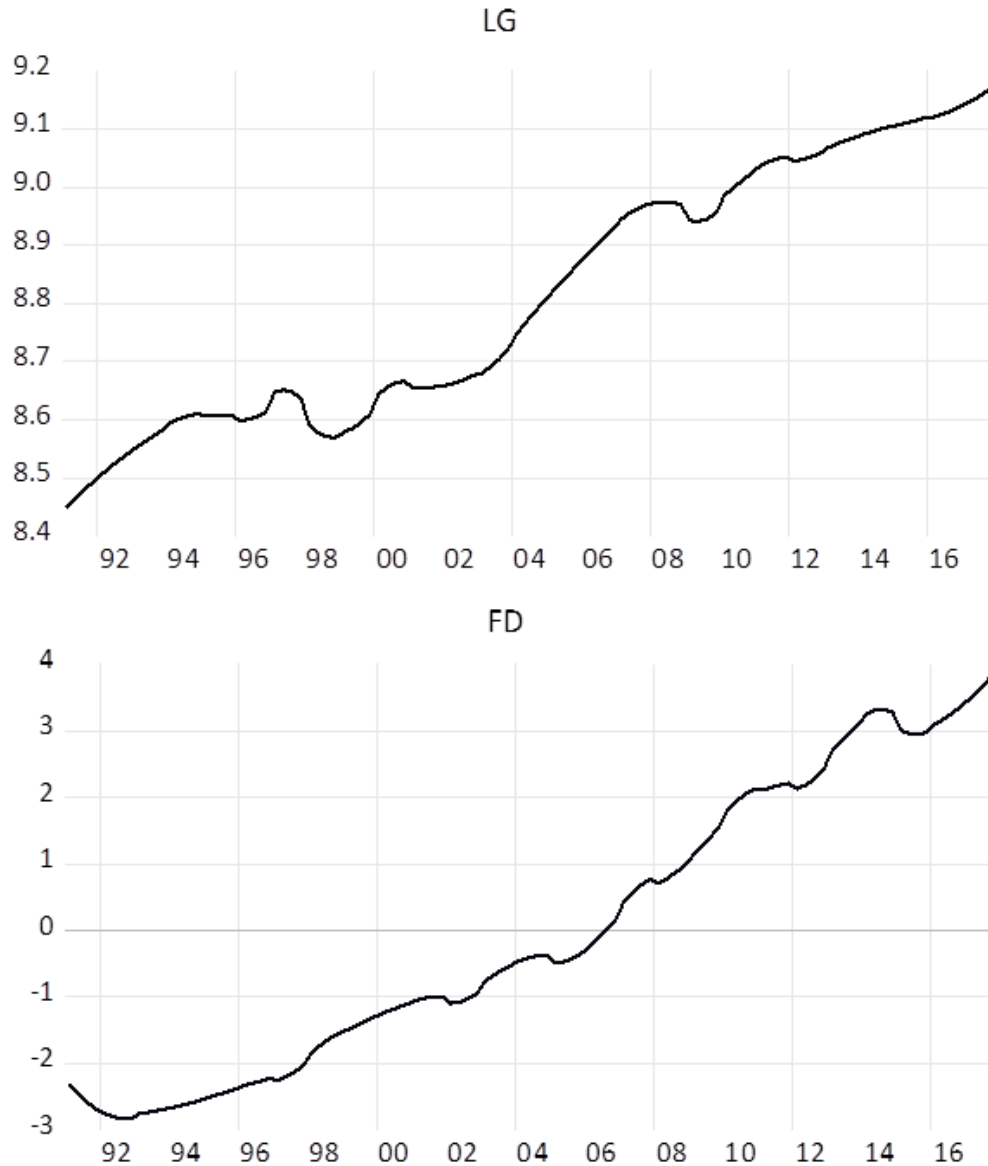
Figure 5.2. The evolution of LG and FD in Hong Kong

Figure 5.1 shows the plot of the two series. As can be seen in the Figure, the economic recovery has proceeded with surprising speed after liberating the country from the Iraqi invasion in 1991. Right after the finish of the war, the government began establishing martial law with the restoration of the destroyed infrastructure one of its priorities, and rebuilding the various economic sectors, including the financial sector. The rebuilding of the

petroleum industry and savings of petroleum revenues accumulated in Kuwait's sovereign wealth fund (Kuwait Investment Authority) allowed the economy to grow rapidly (Alawadhi et al. 2018). Kuwait is known as the bank-centric financial sector. Banks constitute the largest part of the financial sector. The country's limited economic variegation is straight reflected in this sector. However, the overall path of financial development index shows that the country is in the process of improving its financial sector. This achievement is caused by developing and implementing many reforms in this sector which led to an important progress in strengthening the macro prudential framework (IMF, 2005).

From Figure 5.2, it appears clearly that the continuous development in Hong Kong's economy is proceeding in conjunction with the development in the financial development, and also shows the periods of financial crises represented by the Asian financial crisis (1997-1999), where the Hong Kong economy shifted from a high inflation state in the early 1990s to an economy experiencing a high contraction after this crisis, and the global financial crisis (2008), which led to Hong Kong's GDP shrinking sharply during the second half of 2008 and the first quarter of 2009.

Table 5.3. Unit root tests results

Country	Variables	Level		1st difference		Order of integration
		ADF	**KPSS**	**ADF**	**KPSS**	
Kuwait	LG	-4.34***	0.088	-	-	I (0)
	FD	-1.285	0.234***	-4.346***	0.117	I (1)
Hong Kong	LG	-1.460	0.160**	-4.163***	0.07	I(1)
	FD	0.574	1.158***	-3.259**	0.412	I(1)

Note: *** indicates significance at 1%. The reported results are obtained using the Constant and trend specification scenario.

The main reason for conducting unit root tests is to determine the integration order of the series (dmax). Therefore, we utilized ADF and KPSS tests. The optimal lag length is determined according to the Schwarz Information Standard (SC), which defines six as the optimal lag length.

Table 5.3 presents the findings created by the unit root tests for the two variables in both countries. The results for Hong Kong in the two variables (LG, FD) show that both variables are stationary at the first difference, while in Kuwait LG series is stationary at the level, while the FD series is stationary at the first difference.

Table 5.4 displays the Main findings generated by the Toda-Yamamoto Causality Test. Based on these findings, in the case of Kuwait; we cannot reject the null hypothesis that FD does not cause LG. Likewise; one cannot reject the absence of a causal relation from LG to FD. Thus, the results reflect the absence of a causation relation between variables under study. In the case of Hong Kong, we can reject the null hypothesis that FD does not cause LG, meaning that there is a causation relation between financial development and economic growth, while the findings show that there is no causal relationship between economic growth and financial development.

Table 5.4. Result of Toda-Yamamoto Causality Test

Country	Null Hypothesis	Wald test	χ^2-pval
Kuwait	$FD \nRightarrow LG$	4.11 (6)	0.41
	$LG \nRightarrow FD$	7.22 (6)	0.33
Hong Kong	$FD \nRightarrow LG$	10.65 (6)	0.09
	$LG \nRightarrow FD$	0.87 (6)	0.98

The reported wald-statistics are performed using an augmented linear vector autoregressive (VAR) model of order six. $\nRightarrow$ denotes the null of no causality. The chi-square p-values of the Wald test statistics are indicated by $X^2 pval.$

After proving the evidence for the absence of a causal relation between the variables in Kuwait and partly in Hong Kong, in the next part, we examine the validity of findings of the standard Toda-Yamamoto method by applying the Bai and Perron (2003) sequential multiple breakpoint test

Based on the findings indicated in Table 5.5, we find evidence of plausible structural changes in the link between the variables. Thus, to reach more robust results that reflect the relationship between financial development and economic growth, in the next step, we employ the Fourier Toda - Yamamoto test, which capable of accommodating any type or amount of structural breaks as well as the advantages of the TY process.

Table 5.5. Results of Bai–Perron sequential multiple breakpoint test

Country	Models	Break dates	
Kuwait	VAR (6) [LG, FD]	1991Q1	2007Q2
	VAR (6) [FD, LG]	1992Q2	2008Q3
Hong Kong	VAR (6) [LG, FD]	1998Q1	2009Q2
	VAR (6) [FD, LG]	1998Q1	2005Q1

Note: Break dates are based on the Bai and Perron (2003) test of multiple structural breaks that applied to the VAR (6) model containing the two variables.

Table 5.6 shows the Fourier approximation findings for the two countries. With regard to Kuwait, we can reject the null hypothesis that there is no causal relationship extending from FD to LG, while we could not reject the null hypothesis that there is no causal relationship from LG to FD at all levels of significance. These outcomes are harmonious with the supply-leading hypothesis for Patrick (1966) and reveals the importance of financial development in the growth forecasting process in the Kuwaiti economy.

As for Hong Kong, we got interesting results as well, we reject the absence of a causal relationship from FD to LG and vice versa, meaning we have also succeeded in rejecting the null hypothesis that there is no causal relationship from economic growth to financial development, wherefore, using the Fourier

Toda–Yamamoto approach, we obtained the existence of bidirectional causality between financial development and economic growth in Hong Kong.

Table 5.6. Result of Fourier Toda-Yamamoto Causality Test

Country	**Null Hypothesis**	**Wald test**	**χ2-pval**
	$FD \nRightarrow LG$	42.92 (6)	0.00
Kuwait	$LG \nRightarrow FD$	8.25 (6)	0.26
	$FD \nRightarrow LG$	17.42 (8)	0.02
Hong Kong	$LG \nRightarrow FD$	17.77 (8)	0.02

The optimal lag k = 6 is determined by SIC.

Finally, we examine the spectral causality, and for this purpose, we employ the Breitung and Candelon (2006) spectral causality test to making sure the substance of the Granger-causal links between economic growth and financial development. Taking into account the assumption of stationarity for this method, the first difference in the FD indicator is taken into account.

The test results for the Granger-causal linkages for the two nations' complete sample, period are shown in figures from 5.1 to 5.4. The red and green lines represented of 10% and 5% levels of significance respectively, whereas blue curve signifies statistical tests on various frequencies among the interval of (0, π). Figure 5.1 shows the outcomes of the spectral causality test that reflect the causal relation flowing from financial development to economic growth in Kuwait. At the 5% level of significance, we can reject the null hypothesis that there is no causal relation extending from FD to LG in the range of $\omega \in$ [0, 0.4]. Therefore, this clearly indicates that financial development is causing growth in the low, medium, and high -frequency domain, that is equivalent to a periodicity of 15.7 quarters or more[15].

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[15] Cycles of T quarters from frequencies are obtained through T = 2π/ω.

In the case of Hong Kong, the result of causality is shown in Figure 5.2 which shows that at the 10% significance level, the null hypothesis of FD does not Granger cause LG can be rejected for the range of $\omega \in [1.6, 1.85]$, which dovetails to a periodicity of 3.4–3.9 quarters. Thus, at middle frequencies, financial development is an Influencing factor for future economic growth.

Consequently, the results clearly show that financial development is an influential factor in the growth of the economy, whether in Hong Kong or Kuwait. These results are consistent and boost our findings in tests of causality in the time domain.

Figure 5.3 displays the outcomes for the spectral causality in Kuwait with regard to the null hypothesis that LG does not Granger-cause FD. The outcomes in this figure indicate that economic growth Granger-causes the financial development in the range of frequency between [1.2, 1.75] and, [2.6, b], which corresponds to 3.59-5.23 quarters and 2–2.4 quarters.

As for Hong Kong, the findings in Figure 5.4 indicate that the LG Granger-causes FD in the low, medium and high-frequency domain in equates to the frequency ranges between [0.7, 0.8], [1, 1.4] and [2.1, pi], which corresponds to a periodicity of 7.8–8.9 quarters, 4.4–6.2 quarters and 3 quarters or more.

This means that although there is no proof that there is a causal relationship extending from economic growth to financial development utilizing causality tests in the time domain in Kuwait, while when utilizing the spectral causality test, the findings support the hypothesis of demand-leading in the medium and high horizons at 10% level of significance in Kuwait. Whereas in Hong Kong in the low and medium at 10 % level of significance and high-frequency domain at 5% level of significance. In other words, by using the spectral causality test, we obtained evidence of the presence of bidirectional causality between financial development and growth of the economy in both countries.

The findings shows that both countries needs to concentrate extra on the development of the financial sector in the short term to boost the growth of the economy. Thereafter, as the economy grows this will be reflected in the financial sector, which will respond to the demands of the economy.

The outcomes afford another remoteness that added to the outcomes achieved from causality tests based on the time domain, where, they supports the hypothesis concerning the bi-directional causality relationship between financial development and growth that has been reached by several researchers[16].
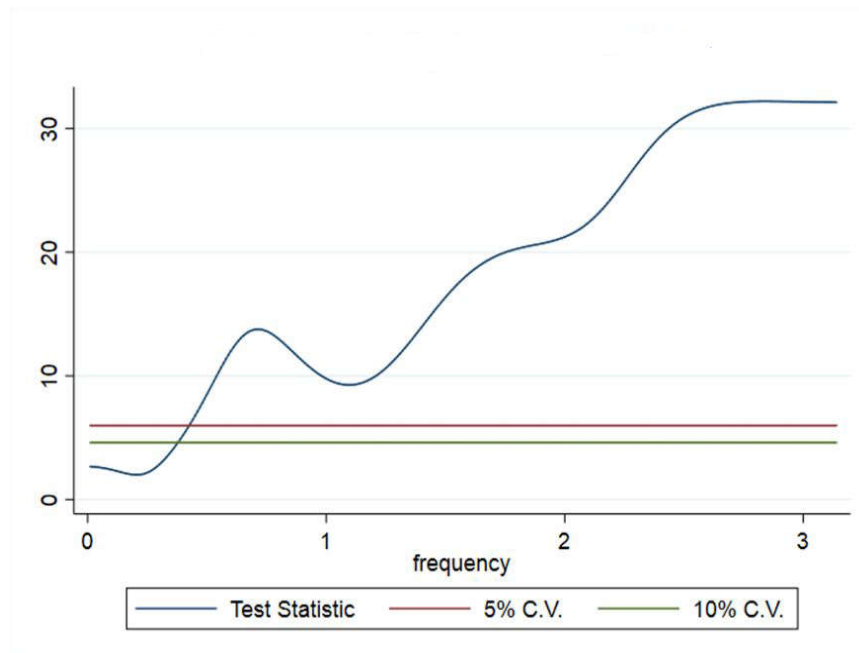
Notes: F statistic is used to test the causality running from financial development to economic growth at frequency $\omega \in (0, \pi)$.

Figure 5.3. Testing for Spectral Causality from FD to LG in Kuwait.

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[16]. These studies are discussed in detail in Chapter two.
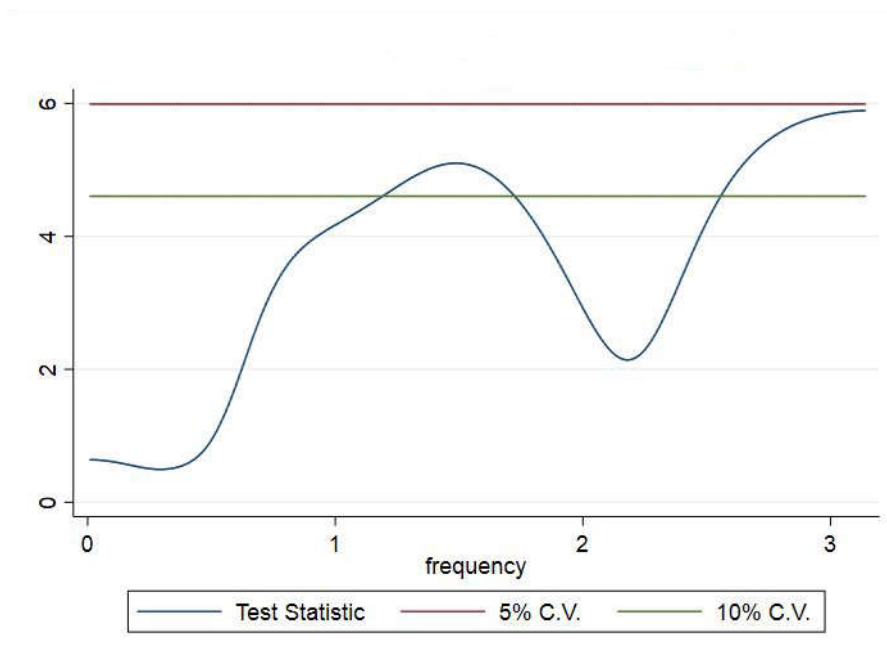
Notes: F statistic is used to test the causality running from economic growth to financial development at frequency $\omega \in (0, \pi)$.

Figure 5.4. Testing for Spectral Causality from LG to FD in Kuwait.
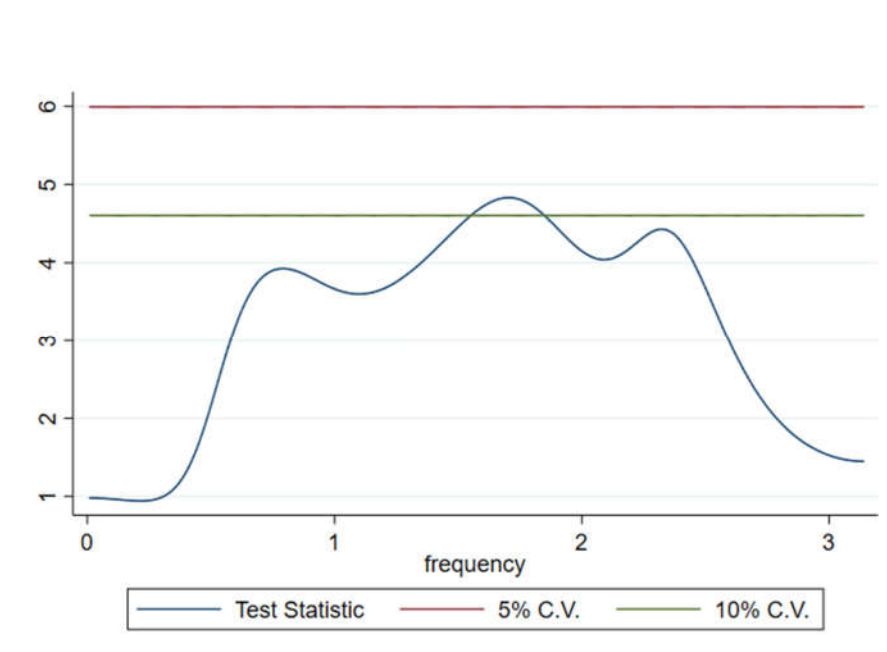
Notes: F statistic is used to test the causality running from economic growth to financial development at frequency $\omega \in (0, \pi)$.

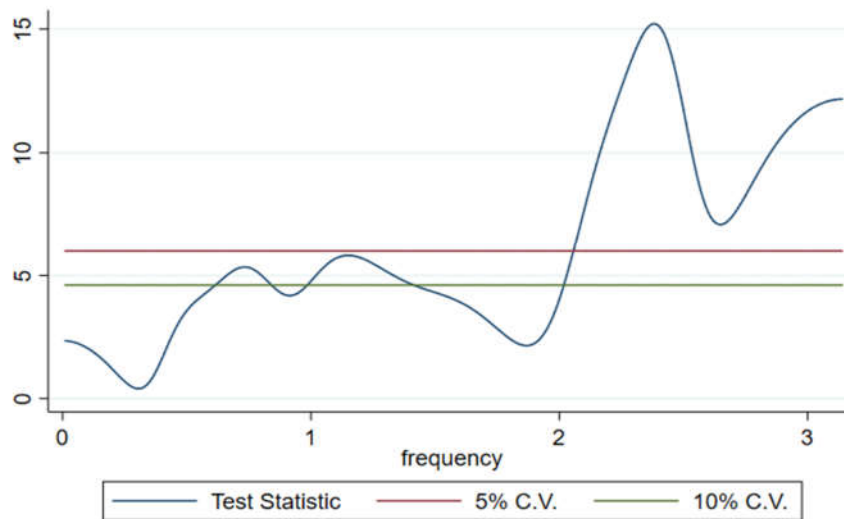**Figure 5.5.** Testing for Spectral Causality from FD to LG in Hong Kong.

Notes: F statistic is used to test the causality running from economic growth to financial development at frequency ω ∈ (0, π).

Figure 5.6. Testing for Spectral Causality from LG to FD in Hong Kong.

5.4. Conclusion

The relationship nature between financial development and the growth of the economy has been controversial topic studied for many years. Although despite the presence of several theoretical and experimental evidence supporting the ideas linking between these two variables, the direction of the causality is still uncertain.

Wherefore, this research has explored the nature of the causal relation between finance and growth in Kuwait and Hong Kong for the period 1991-2017 through applying Granger causality through both time domain and frequency domain causality tests.

The Toda Yamamoto test was unable to reveal any evidence of causality between the series in case of Kuwait, but in the case of Hong Kong, we got there is a uni-directional causal relation between financial sector development and the growth of Hong Kong's economy, while the outcomes show that there is no causal relationship between growth of economy and financial sector development.

However, given that Toda Yamamoto's approach is affected by possible structural breaks in the data, which could cause inaccurate results, therefore, the Fourier approximation based on the Toda Yamamoto approach was used which takes into account structural breaks. The results obtained from the Fourier approach indicate the existence of unidirectional causality extending from financial development to economic growth in Kuwait, in addition to the existence of bidirectional causality in the case of Hong Kong.

On the other hand, Breitung and Candelon (2006) frequency domain spectral causality test employed. The main outcomes of this test support the bidirectional causal linkage between financial development and the growth in both nations. Where the causality flowing from economic growth to financial development appeared at high, medium, and low -frequency domain in Hong Kong and in high and medium frequencies in Kuwait. While the causality direction flow from financial development to growth of the economy at the medium-frequency domain in Hong Kong and in the high, medium, and low - frequency domain in Kuwait.

On the basis of these results, we can say that the direction of the causality between financial development and growth was similar in the oil-exporting and importing economies represented in Kuwait and Hong Kong.

In general, our results focus on implementing appropriate methods to provide a deeper and more justified picture of the relationship between the variables under study. Nevertheless, some flaws should also be mentioned in our study. The findings of this study might be biased because of the omission of some relevant variables in the model.

Even though the findings obtained still provide an exhaustive picture for decision-makers and policy analysts, it is worth noting that the methods utilized in this study are, actually, bivariate. Hence, we could not include more related variables in our analysis. Therefore, further future research may explore the relationship between variables with more comprehensive models for controlling the risk of omitted variables bias.

CHAPTER 6

FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH: NON-PARAMETRIC ANALYSIS

6.1. Introduction

This chapter re-examines the financial development-economic growth nexus in Kuwait and Hong Kong employing data covering the period 1980-2017. The quantile-on-quantile (QQ) approach suggested by Sim and Zhou (2015) to utilized to investigate certain subtle aspects of the association linking financial development and growth.

For many years after the seminal work of Schumpeter (1911), the association between financial development and growth of the economy has largely been acknowledged, although there has been significant debate about this relationship. This debate further intensified and received considerable attention between economists at the beginning of the 1970s after the pioneering studies of Goldsmith (1969), McKinnon (1993), Shaw (1973) and Patrick (1966), who presented sound evidence showing that economic growth is positively impacted by financial sector development.

Levine (2005) attempted to explain the process by which economic growth is affected by financial sector development, suggesting that growth of economy can be fostered by both markets and financial institutions by various functions including the provisions of means of payment, which enables the exchange of goods and services, mobilization and pooling of savings and

allocation to ensure that their usage is optimized, monitorization of investments, implementation of corporate governance and reduction of temporal risk. These functions lead to more efficient resource allocation, more rapid acquisition of human and physical capital, and expedited technological advancement, which will subsequently stimulate the expansion of the economy (Creane et al., 2006).

Over time, there has been general agreement about this correlation between economists, whereas there has been no consensus in multiple studies in the literature on the direction of the causality. Perhaps this is why efforts have continued in order to understand this nexus.

Taking into account the abovementioned background, the current research aims to comprehensively analyse the association between financial development and economic growth in Kuwait and Hong Kong for the purpose if drawing correct conclusions and providing policymakers with the necessary information on the influence that financial sector development has on the growth of the economy in both countries. This requires the use of advanced techniques in econometrics to provide more reliable evidence based on findings that inform both the essence and direction of the causality relationship between financial development and growth. This will facilitate the development of policies and strategies that stimulate both short and long-term economic growth.

To achieve this aim, Quantile-on-Quantile (QQ) regression in line with the discussion and recommendations of Sim and Zhou (2015) is used verify the entire dependence structure between economic growth and financial development in both nations. The QQ regression technique suggested by Sim and Zhou (2015) amalgamates the techniques of quantile regression and non-parametric estimation while also regressing the quantile of explanatory variables on a different quantile of response variables (Shahbaz et al, 2018). Hence, it includes a more amount of information and offers more flexibility compared to conventional quantitative regression. Moreover, it considers the non-linear relationships between the variables and caters to structural breaks in the data (Arain et al, 2019). The primary benefit of this methodology is that

it is capable of modelling economic relations more effectively compared with classical econometric models and can capture the relationships between variables across all points of their conditional distribution (Sim and Zhou, 2015).

The contributions made by this chapter to the literature can be viewed from two primary perspectives.

Methodologically, the existing studies that use time series have employed a variety of different approaches for the purpose of detecting the association between economic growth and financial development. Basically, they employed linear methods such as the Vector autoregression (VAR) model, Autoregressive Distributed Lag (ARDL) model, and Granger causality test between others. Nevertheless, certain complexities and heterogeneities often exist in the connections between the variables, which make the process of estimating using the conventional econometric methods potentially challenging (Sim and Zhou, 2015). Furthermore, it was observed by Beck and Brock (1992) that the power of parametric linear Granger causality tests is lower than specific non-linear options. Consequently, non-parametric approaches are attractive due to the fact they directly emphasize prediction without the imposition of a linear functional form.

Therefore, it is necessary for the financial development-growth nexus to be re-investigated utilizing more sophisticated and reliable estimation methods, which represents the primary contribution of this chapter. This study represents a pioneering effort to explore the nature of the association between economic growth and financial development by the application of the QQ technique suggested by Sim and Zhou (2015).

Theoretically, most researchers in previous studies have used different types of financial development indicators depending on the availability, proportionality, and purpose of the study. Nevertheless, these results did not establish consistency around the causality direction between economic growth and financial development (Lenka and Sharma, 2020). Moreover, the use of alternative proxies of financial development could lead to very different conclusions.

Therefore, this study attempts to resolve the deficiency in the literature by using a more comprehensive indicator for financial development represented by the financial development indicator that was newly introduced by the IMF, which takes into account all financial institutions in the economy with regard to their depth, availability, and efficiency (Svirydzenka, 2016).

The rest of this chapter will be structured as follows. Section 6.2 explains the methodological framework. Section 6.3 displays the data and includes a discussion on the experimental findings. Lastly, Section 6.4 concludes the study and offers policy implications.

6.2. Methodology

The quantile functions provide more accurate and reliable results with regard to the independent variables' effects on the dependent variable compared with linear regression or even non-linear regression methods (Koenker and Ng, 2005). Thus, the QQ approach also gives more efficient estimators and assists with facilitating the understanding of the relationship between variables as compared to different evaluation techniques such as the ordinary least squares (OLS) method, which only provides information regarding the dependent variable's conditional mean or the classical quantile regression, which describes the quantile association between the independent and dependent variables.

The QQ approach represents an extension of the conventional quantile regression model and is utilized empirically to investigate the manner in which the quantiles of a single explanatory variable influence the response variable's conditional quantiles. The QQ technique proposed by Sim and Zhou (2015) is a method developed by combining quantile regression and non-parametric estimation.

In this approach, the quantile regression suggested by Koenker and Bassett (1978) is firstly applied to determine the manner in which the explanatory variables impact the response variable's distinct quantiles.

The standard Quantile regression is an advanced version of the ordinary least squares method (OLS) based linear regression, where a comparison is

made between one variable mean and that of another. Quantile regression is capable of explaining more variation of the quantiles as it can extensively analyse the effect that the independent variable has on the dependent variable. In other words, in this approach, both the center and the tail section of the dependent variable's distribution are examined. Resultantly, the quantile regression model enables a more thorough understanding of the relationship compared to the linear regression model, which allows more accurate statistical predictions with minimal errors.

Second, conventional linear regressions are estimated based on the suggestions of Stone (1977) and Cleveland (1979) for the purpose of calculating the effect that a particular quantile of the independent variable has on the dependent variable. Conventional linear regression is advantageous in that it prevents the dimensionality issue that usually affects non-parametric methods.

Combining Quantile regression and conventional linear regression enables the QQ technique to capture the features of both techniques. Thus, it produces information that is richer compared to other estimation approaches and which can enable an in-depth understanding of the relation between the variables.

According to the aims of the current study, Quantile-on-Quantile estimation (Sim and Zhou, 2015) is used to investigate dependence between financial development and economic growth; therefore, we start with the non-parametric quantile regression model, which is defined as follows:

$$LG_t = \beta^\theta (FD_t) + u_t^\theta \tag{6.1}$$

Where LG_t represents a country's real GDP per capita at time t; FD_t denotes a nation's financial development indicator at time t, θ represents the θth quantile of the conditional probability distribution of LG_t , and u_t^θ denotes the quantile residual term where the assumption is made that its conditional θth quantile is zero, and β^θ (.) is an anonymous function, which is ascribed

to the absence of previous information regarding the economic growth and financial development.

By employing the aforementioned quantile regression model, of the influence of financial development on the distribution of growth within Hong Kong can be measured while permitting the impact of financial development to differ throughout various quantiles of economic growth. Flexibility is the main property of these regression specifications, which usually enables the functional form of the dependency relation between financial sector development and growth to be captured.

Nevertheless, the quantitative regression model does not bear in mind the essence of the small and big positive shocks that emerge from financial development, which could also affect the interrelationships between economic growth and financial development. Therefore, by using the QQ technique, if shocks exist in financial development, whether they are positive or negative, the growth will be uniformly influenced.

Since the value of $\beta^{\theta}(\,.\,)$ is unknown, it is possible to extend the regression function by the first-order Taylor expansion around a quantile of FD^{τ} as follows.

$$\beta^{\theta}(FD_{t}) \approx \beta^{\theta}(FD^{\tau}) + \beta^{\theta'}(FD^{\tau})(FD_{t} - FD^{\tau}) \qquad (6.2)$$

In Equation 6.2, $\beta\theta'$ denotes the partial derivative of $\beta^{\theta}(FD_t)$ with regard to FD, which is additionally defined as the marginal or response effect, and it is reflective of an analogous interpretation to the slope coefficient in a traditional linear regression structure. Moreover, Equation 6.2 describes the doubly indexed parameters θ and τ as $\beta^{\theta}(FD^{\tau}) and \beta^{\theta'}(FD^{\tau})$. In addition, $\beta^{\theta}(FD^{\tau}) and \beta^{\theta'}(FD^{\tau})$ represent the functions of θ, while FD^{τ} and FD^{τ} are the functions of τ. Hence, this infers that both $\beta^{\theta}(FD^{\tau}) and \beta^{\theta'}(FD^{\tau})$ are functions of θ and τ. Moreover, it is possible to rewrite $\beta^{\theta}(FD^{\tau}) and \beta^{\theta'}(FD^{\tau})$ as $\beta_0(\theta,\tau)$ and $\beta_1(\theta,\tau)$, respectively. Thus, Equation 6.2 can be rewritten in the following way:

$$\beta^{\theta}(FD_t) \approx \beta_0(\theta, \tau) + \beta_1(\theta, \tau)(FD_t - FD^{\tau}) \tag{6.3}$$

Next, Equation (6.3) is swap into Equation (6.1), which produces the following Equation:

$$LG_t = \underbrace{\beta_0(\theta, \tau) + \beta_1(\theta, \tau)(FD_t - FD^{\tau})}_{*} + u_t^{\theta} \tag{6.4}$$

Where (*) represents the θth conditional quantile of economic growth (real GDP per capita). In addition to the conventional conditional quantile function, the actual relationship between the quantile of financial sector development (τth) and the quantile of economic growth (θth) is revealed as each of the variables assumes double-indexed parameters.

These parameters may differ depending on the θth quantities for economic growth and the τth quantities for financial development. Furthermore, it is assumed that quantiles of the variables do not have a linear relationship at any time. Thus, in Equation (6.4), the general dependence framework between the variables is estimated through the dependence among each of their distributions.

Finally, for the purpose of estimating Equation (6.4) FD_t and FD^{τ} should be replaced by the estimated counterparts $\widehat{FD}_t$ and $\widehat{FD}^{\tau}$ respectively. Hence, the local linear regression estimates of the parameters b_0 and b_1 are the estimates of β_0 and β_1 and are acquired by finding a solution to the miniaturization problem shown below:

$$\min_{b_0, b_1} \sum_{i=1}^{n} \rho_{\theta} \left[LG_t - b_0 - b_1 \left(\widehat{FD}_t - \widehat{FD}^{\tau} \right) \right] k \left(\frac{F_n(\widehat{FD}_t) - \tau}{h} \right) \tag{6.5}$$

In Equation 6.5, ρ_{θ} represents the quantile loss function denoted as $\rho_{\theta}(u) = u(\theta - I(u<0))$, i denotes the usual characteristic function, K(.) stands for the kernel function and h is the kernel function bandwidth parameter.

The aim of the kernel function is for the observations in the vicinity of FD^{τ} to be weighed. Zero weights are systematically assigned to minimal

observations, whereas observations that are more distant are assigned minimal weights. There is an inverse association between the abovementioned weights and the distance, which is expressed as:

$$F_n(\widehat{FD_t}) = \frac{1}{n}\sum_{k=1}^{n} I(\widehat{FD_k} < \widehat{FD_t})$$

(6.6)

Where the distribution function's value, which correlates with the quantile FD$^\tau$, represented by τ. Finally, we follow the methodological approach of Sim and Zhou (2015) by conducting our analysis with a bandwidth parameter of h = 0.05.

6.3. Data and Empirical Results
6.3.1. Description of data

This research utilizes an annual[17] dataset covering the period of 1980–2017 and consists of two variables, namely real GDP per capita in constant 2011 US dollars, which is frequently utilized as a proxy of economic growth and is taken from the World Bank World Development Indicators (WDI), and the financial development index obtained from the IMF for the purpose of investigating the dependence between financial development and economic growth in Kuwait and Hong Kong.

Table 6.1 summarizes the statistics related to the time series variables, noting that all variables have been converted into natural logarithms so that the dimensional differences between the series can be resolved. It is clear that the variables revolve around their mean while their standard deviations are relatively low. According to the results of the skewness and kurtosis tests, there is excess kurtosis (heavy tailed) for the variable of the LG of Kuwait and the variable of the FD of Hong Kong. In addition, the Jarque-Bera test results indicate that the variables in both countries reject the assumption of normality at all levels of significance.

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[17]. The annual series were then converted to quarterly by using the quadratic match-sum technique, which enables to internalization of the seasonal fluctuations contained in the data when converting the data from low to high frequency (Shahbaz et al., 2018)

Table 6.1. Reports the summary statistics for the data series.

Country	Variables	Mean	Median	Maximum	Minimum	SD	Skewness	Kurtosis	JB	P-value
Kuwait	LG	9.61	9.65	9.97	8.97	0.18	-1.26	4.76	59.93	0.00
	FD	-2.41	-2.45	-1.99	-2.84	0.19	0.41	2.23	8.13	0.01
Hong Kong	LG	8.62	8.62	9.17	7.85	0.36	-0.36	2.16	7.80	0.02
	FD	-1.87	-1.72	-1.61	-2.61	0.28	-1.59	4.29	75.06	0.00

Note: p-value is compatible with the normality test on the basis of the Jarque-Bera test.

Therefore, these results motivate us to apply the QQ and non-parametric approaches because they are more suitable for the non-linear field (Arain et al., 2019; Haseeb et al, 2020; Hussain et al., 2020; Mishra et al, 2019; Sharif et al, 2019).

Table 6.2 shows the results of the traditional unit root tests, namely the ADF and KPSS tests. The results in Kuwait and Hong Kong show that the LG variable is non-stationary at level, although it is stationary at first difference, while the FD variable is stationary at level.

Table 6.2. Unit root tests results

Country		Levels		First difference	
	Variables	ADF	KPSS	ADF	KPSS
Kuwait	LG	-2.28	0.63**	-4.07***	0.10
	FD	-2.92**	0.68	-	-
Hong Kong	LG	-1.61	0.19**	-2.88**	0.08
	FD	-3.86**	0.28	-	-

Note: *** and **, indicate significances at the 0.01 and 0.05 levels, respectively.

Moreover, in order to ascertain whether non-linear dependency exists, a BDS test was applied (Broock et al, 1996). The results of this test are presented in Table 6.3, which show that the null hypothesis that the data are independently and identically distributed (i.i.d) can be rejected in both countries, which indicates that non-linear dependence is present in the residuals. Hence, non-parametric methods such as quantile-on-quantile regression become meaningful and more reliable (Junior et al, 2020).

Table 6.3. BDS test.

Country		Dimensions (m)				
	Variables	2	3	4	5	6
Kuwait	LG	0.17	0.29	0.37	0.41	0.44
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
	FD	0.18	0.30	0.37	0.42	0.45
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Hong Kong	LG	0.20	0.34	0.44	0.51	0.56
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
	FD	0.19	0.33	0.42	0.49	0.53
		(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

6.3.2. Quantile-on-quantile regression estimations

The following section discusses the primary experimental outcomes of the QQ regression approach between financial development and economic growth for Kuwait and Hong Kong.

Figures 6.1 show the estimations of the slope coefficient $\beta_1(\theta,\tau)$, which reveals the impact of the (τth) quantile of financial sector development (economic growth) on the θth quantile of economic growth (financial development) for distinct values of θ and τ in the case of Kuwait and Hong Kong.

The following results can be seen from the graphs: In Kuwait, the influence of financial development on the growth of the economy was observed negative

for area ranges of low quantiles of financial development (0.10–0.25) and area ranges of low and medium quantiles of economic growth (0.10–0.4). With the exception of these quantities, the relationship of financial development with economic growth in Kuwait is mostly positive.

The influence of the economic growth on financial development in Kuwait is also positive for the quantiles of both economic growth and financial development. Except for the area ranges in the medium quantiles of financial development (0.3-0.5) and area ranges of low and medium quantiles of economic growth (0.10–0.6), which appeared a strong negative relationship.

Similarly, in Hong Kong, with the lower quantiles of financial development, it can be observed that financial development negatively affects economic growth in the area ranges of medium to upper economic growth quantiles (0.5–0.90), while a positive impact is obtained in the low and roughly middle quantiles ranges of economic growth (i.e., 0-0.4).
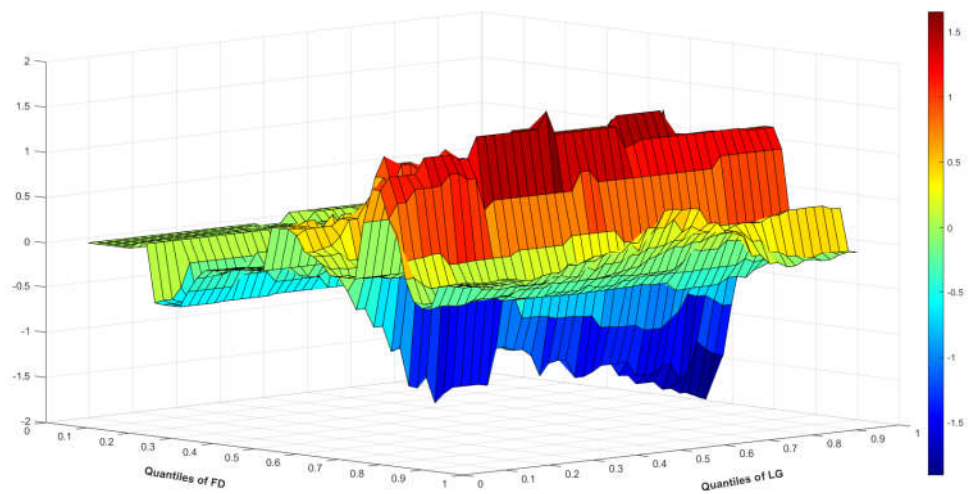
The influence of the growth of the economy on financial development in Hong Kong is generally positive for each of the quantiles of both economic growth and financial development. This linkage becomes stronger in the higher quantiles of economic growth (0.65, 0.95) as well as the lower quantiles of financial development (0.05, 0.2).

This result indicates that in the low area ranges between financial development and economic growth, the relationship is negative between these two variables. Meaning that if financial development does not keep pace with economic growth when it rises to high levels, then it will be a disincentive to economic growth. While the greater influence, which represents the core of the relationship between the two variables in other area ranges, appears in the form of a positive relationship between financial development and economic growth.

a. Effect of FD on LG in Kuwait
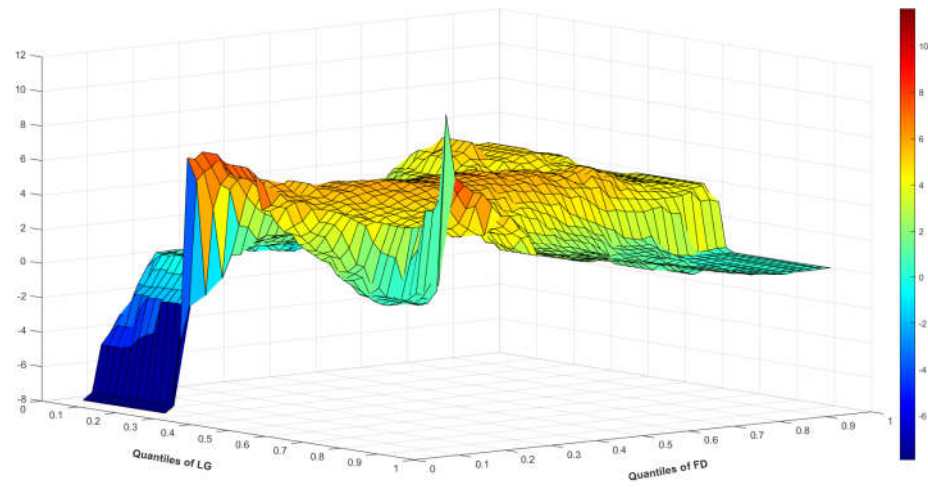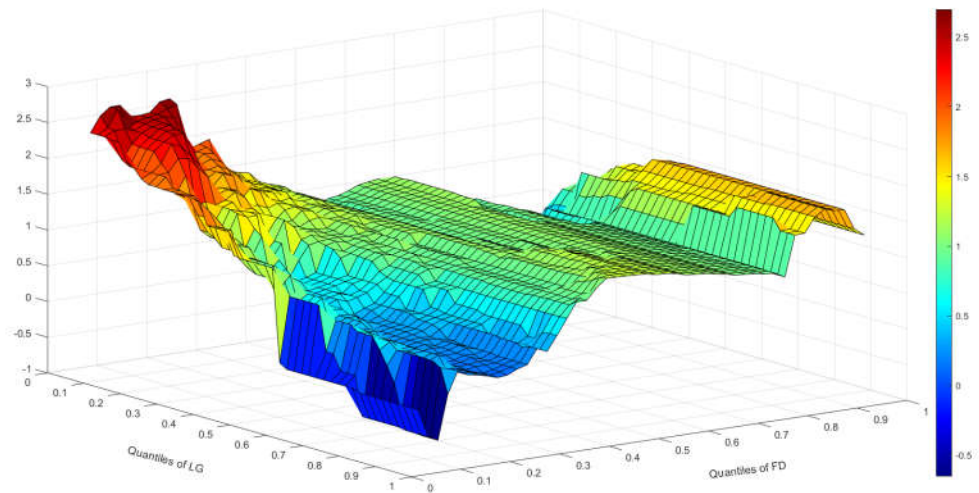

b. Effect of LG on FD in Kuwait

c. Effect of FD on LG in Hong Kong

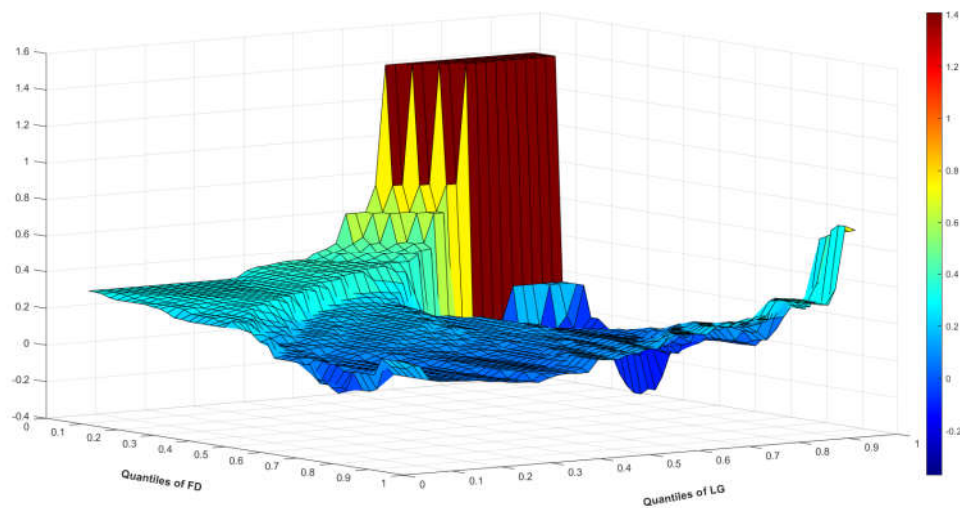d. Effect of LG on FD in Hong Kong

Figure 6.3. The QQ estimations of the slope coefficient $\hat{\beta}_1(\theta,\tau)$.

The impact of the growth of the economy on financial development is generally positive in both countries for each of the quantiles of both economic growth and financial development.

Overall, it is possible to state that the association between financial development and economic growth in Kuwait and Hong Kong is largely positive across the different quantiles of each of the variables. This outcome consistent with the literature that indicates that a bi-directional relationship exists between financial development and the growth of the economy (such as Calderón and Liu, 2003; Deb and Mukherjee, 2008; Demetriades and Hussein, 1996; Demirhan et al, 2011; Sachsida, 2001). This suggests that there is proportional interaction between the variables in question.

The result obtained confirms the prominent role of the financial sector in triggering economic growth and vice-versa in Kuwait and Hong Kong and seems interesting. Despite the difference in the economic structure between the two countries, and despite the development of the financial sector in Hong Kong in a way that exceeds its counterpart in Kuwait, the relation between financial development and economic growth was bidirectional in both nations.

Our findings are expected to provide assistance to policy makers to plan and implement effectual macroeconomic and financial policies. The bi-directional positive connection between the financial development index and economic growth highlights the importance of the evolution and functioning of the financial industry to boost the growth. This also corroborates the implication of higher growth in the sustainable dynamic of the financial sector.

Although our findings could provide a comprehensive picture on the relationship of the variables, the method applied in our study, similar to the non-linear methods, is designed in a bi-variate setup. Thus, further research can investigate the nexus of the series using a more flexible method allowing the inclusion of some control variables to avoid potential misspecification errors.

6.4. Conclusion

Various studies in the literature have analysed the relation between financial development and economic growth from different dimensions through the utilize of various econometric methods. However, the causal direction of this

relationship has remained a topic for which there is no agreement in the economic literature.

This study systematically analysed the causality between finance and growth in Kuwait and Hong Kong for the timespan 1980-2017, by using modern non-parametric techniques represented in the QQ regression methodology proposed by Sim and Zhou (2015) for the purpose of furthering the understanding of the causality.

The results obtained from the examination of the different quantiles of financial development on the different quantiles of economic growth utilizing the quantile-on-quantile (QQ) methodology are interesting, except for the negative influence of financial development on economic growth for area ranges of low and medium quantiles of economic growth for Kuwait and medium to upper quantiles of growth in Hong Kong. The findings indicate a mutual positive influence between financial development and economic growth for the various other quantile ranges. Thus, these findings offer evidence supporting the existence of a bi-directional causality between financial development and economic growth. Hence, the relevant authorities must prepare appropriate conditions for new financial regulations. This will help the sector to operate more efficiently and deliver more value for the nation in general.

CHAPTER 7

CONCLUSION

7.1 Introduction

Several researchers have studied the interconnections between financial development and the economic growth. However, there is no consensus between researchers regarding the role of financial development in economic growth and vice versa, especially with this relationship being tested in various nations or various groups of nations.

Certain researchers have concluded that the causality direction between financial development and growth of the economy is influenced by the selection of indicators of financial development. Moreover, other researchers have shown that the findings obtained can vary according to the type of financial institutions that are established in the nation. Thus, the relation between financial development and economic growth in nations where financial institutions are well developed may differ from what is the case in less developed nations.

Therefore, the present study aimed to investigate and compare the overall association between financial development and growth in two nations in Asia, one of which is an oil-exporting country, namely Kuwait, and the other is an oil importer, namely Hong Kong.

To find answers to the primary study question, the thesis consists of three key experimental chapters that explore the relation between financial

development and growth employing different advanced econometric approaches to reach a comprehensive and broad understanding of the different features of the association under study.

The aim of this chapter is extracting conclusions of the empirical analysis performed in the research and to identify policy implications. Additionally, study limitations and potential areas of new research will be discussed. Therefore, the Current chapter is arranged as follows. Section 7.2 summarizes the main findings and provides the research contributions of the thesis as depicted in the three empirical chapters, while Section 7.3 discusses policy implications. Finally, Section 7.4 highlights the thesis limitations and introduces potential avenues for future study.

7.2. Main findings and contributions

The key contributions and findings of this thesis can be summarised as follows:

First, Chapter 4 makes a worthy contribution to the literature by looking at the influence of financial development on economic growth on the basis of the economies of oil exporter and importer countries, namely Kuwait and Hong Kong, for the period 1980-2017. The analysis differentiates between the short-term and long-term influences of financial development on growth. This study is considered the first of its kind to be studied in the case of Kuwait, and it is one of the very few studies that examines the case of Hong Kong. The IMF Financial Development Index was utilized as an indicator of financial development and the bootstrapping ARDL test technique suggested by McNown et al (2018) was applied for the purpose of examining the cointegration between the variables. The empirical results obtained confirm the existence of long- and short-term relationships between financial development and economic growth in both nations.

Additionally, the long-run outcomes with regard to the economy in Kuwait indicated a positive and significant influence on economic growth oil prices and a negative influence for the general government expenditure variable. While in Hong Kong, general government final consumption expenditure and

trade openness have a positive and statistically significant influence on growth, while oil prices have negative effects.

Furthermore, the short-run outcomes found that oil prices, fixed capital formation, and trade openness promote the growth of the economy in Kuwait. However, the general government final consumption undermines economic growth. As for Hong Kong, the results suggest that gross fixed capital formation reduces economic growth, whereas it is promoted by trade openness.

Therefore, our findings indicate that the prevalence of natural resources (represented by oil in this case) has no influence on the characteristics of the association between financial development and economic growth.

Second, the main objective of the fifth chapter was to examine the relation and the causality direction between financial development and economic growth in Kuwait and Hong Kong.

Therefore, this chapter has examined the relationship for the time span 1991 to 2017, and it adds to extant literature in two ways. First, this chapter represents a pioneering attempt to investigation the direction of causality relationship in both countries. Secondly, a variety of Granger causality approaches are used to investigate both time domain and frequency domain causalities between financial development and economic growth. The chapter reached the following conclusions:

By using the Toda Yamamoto approach, a causal relationship has not been reached between the series in the context of Kuwait, while for Hong Kong, we identified a uni-directional causal relationship between financial development and economic growth. When utilize the Fourier-based Toda Yamamoto framework, we found a uni-directional causality flowing from financial development to economic growth in both nations. Finally, by employing the Breitung and Candelon (2006) frequency domain spectral causality test, we observed a bi-directional causal linkage between economic growth and financial development in both nations.

Therefore, on the basis of these findings, it is possible to state that the direction of the causal relationship between financial development and economic growth was similar in the oil-exporting and importing economies represented by Kuwait and Hong Kong.

Third, Chapter 6 re-investigated the relationship between growth of the economy and financial development utilizing the non-parametric method in Kuwait and Hong Kong from 1980 to 2017. The primary contribution of this chapter is that it represents the first attempt to use the QQ regression approach developed by Sim and Zhou (2015) capture the complexities inherent in the association between financial development and economic growth.

The outcomes obtained from the analysis of the different quantiles of financial development on the different quantiles of economic growth utilizing the quantile-on-quantile (QQ) methodology are interesting. The findings indicate a mutually positive effect between financial development and economic growth for the various other quantile ranges in both nations. Thus, these findings offer evidence supporting the existence of a bi-directional causality between financial development and growth. Therefore, the use of non-parametric methods also confirms that the direction of the causal relationship between financial development and growth is similar in the oil-exporting and importing economies, represented by Kuwait and Hong Kong.

7.3. Policy implications

This section provides recommendations to the policymakers of Kuwait and Hong Kong according to the results obtained in the three empirical chapters in this thesis.

The positive linkage between economic growth and financial development suggests that the financial systems within in both countries should be developed, especially in Kuwait. For example, the respective financial sectors should establish financial institutions that are capable of introducing novel financial products and services that can function in an effective and efficient manner for the purpose of maximising the potential advantages of the

financial system while simultaneously supporting the growth of the economy. In addition, policy-makers should strive to enhance a suitable type and quality of finance.

The findings also show that it is important for policymakers in both countries to increasingly concentrate on expanding the financial sector in the short run to enhance the economy. Subsequently, as a period of economic growth is experienced, the financial sector reacts according to the needs of the economy.

For Kuwait, to foster financial development and thus economic growth, it is essential that policymakers formulate economic policies aimed at limiting government interference in the financial sector in addition to enhancing competition and controlling corruption. Achieving these goals will be achieved through comprehensive financial reforms including the enactment of new laws and regulations pertaining to the financial sector enhance competitiveness, and combat corruption.

7.4. Study Limitations and Areas of Further Research

7.4.1. Limitations of the Study

The findings obtained emphasise the application of suitable techniques to supply a more in-depth and justifiable understanding of the interconnections between the variables in question. While the study successfully answered the main questions included in this thesis, it should also be recognized that it has some limitations and drawbacks.

The main limitation of this study was related to data, as the majority of the data was only available on a yearly basis and some for short periods. On the other hand, due to the lack of some data, this study did not consider the impacts of human capital as one of the control variables when attempting to answer the main research questions of the thesis.

7.4.2. Avenues for Further Research

This thesis is one of only a limited number that has examined and compared the depth of the association between finance and growth in oil exporting and

importing economies of several dimensions. Even though a thorough analysis of the relationships between financial development and growth is provided, this thesis can be expanded based on the conclusions of experimental analysis.

The comparison between financial sectors in countries with varying degrees of development is relatively rare; hence, it is necessary to perform more comparative studies between these countries through employing other econometric techniques to reach a more general conclusion with regard to the financial development-growth nexus. For example, it may be interesting in future research to study the effect of financial development on growth in a larger sample of oil-exporting and importing countries or by employing panel data techniques. This will enable the outcomes of this thesis to be generalised to other nations.

As a result of the positive influence of financial development on economic growth, there is an urgent necessity for the likely role of thresholds in the association between financial development and growth to be investigated in order to determine whether financial deepening has a negative influence on growth after passing a specific threshold. Lastly, as a result of data availability, the study results were constrained to few observations. Thus, the future availability of data could enable the experimental investigation to be expanded to include further observations.

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PLAGIARISM REPORT

ETHICS COMMITEE APPROVAL

Lisansüstü Eğitim Enstitüsü Müdürlüğü'ne,

Ekonomi Bölümü doktora öğrencisi Hamza Alhashmi Ibrahim Almassri tarafından yazılan **"**Financial Development and Economic Growth nexus: A comparative study between an oil exporting economy and an oil importing economy - cases of Kuwait and Hong Kong" isimli tezin yazılmasında Etik kurallarına aykırı herhangi bir unsurun yer almadığını tez danışmanları olarak beyan ederiz.

Prof.Dr.Hüseyin ÖZDEŞER

(Tez Danışmanı)

Yrd.Doç.Dr.Andisheh SALİMİNEZHAD

(Ortak Danışman)