

**THE IMPACT OF FINANCIAL SECTOR DEVELOPMENT ON FOREIGN DIRECT
INVESTMENT IN EMERGING MARKETS**

by

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ABSTRACT

The study investigates the financial sector development threshold levels that would influence FDI inflows. The threshold levels identified are 41.27% of stock market capitalisation for stock market turnover, 53.55% of GDP for stock market value traded, 121.53% of GDP for stock market capitalisation, 114.43% of GDP for domestic credit to private sector by banks, 144.06% of GDP for domestic credit provided by financial sector, 0.22% of GDP for outstanding domestic private debt securities and 41.26% of GDP for outstanding domestic public debt securities. The results show that higher stock market and banking sector development above the threshold level positively and significantly influence FDI inflows whilst the influence of lower stock market and banking sector development on FDI inflows was weak and less significant. Levels of private bond market development equal to or greater than the threshold level are found to have a positive but non-significant impact on FDI inflows whereas private bond market development levels less than the threshold has a weaker positive and non-significant influence on FDI inflows. On the contrary, public bond market development levels equal to or greater than the threshold level negatively influenced FDI inflows whilst levels of public bond market development less than the threshold positively but non-significantly attracted FDI inflows into emerging markets.

Keywords: Foreign Direct Investment; Financial Sector Development; Endogeneity; Threshold; Emerging Markets.

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DEDICATION

I dedicate this thesis to my late father, Mr Elliot Tsaurai Moyo and my mother Eugenia Moyo, who both, not only taught but inspired me to work hard and achieve results.

DECLARATION

STUDENT NO. 47286660

I, Kunofiwa Tsauroi, do hereby certify that this thesis which is submitted to the University of South Africa, Pretoria, is my own work and all sources that I have used have been cited and acknowledged by means of complete references.

Signed: K Tsauroi

Date: 21 February 2017

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CHAPTER 1

BACKGROUND AND INTRODUCTION

1.1. INTRODUCCION

Foreign direct investment (FDI) flow from home to host countries has significantly increased in recent years. Total FDI inflow increased from US\$0.96 trillion in 2005 to US\$1.52 trillion in 2016 across the whole world (UNCTAD, 2017). A report by UNCTAD (2012) disclosed that FDI flow over the years has proven to be a major source of economic growth and development, especially for emerging markets. This finding is consistent with the modernisation, neoclassical growth and the endogenous growth theory. Calvo and Sanchez-Robles (2002) observed that the modernisation theory is based on a fundamental principle in economics that economic growth needs capital investment. They also noted that technology transfer via FDI is important because most developing countries lack the necessary infrastructure in terms of an educated population, liberalised markets and social stability that are needed for innovation to promote economic growth.

Endogenous growth theorists, Romer (1986) and Lucas (1988) argued that FDI is accompanied by the transfer of technology, know-how and the training of labour, all of which increase technological progress that helps the host country to achieve long-run economic growth. Kumar and Pradhan (2002) also noted that FDI flows as a bundle of resources that includes technology, capital, organisational skills, managerial skills, market know-how and market access. These resources which flow alongside FDI are a necessary ingredient which enhances economic growth in the host country.

According to the neoclassical growth theory proponents, Solow (1956) and Swan (1956), FDI is an addition to the physical capital stock in the economy that can only affect economic growth in the short run only. Swan (1956) likened FDI to an increase in foreign savings being transferred into the host economy. Consistent with Nath (2005), FDI

contributes towards capital accumulation and increase total factor productivity of the host country. Many countries across the globe now make an effort to attract FDI in order to tap into these FDI-induced economic benefits (Kaur, Yadav and Gautam, 2013).

Recent empirical work has found out that FDI influences economic growth in the host country if two conditions are met, namely, (1) absorption capacities must be present in the host country and (2) those absorption capacities should have reached a certain threshold level. For example, Adams (2009) noted that FDI failed to positively influence economic growth in Sub-Saharan Africa (SSA) because the absorption capacities present had not yet reached a certain threshold level needed to make use of the technology, knowledge and other skills associated with FDI. This view was supported by Vita and Kyaw (2009) whose studies observed that only economies which have reached a minimum level of certain absorptive capacities and development can attract significant FDI inflows and capture FDI triggered economic growth benefits.

Recent studies show that financial sector development is one of the absorption capacities that must be present in the host country to ensure significant FDI inflows (Adams, 2009; Omri and Kahouli, 2014; Almfraji and Almsafir, 2014; Asong, 2014). Adams (2009:943) claimed without doing the threshold level(s) econometric estimation that financial sector development constitutes one of the absorption capacities that must not only be present but must reach a certain minimum level before FDI spill-over economic growth benefits are enjoyed in the host country. Omri and Kahouli (2014), without mentioning minimum threshold levels, observed that the Middle East and North African (MENA) countries found it difficult to benefit fully from FDI because their financial markets were still shallow and underdeveloped. Another study which, without doing an econometric test, claimed that: (1) financial sector is one of the channels through which a host country can benefit from FDI and (2) that it is necessary for financial sector development to reach a certain minimum threshold in order to attract significant FDI inflows which guarantee a positive economic growth impact of FDI in the host country (Almfraji and Almsafir, 2014).

Seenivasan (2014) argued that the financial sector is one of the channels through which a host country can benefit from FDI inflows and further claimed that it is necessary for financial sector development to reach a certain minimum threshold in order to guarantee the positive economic growth impact of FDI in the host country. A study by Asong (2014:293) shed some light on the debate on financial development threshold level(s) that must be attained before host countries enjoy significant FDI inflows. The study pointed out clearly that the discourse on threshold level analysis in the finance-investment nexus is still far from being resolved. Choong (2012:828) acknowledged that financial sector development must reach a certain minimum threshold point to ensure significant FDI inflows in the host countries. Consequently, this study hypothesises that there is a certain threshold level of financial sector development that influences significant inflows of FDI.

Studies that focused on estimating financial sector development threshold level(s) that ensures significant FDI inflows into the host countries are very scant. The few that have been done so far (Omran and Bolbol. 2003; Hermes and Lensink. 2003; Dutta and Roy. 2011; Bailliu. 2000; Azman-Saini, Law and Ahmad. 2010) suffer from serious methodological limitations, namely, failure to deal with the endogeneity problem, ignoring dynamic data, using narrow focused measures of financial sector development and the exclusion of threshold level analysis. The desire to address these shortcomings is one of the reasons which prompted this study.

The rest of this chapter is organised into nine sections. Section 1.2 discusses the statement of the problem whilst section 1.3 develops the statement of the problem into testable hypotheses. Section 1.4 lists the research objectives whereas section 1.5 justifies the importance of the study. Section 1.6 defines key terms. Section 1.7 identifies the key participants in FDI. Section 1.8 provides a list of abbreviations applicable to this study. Section 1.9 outlines the structure of the whole thesis and section 1.10 is the conclusion to the chapter.

1.2 STATEMENT OF THE PROBLEM.

In emerging markets, few studies done thus far on the relationship between FDI and financial sector development did not focus on threshold level(s) analysis. Soumare and Tchana (2015) studied the causality between FDI and financial market development using the two-stage least squares (2SLS) model with panel data from 29 emerging economies from 1994 to 2006. They observed that a feedback effect existed between FDI and stock market development; all banking sector development variables had no influence on FDI inflows whilst the impact of FDI on banking sector development variables was negligible. The following three methodological weaknesses arose from their study: only one source of endogeneity which arises from bi-directional causality between FDI and financial sector development was addressed whilst the other endogeneity problems which arise from omitted variable bias and measurement error as suggested by Fox, Negrete-Yankelevich and Sosa. (2015). were neither mentioned nor addressed; and the dynamic nature of the relationship between FDI and financial sector development was completely ignored and the study used a narrow definition of financial sector development by excluding the bond market.

Using generalised methods of moments (GMM) dynamic approach that solves the endogeneity problem, Walsh and Yu (2010) investigated the determinants of FDI with sectoral annual data from 1985 to 2008 in emerging and advanced economies. The focus of their study was on FDI determinants, of which financial sector development happened to be one of them whilst the current study focuses strictly on the relationship between threshold levels of financial sector development and FDI inflows. Using panel data analysis, Kaur et al. (2013) investigated the impact of financial system development on FDI in only four emerging markets, namely, Brazil, Russia, India and China, BRIC countries, with data from 1991 to 2010. Apart from shying away from investigating minimum threshold level(s) of financial development and their impact on FDI inflows into host countries and failure to address the endogeneity problem, the findings from their study, which only focused on BRIC countries, have got limited generalisations on emerging markets as a whole. In summary, none of these studies on FDI and financial sector development in emerging markets investigated threshold levels, dealt with the

endogeneity problem in a comprehensive manner and were broad enough to include bond markets as part of the financial sector. This further justifies a stand-alone and a comprehensive separate study on the relationship between financial sector development threshold levels and FDI inflows in emerging markets and that study is one which addresses these concerns exhaustively.

“A promising direction of future work is to examine the effects of local economic conditions and financial policy on multinational firm’s behaviour” (Bilir, Chor and Manova. 2014:30). This is further evidence that the nexus between financial development threshold levels and FDI inflows is not yet resolved. There is a general consensus in the body of literature regarding the role that financial sector development plays in helping host countries to benefit from FDI technological diffusion advantages. What is still not yet conclusive is the threshold level(s) that different financial sectors must surpass so that host countries can receive significant FDI inflows and related benefits. Sghaier and Abida (2013) claimed, without estimating the threshold level(s), which Sub-Saharan countries could only benefit from technological diffusion advantages that come with FDI if its financial system reaches a certain minimum level. The question that immediately arises is, what is the threshold level(s) of financial markets development that enables significant FDI inflow that consequently influence positive economic growth not only in SSA but in other country groupings as well?

Focusing on emerging markets, the research problem for this study centres on the following research question: What minimum threshold levels must financial sector development reach to trigger significant FDI inflows in emerging markets? This empirical question is far from being conclusively addressed in emerging markets and other countries in the world. In the literature this question has been investigated in an inconclusive manner (see for instance, Dutta and Roy, 2011 who focused on countries from Central Asia, Europe, South Asia, East Asia and Pacific, Middle East, North Africa, Sub-Saharan Africa, Latin America and the Caribbean; Azman-Saini et al. 2010 who focused on countries drawn from different economic sub-groups and income levels;

Omran and Bolbol, 2003 who focused on Arabic countries; and Hermes and Lensink, 2003 who focused on less developing countries).

These studies have got quite a number of methodological weaknesses. They all employed cross-country threshold regression models which use ordinary least squares (OLS) estimation technique that does not address endogeneity problem (FDI being endogenous to itself via the lagged value) inherent in the FDI-financial development nexus. They used FDI as a ratio of gross domestic product (GDP), a proxy of FDI which is different to the World Bank (2013) definition of FDI adopted for this study. This is problematic because it does not show foreign investors' change in position in the host country. The studies were narrowly focused in that they used banking sector development proxy as a representative of the whole financial sector. The exclusion of both the stock and bond market shows that these studies were not broad and comprehensive. Their findings cannot, therefore, be a true reflection of the relationship between financial sector development threshold levels and FDI inflows.

Other shortcomings include the use of the standard within transformation to eliminate the individual country specific fixed effects which according to Kremer, Bick and Nautz. (2013) is incapable to deal effectively with serial correlation of the transformed error terms. In these prior studies, the fact that current FDI is affected by the previous FDI (dynamic nature of FDI) is completely ignored.

The fact that these empirical studies did not focus on emerging markets as a separate study means that findings from such research work have got limited generalisations on emerging markets as a bloc. Emerging markets share the following unique characteristics which justify a separate study on them: the quality, depth and size of their financial sector is less diverse, major FDI destinations over the past decade, experienced high levels of market liberalisation, financial market, economic and political reforms over the past decade which attracted FDI (Cavusgil, Ghauri and Akcal. 2013:7). Moreover, the choice of emerging markets as a case study is not only due to the group's ability to showcase specific financial features that are not found elsewhere in the world but because they are

geographical areas where development banking played its principal role (Mazz, 2013:101).

Another similar study was done by Bailliu (2000) who investigated the role played by domestic banking sector development in enabling international capital flows to influence economic growth in developing countries using a panel GMM. Commercial banks assets as a ratio of total commercial banks and central banks assets should exceed 0.58 in order to allow international capital flows to stimulate economic growth in developing countries (Bailliu, 2000:15). The study differs from the current study in the following ways: first, it is more realistic in the sense that it assumes that international capital flows through either banking sector, stock market or the bond market and secondly, it focuses on FDI as a dependent variable, which is a more specific category of international capital flows unlike a study by Bailliu (2000) which used a broader measure (international capital flow). Worth noting, the merit of this study lies in that it is likely to improve the accuracy and quality of the results considering that not all international capital flows are driven or attracted by the same reasons.

Moreover, this study expands the investigation by using variables that truly represent the broad spectrum of the whole financial sector (stock market, banking sector and bond market development variables). The current study focuses on emerging markets as a unit of analysis and use the FDI proxy (net FDI as a ratio of GDP) which takes into account the ever changing foreign investors' change in position in the host country (Biglaiser and DeRouen, 2006:59). To the best of my knowledge, this study is the first of its kind to use Kremer et al.'s (2013) dynamic panel threshold regression model not only to address methodological shortcomings of the cross-country threshold regression models in general but specifically in the investigation of financial sector development threshold level(s) required to enable significant FDI inflows into the emerging markets.

1.3 HYPOTHESES

The research problem is distilled into three testable hypotheses.

Hypothesis 1:

There exists a threshold level of financial sector development that must be reached to trigger significant FDI inflows into emerging markets. The null and alternative hypothesis is given as follows, consistent with Bick (2010:127):

H_0 : No threshold ($\gamma=0$), where γ is a threshold level.

H_A : There is a threshold level ($\gamma=k$), where $k>0$.

The hypothesis is posited based on the assumption that developed domestic financial sector improves the host country's ability to receive significant FDI inflows. According to Hermes and Lensink (2003), the economic growth effects of FDI happen through spill overs if there is adequate absorption capacity in the host country. "Financial sector development improves the efficient allocation of resources hence improving the absorption capacity of the host country with respect to FDI inflows", (Hermes and Lensink, 2003:144). "Well developed financial sector lowers down the risks inherent in adopting new technology by domestic firms from foreign firms thereby boosting the host country's absorption capacity with respect to FDI inflows" (Hermes and Lensink, 2003:146). In other words, developed financial systems are better able to reduce the high risks involved in investing in new technologies introduced by multinational enterprises (MNEs). Huang and Xu (1999) noted that financial institutions influence the FDI inflows and associated benefits with increasing the speed of technological innovation that arises from different channels of FDI technology spill overs.

Higher domestic financial sector development allows foreign investors to raise additional capital in order to finance their investment projects in the host country (Omran and Bolbol, 2003:232; Rajan and Zingales, 1998; Hermes and Lensink, 2003). Borensztein, De Gregorio and Lee. 1998:134) observed that a portion of the FDI to developing nations is financed through borrowing or raising equity in the host nations' financial sector. A developed financial market improves the efficiency of the technological diffusion process of FDI by enabling foreign investors to boost their investment in the host country (Hermes

and Lensink, 2003:147). The view is consistent with Ang (2009) who noted that higher levels of financial sector development coupled by the efficient financial system and the provision of greater access to financial services enable the host country to attract significant FDI inflows and efficiently benefit from that FDI. Financial sector development does not attract and benefit foreign firms only. Bilir et al. (2014) observed that it helps in determining whether or not domestic companies are able to successfully implement their investment plans in case additional capital from bond, money and stock markets is required.

Moreover, Kaur et al. (2013) claimed that better developed financial markets enable host countries to attract significant FDI and enjoy the FDI benefits through the provision of financial support in terms of quicker transactions, availing of loans, good foreign currency services and optimal allocation of capital to more deserving projects, especially in emerging economies. Balasubramanyam, Salisu and Sapsford. (1996:96) showed that well developed financial markets guarantee that the environment in which FDI operates is competitive, free from market distortions and promotes knowledge transfer among firms. Supporting this view was Huang and Xu (1999) who argued that financial institutions influence the FDI inflows through increasing the speed of technological innovation that arises from different channels of FDI technology spill overs. The question that still remains unanswered is whether the financial sector of emerging markets is developed enough to trigger significant FDI inflows. From these observations and arguments, it is hypothesised that financial sector development has to reach a certain minimum threshold level of development to trigger significant FDI inflows in emerging markets.

Hypothesis 2:

There exists a minimum threshold level of bond sector development that must be reached to trigger significant FDI inflows into emerging markets. The hypothesis appears as follows, consistent with Bick (2010:127):

H_0 : No threshold ($\gamma=0$)

H_A : There is a threshold level ($\gamma=k$), where $k>0$.

The same theoretical rationale that explained hypothesis 1 is relevant in explaining hypothesis 2. However, the following additional literature justifies the reasons why in certain circumstances, high level of bond market development in the host countries, especially one dominated by government participation might lead to either insignificant or negative FDI inflows due to the crowding out effect.

Hailu (2010) noted that a negative or inverse relationship between well developed and functioning financial system and FDI might exist. The explanation given is that in a well-developed financial system, foreign investors can opt for portfolio investment which then crowds out FDI (Hailu, 2010:109). The same study suggested that a host country environment with low financial development environment could improve FDI inflows as foreign investors do not have an option for portfolio investment which could have crowded out FDI and vice versa for host countries characterised by high financial development. Tan and Ismail (2015) investigated the relationship between debt securities and FDI in the Euro area using the pooled mean group estimation procedure. They found out that high government debt which is common in economies characterised by high public bond sector development crowded out both foreign and domestic investment.

The next two empirical studies showed that levels of financial sector development above a certain threshold negatively affected FDI, in line with the basis upon which hypothesis 2 is built. For example, Dutta and Roy (2011) observed that financial sector development levels above the threshold negatively impacted on FDI in 97 countries from Central Asia, Europe, South Asia, East Asia and Pacific, Middle East, North Africa, Sub-Saharan Africa, Latin America and the Caribbean countries. Eller, Haiss and Steiner. (2006) used the panel estimation model to study the impact of financial sector FDI (FSFDI) on economic growth in 11 Central and Eastern European Countries (CEECs). They noted that FSFDI negatively affected economic growth beyond a certain minimum threshold level due to the crowding out effect caused by the entry of foreign banks in CEEs.

Hypothesis 3:

The theoretical justification of hypotheses 1 and 2 has been given, in particular, the explanation of why a certain minimum threshold level of financial sector development is needed in order to trigger significant FDI inflows into the emerging markets. Hansen (1999) observed that the threshold level of the independent variable need to be significant for the threshold regression results to be deemed valid. In this study, the hypothesis would be: financial sector (stock market, banking and bond sector development) threshold levels required to trigger significant FDI inflows in emerging markets must be significant. The hypothesis is represented by the following linear constraint concocted or formulated by Hansen (1999:350):

$H_0: \beta_1 = \beta_2$. The threshold level does not exist (Caner and Hansen, 2004:823)

$H_A: \beta_1 \neq \beta_2$ The threshold level exists and is significant.

Where β_1 and β_2 are the co-efficients of the threshold variables.

1.4 OBJECTIVES OF THE STUDY

Having clarified the statement of the problem and hypotheses, the objectives of this study using emerging markets as a unit of analysis are as follows:

- 1.4.1 To examine the existence of threshold levels of financial sector development that must be reached before significant FDI inflow is triggered.
- 1.4.2 To determine the threshold levels of financial sector development that must be reached before significant FDI inflow is triggered.
- 1.4.3 To investigate the significance of the threshold levels of financial sector development required before significant FDI inflows are realised.
- 1.4.4 To empirically examine the role of financial sector development in influencing FDI.

1.5 JUSTIFICATION OF THE STUDY.

This section discusses the main arguments for undertaking this study. Following Rykov, Balakrishnan and Nikulin. (2010), the dynamic panel threshold regression analysis in the

current study is aimed at enabling the understanding of the non-linear relationship between FDI and financial sector development with quite substantial clarity and insight.

The fact that Dutta and Roy (2011) noted that the negative influence of financial sector development (FSD) on FDI occurred at levels of FSD above the threshold, if there is higher political stability in the host country, shows that policymakers cannot afford to ignore threshold level implications when dealing with the nexus between financial sector development and FDI. Their study observed that the relationship between FDI and financial sector development is not linear and even acknowledged the significance of threshold levels analysis when investigating the FDI-financial sector development nexus. It is on this basis that the current study seeks to expand the work on the influence of minimum threshold levels of financial sector development on FDI inflows.

Contrary to the majority of literature which observed that developed financial sector is a pre-condition that enables the host country to benefit from significant FDI inflows, Havranek and Irsova (2011) argued that host countries characterised by weak and under-developed financial markets receive significant FDI inflows as long as they are open to do trade with other countries. The desire to clarify this contradiction is another reason why this study is investigating the minimum threshold levels of financial development necessary to significantly allow FDI inflows into the host countries.

Consistent with Soumare and Tchana (2015), the choice of emerging markets was motivated by the following reasons: 1. secondary data for all the variables is available for all the countries that constitute the sample, 2. emerging markets are the most relevant group of countries for the current study because less developing countries find it hard to attract meaningful FDI due to small market size even if their financial markets are well functioning and 3 developed countries are irrelevant for the current study because their financial markets are already developed and mature which makes it difficult to relate FDI and financial sector.

The quality of the financial sector is less diverse across emerging markets in comparison to a sample which also includes less developed and developed markets. Emerging markets have also over the last decade been the major beneficiary of FDI inflows because of increased general market liberalisation, financial market reforms, economic and political reforms (Cavusgil et al. (2013:7). It is the basis upon which the current study exclusively focused on emerging markets, a geographical area which received significant FDI during the last decade and whose quality of the financial sector is less diverse.

1.6 DEFINITION OF KEY TERMS.

The main terms that are used in this study are defined hereunder.

1.6.1 Foreign direct investment.

World Bank (2013) defined FDI as the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. According to international monetary fund, (IMF, 1993), FDI is a category of international investment that reflects the objective of a resident in one economy (the direct investor) obtaining a lasting interest in an enterprise resident in another economy (the direct investment enterprise). The same study observed that direct investment comprises not only the initial transaction establishing the FDI relationship between the direct investor and the direct investment enterprise but all subsequent capital transactions between them and among affiliated enterprises resident in different economies.

The Organisation for Economic Cooperation and Development (OECD, 2013) claimed that FDI occurs when a resident entity in one country is engaged in a cross-border investment in an enterprise resident in another country with an intention of obtaining a lasting interest in that enterprise. It further pointed out that FDI results in the existence of a long term relationship between the investor and the enterprise with the former gaining a considerable level of influence on the latter. Consistent with Adewumi (2006), FDI was defined by Abzari, Zarei and Esfahani. (2011:149) as an investment done in other countries outside their homeland nation.

Patterson, Montanjees, Motala and Cardillo. (2004) noted that FDI occurs when a firm invests directly in new facilities to produce and / or market in a foreign country. Yet the United Nations Conference on Trade and Development (UNCTAD, 2006) described FDI as an investment involving a long term relationship and reflecting a lasting interest in and control by a resident entity in one economy of an enterprise resident in a different economy. This study adopts the World Bank (2013) definition of FDI because of its clarity and ability to show foreign investors' change in position in the host country. It therefore means that FDI data used for the purposes of this thesis follows this convention.

1.6.2 Financial Market/Sector.

According to Marx, Swardt, Smith and Erasmus. (2009), a financial market is where financial instruments which include bonds, shares, treasury bills, negotiable certificates of deposits and bankers' acceptances are traded. There are three types of financial markets (money, stock and bond market) classified based on the type of financial instruments traded (Marx et al. 2009:34). Money market is where short term financial instruments are traded such as treasury bills, commercial paper, negotiable certificate of deposits and bankers' acceptances. "Stock market is where shares are traded whilst a bond market is where medium to long term bonds are bought and sold" (Marx et al. (2009: 35). Chipeta (2012) defined a financial market as an organisation that facilitates the buying and selling of financial assets. The category of the economy in which financial markets and institutions fall under is broadly known as the financial sector. The current study therefore uses the words financial sector and financial markets interchangeably.

1.6.3 Emerging markets.

Hooke (2001) defined emerging markets as those countries whose per capita income is less than US\$9 000 per year. "All countries termed developing, low income or third world fit the definition of an emerging market" (Hooke, 2001:15). Yet, Mazzi (2013:101) described emerging markets in two different ways: (1) they are countries that are developed enough to have at least rudimentary financial markets or (2) countries that are developed but at the same time still far from attaining the status of a developed country.

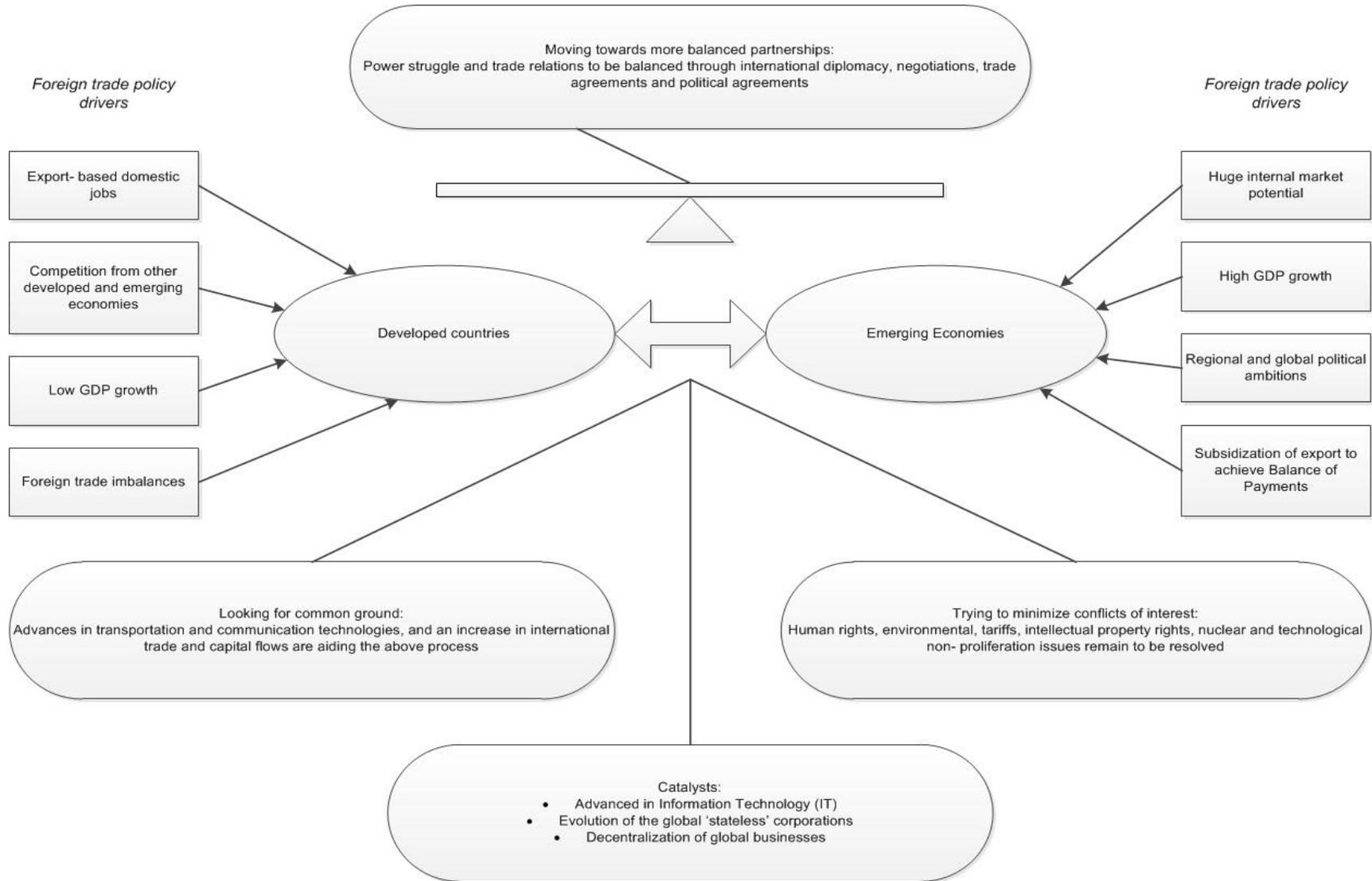
The latter is consistent with MSCI Index Research (2014) which defined an emerging market as a country that has some features of a developed market without currently meeting the standards (high per capita income and highly developed financial markets), to be called a developed market.

Heakal (2015) defined an emerging market as a country characterised by low to middle per capita income. Level of development, reforms, increase in FDI inflows and portfolio investment and the rate of economic growth of a country constitute the main criteria which inform whether a country is an emerging market or not. Van Agtmael (2007) defined emerging markets as economies that are characterised by rapid industrialisation and economic growth yet Cavusgil et al. (2013) described them simply as industrialising or developing markets.

Consistent with Kvint's (2008) observation, there appears to be lack of clarity when it comes to the definition of an emerging market. Even the Breton Wood institutions which include the World Bank, IMF and the United Nations' economic branches failed to provide an explanation of what an emerging market is. For instance, the World Bank does not classify countries according to their level of development such as less developed, developing, emerging and developed country (World Bank, 2016). Instead, it classifies countries using three different criteria which include gross national income (GNI) per capita data, region and lending groups.

The absence of consensus on the definition of an emerging market made it difficult for various research institutions to have a commonly agreed list of emerging markets. Cavusgil et al. (2013) provided a diagrammatical characterisation of an emerging market in comparison to developed markets (see Figure 1).

Figure 1: Emerging versus developed markets



Source: Cavusgil et al. (2013:8)

IMF (2013) did not offer a clear definition of an emerging economy but it provided analytical criteria for classifying countries. These analytical criteria include the composition of export earnings and other income from abroad, a distinction between net creditor and net debtor economies, external financing sources and experience with external debt servicing.

1.7 PARTICIPANTS IN FOREIGN DIRECT INVESTMENT

According to Adewumi (2006), a multinational enterprise (MNE) is the main participant in FDI. The same study noted that FDI is just a proxy for the measurement of the extent, nature and direction of MNE activities in any country. MNE was defined by Jones (1996) as a firm that has operations or income generating assets in two or more countries. More MNE activities are more pronounced in countries where cost of doing business is low and highest profit making prospects are there (Adewumi, 2006:3). The latter made it very clear that the major reason why MNE expand their activities into other countries is profit and wealth maximisation. However, Sethi, Guisinger, Phelan and Berg. (2003) suggested that MNE activity is higher in countries where the number of factors that attract FDI inflow outweigh the number of factors that discourage FDI inflow.

A facilitator for global financial flows is the United Nations through its arm called United Nations Conference on Trade and Development (UNCTAD). According to UNCTAD (2013), United Nations formed UNCTAD in 1964 for the main purpose of facilitating the flow of FDI among nations, more specifically, to the less developed countries. The same report showed that UNCTAD was formed to also spearhead the integration of developing countries into the world economy by ensuring that they create conditions that are conducive for attracting FDI. Financial sector is a channel through which FDI flows into the host country. Bilir et al. (2014), Adams (2009), Sghaier and Abida (2013) and Nor et al. (2015) acknowledged that international capital (including FDI), flow into the host countries through the banking system, equity or bond sector. Literature is very clear that the home and host countries form part of FDI, with the former originating FDI whilst the latter not only receives FDI but designs and implements policies that influence FDI.

1.8 LIST OF ABBREVIATIONS.

The following abbreviations are used in this thesis.

Table1: Abbreviations used in the thesis.	
ADI	African Development Indicators
AK	Aggregate capital stock
ARDL	Autoregressive Distributive Lag
BRIC	Brazil, Russia, India and China
BRICS	Brazil, Russia, India, China and South Africa
CEEC	Central and Eastern European Countries
COV	Covered Interest Ratio
CREDIT	Credit to the private sector
DAR	Debt to Assets
DCFS	Domestic credit provided by financial sector (% of GDP)
DCRED	Domestic credit to private sector by banks (% of GDP)
DPRDS	Outstanding domestic private debt securities (% of GDP)
DPBDS	Outstanding domestic public debt securities (% of GDP)
EU	European Union
ECM	Error Correction Model
EEC	European Economic Community
FD	Financial development
FDI	Foreign Direct Investment
FIN	Financial
FSD	Financial Sector Development
FSFDI	Financial Sector Foreign Direct Investment
FTSE	Financial Times Stock Exchange
GDI	Global Development Indicators
GDP	Gross Domestic Product
GDPPC	Gross domestic product per capita
GFI	Global Financial Indicators
GMM	Generalised Methods of Moments
GNI	Gross National Income
GNP	Gross National Product
IFS	International Financial Statistics
IMF	International Monetary Fund
IPCY	Initial per capita income
LCREDP	Log of private sector bank loans to GDP ratio
LFDI	Log of FDI to GDP ratio
LINVGDP	Log of the investment share in GDP

Table 1: Continued	
LL	Liquid liabilities
LR	Likelihood ratio
LSDV	Least Squares Dummy Variable
MCAP	Stock market capitalisation ratio
MENA	Middle East and North Africa
MNE	Multinational Enterprise
NCF	International capital flow
OECD	Organisation for Economic Cooperation and Development
OLI	Ownership, location and internalisation
OLS	Ordinary least squares
PCGROWTH	Per capita growth rate
PCYG	Per capita income growth
2SLS	Two-stage least squares
SSA	Sub-Saharan Africa
TURN	Stock market turnover ratio (%)
UAE	United Arab Emirates
UMIC	Upper Middle Income Countries
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Programme
US	United States
USA	United States of America
VAR	Vector Autoregressive
VECM	Vector Error Correction Model
VTRD	Stock market traded value (% of GDP)
WDI	World Development Indicators
WTO	World Trade Organisation

Source: Author, 2016.

1.9 STRUCTURE OF THE THESIS.

The rest of the thesis is structured as follows:

Chapter 2: Foreign Direct Investment: Theory and Empirical issues.

The chapter discusses the motive and mode of FDI and provide an in–depth explanation of the FDI theories including their strengths and weaknesses. The chapter also focuses on FDI determinants, relevance of FDI theories to the current study and the impact of FDI on economic growth from both a theoretical and empirical perspective.

Chapter 3: FDI and Financial Sector development: Theory and Empirical Evidence.

The chapter explains the theoretical and empirical literature underpinning the relationship between FDI and financial sector development. The deficiencies and gaps in the existing literature are highlighted and the new knowledge to be added by the current study explained.

Chapter 4: Research Methodology

This chapter contributes to the study by providing an overview of the different threshold regression models utilised in prior research on FDI-finance nexus and reviewing the methodological challenges encountered when estimating the threshold levels in the relationship between FDI and financial sector development. An evaluation of the comparative advantages and disadvantages of the threshold regression models is also done with a view of selecting an appropriate methodology for the current study. The chapter further lays down the research methodology and design for this study by describing the statistical techniques employed to test the hypotheses spelt out in Chapter 1. A detailed discussion of how this study intends to address the internal, external, construct and statistical conclusion validity threats is also presented as part of the research design.

Chapter 5: Estimation and Empirical Results.

The results from econometric methods and statistical techniques developed and discussed in the preceding chapter are reported in this chapter. Research results are discussed, synthesised and corroborated with theory and other empirical studies. The hypotheses are tested in this chapter.

Chapter 6: Conclusions, Recommendations and Implications for Further Research

The conclusions of the study derived from the research findings are presented in this chapter. Recommendations to the government of emerging markets and policy making authorities are also highlighted. The chapter also includes a statement of recommendations for further research. This helps to highlight other related areas that deserve more research or which are still inconclusive and need further attention.

Contribution to new knowledge from the study is also discussed. The organisation of the thesis is diagrammatically shown in Figure 2.

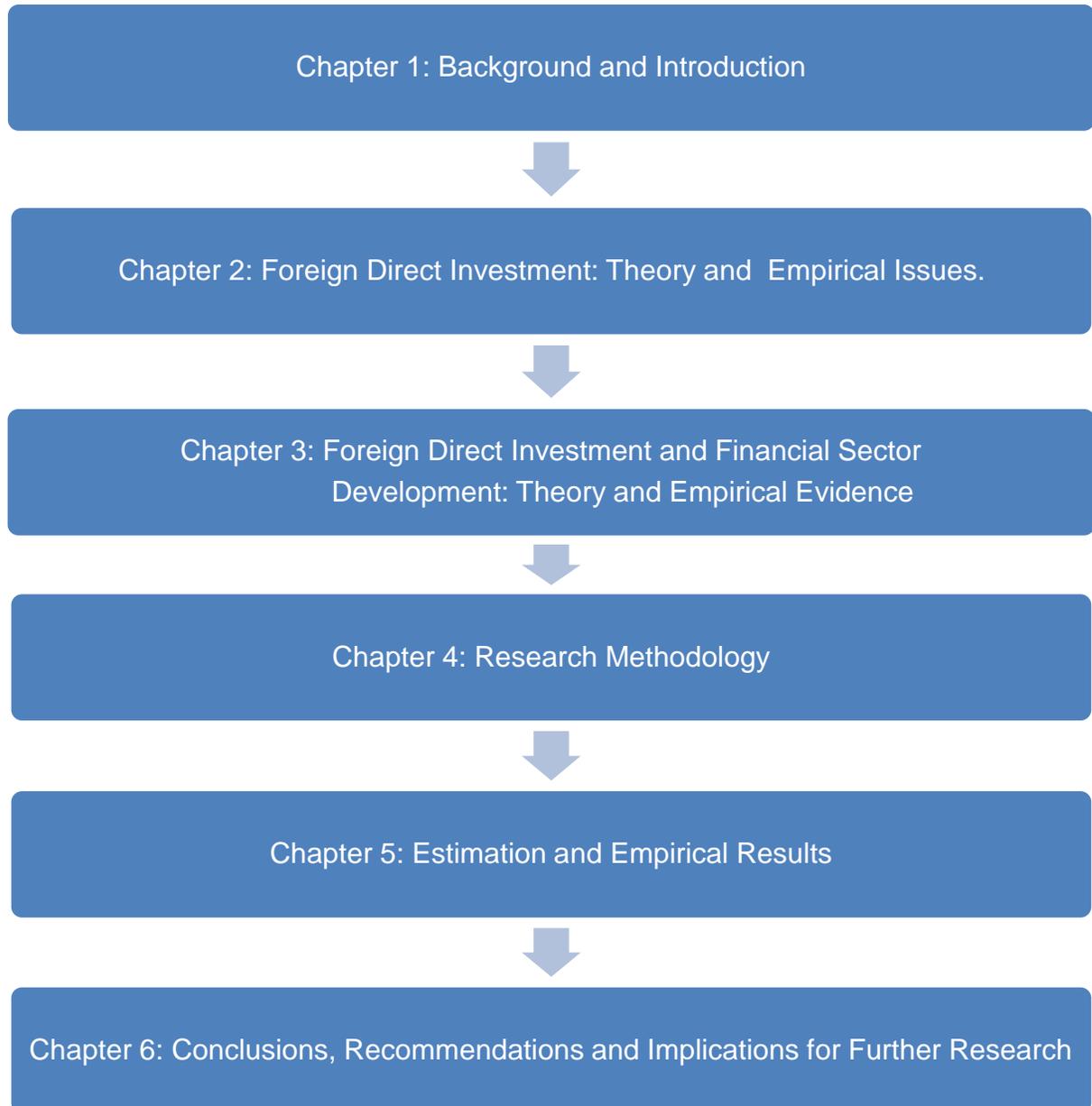


Figure 2: Diagrammatic representation of the thesis (Source: Author, 2016)

1.10 CHAPTER CONCLUSION.

This chapter introduced the study, explained the statement of the problem, developed hypothesis and objectives of the study. It also discussed the significance of the study, defined key terms used as well as provide a detailed structure of the whole thesis. Literature which explains (1) the relationship between financial development and FDI and (2) that financial development must reach a certain minimum threshold level before triggering significant FDI flows was discussed. The basis upon which hypotheses statements were developed and the contribution to new knowledge was explained sufficiently. Moreover, the reason why emerging markets needs a separate study on their own in as far as financial development-FDI nexus is concerned has been motivated. The next chapter develops the study by extensively focusing on both theoretical and empirical literature on FDI.

CHAPTER 2

FOREIGN DIRECT INVESTMENT: THEORY AND EMPIRICAL ISSUES.

2.1 CHAPTER INTRODUCTION

The main purpose of this chapter is fourfold: (1) to further explain the thesis orientation provided in the previous chapter, (2) to provide an in–depth explanation of the theories and determinants of FDI, (3) to determine and compare FDI theories against empirical evidence for developing and emerging countries and (4) to discuss the impact of FDI on economic growth. Whilst this study discusses and explains the main theories of FDI, its main thrust is to critique them and to identify their relevance to the current study.

This chapter is structured as follows: section 2.2 provides the motives and modes of FDI. Section 2.3 discusses the main FDI theories in detail whilst section 2.4 highlights the difficulties in selecting the most appropriate FDI theory. Section 2.5 discusses the relevance of the FDI theories to the current study whilst section 2.6 looks at determinants of FDI from an empirical point of view. Section 2.7 focuses on the origin, evidence for and against each main FDI theory. Section 2.8 examines in detail the impact of FDI on economic growth and section 2.9 presents the conclusion to the chapter.

2.2. MOTIVES AND MODES OF FDI

It is imperative to clarify the motives for FDI in order to be able to explain the differences in the FDI inflow into various host countries or locations. Dunning (1993) identified four broad motives for FDI, namely, strategic asset, efficiency, market and resource seeking motives. Strategic asset seekers were defined as the MNEs which consider FDI to promote or enhance their international competitiveness while efficiency seekers engage in FDI in order to rationalise their operational activities, enjoy the benefits of large economies of scale and take advantage of varying cost of factor endowments between and across countries.

MNEs which are market seekers are driven by four main reasons. Firstly, they want to ensure that they are physically present in prominent international markets in which their competitors operate. Secondly, they intend to reduce costs of serving a local market

through operating from a local facility. Thirdly, they mean to follow customers or suppliers who might have relocated or expanded into other countries. Fourthly and lastly, they aim to easily and quickly adapt its products to ever changing local tastes and this can be effectively managed through ensuring presence in the local market. Resource seeking MNEs invest in other countries in order to take advantage of the availability of resources or cheaper resources which include labour, physical resources, technology and expertise. Dunning (1993) observed that the resource and market seeking motives normally trigger initial FDI whilst strategic asset and efficiency seeking motives explains the subsequent FDI.

Markusen (1995) noted that vertically expanding MNEs may want to set up production facilities in other countries in order to cut the overall costs (efficiency seeking motive) whilst replicating production in foreign countries may put the MNE in a better position to access foreign markets (market seeking motive). In Greece, market, efficiency and resource seeking were found to be the first, second and third order motives for FDI inflow respectively (Bitzenis, Tsitouras and Vlachos. 2007:28). On the other hand, Tatoglu and Glaister (1998:219) showed that market development and faster access to new markets were the highest ranked motives for FDI in Turkey.

According to Madura and Fox (2014), MNEs consider FDI primarily to increase their revenue base, lower down costs or both thereby boosting profitability, company value and wealth of their shareholders. They adapted the specific reasons why firms invest in other countries from the Dunning's (1973) eclectic paradigm hypothesis. These include the need to protect and develop the firm's specific advantages, the benefits of having the presence in other countries as compared to either franchising or exporting the products and to take advantage of the host country's favourable characteristics (Madura and Fox, 2014:458).

Predicated on Gorynia, Nowak and Wolniak.'s (2005) findings, there are three modes of FDI which include green field investment, joint venture and acquisition. Green field investment is when MNE uses its own funds to completely set up a new firm or production

facility in the host country whilst an acquisition involves the foreign investor buying a controlling stake in an already existing firm in the host country using own funds (Gorynia et al. 2005:66). A joint venture is when two or more firms (MNE and domestic firm) combine their assets to form and share ownership of a single entity in the host country (Gorg, 2000:165).

The question that needs to be addressed is; what are the factors considered when MNE is choosing the mode of FDI? Jermakowicz and Bellas (1997) investigated the determinants of the choice of modes of FDI and found out the following results. MNEs choose a green field mode of FDI if, (1) the MNE's name and products are well known in the host country, (2) the establishment of a new company in the host country is the cheapest option and (3) the production process is high labour intensive. On the other hand, MNEs prefer the acquisition mode of FDI if the local firm to be taken over has got a large market size and characterised by a very strong brand and superior distribution networks. A scenario when pooling competencies is strategic towards the attainment of long term objectives and the availability of a suitable local partner makes a joint venture attractive as compared to other modes of FDI.

2.3. THEORIES OF FDI

The FDI theories, also referred to as hypotheses can be divided into push and pull factors. The former include the production cycle, internalisation and the oligopolistic reaction theory whilst the latter encompass the eclectic paradigm, output and market size, currency areas, difference in rate of return, liquidity hypothesis / internal financing and the imperfect market hypothesis theory.

2.3.1 Push factors driven FDI theories

The production cycle hypothesis was developed by Vernon (1966) to explain FDI by United States of America (USA) manufacturing companies in Western Europe. The theory mentions four stages of production which are innovation, growth, maturity and decline. During the innovation stage of the production cycle, firms produce new innovative products for local consumption and serve the foreign markets by exporting surplus

products. At this stage, firms have a competitive advantage because their new technology is not yet known by competitors.

Vernon (1966: 196) observed that technology becomes known by the competitors as the product develops with time, thus forcing producers to standardise the production in order to manage competition. Despite the standardisation, competitors based in the exports receiving country still copy the technology and imitate the products, hence forcing foreign manufacturing firms to stop exporting in favour of performing production in the local markets in order to retain and grow the market share in those countries (Vernon, 1966: 197).

Although agreeable to the production cycle stages proffered by Vernon (1966), Denisia (2010: 106) observed that the hypothesis failed to explain all types of USA manufacturing firms' FDI flows into Western Europe during the period 1950 to 1970. The same study also showed that the rigid sequence from product innovation to exports and then to FDI no longer needs to be there for the production cycle theory to be valid. This was supported by Solomon (1979: 26) who argued that not all products follow the production cycle sequence presented by Vernon (1966) before they are produced in the host country. The production cycle hypothesis wrongly assumes that innovations only come from developed countries and it also failed to take into account the European direct investment in the USA (Solomon, 1979: 26). The production cycle hypothesis is narrowly focused because it failed to include service and raw materials firms whilst only concentrating on manufacturing firms in explaining the FDI phenomenon (Solomon, 1979: 26).

Matthews (1973:794) called the production cycle hypothesis an oversimplification of reality as it excludes a lot of socio-political factors that shape the behaviour of international investors. Criticising own hypothesis, Vernon (1979: 265) noted that the production cycle hypothesis' explanatory strength of the causes of FDI is weak because some of the assumptions of the theory are not valid any more. For example, the United States' technological leadership position among developed nations is no longer very dominant

and its market is no more unique among national markets in size or factor cost configuration.

In summary, the production cycle hypothesis fell short in the following aspects: (1) it focused on a single country (United States) which implies limited generalisation on other countries, (2) it assumed FDI is only as a result of push factors and not pull factors in the host countries which is at variance with other FDI hypotheses and (3) it did not capture the FDI technological diffusion and spill-overs that is enjoyed by host countries. In other words, the impact of FDI in the host countries was not taken into account.

The internalisation hypothesis which was founded by Buckley and Casson (1976) argued that FDI occurs only if the benefits of exploiting firm specific advantages outweigh the relative costs of operating in other countries. It says MNEs organise their internal activities with the aim of developing specific advantages over their competitors abroad which makes it easy for them to competently and competitively perform production of goods in other countries. The hypothesis was later developed by Hymer (1976) who noted that FDI can only happen if two conditions are met: (1) if the advantages being possessed by a firm in a particular activity is more than the relative disadvantages of operating in other countries and (2) if competition is removed or scaled down, for example, the decision by a firm to purchase a foreign refinery if faced with problems associated with buying oil products in the market is consistent with the internalisation hypothesis (Moosa, 2010:483).

Rugman (1980) claimed that internalisation is a general theory of FDI as it integrates all the FDI activities by the MNEs by synthesising the reasons behind FDI. All the existing FDI theories are just sub-sets of the internalisation theory because they all point to the existence of market imperfections in one way or another as a major reason behind FDI (Rugman, 1980: 365).

On the contrary, Parry (1985) observed that although it provided some insight into FDI activities and behaviour of MNEs, Buckley and Casson's (1976) internalisation hypothesis

failed to explain all forms of FDI and international activities of MNEs. “For the theory to be able to cater for all forms of FDI and international activities of the MNEs, it needs to explicitly identify and explain all the market activities which have to be internalised in response to market imperfections” (Parry, 1985: 565).

In summary, the internalisation hypothesis did not address the following: (1) the impact of FDI in the host country, (2) the minimum threshold levels of FDI that must be exceeded before different sectors of the host countries begin to benefit and (3) the internalisation hypothesis failed to appreciate that conditional factors in the host countries are also responsible for FDI location decisions. Instead, it mentioned that FDI will take place as long as imperfections exist which is a narrow understanding of the FDI phenomenon.

The oligopolistic reaction theory founded by Knickerbocker (1973) hypothesised that FDI is an outcome of the reaction of oligopolists in a study that investigated FDI determinants using FDI data of 187 manufacturing American MNEs. The study involved using the data to construct an entry concentration index for the 187 manufacturing American MNEs which was then compared with the United States (US) industrial concentration index. The relationship between the two indices was found to be negative at a very high level which shows collusion of firms and a tendency by oligopolistic firms to keep a competitive edge over their competitors by countering any advantage that the first firm might have scored by following it with their own FDI (Knickerbocker (1973)). This was supported by Moosa (2010: 484) who observed that in an oligopolistic industry, FDI by one firm pushes other firms to follow suit in an attempt to keep their market share.

Although a study by Flowers (1976: 43) on FDI flow from Germany, France, Netherlands, Canada and United Kingdom into the US found results that resonated with the oligopolistic reaction hypothesis, it ignored the initial reason why the first investor set the ball rolling thereby failing to disclose the full explanation of the FDI theory including the impact of FDI on the different sectors of the host countries’ economy. Since the oligopolistic reaction hypothesis was initially developed to describe US product pioneering

firms, it is not capable of sufficiently explaining the FDI decisions of MNE firms from other countries whose attributes are not almost uniquely American (Flowers, 1976: 43).

2.3.2 Pull factors driven FDI theories

The eclectic paradigm hypothesis founded by Dunning (1973) reported that ownership, location and internalisation (OLI) advantages are key determinants of FDI inflows into a host country. These OLI advantages are presented in more detail by Dunning (1980: 13). The ownership advantages that a firm requires in order to be able to compete abroad effectively include an edge that a firm has over its rivals despite being foreign such as brand name, patents and knowledge of technology (Wahid, Sawkut and Seetanah. 2009). “A firm that possesses technology, monopoly and economies of large size advantages can enjoy higher profitability margins coupled by lower marginal costs of production if it decides to operate from abroad” (Dunning, 1973: 298).

Location advantages include economic (market size, cost of transport, telecommunications), political (favourable government policies) and social benefits which include distance between host and home countries, cultural diversity and attitude towards strangers that influence FDI flows (Denisia, 2010). The same study observed that trade openness is a political location advantage that arises from favourable or unfavourable government policies. Moreover, the state of the financial markets, political and macro-economic environment and infrastructure are part of the locational advantages within the OLI framework (Denisia, 2010: 108).

The eclectic paradigm hypothesis was supported by Moosa (2010:483) who showed that FDI happens due to the international immobility of factors of production such as labour and natural resources and that MNEs are forced to expand into countries characterised by natural resources abundance, low labour cost per unit and skilled labour.

Dunning (1980) noted that internalising allows the firm to capitalise on the market imperfections, protect the firm’s reputation and provide after sales maintenance. Furthermore, internalisation enables the firm to exploit its underutilised entrepreneurial

and organisational capacity at a lower marginal cost in the production of goods that are complimentary to those that are already being supplied (Dunning, 1980: 11).

Dunning (2001: 177) criticised the eclectic paradigm hypothesis by referring it to as a static approach whose variables are interdependent on each other and as a mere shopping list of variables. The same study also noted that the eclectic paradigm is not there to provide a full explanation of international production but to merely list a set of variables inherent with ingredients necessary to offer any satisfactory explanation of FDI location decisions. Although the eclectic paradigm is a valuable general framework for explaining international production, Dunning (1988:24) noted that it is not adequate when it comes to explaining FDI location decisions. Over and above the concerns about the eclectic paradigm hypothesis that were raised by Dunning (1988 and 2001), it appears from the literature that the eclectic paradigm hypothesis (1) ignored the impact of FDI in the host country, (2) did not evaluate which among the OLI advantages has got a more significant impact on FDI and (3) failed to indicate the threshold levels of OLI advantages required in order to significantly influence FDI.

The output and market size hypothesis founded by Jorgenson (1963) says that FDI is attracted by the level of output, sales and GDP or Gross National Product (GNP) of the host country. The rationale of this hypothesis is that MNEs increase their foreign investment in response to the higher output, sales and GDP levels in the host country. The output hypothesis takes a micro level perspective in that it mentions that an increase in output and sales of a firm in the host country attracts more FDI into the host country by that firm whilst the market size hypothesis takes a macro level perspective as it assumes that higher levels of GDP or GNP in the host country attract FDI. The output and market size hypothesis was supported by Moosa (2010: 483) who showed that a host country characterised by larger market size as measured by its GDP, higher output and sales attracts more FDI inflows.

Goldberg (1972) contradicted the market size hypothesis in a study that investigated determinants of U.S. direct investment in the European Economic Community (EEC).

Goldberg (1972:696) established that FDI inflow cannot be determined by the size of the market but by the rate at which that market is growing. Apart from only focusing on the impact of output and market size on FDI thereby excluding other host country conditional factors mentioned in the OLI framework by Dunning (1980), the output and market hypothesis is narrowly focused because it completely ignored the impact of FDI on the host country and did not disclose the threshold level of the output and market size necessary to ensure significant influence on FDI.

The currency areas hypothesis that was founded by Aliber (1970) showed that the depreciation of a currency attracts FDI inflows whilst appreciation of a currency encourages FDI outflows. The hypothesis noted that firms from countries characterised by strong currencies have a competitive edge in the host country because they can afford to borrow capital at higher interest rates and still make profit as compared to the local firms. This was supported by Moosa (2010:485) who observed that firms of a country characterised by a strong currency have got higher appetite to invest in other countries whilst the opposite is true for firms of countries characterised by weak currency.

Nayak and Choudhury (2014) found results that contradicted the currency areas hypothesis. Furthermore, they also established that the currency areas hypothesis excludes the reasons behind direct investment between or among developed nations whose currencies are of equal strength (Nayak and Choudhury, 2014:12). Their study further noted that the hypothesis does not explain a scenario where a developing country whose currency is weaker invests in a developed country with a stronger currency. The hypothesis ignored the impact of FDI in the host country and stayed away from explaining the threshold level(s) of the currency value that has a significant influence on FDI.

The difference in rate of return hypothesis postulates that FDI is a result of international differences in the rates of return (Popkin, 1965). The theory says that FDI flow into countries which are characterised by higher rates of investment return from countries whose investment rate of return is low. An earlier observation by Mundell (1957) that United States firms obtained higher rates of return from their European investments than

in their home country provided a foundation upon which the difference in rate of return hypothesis was formed.

In a bid to test the theoretical framework, Fedderke and Romm (2006) studied the impact of the net rate of return and risk on FDI location decision in South Africa with annual aggregate time series data ranging between 1956 and 2003 using vector error correction model (VECM). Higher net rate of return and lower risk profile was found to have had attracted FDI into South Africa, thus supporting the difference in rate of return hypothesis (Fedderke and Romm, 2006: 757). According to Hymer (1976), the difference in rate of return hypothesis lacked consistency with two features of FDI, thus rendering it ineffective in solely explaining the FDI phenomenon: (1) the bi-directional flow characterised the flow of FDI between United States and Europe, (2) subsidiaries of MNEs augment the FDI by borrowing from the local financial markets. Moreover, there are other reasons that make it adequate enough for FDI to be induced by the host countries, not just the differences in the rate of return between two countries (Caves, 1982:25). The difference in rate of return hypothesis ignored the impact of FDI on rate of return and the threshold level of rate of return that is necessary to enhance FDI.

The liquidity hypothesis by Barlow and Wender (1955) explains the relationship between the amount of cash flows being generated internally and investment outlays of a firm. It shows that the initial FDI by US firms is modest in other countries and it increases through re-investment of the profits made in the host country as time goes by.

Contrary to the liquidity hypothesis, Severn (1972: 369) noted that the profits by foreign subsidiaries of US firms are allocated to the parent company in order to give an impression that it is financially doing well instead of the cash flows being re-invested by the foreign subsidiary. According to Severn (1972: 384), a test of the liquidity hypothesis found out that foreign income positively influenced domestic investment and funds that were available in the entire corporation were balanced to cater for the requirements of the entire corporation.

The liquidity hypothesis observed that there is a positive causality running from internal cash flows to investment because the cost of internal finance is much lower. Moosa (2010:485) who referred it as the internal financing hypothesis says that MNEs invest huge sums of capital as initial direct investment whilst subsequent expansions are financed by ploughing back profits obtained from operations in the host country. “The liquidity hypothesis is the most appropriate in explaining FDI in developing nations because they are characterised by restrictions on the movement of funds and the prevalence of inefficient financial markets” (Moosa, 2010:485).

The hypothesis assumes that liquidity is the only important host country conditional characteristic that influences FDI decisions and ignores all the other location advantages raised in the OLI framework by Dunning (1980). It also appears that the liquidity hypothesis did not take into account the impact of FDI in the host country and the minimum threshold levels of liquidity that is ideal to enable FDI inflow to happen were totally excluded in the explanation of the FDI phenomenon.

The imperfect market hypothesis also known as the industrial organisation hypothesis was founded by Hymer (1976). The hypothesis reports that FDI happens because of the existence of imperfect competition in the host country. It argues that when markets are perfect, free information exists and barriers to trade are non-existent and, therefore, making it difficult for foreign firms to have a competitive advantage over local firms. This is in line with findings by Kindleberger (1969) whose studies observed that FDI can only occur when market imperfections exist and foreign firms possess a huge monopolistic business advantages over the local firms such as differentiated product and marketing efficiency.

Hymer’s imperfect market hypothesis showed that because MNEs operate in other countries at a disadvantage position in terms of culture, language, legal system and consumer preference and exchange rate risk, they have got to possess some form of market power in order to offset those setbacks before they are able to make profit out of their international investment. This was supported by Moosa (2010:483) who showed that

MNEs must have some competitive advantages such as internationally reputable brand name, patent protected technology, and superior managerial skills to be able to shrug off disadvantages that emanate from operating business in a foreign land. Those disadvantages pertain to differences in language, culture and legal systems. However, competitive advantages increase the chances of success by MNEs and act as a push factor for MNEs to expand their business into other countries (Moosa, 2010:483).

Nayak and Choudhury (2014) showed that the imperfect market hypothesis failed to offer a comprehensive explanation of FDI as it failed to show where and when FDI occurs. This is a shortcoming that was addressed by other FDI hypotheses which include those by Buckley and Casson (1976) in their internalisation hypothesis, Vernon's (1966) production life cycle and the eclectic paradigm by Dunning (1977, 1979 and 1988). According to Nayak and Simmond (1983), ownership of firm specific advantages did not automatically mean that MNEs will invest in other countries as they still have the option of using their internal advantages via licensing or exporting.

The imperfect market hypothesis recognises the impact of firm's ownership advantages in influencing FDI location decisions but ignores the role of location advantages in luring FDI into the host country. The quantification of the ownership advantages that must be possessed for the firm to have a competitive edge over its domestic competitors in the host country was totally ignored. Just like all the FDI hypothesis/theories discussed earlier on, the imperfect market hypothesis did not explain the influence of FDI in the host country, let alone, the investigation of the minimum threshold levels associated with such non-linear relationships.

2.4 DIFFICULTIES IN CHOOSING THE MOST SUITABLE FDI THEORY.

There is no consensus in literature with regard to the best FDI theory applicable to all the scenarios. This is in line with Parry (1985) who noted that the internalisation FDI theory only offers a narrow explanation of FDI activities by MNEs. Parry (1985: 565) further queried the ability of any single FDI theory to serve as a self-contained general theory that explains all types of FDI at firm, industry and country level. Moreover, Agarwal

(1980:763) argued that each theory only managed to partially explain the FDI activities of the MNEs without integrating all the knowledge on FDI determinants.

Moosa and Cardak (2006) summed it up by reporting that there is no consensus yet in the literature with regard to a theoretical framework on factors that determine FDI inflow. In other words, an agreed set of variables that can be referred to as the true determinants of FDI is still absent. Denisia (2010: 104) noted that there is no generally accepted theory that explains the FDI phenomenon and new elements and criticism of the current theories continue to emerge.

2.5 RELEVANT FDI THEORY FOR THE CURRENT STUDY

All push factor FDI theories are not relevant to this study because the current study focuses on the impact of a pull factor on FDI, in this case, financial sector development on FDI. In that context, it means that all pull factor FDI theories are to a certain extent relevant to the current study. For example, the current study used GDP per capita (output and market size), exchange rate (currency areas), inflation (different rates of return) and trade openness (imperfect market hypothesis) as control variables in the panel threshold regression model. The liquidity hypothesis is also relevant in the sense that the current study partly investigated the impact of stock market liquidity using stock market turnover ratio (%) and stock market value traded ratio (% of GDP) proxies on FDI.

The eclectic paradigm by Dunning (1973) is the more relevant pull factor FDI theory in terms of explaining the relationship between financial market development and FDI. According to the eclectic paradigm theory, location advantages of the host country determine the quantity of FDI inflows into the host country and these include economic benefits, political and social advantages. According to Dunning (1973), economic benefits group of location advantages include market size, cost of transport, telecommunications and financial markets development. This provided theoretical bedrock to this study which investigated the impact of financial sector development (a locational advantage) on FDI, although the current study is unique in its focus on investigating threshold level of financial

sector development necessary to ensure FDI significantly influences economic growth in emerging markets.

2.6 DETERMINANTS OF FDI- AN EMPIRICAL PERSPECTIVE

Empirical studies on the determinants of FDI provide evidence on the motives for FDI or the reasons that inhibit FDI inflows into a particular host country/region. The discussion on FDI determinants in this section has broadly been grouped into three categories, namely, developing, developed and emerging economies.

Investigating the impact of investment climate on FDI in developing countries using instrumental logit fixed effect model with firm level data from 2000 to 2006, Kinda (2010:501) found out that, good financial market, physical, human capital and institutional infrastructure provided a favourable environment that attracted FDI inflows into 77 developing countries, in line with the eclectic paradigm hypothesis. Buthe and Milner (2008) examined the impact of international and preferential trade agreements on 122 developing countries during the period between 1970 and 2000. Controlling for factors such as domestic policies, Buthe and Milner (2008: 749) observed that developing countries that belonged to World Trade Organisation (WTO) and actively participated in preferential trade agreements received more FDI. This is because foreign investors feel secure as renegeing on these international trade agreements is costly on the part of the host country. The finding supports the eclectic paradigm hypothesis.

Asiedu (2002) investigated whether FDI determinants in developing countries affected SSA countries in a different way from non- SSA countries. Higher return on investment was found to have positively influenced FDI inflows into non-SSA countries in line with the difference in rate of return hypothesis. Good infrastructure also positively impacted on FDI inflows into non-SSA countries whilst both return on investment and infrastructure had an insignificant influence on FDI flows to SSA countries.

Consistent with theoretical predictions, Kahai (2004) showed that high quality of infrastructural development, trade openness, income per capita, GDP growth rate and

economic freedom positively attracted FDI into developing countries. Moreover exchange rate stability, low inflation, labour cost and corruption levels were found to have had a positive effect on FDI inflows in developing countries (Kahai, 2004:48).

Contrary to the location advantages of the OLI framework, Maduka (2014:7) showed that both financial depth and development had an insignificant positive impact on FDI into Nigeria in a study that estimated the existence of a long run relationship between the two variables using the Johansen and Juselius (1990) co-integration and Ganger causality tests. Financial deepening, development and growth did not influence FDI inflow and also failed to help the economy of Nigeria take advantage of the FDI inflow (Maduka, 2014:8). Instead, what was found to have positively and significantly attracted FDI into Nigeria were larger market size, trade openness, human capital development, availability of infrastructural facilities and stability of the general macroeconomic environment (Oladipo, 2010:84).

Mohamed and Sidiropoulos (2010) investigated FDI determinants in the MENA region using panel regression analysis with data from 1975 to 2006. They found out that natural resources availability, good infrastructural quality, financial, market and government size attracted FDI into the MENA region. Rogmans and Ebbers (2013) examined FDI determinants in the MENA region using a multiple ordinary least squares (OLS) regression model with data ranging from 1987 to 2008. They found out that GDP per capita, trade openness and oil prices positively and significantly influenced FDI inflows whilst energy endowments negatively impacted on FDI in the MENA region, in contrast to the eclectic paradigm theory which states that natural resources are a locational advantage of FDI.

Alam and Shah (2013) studied the determinants of FDI in OECD member countries using panel data regression analysis with data from 1985 to 2009. They showed that high quality of infrastructure, low cost of labour and large market size played a paramount role in attracting FDI into the OECD countries, in line with both the eclectic paradigm and market size hypothesis.

Kwack (1972:382) observed that higher foreign output of US manufacturing firms was one of the key determinants of FDI flow during the period starting from 1960 to 1967. Moreover, Loree and Guisinger (1995) noted that the destination for US direct investment was to a large extent influenced by political stability, GDP per capita and infrastructural development levels in the host country. Investigating the FDI determinants in Spain using exploratory factor analysis with data from 1995 to 2005, Villaverde and Maza (2012) found out that high economic growth potential, favourable labour conditions and level of competitiveness derived from good infrastructure were the three major factors that attracted FDI at both national and regional level in Spain, in support of the eclectic paradigm hypothesis.

Piteli (2010) investigated the determinants of FDI in developed (OECD, European and non-European) countries using panel analysis regression model with data from 1972 to 2000. Favourable business environment, high profitability levels of domestic firms and productivity of the economy were found to be the major factors that influenced FDI in developed countries (Piteli, 2010:16). In Central and Eastern European countries (CEEC), improved labour market conditions, high quality of institutional frameworks and infrastructure were observed to be the major determinants of FDI (Cristina and Cantemir, 2012:61). Timothy, Jorge and Li. (2011) compared the FDI determinants in developing versus developed countries. They found out that strong governance system, low corruption and high infrastructural quality were common FDI determinants in both developing and developed countries. The same study reported that government taxation policy was a key FDI determinant only in developed and not developing countries.

Recent empirical work that studied the FDI determinants in emerging markets is also available. Using panel data analysis with annual data from 1975 to 2009, Ranjan and Agrawal (2011) investigated the determinants of FDI inflow into Brazil, Russia, India and China (BRIC). In support of the market seeking motive of FDI and market size hypothesis, larger market size was found to have played an important role in attracting FDI into the BRIC countries during the period under study. Moreover, the efficiency seeking motive of

FDI (low labour cost) and high degree of trade openness and good infrastructure in line with the eclectic paradigm hypothesis were instrumental in attracting FDI into BRIC countries (Ranjan and Agrawal, 2011: 259).

Jadhav (2012) studied the FDI determinants in emerging economies, namely, Brazil, Russia, India, China and South Africa (BRICS) using panel data analysis approach with annual data spanning from 2000 to 2009. Real GDP per capita was the most significant determinant of FDI in BRICS, in support of both the market seeking motive of FDI and the market size hypothesis. Rule of law, accountability and trade openness were also found to be significant determinants of FDI in BRICS countries whilst the availability of natural resources was found to have had a negative impact on FDI inflow into BRICS, in contradiction to the resource seeking motive of FDI (Jadhav, 2012: 11). The finding also deviates from the eclectic paradigm hypothesis which reported that natural resources availability in the host country is a locational advantage of FDI. Jadhav and Katti (2012) examined the determinants of FDI in emerging markets (BRICS) using panel data analysis with annual data from 2000 to 2010. They observed that quality of regulatory framework and effectiveness of the government in coordinating policy implementation were crucial determinants of FDI in BRICS.

According to Jakobsen (2011), preferences and attitudes of the emerging markets' inhabitants determined not only FDI in broad terms but also the type of FDI they received as MNEs took such factors into account in their FDI location decision making processes. However, a study by Broto, Diaz-Cassou and Erce. (2011) reported that macroeconomic and financial sector stability not only determined FDI but reduced the volatility of FDI flowing into the emerging markets. Amal, Thiago and Raboch. (2010) examined the FDI determinants in Latin America emerging economies (Argentina, Brazil, British Virgin Islands, Cayman Islands, Chile, Colombia, Mexico) using panel data analysis with annual data from 1996 to 2008. They found that economic growth, economic stability, trade openness, conducive political and institutional environment were the key determinants of FDI in the eight Latin American countries that were under study, in support of the eclectic paradigm hypothesis.

Resmini (2000) studied the determinants of European Union (EU) FDI in the CEECs using the three way fixed effects model. The study showed that the efficiency seeking motive of FDI in the form of low labour costs and the stage of the transition process of the CEEC country were the major determinants of FDI. Bevan and Estrin (2004) investigated the determinants of FDI into the European transition economies using panel regression analysis with annual data spanning from 1994 to 2000. They noted that FDI into European transition economies was mainly attracted by low labour costs, in line with the efficiency seeking motive of FDI. FDI inflow was also positively influenced by GDP per capita and growth rate, in support of both market seeking motive of FDI and the market size hypothesis (Bevan and Estrin, 2004:785).

In an investigation of the relative importance of determinants of FDI inflow into an emerging market (Brazil) using the two stage least squares regression model with monthly data ranging between 2000 and 2007, Angelo, Eunni and Fouto. (2010) observed that a high aggregate consumer sale was the most significant variable that attracted FDI into the Brazilian economy, in support of the output size hypothesis. Furthermore, Angelo et al. (2010:214) reported that the interest rate on consumer financing negatively influenced FDI inflows whilst the overall attractiveness of the Brazilian market had a very negligible influence on FDI flows into Brazil. High regional demand, good communication infrastructure, low labour cost and high quality of labour force were found to have had a significant impact on FDI inflow into Mexico regions (Jordaan (2008:402). Castiglione, Gorbunova, Infante and Smirnova. (2012) studied the determinants of FDI in Russia at regional level using panel data analysis with data from 1996 to 2006 and observed that infrastructure availability and quality of the institutional environment were the two key determinants of FDI across Russia regions.

In an analysis of responses from 22 MNEs operating in China on their FDI locations decisions in China using descriptive statistics, Ali and Guo (2005:28) showed that high investment return attracted FDI into China from Taiwan, Hong Kong, Korean and Japanese firms, in line with the difference in rate of return hypothesis. Consistent with the

eclectic paradigm hypothesis, Na and Lightfoot (2006) observed that high quality of labour as measured by the number of primary and secondary schools and universities and trade openness and reforms in each region attracted FDI. “Yet the level of involvement in business enterprises by the state and high labour cost in Chinese regions inhibited FDI inflows whilst infrastructural quality had a negligible impact on FDI inflows into the 30 Chinese regions” (Na and Lightfoot, 2006:274).

Kang and Lee (2007) investigated the determinants of South Korean MNEs location decisions in China with firm-level data for South Korean foreign affiliates in China using the conditional logit estimation model. High quality of labour, good transport infrastructural quality, favourable government policies and larger market size attracted FDI whilst high labour costs inhibited FDI inflow into China (Kang and Lee, 2007: 457). In a study of FDI inflow determinants for Indonesia in comparison with the whole of East Asia, Lipsey and Sjöholm (2011) observed that low FDI received by Indonesia was attributable to poor business climate, inefficient government institutions, poor quality of education and infrastructure.

Ang (2008) studied FDI determinants for Malaysia using an unrestricted error correction model (ECM) with annual time series data for the period between 1960 and 2005. The findings are fourfold: firstly, a one percentage point increase in trade openness generated a corresponding percentage point increase of between 1.094 to 1.323 FDI inflows in Malaysia; secondly, increased domestic market size as measured by real GDP improved FDI inflows into Malaysia due to the benefits of economies of scale - a 1% increase in real GDP led to a 0.95% increase in FDI inflows into the Malaysian economy (Ang, 2008:187); thirdly, high productivity level of capital in Malaysia acted as an attracting force for MNEs, in line with the difference in rate of return hypothesis and fourthly, efficient credit and financial services were found to have facilitated technological and spill over benefits in Malaysia.

In a study of the role of institutions in determining FDI location decisions in Turkey using a questionnaire survey research design, Dumludag (2009) observed that market size,

growth rate and GDP per capita influenced FDI, consistent with the output and market size hypothesis. Low levels of corruption index, high government stability index, enforcement of contract law, functioning of the judiciary and high level of respect of intellectual property rights played a huge positive role in attracting FDI into Turkey because these institutional infrastructural variables determined to a greater extent the quality of the business climate in Turkey (Dumludag, 2009: 28). This partly agrees with Craigwell 2012) whose study showed that lower levels of corruption were a necessity to ensure that developing countries are better able not only to attract FDI but enjoy FDI triggered economic growth benefits.

Bilgili, Tuluca and Dogan. (2012) investigated the determinants of FDI inflow into Turkey using maximum likelihood methodology of Markov Regime-Switching Model with quarterly data ranging from 1998 to 2010. The advantages of the methodology they employed is twofold, namely, it took into account all the structural changes in the FDI equations and it fits into any non-linear relationship unlike the conventional time series and panel data analysis. In support of the efficiency seeking hypothesis, Bilgili et al. (2012:1164) noted that low labour cost was instrumental in terms of attracting FDI inflows into Turkey. The same study observed that low growth rates of electricity, high sulphur fuel oil, cooking coal, steam coal and natural gas prices repelled FDI whilst high GDP growth rate, high degree of openness and low country risk were instrumental in attracting FDI into Turkey in line with theoretical expectations.

Awan, Khan and Zaman. (2011) studied the economic determinants of FDI in an emerging market (Pakistan) using ECM with quarterly data ranging from 1996 to 2008). Factors such as foreign currency reserves, trade openness, income per capita, GDP, GDP growth rate and gross fixed capital formation were found to have had a positive and significant impact on FDI in Pakistan, in support of the theoretical predictions.

2.7 ORIGIN, EVIDENCE FOR AND AGAINST MAIN FDI THEORIES.

Table 2 shows the original authors of each FDI theory/hypothesis. Empirical theorists who agreed or differed with each FDI theory are also included.

Table 2: Origin, evidence for and against main FDI theories.

Theory	Origin of the FDI theory	Evidence for	Evidence against/Critique
Production cycle hypothesis	Vernon (1966)	Denisia (2010)	Vernon (1973); Vernon (1979); Solomon (1979); Denisia (2010).
Internalisation hypothesis	Buckley and Casson (1976)	Hymer (1976); Rugman (1980) Moosa (2010)	Parry (1985)
Oligopolistic reaction hypothesis	Knickerbocker (1973)	Flowers (1976); Moosa (2010)	Flowers (1976)
Eclectic paradigm hypothesis	Dunning (1973)	Dunning (1980);Kinda (2010); Janicki and Wunnava (2004); Zhao (2003); Asiedu (2002); Botric and Skuflic (2006); Erdal and Tatoglu (2002); Globerman and Shapiro (2002); Ranjan and Agrawal (2011); Jordaan (2008); Na and Lightfoot (2006); Moosa (2010); Cheng and Kwan (2000);Cuevas et al. (2005); Buthe and Milner (2008); List (2001);Zhang (2002); Bilgili et al. (2012); Wahid et al (2009); Li and Park (2006).	Dunning (2001); Dunning (1988); Maduka (2014)
Currency areas hypothesis	Aliber (1970)	Cushman (1985); Zhao (2003); Xing (2006); Moosa (2010).	Boatwright and Renton (1975); Pan (2003); Nayak and Choudhury (2014).

Table 2: Continued

Difference in rate of return hypothesis	Popkin (1965)	Asiedu (2002); Ali and Guo(2005); Fedderke and Romm (2006); Moosa (2010)	Hymer (1976); Bandera and Lucken (1972); Caves (1982)
Liquidity hypothesis	Barlow and Wender (1955)	Moosa (2010)	Severn (1972)
imperfect market hypothesis	Hymer (1976)	Kindleberger 1969); Moosa (2010).	Robock and Simmond (1983); Nayak and Choudhury (2014)

Output and market size hypothesis	Jorgenson (1963)	Kwack (1972); Moosa (2010); Angelo et al (2010); Jensen and Rosas (2007); Ang (2008);List (2001); Kang and Lee (2007); Frenkel et al. (2004); Cheng and Kwan (2000); Zhang (2002); Hsiao and Hsiao (2004); Ranjan and Agrawal (2011); Deichmann et al. (2003); Janicki and Wunnava (2004); Dumludag (2009); Li and Park (2006); Na and Lightfoot (2006); Erdal and Tatoglu (2002)	Goldberg (1972).
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Source: Author compilation

2.8 IMPACT OF FDI ON ECONOMIC GROWTH.

There is a general consensus in literature on the role of FDI on economic growth, with the modernization, neo-classical and endogenous growth theories having explained the different channels through which FDI affects economic growth in the host country. These three FDI-economic growth nexus theories have been explained in detail in the introductory chapter.

Several empirical studies have been done on the impact of FDI on economic growth in the host country and their findings broadly fall into four categories, namely, the FDI-led economic growth, the bi-directional causality view, the no or insignificant causality relationship and lastly the view that the impact of FDI on economic growth happens if certain absorption capacities exist in the host country.

In a study of the impact of FDI and domestic investment on economic growth in SSA countries using panel data analysis with data ranging from 1990 to 2003, Adams (2009) showed that FDI played a major role in influencing economic growth through augmenting domestic capital, enhancing efficiency, transfer of new technology, marketing and managerial skills in the SSA region. According to Fedderke and Romm (2006), FDI positively influenced the productivity of both domestic labour and domestic capital via superior technology that it brings along. The same study observed that FDI closes the knowledge gap rather than the physical capital gap that hinders many developing countries from keeping pace with the developed world (Fedderke and Romm, 2006:741).

Ekanayake and Ledgerwood (2010) noted that there exists a positive and significant impact of FDI on economic growth in developing countries. They found out that the additional capital from FDI inflow is the only channel that helps to increase the economic growth, in line with the neo-classical growth theory.

In a study of the impact of FDI on economic growth in India using VECM approach with sectoral data, Chakraborty and Nunnenkamp (2008) observed three sets of findings. FDI and output affected each other both in the short and long run. The positive impact of FDI on economic growth in India was largely restricted to the manufacturing sector whilst no evidence of any causal relationship in the primary sector between FDI and economic growth was observed. Lastly, the impact of output growth in attracting FDI was found to be relatively stronger than the FDI led economic growth inducing effects in India.

According to a study by Naguib (2012), the Wald test failed to reject the hypothesis that the overall effect of FDI on economic growth in the short run is zero whilst FDI was found to have insignificantly affected economic growth in the long run in Argentina. Using panel data analysis, Lyroudi and Apergis (2008) examined the causality between FDI and economic growth in transition/emerging economies with annual data from 1991 to 2004. Using aggregate data, they found out that FDI had a significant positive impact on economic growth in all transition/emerging economies whilst disaggregated data showed that both the successful implementation of the privatisation programme and income size were important factors that determined the FDI's ability to influence economic growth in transition/emerging economies. The relationship between FDI and economic growth was non-significant in low-income economies whilst FDI had a significant and positive impact on economic growth in high-income countries (Lyroudi and Apergis, 2008:46). Using OLS model, Temiz and Gokmen (2014) studied the relationship between FDI and economic growth in Turkey with quarterly data from 1992 to 2007. They found out that the influence of FDI on economic growth in Turkey was positive but non-significant both in the long and short run.

The majority of recent empirical literature on FDI led growth nexus agrees that certain absorption capacities must be present in the host country to provide a channel through which FDI can influence economic growth. Tanggapantnam, Geetha, Mohidin and Vincent. (2011) studied the relationship between FDI and economic growth in Malaysia using VECM with quarterly time series data ranging from 2000 to 2010. They observed that FDI had an insignificant direct positive impact on economic growth whilst human capital development and environmental condition had a direct negative influence on economic growth in Malaysia. On the other hand, an indirect relationship between FDI and economic growth was observed and that certain levels of human capital development, financial development and environmental conditions were found to be important preconditions for FDI to have a positive effect on economic growth (Tanggapantnam et al. 2011:29).

Using a the GMM model with disaggregated data in 126 developing nations, Vita and Kyaw (2009) investigated the impact of FDI and portfolio investment on economic growth in upper, middle and low income countries. They found out that only host countries whose economies benefit from FDI inflows are the ones which have reached a minimum level of economic development and absorptive capacities. Moreover, Azam and Ahmed (2014) investigated the validity of the endogenous growth model of FDI on economic growth using the fixed effects panel data approach with annual data ranging from 1993 to 2011 in the Commonwealth of independent States. They observed that FDI played a facilitation role in influencing economic growth and that favourable economic policies and business environment ensured that FDI was able to facilitate economic growth in the Commonwealth of independent States (Azam and Ahmed, 2014:105). Apart from finding out that FDI positively influenced economic growth in Eurozone countries, Pegkas (2015) noted that Eurozone countries should create a favourable business environment to ensure they do not only attract FDI but benefit from FDI inflows as well.

Adams (2009) used the cross-section regression model to investigate the impact of FDI on economic growth in SSA region. The study observed that the extent to which the economy benefits from FDI inflows depends on the host country's specific conditions such

as the favourable policy environment, good infrastructure and the opportunities for linkages between FDI and domestic investment (Adams, 2009:947). Yet “in order to benefit from the technological spillovers of FDI so as to persistently promote economic growth, host countries should design good institutes and infrastructure” (Wang and Xie, 2009).

A study by Eller et al. (2006) observed that the positive impact of financial sector foreign direct investment (FSFDI) on economic growth heavily relied on what stage of economic development the host nation is at, with later -stage FSFDI economically benefiting CEEs more than during the earlier stages of FSFDI in CEECs. According to Alguacil, Cuadros and Orts. (2011), neither FDI nor the implementation of policies meant to attract FDI automatically translated to economic growth and development in the host country. The availability of a clear investment framework, favourable macroeconomic and institutional environment in the host country were found to be necessary to enhance economic growth emanating from FDI inflow (Alguacil et al, 2011:494).

Lean (2008) examined the impact of FDI on the growth of the manufacturing sector in Malaysia using the VECM approach with data ranging from 1980 to 2005. The study reported that FDI in the manufacturing sector of Malaysia and economic growth were independent of each other. Specifically, no short and long-run relationship running from FDI to GDP, or vice-versa was found in the manufacturing sector of Malaysia. The same study found out that FDI could only have a positive impact on economic growth in Malaysia on condition that corruption, ethnicity-based ownership restrictions, regulatory barriers to business operations and restrictions on capital flows were addressed (Lean, 2008:44).

Empirical studies that investigated the influence of FDI on economic growth strictly in emerging markets as a bloc are scant. Fu, Pietrobelli and Soete. (2011) studied the impact of FDI in the form of foreign technology on the emerging economies and found out that certain conditions must be prevailing in the emerging markets to enable them to benefit from international technological diffusion. These conditions include modern

governance and institutional structures and structured local innovation programs (Fu et al. 2011:1210). Zhang, Li and Zhou. (2010) examined the role played by FDI on the productivity levels of domestic companies in an emerging market (China) using panel data analysis approach with annual manufacturing data from 1998 to 2003. They found out that (1) presence of large domestic firms in China, (2) intermediate technological differences between domestic firms and MNEs and (3) diversity of FDI's country of origin were the three conditions that ensured FDI positively and significantly improved the productivity levels of domestic firms in China.

Gorodnichenko, Svejnar and Terrell. (2007) examined factors that determined FDI spill overs in 17 emerging markets. Their study showed that high technological advancement of MNEs failed to trigger FDI spill-overs in emerging markets. Instead, the ability of emerging markets to enjoy FDI spill-overs varied from type of the firm and sector in which the firms were operating. For example, domestic firms that supplied to or purchased from foreign firms operating in the emerging market enjoyed significant positive FDI spill-overs. This was mainly true for domestic firms in the service and not manufacturing sector.

A study by Buckley, Wang and Clegg. (2007) showed that FDI spill overs were positive and significant in industries which were technology intensive as compared to labour intensive industries in an emerging market (China) whilst Xu and Wang (2007) observed that FDI improved the investment efficiency levels in China. Developed financial sector, high levels of educational systems were the absorption capacities that needed to be present in Malaysia to enable FDI triggered growth benefits to be enjoyed in Malaysia's emerging economy (Baharumshah and Almasaied, 2009:98). Using Autoregressive Bounds Test (ARDL) and the ECM approaches with annual data series, Shahbaz and Rahman (2010) noted that a developed financial sector coupled with strong human capital development index were preconditions necessary for Pakistan to benefit from technological diffusion associated with foreign capital inflows.

Investigating how far firms in emerging markets were tracking global leaders in terms of their ability to benefit from FDI, Peter, Svejnar and Terrell. (2012) found out that

acquisitions of domestic firms by foreign investors were to a large extent responsible for improving the efficiency and productivity levels of domestic firms in emerging markets (Czech Republic and Russia). Furthermore, Adeoye (2007) showed that emerging markets should ensure that high macro-economic corporate governance systems are in place in order to allow FDI spill-overs to be enjoyed in their economies. This resonates with Bailliu (2000) whose study observed that international capital flow (NCF) can increase economic growth only if it does not crowd out domestic firms out of the host country's financial sector and if it is associated with spill overs such as financial sector development, technology improvements, human capital development and increased competition.

2.9 CHAPTER CONCLUSION.

A number of conclusions are coming out of this chapter and the most dominant ones are highlighted. A number of FDI theories have been discussed in detail and their main weakness is in their failure to agree on a single common list of factors that explain the FDI phenomenon. In other words, none of the FDI theories can be relied upon to give a full explanation of FDI.

What is also clear is that: (1) majority of FDI theories were one sided in that they looked at conditional factors in the host country that attract or inhibit FDI without explaining the impact of FDI, (2) the FDI theories ignored the concept of threshold levels in their explanation of FDI location decisions and (3) FDI theories are too broad and have not been represented in a model format, thus making it difficult to apply them to different countries. Even the few push factor FDI theories completely disregarded the impact of FDI which is problematic considering that the story of FDI cannot be complete without evaluating the enormous benefits it brings along to the host country as highlighted by literature.

FDI determinants that applied to developing and emerging markets include lower country risk, low labour cost, intellectual property rights, size of the economy as measured by GDP, economic growth rate and trade openness. Factors such as high financial market

depth, good quality of financial systems, the extent of financial markets integration with the global financial markets, free trade agreements, human resources capabilities, low cost of capital, financial markets strength, favourable investment climate, consistent policy environment, financial constraints, institutional and physical infrastructure challenges, negative balance of payment position, high military expenditure and natural resources availability were peculiar to emerging markets. The only noticeable FDI determinant that is unique in developed countries is the government taxation policy.

It is clear from this chapter that the impact of FDI on economic growth is not a linear relationship. There are certain conditions in the host country that must be present in order to enhance FDI triggered economic growth. The dominant ones for emerging markets include developed financial sector, high quality educational systems, good corporate governance frameworks, structured local innovation programs, modern institutional structures and the presence of large domestic firms. The next chapter narrows down the discussion by focusing on the relationship between FDI and financial sector development from both a theoretical and empirical perspective.

CHAPTER 3 FOREIGN DIRECT INVESTMENT AND FINANCIAL SECTOR DEVELOPMENT: THEORY AND EMPIRICAL EVIDENCE.

3.1 CHAPTER INTRODUCTION

The main purpose of this chapter is to explain the literature underpinning the relationship between FDI and financial sector development. The deficiencies and gaps in the existing literature are highlighted and the new knowledge to be added by the current study is explained. The chapter proceeds as follows. Section 3.2 discusses the impact of FDI on financial sector development. Section 3.3 focuses on the impact of financial sector development on economic growth. Section 3.4 examines the influence of financial sector development on FDI clearly showing where exactly the current study seeks to contribute to the body of existing knowledge. The section narrows the debate to the minimum threshold levels of financial sector development that must be exceeded before host countries attract significant FDI inflows and associated benefits, which is one of the main focus areas of the current study. Section 3.5 is the conclusion to the chapter.

3.2. IMPACT OF FOREIGN DIRECT INVESTMENT ON FINANCIAL SECTOR DEVELOPMENT.

Consistent with Soumare and Tchana (2015), there are three theoretical rationales that explain the different channels through which FDI influences financial sector development. The first is that FDI net inflows boost financial markets development by increasing the amount of funds in the host country's economy. The proponents of this category argue that there are high chances that multinational firms that bring FDI inflow end up listing their shares on the stock exchange of the host country. FDI can increase the liquidity of the stock markets if a portion of foreign investments is used to acquire shares in the host country. This resonates with Levine (1997b) who argued that FDI improves both stock market and banking sector liquidity as it brings along huge capital injection into the host country.

The second theoretical rationale referred to as the political economy view argues that FDI inflows force the host country to embrace market friendly policies, regulations and

controls that provide a good environment for promoting financial markets development. Kholdy and Sohrabian (2008) noted that FDI promotes financial sector development through forcing the host country government to liberalise the financial markets and allowing more competition in the financial sector. Removing impediments to foreign investors promotes stock market development index in the host country by facilitating its integration with other world stock markets (Levine, 1997b:6). The third theoretical rationale supported by Shahbaz and Rahman (2010) is that FDI inflows increase competition in the financial markets thereby making them more efficient.

Several empirical studies focused on the impact of FDI on financial sector development. Kholdy and Sohrabian (2008) investigated the impact of FDI on financial development in 22 developing countries with corrupt top government officials using the multivariate ECM with annual time series data from 1976 and 2003. They observed that FDI promoted financial development only in Korea in the long run whereas in the short run FDI positively influenced financial development in Brazil, Chile, Costa Rica, Mexico, Morocco, Nigeria and Philippines when domestic credit provided by financial intermediaries to GDP ratio (private sector credit) was used as a proxy for financial development. When domestic credit provided by the banking sector to GDP ratio (bank credit) was used as a measure for financial development, FDI significantly impacted on financial development in the long run only in Kenya, Korea, Morocco and Singapore whilst Chile, Kenya, Korea, Mexico, Nigeria and Turkey were the only countries whose financial development significantly benefited from FDI inflows in the short run (Kholdy and Sohrabian 2008: 492).

Furthermore, financial development was found to have been influenced by FDI in the long run only in Paraguay when liquid liability was used as a proxy of financial development (Kholdy and Sohrabian 2008: 492). Yet using the same measure of financial development, FDI was found to have positively influenced financial development in Brazil, Nigeria and Philippines in the short run (Kholdy and Sohrabian, 2008: 493). The use of banking sector development proxies as measures of the whole financial sector is too narrow and represents a methodological limitation. The simultaneity bias arising from a bi-directional causality between FDI and financial development was ignored. In other

words, the methodology used (ECM) is not capable to addressing the endogeneity problem emanating from simultaneity bias.

Zakaria (2007) investigated the relationship between FDI and financial development using the multivariate VECM with annual time series data in 37 developing countries. Three methodological weaknesses are visible. The econometric technique used did not take into account the dynamic nature of FDI and financial development variables and is not capable of addressing endogeneity arising from the feedback effect that is normally a characteristic of FDI-financial development nexus. By excluding bond market development, the study described financial development from a very narrow perspective which is not a true representation of the whole financial sector. The view that FDI positively contributes towards the deepening and development of the banking sector, had very little or no support. This finding is consistent with Claessens, Klingebiel and Schmukler. (2001) whose study showed that FDI substitutes financial sector development in countries where firms struggle to raise capital from local financial markets and that FDI positively influenced stock market development in developing countries in the long run.

According to Zakaria (2007), the impact of FDI on financial sector development happens via the following channels. FDI might increase the number of foreign firms participating in the capital market of the host country. This is because foreign investors might want to raise additional capital from the domestic capital market to finance a portion of their investment or recoup their investment through liquidating their equity in the domestic capital markets.

“FDI is accompanied by the inflow of funds into the domestic financial markets thereby helping to ease credit constraints faced by local companies in developing or emerging markets” (Zakaria, 2007:4). This is consistent to a study done by Harrison and McMillan (2003:99) which observed that domestic companies in Ivory Coast faced more credit hurdles in comparison to foreign related companies. On the contrary, multinational enterprises crowd out local companies out of the domestic financial markets or exacerbate their credit hurdles if they excessively borrow from the domestic financial

sector. The scenario according to Zakaria (2007:4) is more likely in emerging markets where the probability of foreign investors borrowing from the domestic financial sector is high due to the following reasons: (1) hedging against foreign exchange rate fluctuations, (2) fixed interest rates means that domestic banks can only cover the extra cost of lending by giving preference to foreign investors and (3) foreign investors have better quality of collateral since they are more profitable in comparison to their domestic counterparts.

Using panel data analysis, Hericourt and Poncet (2009) examined the role played by FDI inflow into China in alleviating 1300 domestic firms' credit constraints with firm level data from 2000 to 2002. Debt to assets (DAR) and interest coverage ratio (COV) were used as measures of firms' credit constraints. FDI inflow enabled domestic firms to face less hurdles when trying to access credit from financial markets in China (Hericourt and Poncet, 2009:14). Their study focused on credit constraints which is a narrow aspect of the financial sector.

On the contrary, Harrison and McMillan (2003) using panel data approach found that FDI crowded domestic firms out of the capital markets in Ivory Coast. The following reasons could possibly be responsible for the contradicting findings: (1) differences in the number of firms used, (2) varying depth and size of the banking sector between the two countries involved and (3) differences in the proxies of credit constraints – the former ignored the lagged version of the ratios of DAR and COV as compared to the latter.

Harrison, Love and McMillan. (2004) investigated the impact of FDI on financing constraints at firm level using cross country panel data analysis with data from 1988 to 1998. Their study which involved measuring the financing constraints using sensitivity of investment to cash flow (cash stock) covered 7000 firms in 38 countries whose sample included both developing and developed countries. They assumed that the bigger the sensitivity, the more financial constraints the firm is facing as it implies firms relied more on internal financing for funding its investment (Harrison et al. 2004: 276). FDI which was used as a proxy for the overall performance of the country was found to have allowed firms to easily have access to finance or contributed to the decrease in finance constraints

(Harrison et al. 2004: 282). Consistent with Hericourt and Poncet (2009), their study focused on the narrow aspect of financial sector development and also shied away from minimum threshold analysis.

Sultana and Pardhasaradhi (2012) examined the impact of FDI and foreign institutional investors (FII) on the Indian stock market using correlation coefficient and OLS (ordinary least squares) model with average annual data of indices (Sensex and Nifty) from 2001 to 2011. Their study observed a strong uni-directional causality relationship running from FDI to the Sensex and Nifty stock market indices and that FDI alongside foreign portfolio investments had a significant impact on the growth of the Indian stock market.

Dhiman and Sharma (2013) also investigated the impact of FDI on the Indian stock market development (Sensex and Nifty stock market indices as proxies) using correlation coefficient and regression analysis with average annual data from 2001 to 2012. A bullish trend on the Indian stock market was found to have been closely and directly linked to FDI inflows into the Indian economy (Dhiman and Sharma, 2013:79). Moreover, large quantities of FDI is needed to help develop infrastructure such as banking, warehouse, railways, roads and insurance services, especially, in emerging markets which lack sufficient funds to invest in infrastructural development necessary to keep pace with the fast rate of economic growth (Dhiman and Sharma, 2013:75).

Both studies (Sultana and Pardhasaradhi, 2012; Dhiman and Sharma, 2013) excluded the impact of FDI on other aspects of financial development such as banking sector and bond market and ignored the minimum threshold analysis applicable in such non-linear causality relationships. The methodologies they both used do not have capacity to identify and address the endogeneity problem that arises from the feedback effect between FDI and financial development.

Raza, Iqbal, Ahmed, Ahmed and Ahmed. (2012) investigated the influence of FDI alongside domestic savings, inflation and exchange rates on stock market development in Pakistan using OLS regression model with time series annual data from 1988 to 2009.

Their study reported that FDI positively influenced stock market development in Pakistan whilst a combination of FDI inflows, increase in domestic savings, stable inflation and exchange rates doubled stock market development in Pakistan (Raza et al. 2012: 31).

Zafar, Qureshi and Abbas. (2013) studied the relationship between FDI and stock market development in Pakistan using Johansen co-integration and Granger causality tests with quarterly time series data (from third quarter of 1998 to third quarter of 2009). No co-integration and causality was detected between FDI and stock market development in Pakistan which indicates a shortcoming on the part of the methodology used because the two variables have been conclusively found by literature to have a causal relationship.

Both studies by Raza et al. (2012) and Zafar et al. (2013) neither focused on threshold levels analysis nor addressed endogeneity problem that emanates from the bi-directional causality between FDI and stock market development in Pakistan. Moreover, their study delved into the narrow aspect of financial sector development which excluded the banking sector and the bond market. The findings cannot therefore be generalised for the whole financial sector in Pakistan.

Using vector autoregressive (VAR) and VECM models, Abzari et al. (2011) studied the causal relationship between FDI and financial development with annual panel data of 8 developing countries (Nigeria, Egypt, Malaysia, Indonesia, Bangladesh, Pakistan, Turkey and Iran) during the period from 1976 to 2005. Three proxies of financial development proposed by King and Levine (1993a), Levine and Zervos (1998) and Levine, Loayza and Beck. (2000) which include liquid liability (ratio of liquid liabilities of the financial system to GDP), bank credit (ratio of domestic credit provided by banking sector to GDP) and private sector credit (ratio of domestic credit provided by financial intermediaries to GDP) were used whilst net FDI as a ratio of GDP was employed as a measure of FDI.

Their study observed the following: (1) FDI inflow positively affected private credit in Iran and Pakistan, (2) bank credit was influenced favourably by FDI inflow in Turkey, Bangladesh and Nigeria and (3) FDI positively impacted on liquid liability in Pakistan,

Turkey and Nigeria. The presence of foreign investors boosts capital market liquidity in the host country because their presence motivates domestic firms to increase participation in the capital market, argued Abzari et al. (2011:152). Two methodological shortfalls are evident. These include inability of the model used to address endogeneity arising from the reciprocating effect between FDI and financial development. Furthermore, the exclusion of stock and bond market development represents a narrow description of financial development. Threshold analysis was not part of the focus area of their study.

Girma, Gong and Gorg. (2008) examined the relationship between sectoral FDI, access to finance and innovation activities in Chinese state and private firms using the panel Tobin model. Their observations are threefold: (1) inward FDI benefited Chinese firms which had uninterrupted access to domestic finance or bank loans, (2) FDI inflow positively influenced domestic innovation capacity only among Chinese firms with access to domestic finance and (3) FDI had a significant impact on domestic credit finance among privately owned firms and vice versa for state controlled firms (Girma et al., 2008: 377).

Raza and Jawaid (2014) studied the relationship between FDI, stock market capitalisation and economic growth in 18 Asian countries using a combination of an ARDL bounds testing and Toda and Yamamoto (1995) approaches with annual cross country data ranging from 2000 to 2010. They observed a long run relationship between the three variables under study. If FDI competes with domestic firms, the latter's market share, productivity and share prices plummets thus chasing away investors from the host country' stock market (Raza and Jawaid, 2014:381). The Granger causality test showed that stock market capitalisation was negatively influenced by FDI in the short run and a feedback effect between FDI and stock market capitalisation was also detected.

Olugbenga and Grace (2015) investigated the impact of FDI on capital market development in Nigeria using OLS regression model with annual time series data from 1970 to 2010. The use of the all market share index as the only measure of capital market development is a methodological weakness. The broad description of the capital market

should not have excluded the bond market. The OLS model is known for its inability to remain consistent and unbiased when endogeneity exists in a model (Verbeek, 2004:125). Although a high positive correlation between FDI and capital market development was observed from the OLS test, the Johansen co-integration test showed that such a relationship was absent in the long run.

Azam and Ibrahim (2014) investigated the impact of FDI on the Malaysia stock market using an ARDL bounds testing framework with time series ranging from 1988 to 2012. FDI was found to have had a positive influence on the growth of stock market in Malaysia, a finding that is in sync with most theoretical predictions. It agrees with literature that claims that FDI complements stock market as opposed to substitution role. The main methodological shortcoming is that the ARDL estimation procedure does not address the endogeneity or simultaneity bias which normally characterise FDI-finance relationships.

3.3. IMPACT OF FINANCIAL SECTOR DEVELOPMENT ON ECONOMIC GROWTH

Although the finance-led growth hypothesis is traceable to Bagehot (1873) who observed that the financial sector mobilised capital to boost industrialisation in England, Schumpeter (1911) is regarded in literature as the first proponent of the finance-led growth hypothesis (supply-leading hypothesis). Schumpeter's view is that a well-functioning financial sector provides funding to firms with a high chance of enhancing economic growth through producing innovative products and technological innovation. The provision of financial services such as savings mobilisation, risk diversification and management and the allocation of capital towards high yielding projects were according to Schumpeter (1911) the channels through which a financial sector positively influences economic growth.

In support of the Schumpeter view, Goldsmith (1969), McKinnon (1973), Shaw (1973), Townsend (1983) and King and Levine (1993c) showed that the financial sector efficiently allocates capital to projects which offer the highest return thus facilitating economic growth. They observed that financial sector spurs economic growth through mobilising savings and allocating them towards production, lowering down the cost of information, reducing transaction costs and providing a risk management support framework.

According to King and Levine (1993c), efficient allocation of capital by the financial sector lowers down the cost of investing in the economy. They showed that the financial sector influences domestic firms to invest in innovation and productivity related projects through pooling together financial resources, selecting domestic firms involved in innovation activities and advising them on risk diversification and capital budgeting.

Grossman (1976) argued that a stock market is an avenue through which savings are pooled together and then efficiently allocated to competing productive sectors of an economy. Edo (1995) referred an investment in financial securities as a way of channelling savings to the productive but deficit sectors of the economy, a function of the financial sector which Samuelson (1997) characterised as the dichotomy of savings and investments. According to Levine (1997a), stock markets facilitate economic growth through promoting the liquidity of real investments which resonate with Osinubi (1998) who noted that stock market liquidity enhance the acceptability of shares as collateral security for bank borrowing, thus promoting credit provision, investment and economic growth.

Figure 3 is a diagrammatical representation of various channels through which financial development influence economic growth.

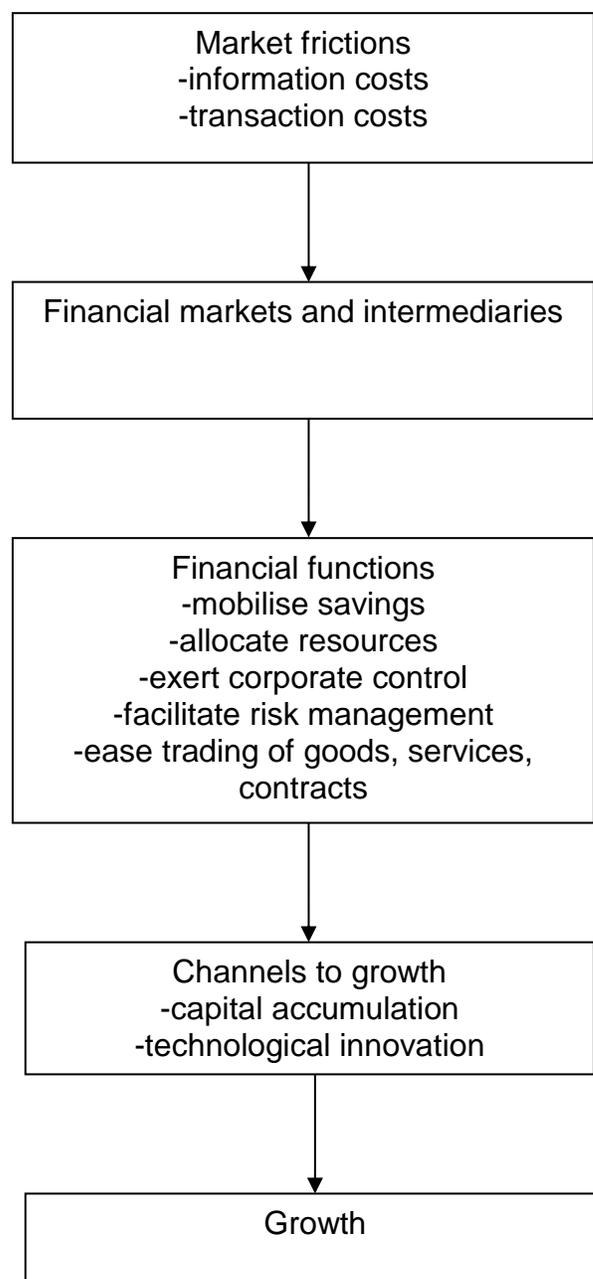


Figure 3: A Theoretical Framework to Finance and Growth (Source: Levine, 1997a:691).

According to Diamond and Dybvig (1983), financial markets pool the liquidity risk of depositors through investing their money into illiquid but high return investment vehicles.

This agrees with Pagano (1993) who noted that financial markets facilitate the sharing and diversification of risks through allowing participants to invest in collective investment schemes and a portfolio of financial instruments respectively. A bi-directional view arises when well-developed financial markets enhance growth of the economy through fostering technological improvements and product innovation (Schumpeter, 1911). The resultant economic growth pushes up the demand for financial services and arrangements and in turn stimulates not only financial development but also economic growth (Luintel and Khan, 1999).

Swan (1956) observed that the relationship between banking sector development and economic growth is connected through three transmission channels, namely, increasing the savings ratio, reducing the loss of resources required to allocate capital and raising capital productivity. Each of the three transmission channels transforms savings and investments into a larger amount of output either through capital accumulation channel (Hicks, 1969) or technological change channel (Schumpeter, 1912).

On the other hand, repressing interest rates and providing subsidised loans to certain preferred sectors by governments lead to stifled economic growth (McKinnon, 1973; Shaw, 1973; Ang and McKibbin, 2007). This is because the most deserving and high return ventures are unlikely to get credit facilities in such an environment thereby leading to private sector being crowded out, a scenario that dampen economic growth.

This section has shown beyond any reasonable doubt that financial development is a critical channel through economic growth takes place. Moreover, considering that chapter 2, section 2.8 made a strong compelling case indicating that economic growth is aided by FDI, the value of a study on financial development-FDI nexus cannot be underestimated in as far as understanding of what drives growth is concerned.

3.4. IMPACT OF FINANCIAL SECTOR DEVELOPMENT ON FDI: THEORY AND EMPIRICAL PERSPECTIVE.

This section discusses the significant role of the financial sector not only in promoting FDI inflows but also facilitating FDI technological diffusion in the host countries. The discussion is done from both a theoretical and empirical point of view.

3.4.1 Theoretical rationales

Consistent with Ezeoha and Cattaneo (2012), the impact of financial sector development on FDI is discussed under three theoretical rationales which are the allocative channel, economic efficiency and the liquidity easing rationale. Proponents of the allocative channel rationale contend that well developed financial markets are better able to increase foreign capital productivity through allocating financial resources to projects with high rate of return. Few empirical studies whose findings resonate with the allocative channel theoretical rationale were done (Klein, Peek and Rosengren. 2000; Guiso, Sapienza and Zingales. 2004; Havrylchyk and Poncet. 2007; Kaur et al. 2013). According to Guiso et al. (2004), well-functioning financial markets are well known not only for attracting FDI but for enabling individuals and companies to easily access external funds at a low cost.

Kaur et al. (2013) claimed that financial markets quicken the rate at which a host country benefits from FDI inflows through provision of financial support in terms of quicker transactions, availing of loans, good foreign currency services and optimal allocation of capital to more deserving projects, especially in emerging economies. In summary, well-functioning and developed stock markets allowed better domestic and foreign markets linkages and reduced entry and exit barriers of foreign investors (Kaur et al. 2013:740).

Hailu (2010) examined the impact of capital markets on FDI location decisions in 45 African countries using three different models (gravitational approach, random and fixed effect regression models) with data ranging from 1980 to 2007. A strict capital allocation system composed of transparent rules and regulation, absence of foreign exchange rate

controls and an overall attractive capital market were found to have positively influenced FDI inflow into African countries (Hailu, 2010:112).

Investigating the relationship between banks, FDI and access to credit using instrumental logit fixed effect regression model with firm level FDI data, Klein et al. (2000) reported that the financial health status of United States (US) banks pushed up FDI projects undertaken by Japanese firms in the US economy. Moreover, as Klein et al. (2000:21) established, accessibility of credit finance in the US attracted a lot of FDI projects into the US from Japanese firms.

In a study of FDI determinants in China using the fixed effects panel data analysis with data (1990-2003) for 26 Chinese provinces and three government municipalities, Havrylchuk and Poncet (2007) observed that limited access to credit from China's banking sector by private companies led to increased FDI inflows into China. This was because private companies responded by seeking partnership with foreign investors to boost their capital base as they found it difficult to access finance from the state controlled banking sector of China (Havrylchuk and Poncet, 2007:1680). Whilst their finding supports the view by Huang (2003), it contradicts that of Klein et al. (2000), that was discussed in the preceding paragraph.

Proponents of the economic efficiency rationale averred that well-developed financial markets have got better capacity to ease information flow and reduce transaction costs, thereby attracting FDI inflow with ease. Bartels, Alladina and Lederer. (2009) observed that financial markets provide timely, efficient and cost-cutting information for the industries to potential foreign investors thereby contributing to the decline in the level of asymmetric information that normally curtail international capital mobility. Furthermore, financial reforms improved the financial sector efficiency which in turn not only attracted FDI but allowed Pakistan to enjoy technological diffusion and spill-over benefits associated with FDI (Shahbaz and Rahman, 2010:225).

Using a dynamic system GMM model, Ezeoha and Cattaneo (2012) investigated the influence of financial development, institutional quality and natural resource endowment on FDI inflows in 38 Sub-Saharan African countries with panel data covering the period between 1995 and 2009. Their study used FDI/GDP as proxy for FDI and M2/GDP, Quasi money/GDP and domestic credit/GDP as measures of financial development. Their findings are twofold: (1) the depth of the financial development significantly attracted FDI inflow into the SSA countries and (2) financial development relied on the efficiency of the telecommunication infrastructure, level of economic diversification, security of property, contract rights and the rule of law to positively impact on FDI inflows in SSA countries (Ezeoha and Cattaneo, 2012: 617). Other studies which supported the economic efficiency rationale argued that well-developed financial markets attract more FDI by providing better risk reduction and diversification mechanisms (Ncube, 2007; Claessen and Laeven, 2003).

The liquidity easing rationale upholds that well-developed financial markets boost liquidity hence enabling faster trading of financial instruments and settlement. Shallow financial markets force the scaling down of foreign firms' activities as that forces them to over rely on capital flows from the parent company (Antras, Desai and Foley. 2009:1208). In a study of the relationship between FDI and financial development in 22 developing countries using multivariate ECM, Kholdy and Sohrabian, 2008:496) established that liquid liability (ratio of liquid liabilities of the financial system to GDP) had an insignificant positive impact on FDI in Costa Rica, Egypt, Malaysia, Mexico and Philippines in the long run. In a study of determinants of FDI location decisions using panel data analysis with U.S. multinational firms' data from 1982 to 1999, Antras et al. (2009) noted that shallow capital markets and weak investor protection force the scaling down of foreign firms' activities as they over depend on capital flows from the parent company.

Seghir (2009) investigated the relationship between FDI and financial stability using the fixed effects, random effects and least square models with aggregate annual bilateral flows of FDI between Tunisia and 17 countries. "Larger and more liquid financial markets were found not only to have attracted FDI but also enabled Tunisia to benefit from

economic growth related benefits of FDI” (Seghir, 29:100). FDI projects that are viable may not be undertaken by foreign investors if the stock market in the host nation is illiquid because a liquid stock market facilitates easy and less costly raising of additional equity, which is in line with Levine’s (1997b: 6) observation.

In summary, the theoretical rationales on financial development-led FDI hypothesis discussed in this section explain why higher levels of financial development enhance significant FDI and why low financial development stifle the flow of FDI into the host countries. The theory does not mention the threshold level below which financial development is referred to as underdeveloped and above which it is called developed. This study contributed to literature by identifying the threshold levels of financial development below which financial development is underdeveloped and above which financial development is developed enough to trigger significant FDI into the host country.

3.4.2 Theoretical framework

The endogenous growth model provides a relevant framework for explaining the relationship between FDI and financial sector development. Basically, the endogenous growth model does not only show how international capital flow such as FDI lead to higher economic growth but also how financial sector development make it possible for destination countries to receive significant international capital flow.

The following endogenous growth model also known as the AK model was initially developed by Pagano (1993) to demonstrate the impact of financial sector development on economic growth in a closed economy. It was then expanded by Bailliu (2000) to show the impact of financial sector development on international capital flows.

The aggregate production function in a closed economy is represented by the following AK model:

$$Y_t = AK_t \quad [1]$$

Where Y represents output and AK stands for aggregate capital stock. The model is based on four assumptions: (1) there is only one product being produced, (2) there is no population growth in the economy, (3) economic growth is solely influenced by the degree of financial intermediation and (4) banks are the only financial sector intermediary responsible for investing households' savings.

Assuming that the rate of capital stock (K_t) depreciation is given by δ per each period, the gross investment in the economy is represented by the following:

$$I_t = K_{t+1} - (1 - \delta)K_t \quad [2]$$

In this model, if ϕ amount has been saved by the households for investment purposes, $1 - \phi$ is charged by financial intermediaries as service fees or compensation for the services rendered. The remainder is then channelled towards investment.

The capital market equilibrium in a closed economy is such that the gross investment should be equal to net savings by households after financial intermediaries have deducted their service fees as represented by the following.

$$\phi S_t = I_t \quad [3]$$

From equation 2 and 3, the output growth rate can be represented by the following equation once the time indices (t) is removed:

$$g = A(1/Y) - \delta = A\phi s - \delta \quad [4]$$

Where gross savings are denoted by s .

Equation 4 shows two major channels via which financial sector can influence economic growth in a closed economy. Banks increase their efficiency as they render more and more financial intermediation services. This increased efficiency leads to the fall in the

service costs that they charge for their services. This leads to an increase in the fraction of savings directed towards investment and ultimately economic growth (g). Banks are able to manage risk hence they allocate capital to projects which are risky but whose marginal productivity of capital is higher.

Bailliu (2000) expanded the AK model to include international capital flows. The main aim was to demonstrate the role played by the banking sector in triggering significant international capital flows into the host country. The expanded model is premised on the assumption that international capital flows is strictly via the domestic banking system. The model is bound to have a large error term as only one form of the financial sector is taken into account whilst equity and bond markets are ignored. Studies which acknowledged that international capital may also flow via other sectors of the financial system such as either banks, equity or bond markets include those undertaken by (Bilir et al. 2014; Adams, 2009; Sghaier and Abida, 2013; Nor et al. 2015).

In the presence of international capital tflow, the capital market equilibrium (equation 3) is transformed into the following:

$$\phi^* (S_t + NCF_t) = I_t^* \tag{5}$$

Where NCF denotes net international capital flows.

The growth rate of output is now represented by the following equation:

$$g^* = A^* (1^* / Y) - \delta = A^* \phi^* (S + NCF / Y) - \delta = A^* \phi^* s^* - \delta \tag{6}$$

According to Bailliu (2000), the impact of financial sector development on international capital flow in the endogenous growth model is explained through a comparison between equations 4 and 6. The comparison shows the following two channels through which financial sector development influences international capital flow in the host country. Firstly, domestic financial markets which are efficient in discharging their intermediation

functions ensure that more international capital flow into the host countries is directed towards investment activities (Bailliu, 2000:8). Secondly, international capital flow triggered investments such as FDI are significant if foreign investments financed in the domestic financial markets are not crowded out. According to Bailliu (2000:7), “international capital flow boosts the level of economic growth if it leads to investments that promote positive spill overs”. Apart from raising the level of domestic firms’ level of competitiveness and technological transfer, other positive spill over effects from international capital flow include high competition and human capital development levels in the host country (see Blomstrom, 1991).

Baharumshah and Almasaied (2009) proposed the following model to investigate the relationship between FDI, financial deepening and economic growth in Malaysia using annual data ranging from 1974 to 2004.

$$\text{GROWTH}_t = \beta_0 + \beta_1 \log \text{INT}_t + \beta_2 \log \text{FDI}_t + \beta_3 \text{CONTROLS}_t + V_t \quad [7]$$

Where GROWTH denotes real GDP per capita growth rate; INT represents the initial income; FDI is the logarithm of foreign direct investment; V_t captures the white noise. CONTROLS stands for a set of financial deepening variables such as M2/GDP (FINANCE), human capital (H) and total exports (X).

The same study by Baharumshah and Almasaied (2009) extended equation 7 to include the impact of financial sector development on foreign capital as an additional channel through which FDI influences economic growth. The extended model specification is as follows:

$$\text{GROWTH}_t = \beta_{/0} + \beta_{/1} \text{FDI}_t + \beta_{/2} (\text{FDI}_t \times \text{FI}_t) + \beta_{/3} \text{FINANCE}_t + \beta_{/4} \text{CONTROLS}_t + \varepsilon_t \quad [8]$$

Where $FDI_t \times Fi_t$ denotes the interaction between FDI and financial markets. It is an important inclusion in the model because it captures the role played by FDI via financial markets in promoting economic growth (Baharumshah and Almasaied, 2009:93). Baharumshah and Almasaied (2009:95) posit that a combination of FDI, financial deepening and human capital positively influenced economic growth in Malaysia. Furthermore, the significant role played by financial markets in enhancing significant FDI inflows in Malaysia was observed. The weaknesses emanating from the model include failure to address the endogeneity problem which arises from the bi-directional nature of the causality between FDI and financial markets development, the narrow mindedness of the definition of the financial sector used which only include the banking sector and shying away from threshold level analysis. Whilst they used time series analysis and focused on a single country, the current study employed the dynamic panel threshold regression model and focused on emerging markets as a unit of analysis.

From the models developed by Pagano (1993), extended by Bailliu (2000) and the one proposed by Baharumshah and Almasaied (2009), it is evident that the subject matter in this study remains unresolved as long as the minimum threshold level of financial sector development that promotes significant FDI inflows is still not yet conclusively dealt with.

Alfaro, Chanda, Kalemli-Ozcan and Sayek. (2010) proposed a theoretical model showing how financial development influences significant FDI inflows in the host country via backward linkages. Their model shows that host countries characterised by better developed and deep financial markets enjoy significant FDI inflows in comparison to the ones whose financial markets are shallow and less developed. Alfaro et al. (2010:243) assert that relative productivity of foreign firms results in higher economic growth rates in countries whose financial sector is more developed as compared to countries with less developed and shallow financial sector. They observed that the cost of intermediation in well-developed financial markets (interest rates spread is smaller) is low. Just like in a theoretical framework by Pagano (1993), low cost of financial intermediation result in a greater portion of capital from foreign investors being directed towards investment activities. The model by Alfaro et al. (2010) did not focus on minimum threshold levels in

the relationship between FDI and financial development. They used the interest rate spreads which measures a narrow aspect of financial sector development (cost of intermediation) to proxy financial sector development. This is in contrast to the current study which uses banking sector, stock market and bond sector development proxies as measures of financial sector development.

Agbloyor, Abor, Adjasi and Yawson. (2014) studied the role of domestic financial markets on the causal relationship between capital flows (FDI, foreign equity portfolio investment and private debt) and economic growth in Africa using the panel instrumental variable GMM approach with data ranging from 1990 to 2007. Their study found out that foreign capital flows negatively affect economic growth in the host countries whose financial markets are still underdeveloped due to the following reasons. Underdeveloped or weak financial markets: (1) are not able to efficiently allocate foreign capital towards the productive sectors of the economy and (2) expose the host country to financial and exchange rate crises, thus leading not only to outflow of foreign capital but also stifle economic growth (Agbloyor et al. 2014:151). Although the methodology used is plausible because of its ability to address endogeneity, its weakness is that it did not capture the threshold level that financial development must reach in order to allow foreign capital flows to begin stimulate positive economic growth of the host country. The use of bank credit as a proxy of financial development whilst excluding stock and bond market development proxies means their study took a narrow perspective of the financial sector. Agbloyor et al. (2014) summarised the role of financial markets in influencing the impact of foreign capital in the host country (see Figure 4 below).

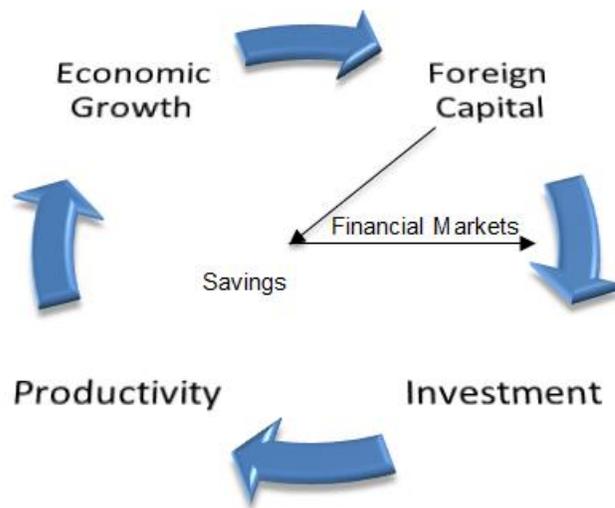


Figure 4: Relationship between foreign capital flows, financial markets and growth (Source: Agbloyor et al. 2014:141).

A popular theoretical framework which explains the determinants of FDI in broad terms is the eclectic paradigm theory developed by Dunning (1973). The eclectic paradigm theory says that ownership, location and internalisation (OLI) advantages in the host country determine FDI. The state of the financial markets, political and macro-economic environment and infrastructure are part of the locational advantages within the OLI framework (Denisia, 2010: 108). The understanding that financial sector development is a locational advantage of FDI in the OLI framework makes the eclectic paradigm theory very relevant for the current study.

3.4.3 Empirical work that excluded minimum threshold analysis.

Panel data analyses on the impact of financial sector development on FDI were done by a number of researchers who obtained mixed results. For example, Ljungwall and Li (2007) examined the role played by financial sector development in enabling 28 Chinese provinces to enjoy FDI triggered economic growth benefits during the period from 1986 to 2003. They used a dynamic panel data model in order to avoid endogeneity just like in

the current study. The point of departure is that their study used a narrow definition of the financial sector which only include the banking sector development variables and exclude the equity and bond market development variables and also did not focus on threshold level analysis. Financial sector development was found to have positively and significantly influenced FDI's ability to contribute towards economic growth in Chinese provinces.

Adjasi, Abor, Osei and Nyavor-Foli. (2012) examined the influence of financial markets in enabling African countries to benefit from FDI's technological diffusion related economic growth benefits using panel data methods with annual data from 1997 to 2008. They used private sector credit, M2/GDP as a measure of financial depth, savings S/GDP and stock market development proxies. Their study reported that developed financial markets that can effectively and efficiently mobilise and allocate resources towards productive sectors of the economy must be present before economic growth related FDI benefits are realised by African countries (Adjasi et al. 2012:437). The bond market variables component of financial sector development, the reverse relationship on the impact of FDI on financial markets and threshold level analysis were excluded.

Campos and Kinoshita (2008) studied the relationship between structural reforms and FDI inflow into 19 Latin American and 25 Eastern European countries using a combination of a baseline and a GMM model with data from 1989 to 2004. Their study showed that financial sector reforms not only did they attract FDI but also helped the host countries to benefit more from FDI spill over effects. They also noted that financial market liberalisation and privatisation were key major factors that attracted FDI inflows through improving the conditions of doing business as well as investment climate in the host countries.

Giovanni (2005) examined the influence of financial and macro-economic variables on FDI location decisions in developed countries using the gravity model and panel data analysis with cross country annual data from 1990 to 1999. Failure to address the endogeneity problem that emanate from the feedback effect between FDI and explanatory variables as suggested by Bosworth and Collins (1999) was a methodological

weakness of the study. The impact of banking sector size (as measured by the credit to GDP ratio) was found to have positively moderately influenced FDI activities whilst a 1% increase in stock market capitalisation (% of GDP) ratio pushed up FDI related activities by 0.96% in developed countries (Giovanni, 2005:145). Findings by Giovanni (2005) contradict those by Aqeel, Nishat and Bilquees. (2004) possibly because the latter used only one country, time series analysis and share market index as a proxy of the financial sector development whilst the former used panel data analysis for developing countries and stock market capitalisation as a measure of the financial sector development.

Agbloyor, Abor, Adjasi and Yawson. (2013) investigated the direct causality between FDI and financial development in Africa using the instrumental variable panel regression model (two stage least squares). The model was chosen because of its ability to address endogeneity caused by simultaneous causality bias between FDI and financial development. Their description of financial sector development in the model was not broad enough as it only included stock market and banking sector development variables and excluded bond market indicators. The use of FDI/GDP instead of net FDI/GDP is problematic because it fails to capture the changes in the net position of foreign investment in the host country. Overall, the study found out that FDI and financial development positively affected each other in African countries.

Choong (2012) studied the relationship between FDI, economic growth and financial development in 95 developing and developed countries using the dynamic GMM panel data approach with annual data from 1983 to 2006. The study found out that higher level of financial development was a precondition before FDI related economic growth benefits were felt in the host countries. Consistent with Luca and Spatafora (2012), the approach used is capable of correcting simultaneous bias that emanates from the reciprocal effect between FDI and financial development and bias arising from the use of lagged dependent variable.

Chee and Nair (2010) investigated the influence of FDI and financial development on economic growth in Asia-Oceania region using panel data analysis (fixed and random

effects) approach with annual data from 1996 to 2005. The findings are twofold: (1) financial development enhanced the positive impact of FDI on economic growth and (2) FDI and financial development complimented each other in facilitating economic growth. They ignored endogeneity arising from simultaneous causality bias. The studies by Choong (2012) and Chee and Nair (2010) share the following two methodological weaknesses. The use of banking sector development variables to represent the whole financial sector is a methodological limitation that the current study addresses through the inclusion of banking sector, stock and bond market development indicators. The use of FDI/GDP ratio as a proxy of FDI which do not capture the changes in the position of foreign investment is another methodological shortcoming.

Nor et al (2015) investigated the role of financial development captured by the extent of financial freedom in the FDI-economic growth nexus in 30 developed and emerging economies using the dynamic panel GMM estimation technique from 1999 to 2009. The strength of the dynamic panel GMM approach as noted by Arellano and Bond (1991) is that it removes the endogeneity emanating from a scenario where time invariant and country specific variables are correlated. The dynamic nature of FDI was taken into account by the use of one period lag of FDI as a ratio of GDP (a proxy of FDI). However, the exclusion of bond market development made the description of financial development used in their study narrower. They found out that higher quality of stock market development, increased banking sector intermediation efficiency and financial freedom enabled both emerging and developed economies to enjoy more economic growth effects of FDI.

Sghaier and Abida (2013) studied the relationship between FDI, economic growth and financial development in four North African countries (Tunisia, Morocco, Algeria and Egypt) using GMM panel data model during the period from 1980 to 2011. Their study used FDI net inflow (% of GDP) as a proxy of FDI which is highly recommendable because of its ability to show the impact of FDI in the economy and also the net position of foreign investment in the host country. The use of credit provided by the banking sector to GDP and liquid liabilities (ratio of liquid liabilities of the financial system to GDP) as measures of financial development is not sufficient to represent the financial sector as a whole.

These banking sector development measures are not effective in solving the double counting problem and in representing the information asymmetry easing associated with the financial sector, argued Levine et al. (2000). The major finding is that financial development quickened the rate at which FDI facilitated economic growth in all the 4 North African countries that were under study. Without doing any further econometric tests to back up their conclusion, they claimed that countries benefit more from FDI inflows on condition that their financial sector development reached a certain minimum level (Sghaier and Abida, 2013:8).

Nobakht and Madani (2014a) examined the role of financial development and trade liberalisation in the FDI inspired economic growth nexus in 33 upper-middle-income countries using the dynamic panel GMM approach with data from 1990 to 2011. The strength of the methodology is that it is able to address the endogeneity and unobserved heterogeneity between explanatory variables. It also effectively deals with auto-correlation bias by using the logarithm values of all variables included in the model. However, the use of the logarithm of ratio of liquid liabilities as a fraction of GDP as the only measure of the financial development is narrow focused. The use of net FDI/GDP ratio as a proxy ratio ensured that the change in the activities of foreign investors is captured. Their study observed that financial sector development facilitated FDI technological spill overs which in turn triggered economic growth in the host countries. Trade liberalisation was found to have improved financial sector development's ability to positively influence FDI led economic growth in all the host countries that were part of the study (Nobakht and Madani, 2014a:32). Yet, when trade liberalisation was removed from the model, the impact of financial sector development in the FDI-economic growth nexus remained unchanged (Nobakht and Madani, 2014b:143).

Using fixed, random effects and the GMM approach, Matallah, Ghazi and Bounoua. (2015) examined the causality between financial development, FDI and economic growth in the Middle East and North African (MENA) region with data ranging from 1995 to 2012. They found out that financial development was responsible for the absorption of FDI benefits such as economic growth in the MENA region. Financial development was

measured by liquid liabilities and private sector credit to GDP ratios only which represents a narrow aspect of the whole financial sector. However, the use of the GMM approach by the researchers is advantageous because of its ability to circumvent the heterogeneity and endogeneity problems (Matallah et al. 2015:60).

Mileva (2008) argued that transition economies characterised by (1) either less developed or developed financial markets and (2) either weak or strong institutions benefited from FDI spill-over effects. This is because transition economies with small and underdeveloped financial markets relied heavily on FDI inflows for investment in comparison to transition economies with larger and well-developed financial markets (Mileva, 2008:25). Bosworth and Collins (1999) observed that capital flows variables are endogenous because feedback effect exists either between capital flows and investment or capital flows and financial development. Mileva (2008) completely ignored this source of endogeneity.

Empirical studies on the role of financial sector development on FDI and FDI-growth nexus using cross-country regression analysis were done by a few researchers. Alfaro, Chanda, Chanda, Kalemli-Ozcan and Sayek. (2004) studied whether developed financial markets play any role in helping countries to efficiently utilise FDI inflows using cross country regression analysis with OECD countries' annual data from 1975 to 1995. Their study showed that developed banking sector development variables attracted FDI whilst stock market development negatively impacted on FDI inflows and stifled OECD countries' ability to benefit from FDI technological diffusion benefits. It follows from this argument that well-developed financial markets can stifle not only FDI but the host country's ability to benefit from FDI in line with Claessens et al. (2001) who argued that poorly developed and shallow financial markets present opportunities for foreign investors in that financial sector.

Anyanwu (2012) investigated FDI inflow determinants in 53 African countries using cross-country regression analysis with annual data from 1996 to 2008. Contrary to most empirical studies, the study showed that financial sector development had a negative

influence on FDI inflows in African countries. The unusual finding was attributed to the small size and lack of maturity of financial markets in Africa which frustrates foreign investors who might intend to raise additional capital in the financial markets of the host country. The study made no attempt to solve any possible endogeneity problem that could arise from the feedback effect between financial sector development and FDI.

Alfaro, Kalemli-Ozcan and Sayek. (2009) examined the channel through which financial development enable FDI to facilitate economic growth in 72 countries whose sample included low, middle and high income nations. They used the OLS (ordinary least squares) cross country regression analysis with annual data from 1975 to 1995. FDI and financial development variables were independently included in the regression model in order to avoid any correlation between the interaction term and either FDI or financial development (endogeneity). The use of net FDI as a ratio of GDP as a measure of FDI is plausible because of its ability to show the net position of foreign investment in the host country's economy. Two methodological weaknesses are evident. The first is the use of banking sector development variables as a proxy of the development of the whole financial sector is incorrect. The second weakness is the inclusion of countries that are at different levels of financial development and characterised by diverse financial sector development characteristics without intending to compare the results could affect the quality of the findings. No direct FDI impact on economic growth was found. Instead, developed financial sector was found to have improved the total factor productivity which is the major link that enabled FDI to have a positive influence on economic growth.

Using meta-analysis with firm level data from 47 countries, Havranek and Irsova (2011) estimated the reasons why vertical spill overs from FDI differ from country to country. Contrary to findings by earlier empirical studies, their study showed that host countries characterised by weak and under-developed financial markets enjoys more FDI inflow economic benefits on condition that their level of trade openness is high. This is because foreign investment which came from far away countries and had a small technological edge over local firms bring along more FDI spill overs despite the status of host countries' financial markets (Havranek and Irsova, 2011:243).

Studies which used time series data analysis to investigate the importance of financial sector development not only in attracting FDI but also in facilitating FDI triggered economic growth benefits are very few. They include Hajilee and Al Nasser (2015) who examined the influence of financial market development on FDI in 14 Latin American countries using the ARDL bounds testing and Granger causality approach with time series data from 1980 to 2010. The following methodological drawbacks are noted. The methodological approaches used lack the ability to identify and address the endogeneity problem that can arise due to the feedback causality between FDI and financial market development. The use of banking sector and stock market development, whilst excluding bond sector development measures does provide a narrow representation of the financial market. Investigating 14 countries using time series data analysis is not only cumbersome and time consuming but is not effective in comparing the results from different countries. Panel data analysis should have been preferred. The results from the ARDL bounds testing procedure shows that well developed and functioning financial markets (stock markets and banking sector), not only did they attract FDI but also enabled all the 14 Latin American countries to enjoy the positive economic growth advantages associated with FDI. Granger causality tests noted the existence of feedback effect between FDI and stock market development in both short and long run and a bi-directional causality running from banking sector development towards FDI in all 14 Latin American countries.

Ang (2009) investigated the role of financial development in helping Malaysia to benefit from FDI inflows using the Johansen co-integration test and VECM model with time series data from 1965 to 2004. The study used the following financial development proxies: bank claims on private sector (% of GDP), M3-M1 to nominal GDP, ratio of commercial bank assets to the sum of central bank assets and commercial bank assets and the ratio of number of commercial bank offices per 1000 people. Bond and stock market development aspects of the financial sector were ignored. The study showed that developed banking sector accelerated technology transfer and realisation of spill overs associated with FDI inflow in Malaysia.

Suliman and Elian (2014) studied the causality between FDI, financial development and economic growth in Jordaan using a structured co-integration and vector error correction (VEC) models with annual time series data from 1980 to 2009. They used net FDI inflow (% of GDP) as a measure for FDI which is commendable because it reflects the accurate net impact of foreign investment in the host country's economy. However, the following shortfalls characterise the methodology used. The inclusion of stock market and banking sector development variables less bond market development is a narrow representation of the financial sector. Estimation errors which arise due to the endogeneity between FDI, financial development and economic growth were ignored. In fact, the methodology used is incapable of both identifying and addressing the endogeneity problem.

The study failed to establish any causality between FDI and banking sector development in the short run, which is a methodological weakness on its own because the finding is contrary to literature. Both FDI and stock market development were found to have affected each other in the short term. Variance decomposition also confirmed these findings. In summary, the study by Suliman and Elian (2014) observed that well-developed stock markets enabled Jordaan to enjoy more FDI spilled over technological diffusion benefits and in turn FDI inflows promoted the growth of stock markets in Jordaan.

Maduka (2014) employed Johansen and Juselius (1990) co-integration and VECM to test long and short run relationship respectively between financial development and FDI in Nigeria with data from 1970 to 2008. The findings include: (1) financial deepening insignificantly influenced FDI inflow, (2) financial development failed not only to have any meaningful positive impact on FDI flow but also in assisting Nigeria to benefit from FDI flows and (3) FDI failed to influence the growth of financial assets in Nigeria. The study used banking sector development proxies only and such a methodological weakness imply that the findings cannot be taken as a true representation of the broad financial sector. This could be one of the reasons why the findings are contrary to most previous empirical studies cited in the literature. Their study did not focus on threshold levels which are a feature in non-linear relationships of this nature. The approach used is neither

capable of detecting nor addressing the endogeneity problem normally associated with the reciprocal relationship between FDI and financial sector development.

Using Johansen's co-integration and ECM model for causality tests, Aqeel et al. (2004) investigated the determinants of FDI in Pakistan using data from 1961 to 2002. Their study found that banking sector development as measured by the size of credit to the private sector; financial sector reforms, import tariffs, corporate tax reduction and currency appreciation positively influenced the growth of FDI inflow whilst the general share prices negligibly affected FDI inflow into Pakistan.

Shahbaz, Leitao and Malik. (2011) examined the role of local financial development on the FDI-economic growth nexus in Portugal using a combination of ECM and the ARDL with time series annual data from 1975 to 2008. They argue that local financial development made the impact of FDI on economic growth stronger in Portugal (Shahbaz et al. 2011:2833). The following are a few methodological limitations of their study: the use of FDI flows as a proxy for FDI does not show a net position of foreign investors' activities in the host country, and that the banking sector development variables that were used as proxies of financial development do not provide a true representation of the whole financial sector in Portugal.

Korgaonkar (2012) employed a data mining approach to study the influence of financial development on FDI in 78 countries with annual data from 1998 to 2009. Stock market development as proxied by market capitalisation, total value traded and turnover ratio and banking sector development (measured by central bank deposits and deposit money bank assets variables to GDP ratio) were found to be preconditions not only for FDI inflow but for FDI to benefit host countries (Korgaonkar, 2012:76). The study used a narrow definition of financial development which excluded the bond market, ignored the minimum threshold levels and endogeneity problem inherent in such non-linear relationships between FDI and financial development.

3.4.4 Empirical work that included minimum threshold analysis.

Empirical studies which focused on threshold levels of financial sector development that have to be reached before significant FDI inflows are realised in the host country are extremely scarce. Omran and Bolbol (2003) investigated the causality relationship between financial development and FDI inflows in Arab countries. They also investigated the minimum threshold levels of banking sector development indicators that have to be reached before Arab countries attract significant FDI inflows. Their study used domestic credit from commercial banks to the private sector as a ratio of GDP and commercial banks assets as a ratio of commercial banks and central banks assets as proxies of banking sector development whilst total value of shares traded to GDP ratio and the turnover ratio were used as proxies of stock market development. They observed a feedback effect between value traded ratio and FDI, no causality relation running from turnover ratio to FDI and no causality relationship from FDI to turnover ratio for all Arab nations together. High levels of stock market development augmented by high levels of economic reforms and trade openness attracted FDI in the medium term in Arab nations (Omran and Bolbol, 2003: 247).

Omran and Bolbol (2003) then examined the threshold level beyond which if financial development interacted with FDI would positively influence per capita income growth rates (PCYG) using cross country regression analysis. The study showed that the desired minimum threshold level of domestic credit and commercial banks assets as a ratio of commercial banks and central banks was 47%. The interpretation was that all nations whose minimum threshold level was below 47% such as Libya, Saudi Arabia, Sudan and Yemen were not in a position to have their banking sector development influence FDI inflow induced benefits. On the other hand, the banking sector in Lebanon, Tunisia and United Arab Emirates (UAE) was able to attract significant FDI because these countries' banking sector development levels exceeded the threshold level of 47% (Omran and Bolbol, 2003: 241).

Furthermore, the desired minimum threshold level domestic credit from commercial banks to the private sector as a ratio of GDP (domestic credit) was found to be 13.8%. Countries

such as Jordan, Lebanon and Tunisia whose domestic credit surpassed 13.8% enjoyed significant FDI inflows whilst Sudan, Syria and Yemen could not receive significant FDI inflows because their domestic credit levels failed to reach the minimum threshold target of 13.8%. In summary, the study by Omran and Bolbol (2003) was narrowly focused because it only used banking sector development proxies and excluded bond and share market measures in ascertaining minimum threshold levels of financial sector development that have to be reached before Arab countries received significant FDI inflow.

Azman-Saini et al. (2010) studied the impact of financial markets on FDI using a threshold regression model in 91 nations with cross-country annual data from 1975 to 2005. Their study used only banking sector development indicators as proxies for financial markets development which include credit provided by financial institutions to the private sector to GDP ratio (private sector credit), credit by deposit money banks to the private sector to GDP ratio (bank credit), ratio of commercial bank assets to central bank commercial plus banks assets and liquid liabilities (ratio of liquid liabilities of the financial system to GDP) of the banking sector whilst FDI net inflows (% of GDP) was used to measure FDI. Share and bond market development financial indicators were excluded in their study.

Azman-Saini et al. (2010:212-213) showed that significant FDI inflows and associated technological diffusion related benefits only kicked into the economy of the 91 nations that were part of the study when private sector credit exceeded a threshold level of 49.7%. With regard to other banking sector development proxies, the minimum threshold levels that required to be exceeded are 43.1% for bank credit, 89.1% for commercial bank assets to central bank commercial plus banks assets and 68.8% for liquid liabilities (ratio of liquid liabilities of the financial system to GDP) before significant FDI inflow advantages were felt in host countries.

The focus of the study by Azman-Saini et al. (2010) was not broad enough to capture the relationship between FDI and financial sector development as a whole by virtue of only using banking sector development proxies. The threshold regression model they used did

not address the endogeneity problem imbedded in such FDI-financial sector development relationships. Moreover, their study ignored the impact of FDI on financial sector development let alone the FDI minimum threshold levels to be reached before host nations start to enjoy FDI anchored financial sector development advantages.

Using panel regression analysis with data involving 97 countries from Central Asia, Europe, South Asia, East Asia and Pacific, Middle East, North Africa, Sub-Saharan Africa, Latin America and the Caribbean, Dutta and Roy (2011) examined the causality between FDI and financial development. They also investigated the minimum threshold level of financial development that allows the countries under study as a group to benefit from FDI inflows using the Borenzstein et al. (1998) model. FDI net inflow (% of GDP) and the ratio of private credit by deposit money banks to GDP were used as proxies for FDI and financial development respectively.

Their study found out that the relationship between banking sector development and FDI inflows is a non-linear one and that FDI inflows were positively influenced by banking sector development only up to maximum level of private credit by deposit money banks to GDP ratio of 130%. Private credit by deposit money banks to GDP ratio beyond 130% had a negative impact on FDI inflows in the host countries (Dutta and Roy, 2011:310), in line with Hailu (2010) who argued that highly developed financial markets could possibly crowd out FDI.

Among the few studies that have investigated the threshold levels of financial sector development on FDI, Dutta and Roy (2011) is the only study whose findings show that financial development had a positive impact on FDI inflow below a certain threshold level as other similar studies reported that the positive impact of financial development only happened above a certain minimum threshold level. The impact of FDI on financial sector development was not one of the focus key areas of their study. Their study also had a narrow focus in that the minimum threshold levels of the bond and share market that must be surpassed before host countries receives significant FDI inflows were ignored.

Using panel regression analysis, Hermes and Lensink (2003) examined the role played by the financial system development in influencing significant FDI inflows in 67 less developing countries during the period between 1970 and 1995. The study specifically focused on investigating the minimum threshold levels of financial development above which developing countries begin to benefit from significant FDI inflow. Their study used credit to the private sector (% of GDP), log of the private sector bank loans and the log of investment share in GDP as proxies of financial development whilst the log of FDI to GDP ratio was used as a measure of FDI.

Hermes and Lensink (2003:152) noted that the desired minimum threshold level of credit to the private sector (% of GDP) was 12%. This means that developing countries whose credit to the private sector (% of GDP) was below the minimum threshold level of 12% failed to significantly benefit from FDI inflows and vice versa for the developing countries whose credit to the private sector (% of GDP) was above 12%. Fifty five percent of the developing countries that were part of the study had their credit to the private sector (% of GDP) below 12% whilst the other forty five percent had their credit to the private sector (% of GDP) above 12%. Only one proxy of banking sector development was used by Hermes and Lensink (2003) for the purposes of minimum threshold analysis of financial development needed to enable developing countries to benefit from FDI inflow. What makes their study even narrower is that it excluded the impact of share and bond market development on FDI.

3.5 CHAPTER CONCLUSION

The main thrust of this chapter was to do a review of existing literature on the relationship between FDI and financial sector development. From the discussion of the impact of FDI on financial sector development, majority of the studies assumed a straight line relationship between FDI and financial sector development hence totally ignored the analysis of threshold levels of FDI that must be reached before financial sector development of host countries benefit from FDI inflows.

Moreover, majority of the empirical work that examined the impact of financial sector development on FDI did not go as far as investigating the threshold levels of financial sector development necessary to enable FDI inflow related advantages to be felt. Few studies that investigated the minimum threshold levels of financial sector development that trigger significant FDI inflows in the host countries were narrowly focused because they excluded either bond market development or both stock and bond market development. They also used cross country threshold regression models which lacks the ability to address endogeneity problem. The current study is different from the similar empirical studies mainly because it used the dynamic panel threshold regression model which adequately addressed endogeneity. This chapter provided a foundation upon which a research gap and contribution to new knowledge is illustrated. The next chapter lays the foundation for hypothesis testing. It resolves the methodological issues concerning the current study, develop the research design and econometric specification models used in testing the hypotheses formulated in Chapter 1.

CHAPTER 4 RESEARCH METHODOLOGY

4.1 CHAPTER INTRODUCTION

The preceding two chapters investigated the theory and empirical evidence on main FDI theories, impact of FDI in general and the relationship between FDI and financial sector development. This chapter contributes to the study by providing an overview of the different threshold regression models utilised in prior research on FDI-finance nexus and reviews the methodological challenges encountered when estimating the impact of financial sector development's threshold levels on FDI inflows. An evaluation of the comparative advantages and disadvantages of the threshold regression models is also done with a view of selecting an appropriate methodology for the current study.

Possible ways to either reduce or avoid the endogeneity problem thus providing a foundation for selecting a suitable research design and estimation model for the current study is explained. The methodology selected is a result not only from an evaluation of the pros and cons of various threshold regression models applied in empirical studies in the preceding chapter but also from evaluating the different threshold regression models that evolved over time which have nothing to do with the FDI-financial sector development nexus. The chapter presents the research design for this study by describing the statistical techniques employed to test the hypotheses spelt out in the introductory chapter. A detailed discussion on how the study intends to address the internal, external, construct and statistical conclusion validity threats to the study is also presented as part of the research design. Overall, the research design, statistical and estimation models selected for testing the hypotheses is influenced by the methodological issues that are relevant to the current study.

The chapter is divided into nine broad sections. Section 4.2 discusses the main variables used in the study which include FDI, stock market, bond market and banking sector development variables. The most ideal proxies used for this study are also presented in this section. Section 4.3 explains the endogeneity problem that exists in the relationship between FDI and financial sector development. An endogeneity problem management

plan to be implemented by the current study is spelt out in this section. Section 4.4 explicates the evolution of threshold regression models. Section 4.5 evaluates the different threshold regression models that have been used in empirical studies on the causality between financial sector development and FDI. Differences, similarities, pros and cons between and of the threshold regression models are noted in this section. Section 4.6 discusses the research design. Type and sources of data and sampling techniques are all part of the research design. Section 4.7 describes the general model specification of the FDI function. Section 4.8 discusses the dynamic panel threshold regression model which is an econometric estimation technique used for this study. Justification why it is a suitable econometric estimation approach for the current study is provided. Section 4.9 deals with robustness checks and section 4.10 is the conclusion to the chapter.

4.2 MAIN VARIABLES USED IN THE STUDY

This section discusses the main variables used in the current study as informed by empirical studies. Three categories of financial sector development measures which include stock market, banking sector and bond market development proxies are examined. Different FDI proxies used in previous empirical studies are also evaluated. The pros and cons of different FDI and financial sector development proxies are discussed and the choice of the proxies to be used for purposes of this study is defended.

Empirical studies have so far used three different main measures of stock market development which include: (1) stock market capitalisation (% of GDP), (2) stock market turnover (%) and (3) stock market traded value (% of GDP). According to Levine and Zervos (1998:540), stock market capitalisation to GDP ratio is the best measure of the stock market size because the overall stock market size is positively correlated with the ability to mobilise capital and diversify risk on an economy-wide basis.

Although both value traded ratio and turnover ratio are measures of stock market liquidity, the former is superior because it shows liquidity on an economy wide basis whilst the

latter is an indicator of the liquidity status of a particular stock market (Levine and Zervos, 1998:540).

Beck and Levine (2004) noted that stock market turnover ratio is more robust in reflecting the true contribution of stock market development to economic growth as compared to value traded ratio because of the following two reasons: (1) unlike the stock turnover ratio, the value traded ratio does not measure the liquidity of the market as it just measures trading relative to the size of the economy and (2) the value traded ratio can rise without an increase in the number of transactions on the stock market since it is a product of quantity and price.

What makes the value traded ratio measure of liquidity less desirable in comparison to the turnover ratio is that high total value traded may result from high trading activity in certain active shares while there may also be a significant number of relatively inactive shares listed on the same stock exchange (Beck, Levine and Loayza. 2000). The current study uses all these three proxies of stock market development as there is no consensus among researchers as to which proxy is the most appropriate.

According to Thumrongvit, Kim and Pyun. (2013:532) value traded and turnover ratios of bond market measures how liquid the bond market is but could not be used due to unavailability of data. World Bank (2014) measured the bond market development (size) using outstanding domestic private debt securities and outstanding domestic public debt securities, both expressed as a ratio of GDP. The weakness of these two bond market development measures is that the former excludes the value of the bonds issued by the government whereas the latter ignores the value of bonds issued by the private sector. Fink, Haiss and Hristoforova. (2003) measured the bond market size using the total bond market capitalisation as (% of GDP) proxy. It is clear that this proxy is superior to the ones used by the World Bank (2014) in that they include the total value of bonds issued by both the private and public sector (government) thereby providing a more accurate glimpse of the role played by the bond market in the whole economy. Its weakness is that it is unable to separately show the different roles played by private and public bond markets towards

influencing FDI's ability to influence economic growth. It is for this reason that the current study used both separately the outstanding domestic private and public debt securities to GDP as proxies for bond sector development.

The most dominant measures of banking sector development that have been used in empirical studies include (1) domestic credit to private sector by banks (% of GDP), (2) financial sector credit to the private sector to GDP ratio, (3) liquid liabilities of the financial system to GDP, (4) commercial-central bank assets ratio, (5) domestic credit to all the sectors in the economy (% of GDP), (6) average return on equity ratio, (7) total costs to total income of all commercial banks ratio, (8) the number of bank branches per capita ratio and (9) broad money to GDP ratio. The pros and cons of each proxy of banking sector development are discussed in the next section.

Alfaro et al. (2009:118) defined the domestic credit to private sector by banks (% of GDP) as total credit by deposit money banks to the private sector as a ratio of GDP. This bank based financial development proxy shows the pivotal role played by the banking sector in financing the economy. Sghaier and Abida (2013:5) noted that the ratio of bank credit to the private sector as a ratio to GDP is a superior proxy of bank based financial development due to its direct linkage with investment and economic growth. Their argument was supported by Kar and Pentecost (2000) who showed that bank credit provided to the private sector leads to more investment and economic growth as compared to credit provided to the public sector.

Furthermore, De Gregorio and Guidotti (1995) observed that domestic credit to private sector by banks (% of GDP) clearly represents the actual volume of funds directed towards the private sector thereby capturing the accurate level of bank based financial development. Beck et al. (2000) noted that the bank credit to the private sector (% of GDP) proxy shows the ease with which the society can access credit from the banks whilst Liberti and Miani (2010) argued that the proxy is an indicator of the overall impact of the banking sector in the promotion of private sector development in the economy. The exclusion of bank credit provided to the public sector enables the proxy to measure more

precisely the impact of the banking sector in funding the private sector via directing savings to the investors (Choong, 2012:824; Suliman and Elian, 2014:226). These strong compelling arguments alongside the availability of data formed the reasons why this proxy was chosen as a measure of banking sector development in the current study.

On the contrary, Alfaro et al. (2004:95) noted that domestic credit to private sector by banks (% of GDP) is not comprehensive enough for some countries since it excludes the credit provided to the private sector by non-banks financial institutions. This was echoed by Levine (1997a:704) who observed that banks are not the only financial sector intermediaries which provide credit to the private sector.

According to Levine et al. (2000), the financial sector credit to the private sector (% of GDP) is the best measure of financial sector development because it shows the level of efficiency of the financial sector in the provision of credit and it is directly connected to investment and economic growth. Its weakness is that it ignores the economic impact of all the financial sector credit directed towards the public sector. The current study selected the domestic credit provided by financial sector (% of GDP) because (1) it circumvents the weakness of both the domestic credit to private sector by banks (% of GDP) and financial sector credit to the private sector (% of GDP) by showing the influence of domestic credit provided by the whole financial sector to both the private and public sectors of the economy and (2) data was easily available on the World Development Indicators.

According to Kaur et al. (2013:734), domestic credit by banks to all the sectors in the economy (% of GDP) indicates the impact of the banking sector not just to a particular sector but in the whole economy. The limitations of the proxy are twofold: (1) it excludes the role played by non-banking sector financial entities in the economy and (2) it does not separate the impact of the banking sector between private and public sectors of the economy which makes the proxy less useful in comparison to bank and or financial sector credit to the private sector ratio(s).

Sghaier and Abida (2013:4) defined liquid liabilities of the financial system as the total of currency, demand and interest bearing liabilities of banks and non-financial intermediaries as a percentage of GDP. According to Alfaro et al. (2009:118), the liquid liabilities (LL) measure the size of the whole broad financial system without distinguishing among different financial sector participants. Demetriades and Hussein (1996) noted that the LL proxy lacked the ability to accurately measure the efficiency of the banking sector. Levine et al. (2000: 37) categorised the weakness of the liquid liabilities of the financial system proxy into three entities: (1) it does not show how effective the financial sector is in ameliorating information asymmetry; (2) it fails to measure how effective the financial sector is in easing transaction costs for economic agents; and (3) it fails to take into account the double counting problem – in cases where one financial institution deposits money into another financial institution. In addition, Choong (2012) observed that liquid liabilities and other monetary measures do not indicate the level of financial development but the extent of monetisation in the economy.

Commercial-central bank assets ratio was defined by Alfaro et al. (2009: 118) as commercial bank assets divided by the total of commercial banks and central banks' assets. Its advantages are twofold: (1) it measures the extent to which community' savings are allocated by commercial banks in comparison to the central bank and (2) it shows the importance of one measure of the financial system relative to another. Its disadvantage is that it does not show whether the claims are in the private or public sector (Alfaro et al., 2009:118). Moreover, Levine et al. (2000: 38) argued that the proxy does not directly measure the quantity and quality of products offered by the financial sector.

According to Kaur et al. (2013:734), both average return on equity ratio and the total costs to total income of all commercial banks ratio indicate the general level of efficiency of the banking sector in the economy. Their major weakness is that they ignore the size and depth of both the banking and or the financial sector as a whole. They neither show the different providers of credit nor the separate sectors of the economy that receive that credit.

The advantage of the number of bank branches per capita ratio is that it shows the degree to which people are accessing the banking services throughout the country (Demetriades and Luintel, 1996). Its shortcoming is that it does not clearly indicate the depth, size and efficiency of the banking or entire financial sector in the economy.

According to Giuliano and Ruiz-Arranz (2009), the broad money to GDP ratio is the measure of the overall size of the monetary system in the whole economy. Ezeoha and Cattaneo (2012:607) noted that the proxy is too broad in that it does not show whether the liabilities are for central bank, banks or other financial sector participants. Moreover, Levine and Zervos (1998:542) assert that the broad money to GDP ratio does not indicate where the financial system allocates capital.

Three measures of FDI have been used in the empirical studies and these include net FDI inflows (% of GDP), gross FDI inflows (% of GDP) and FDI to gross fixed capital formation ratio. Biglaiser and DeRouen (2006:59) observed that net FDI inflows (% of GDP) are the superior measure of FDI because they reflect a country's ability to attract FDI and best measures foreign investors' change in position in the host country. Nnadi and Soobaroyen (2015) further posit that net FDI proxy captures new investment inflow less disinvestment from the MNEs in the host country. Buthe and Milner (2008:748) noted that the annual gross FDI inflows (% of GDP) is a good measure of FDI because, (1) it captures the universally agreed finding that FDI is driven by GDP, and (2) it makes it easier to compare across different economies and time. These two advantages are also applicable to the net FDI inflows (% of GDP) and the FDI to gross fixed capital formation ratio.

The annual gross FDI inflows to GDP ratio was criticised by Ezeoha and Cattaneo (2012:607) as static which in most cases makes it very difficult to capture the dynamics of FDI flows. Alfaro et al. (2009:117) noted that the proxy is not a true reflection of the quantity of FDI in the host country as it ignores possible outflow of FDI. According to Ezeoha and Cattaneo (2012:607), the FDI inflows to gross fixed capital formation ratio is superior to the annual gross FDI inflows as a ratio of GDP because of its ability to observe

the dynamics of FDI flows. The current study uses the net FDI inflow as a ratio of GDP measure of FDI because of its superiority over other proxies as enunciated by Biglaiser and DeRouen (2006:59). Table 3 summarises the main variables used in this study, their proxies, their expected relation with FDI and source of data.

Table 3: Variables, proxies, data source(s) and expected signs			
Variable	Proxy	Expected relation with dependent variable (FDI)	Source of data
Banking sector development	Domestic credit to private sector by banks (% of GDP)	+	World Development Indicators (WDI), International Financial Statistics (IFS)
	Domestic credit provided by financial sector (% of GDP)	+	World Development Indicators (WDI), International Financial Statistics (IFS)
Stock market development	Stock market turnover (%)	+	World Development Indicators (WDI), International Financial Statistics (IFS)
	Stock market traded value (% of GDP)	+	World Development Indicators (WDI), International Financial Statistics (IFS)
	Stock market capitalization (% of GDP)	+	World Development Indicators (WDI), International Financial Statistics (IFS)
Bond market development	Outstanding domestic private debt securities (% of GDP)	+/-	World Development Indicators (WDI), International Financial Statistics (IFS) and Global Financial Indicators (GDI)
	Outstanding domestic public debt securities (% of GDP)	+/-	World Development Indicators (WDI), International Financial Statistics (IFS) and Global Financial Indicators (GDI)

Source: Author's compilation

4.3 THE ENDOGENEITY PROBLEM

Fox et al. (2015) defined endogeneity as the presence of a non-zero covariance between one or more predictor variables and the residuals of the model. "Such predictor variable(s) which are not independent of the response variable or which are correlated with the residuals/error term are referred to as endogenous and they cause a bias in the estimation of the coefficients in the regression model" (Fox et al. 2015:347). According to Fox et al (2015:151), endogeneity is a scenario where the dependent variable influences the independent variable(s) or the independent variables influence each other, statistically represented by the $cov(x,t) \neq 0$ (non-zero covariance between two predictor variables x and t). They observed that in the presence of endogeneity in the regression model, using an OLS estimator gives inconsistent, biased and inaccurate results, a problem that could be solved by using the GMM estimator which is also compatible with non-linear models.

According to Fox et al. (2015), there are three sources of endogeneity, namely, omitted variable bias, measurement error and bi-directional causality. The omitted variable bias can be controlled by applying instrumental variables but however the fundamental problem is that ideal instrumental variable techniques that need to be applied in order to avoid such a type of endogeneity problem may not exist (Borensztein et al., 1998:133). The authors noted that an ideal instrument is a variable(s) that is more correlated with either FDI and not with control variables/error term or highly correlated with financial sector development but not with control variables/error term which is not easy to find.

Studies on the relationship between FDI and financial sector development must account for endogeneity problems because the two variables affect each other (Soumare and Tchana, 2015:2). The following theoretical example illustrates how bi-directional causality can be a source of endogeneity. Financial sector development (f) depends on FDI (d) and trade openness (t), a relationship that can be represented by $f = (d, t)$. Endogeneity arises because (1) financial sector development affects FDI, (2) financial sector development affects trade openness and (3) FDI and trade openness affects each other. It is clear that FDI and trade openness cannot be regarded as independent variables in a regression in which financial sector development is a dependent variable.

Borensztein et al. (1998:133) suggested the use of lagged values of the independent variables, control variables and dummies in the regression equations to reduce the effects of the endogeneity problem although it is not clear how this could be achieved. The use of the dynamic panel data model to avoid endogeneity in a similar study investigating the relationship between financial sector development, FDI and economic growth in China was supported by Ljungwall and Li (2007:5). The latter's way of managing endogeneity in a panel data set up played a critical role in influencing the choice of the main estimation technique for the current study.

Fox et al. (2015:153) recommended that the endogeneity problem caused by the bi-directional causality can be solved by using the simultaneous equation model applying the three stage least squares in which two equations are solved, one with financial sector development as a dependent variable and FDI and control variables (which includes trade openness) as independent variables, and the other with FDI as a dependent variable and financial sector development and control variables as independent variables. Another recent study that recommended simultaneous equation model using panel data to deal with endogeneity arising from the feedback effect between FDI and financial sector development was done by Soumare and Tchana (2015:7). The current study used the correlation analysis study to investigate the presence of endogeneity emanating from the feedback effect between the dependent, independent and control variables. It also employed the Hausman and regressor endogeneity tests to mainly test the existence of endogeneity arising from the other two sources identified by Fox et al. (2015) which are omitted variable bias and measurement error.

In summary, endogenous variables are those that affect the dependent variable and themselves affected by other variables in the model. In this study which investigates the impact of FDI on financial sector development, the endogenous variables arise on two fronts. Firstly, FDI is the endogenous variable if it affects financial sector development and itself is affected by other variables in the model and secondly, financial sector development becomes an endogenous variable if it affects FDI and itself also affected by

other control variables in the model. On the other hand, exogenous variables are those that affect both the dependent and the endogenous variables at the same time.

The correlation between financial sector development and FDI could arise from an endogenous estimation of financial sector development, a case in which financial sector development itself might have been influenced by other factors in the process of influencing FDI. This is consistent with Borensztein et al.'s (1998:131) study. Omission of such factors in the regression model which simultaneously influences both financial sector development and FDI leads to inconsistent and biased estimates. In such a scenario, there exists a correlation between financial sector development and the error term which leads to inconsistent and biased estimates if not addressed. Given that Kremer et al. (2013:869) warned against simply avoiding endogeneity bias in a panel threshold regression model as it could lead to completely different results, the current study takes all the reasonable steps to manage the endogeneity problem.

4.4 THE EVOLUTION OF THRESHOLD REGRESSION MODELS

This section defines threshold regression models; discuss the origin and evolution (changes and developments) in the use of the panel threshold regression models. Criticisms of each threshold regression model that necessitated the development of the next threshold regression model in the evolution process are discussed in detail in this section.

“A threshold regression model is a model that specifies that, individual observations can be divided into classes based on the value of an observed variable,” (Hansen, 1999:346). According to Wang and Lin (2010:2), threshold regression models are preferable when a non-linear relationship characterises the variables being studied because they are able to split the data with threshold values thereby guaranteeing the flexibility of the regression functions. The threshold regression models are superior in that they estimate the threshold parameters as compared to fixing the threshold levels at arbitrary values (Caner and Hansen, 2004:814).

Tong (1983) who first developed the threshold regression model for time series data analysis assumed the existence of the exogenous threshold variables and ignored the endogenous threshold variables. Hansen (1999) transformed Tong's (1983) time series threshold regression model into a static panel threshold regression model which also assumed the threshold variables being exogenous. This was further developed by Hansen (2000) in order to capture the asymptotic properties of concentrated least square estimators for threshold and coefficient parameters but still ignored the endogenous threshold variables whilst assuming exogenous threshold variables. In the Hansen (1999, 2000) models, all the regressors were treated as exogenous which is problematic according to Kremer et al. (2013) because the lag of the dependent variable is endogenous by design and their models were not applicable to dynamic data. This was emphasised by Alia, Romuald and Anago. (2014) who observed that the panel threshold regression model of Hansen (1999) only applied to a static but not to a dynamic panel. Regressors and the threshold variables were only required to be exogenous under Hansen (1999,2000) models thus leaving a theoretical literature gap in a case where one of the regressors is endogenous or when there exist endogenous variables in the model (Alia et al. (2014:7).

Caner and Hansen (2004) considered the endogenous variables found in the threshold regression models only for cross-sectional data whilst still assuming the threshold variables in the model are exogenous. They acknowledged that their model was limited in terms of its potential applications as it could not be employed in a panel data set up and in cases where it may be necessary to estimate the endogenous threshold variables or endogenous regressors.

A study by Kourtellos, Stengos and Tan. (2007) became the first to estimate the endogenous threshold variables under cross section data but excluded the endogenous regressor in their threshold regression model. This was a huge improvement from previous approaches by other researchers (Tong,1983; Hansen, 1999; Hansen, 2000; Caner and Hansen, 2004) whose studies could not be used to accurately estimate the threshold parameters without causing estimation bias in the endogenous threshold

variable coefficients. Kourtellos et al. (2007) employed the traditional sample selection bias technique that involves two stages in estimating the endogenous threshold variables. The first stage involved decomposing the error terms into two, namely, one that is not correlated and the other that is correlated with the endogenous threshold variables, and the second stage, where the two stage least square approach was used to address the endogeneity of the threshold variables. Although it addressed the endogeneity problem, Wang and Lin (2010:3) observed that the model had limited potential application because it was specifically developed for cross-sectional data analysis and not for time series, panel and dynamic data.

The endogeneity problem was effectively dealt away with by Kremer et al. (2013:863) through the use of GMM estimation technique and applying a process known as forward orthogonal transformation to deal away with the country specific fixed effects. The forward orthogonal transformation maintains the uncorrelatedness of the error terms thus allowing Caner and Hansen's (2004) estimation approach for a cross-sectional regression model to be easily used in a dynamic panel threshold regression model. Kremer et al. (2013) developed a dynamic panel threshold regression model which addressed the gap left by the previous threshold models in the following ways: (1) it took into account that the dependent variable might be affected by its own lagged value (dynamic version); (2) combined both time series and cross-section data into a panel threshold data analysis; (3) estimated the endogenous regressor; (4) used forward orthogonal transformation approach to eliminate the country specific fixed effects unlike previous models which used the standard within transformation approach; (5) used the GMM estimate approach which takes into account the endogeneity problem. Table 4 summarises the evolution of the threshold regression models.

Table 4: A summary of evolution of threshold regression models			
Author	Threshold regression model	Characteristics	Weaknesses
Tong (1983). First to develop the threshold regression model	Time series threshold regression model	Assumed the existence of exogenous threshold variables	Ignored the endogenous threshold variables
			Not applicable to cross sectional and panel data
			Does not capture dynamic data
Hansen (1999)	Transformed Tong (1983) model into a static panel threshold regression model	Assumed the existence of exogenous threshold variables.	Did not capture the asymptotic properties of concentrated least square estimators for threshold and coefficient parameters
			Ignored the endogenous threshold variables.
			Did not capture dynamic data
Hansen (2000)	Static panel threshold regression model	Assumed the existence of exogenous threshold variables	Ignored the endogenous threshold variables.
			Did not capture dynamic data
		Ignored the asymptotic properties of concentrated least square estimators for threshold and coefficient parameters	Ignored the effects of the regime intercepts
			Used standard within transformation approach to eliminate the individual country specific fixed effects which does not effectively deal with serial correlation of the transformed error terms
Caner and Hansen (2004)	Cross sectional threshold regression model	Considered the endogenous regressors in the threshold regression mode	Not applicable to time series and panel data
		Assumed the existence of exogenous threshold variables	Ignored the endogenous threshold variables
			Did not capture dynamic data
		Used the OLS estimation method	Did not capture dynamic data
			Used standard within transformation approach to eliminate the individual country specific fixed effects

Table 4: Continued

Author	Threshold regression model	Characteristics	Weaknesses
Kourtellos et al. (2007)	Cross-sectional threshold regression	Estimated the endogenous threshold variables	Not applicable to time series and panel data
			Did not capture dynamic data
Bick (2010)	Static panel threshold regression model	Took into account the effects of the regime intercepts	Ignored the endogenous threshold variables
		Used the OLS estimation method	Did not capture dynamic data
			Used standard within transformation approach to eliminate the individual country specific fixed effects
Kremer et al (2013)	Dynamic panel threshold regression model	Used forward orthogonal deviations transformation approach to eliminate the individual country specific fixed effects which avoids the serial correlation of the transformed error terms	Did not capture static data Ignored the existence of multiple thresholds
		Took into account the effects of the regime intercepts	Treated threshold variables as exogenous therefore has got limited potential applications as it cannot be used in circumstances where it is necessary to estimate the endogenous threshold variables
		Estimated the endogenous regressor. Used the GMM estimator that addresses endogeneity	
		Catered for the dynamic panel.	

Source: Author’s compilation

4.5 THRESHOLD REGRESSION MODELS USED IN PREVIOUS FDI-FINANCIAL SECTOR DEVELOPMENT STUDIES.

This section describes the threshold regression models that were employed by a few empirical researchers (Omran and Bolbol, 2003; Azman-Saini et al. 2010; Dutta and Roy, 2011; Hermes and Lensink, 2003) in the FDI–financial sector development literature.

Omran and Bolbol (2003) investigated the minimum threshold levels of banking sector development indicators that have to be reached before Arab countries benefit from FDI inflows. Their study used domestic credit from commercial banks to the private sector (% of GDP) and commercial banks assets as a ratio of commercial banks and central banks assets as proxies of banking sector development whilst total value of shares traded (% of GDP) and the turnover ratio were used as proxies of stock market development.

The cross country threshold regression model specification that was used by Omran and Bolbol (2003:239) used per capita income growth rates (PCYG) as a dependent variable. Independent variables included the initial per capita income (IPCY), FDI, GDP, financial development variables, investment ratios, a ratio between financial development and FDI. The control variables which were included in the model included openness, government expenditures, inflation and exchange rates. Omran and Bolbol (2003:241) then examined the threshold level beyond which, if financial development interacted with FDI, would positively influence per capita income growth rates (PCYG). This was done by finding a partial derivative of the PCYG function described above and equating the result to 0. They found that domestic credit from commercial banks to the private sector as a ratio of GDP domestic credit and commercial banks assets as a ratio of commercial banks and central bank assets at levels below a threshold of 3.8% and 47% respectively could not help Arab countries benefit from FDI.

Dutta and Roy (2011) used a cross- country econometric model to investigate the threshold level(s) in causality between FDI and financial sector development in 97 countries from Central Asia, Europe, South Asia, East Asia and Pacific, Middle East, North Africa, Sub-Saharan Africa, Latin America and the Caribbean. The model used FDI as a dependent variable and independent variables included in the model were financial development and the square of financial development (FD) to capture the non-linearity between FDI and financial development. GDP, Inflation, exchange rate, trade openness and level of political stability were the control variables that were used in the model.

A positive co-efficient of financial development meant that financial development had a positive influence on FDI inflow whilst the negative co-efficient of FD squared implied that the influence of financial development on FDI inflow decreased at higher levels of financial development. Dutta and Roy (2011:310) equated the partial derivative of the FDI function to 0 in order to calculate the minimum threshold level(s) of financial development that must be reached before significant FDI inflows happens in the host country.

A study by Hermes and Lensink (2003) employed a cross- country regression model to investigate the minimum threshold levels of financial development that must be reached before FDI benefits the economy of 67 less developing countries during the period between 1970 and 1995. Per capita growth rate (PCGROWTH) was the dependent variable whilst independent variables included a vector of variables such as log of FDI to GDP ratio (LFDI) interacted with the log of private sector bank loans to GDP ratio (LCREDP). Control variables included a vector of variables that have got a robust effect on economic growth such as log of initial level of secondary enrolment rate, log of initial GDP per capita level, log of the investment share in GDP (LINVGDP) and log of credit to the private sector (LCREDP) -see Levine and Renelt (1992) and King and Levine (1993b).

Hermes and Lensink (2003) used log of the private sector bank loans and the log of investment share in GDP as measures of financial development, log of explanatory variables whilst the log of FDI to GDP ratio was used as a proxy of FDI. Just like the procedure followed by (Dutta and Roy, 2011; Omran and Bolbol, 2003), the first derivative of the PCGROWTH function was equated to zero in order to calculate the threshold levels of financial development necessary before FDI technological diffusion benefits are felt in the economy (Hermes and Lensink, 2003: 152).

The weakness of a cross- country threshold models used by these researchers on FDI-financial sector development studies is that they fixed the threshold level at an arbitrary value rather than estimating the threshold parameters (see Caner and Hansen, 2004:814). Using Kremer et al. (2013) panel threshold model as a benchmark of a suitable model, the model employed by Omran and Bolbol (2003) did not address the following:

(1) estimation of the threshold parameters, (2) cross section heterogeneity problem (see Wooldridge, 2002), (3) the dynamic version aspect, (4) the endogeneity problem and (5) cross- section data used implies that low quality and inefficient data was used for the purposes of the study (see Makina, 2005; Gujarati, 2003; Ngugi, 2008:617).

Azman-Saini et al. (2010:212) also used a cross- country threshold regression model to investigate the role of financial markets in the FDI-growth nexus in 91 nations. The dependent variable was average growth rates of the real GDP during the period under study (GROWTH). Independent variables used were FDI and financial market indicators whilst control variables (X) included a vector of variables hypothesised to affect output growth such as population growth rates, investment-GDP ratio, human capital, government expenditure-GDP ratio and initial income at the beginning of the sample period. Their study used the following two equations to estimate the threshold levels in which y represented a threshold level whilst β_1 and β_2 stood for the impact of FDI on growth.

$$GROWTH_i = \delta X_i + \beta_1 FDI_i + e_i, FIN \leq y \quad [9]$$

$$GROWTH_i = \delta X_i + \beta_2 FDI_i + e_i, FIN > y \quad [10]$$

The analysis of the minimum threshold levels entailed estimating y (threshold levels) and slope parameters β_1 and β_2 . Once the presence of the threshold effect was supported by the data, both equations were then estimated in order to examine the statistical significance of β_1 and β_2 .

The four studies on FDI-financial sector development threshold levels were narrowly focused because they excluded bond and stock market development measures in their models. The studies used cross- country threshold regression models and none of them used panel threshold regression models. They did not address the endogeneity problem with the exception of Hermes and Lensink (2003) whose studies only attempted to reduce it. All, except Azman-Saini et al. (2010), did not estimate the threshold parameters but

fixed them at an arbitrary value. Table 5 summarises the threshold regression models that were used by these empirical researchers whose work focused on a similar topic to the current study.

Table 5: A summary of threshold regression models used in previous FDI-financial sector development studies				
Empirical researcher	Threshold regression model used	Proxies of dependent and independent variables used	Critique of the proxies	Weaknesses of the threshold regression model
Hermes and Lensink (2003)	Cross-country threshold regression model	Log of private sector bank loans to GDP ratio and log of investment share in GDP	Does not represent the entire financial sector.	Fixed the threshold level at an arbitrary value. Exogenously determined the threshold levels. Employed OLS estimator which is not good for models with potential endogeneity. Ignored the dynamic nature of the data. Not applicable to time series and panel data
Azman-Saini et al. (2010)	Cross-country threshold regression model which endogenously estimated the threshold levels.	Financial development index	It is too broad and does not show the impact of specific type of financial sector on FDI	Used standard within transformation approach to eliminate the individual country specific fixed effects which is not able to avoid the serial correlation of the transformed error terms. Employed OLS estimator. Ignored the dynamic nature of the data. Not applicable to time series and panel data

Table 5: Continued				
Dutta and Roy (2011)	Cross-country threshold regression model	Financial development index	It is too broad and does not show the impact of specific type of financial sector on FDI	Fixed the threshold level at an arbitrary value.
				Exogenously determined the threshold levels.
				Employed OLS estimator Ignored the dynamic nature of the data.
				Not applicable to time series and panel data
Omran and Bolbol (2003)	Cross-country threshold regression model	Domestic credit from commercial banks to the private sector (% of GDP),	Excluded the bond market	Fixed the threshold level at an arbitrary value.
		commercial banks assets as a ratio of commercial banks and central banks assets		Exogenously determined the threshold levels.
		total value of shares traded (% of GDP)		Employed OLS estimator.
		Stock market turnover ratio (%)		Ignored the dynamic nature of the data.
				Not applicable to time series and panel data

Source: Author's compilation

The current study addresses the weaknesses and gaps emanating from (1) threshold regression models that evolved over time and (2) threshold regression models which were used by empirical researchers whose studies focused on FDI-financial sector development nexus by using the modified panel threshold regression model developed by Kremer et al. (2013) as discussed in section 4.8.

4.6 RESEARCH DESIGN.

This section discusses the type of data used, sampling procedures followed and the sources of data. Annual secondary data spanning from 1994 to 2014 is used for the purposes of this study for four reasons: (1) some of the previous communist countries had no stock market prior to 1994, (2) it is the period in which data for all the proxies used in the study is available across a substantial number of emerging markets, (3) covers up to the most recent period and (4) it is the period within which major fundamental economic adjustments occurred fairly across the emerging markets. The study assumed that the business cycle fluctuations which happened during the period under study affected the emerging markets uniformly. Annual data was preferred in this study because it avoids averaging (temporal aggregation of data) which was found by Ericsson, Irons and Tryon. (2001) to distort econometric results.

FDI, banking sector, stock market and bond market development data as well as data on control variables for this study was extracted from the WDI, IFS, IMF, African Development Indicators (ADI), Global Financial Indicators (GFI), UNCTAD (2016) and UNDP various reports. These secondary data sources are credible and contain the data that is already converted into a common currency for all the emerging markets that are part of the study. Furthermore, the sources of secondary data are in public domain thus eliminating the risk of using biased and discrepant data. All the values of data are in United States dollars at year on year exchange rates. This makes comparability and data analysis easy (Nnadi and Soobaroyen, 2015:233).

As a result of the absence of a clear definition of an emerging market, several organisations which include IMF, FTSE, MSCI, Pearson Group, Standard and Poor, Goldman Sachs, Grant Thornton, BBVA Research, Russell Investments and Alexander Forbes have a different list of emerging markets. The difficulty in coming up with one common and fixed criteria to classify emerging market could be the reason why the IMF, World Bank and United Nations (UN) economic agencies stayed away from attempting to define an emerging market. This study chooses the classification of countries provided by IMF (2015), a reputable international organisation leaving aside classifications by

private organisations such as Standard and Poor, MSCI Index Research, Alexander Forbes, Pearson Education Group, FTSE Group, BBVA Research and Russell Investments. According to IMF (2015), the world economic outlook survey by the IMF staff is done twice every year thereby providing the most up to date category of emerging markets as compared to private institutions. Furthermore, the choice is consistent with the use of IMF data projections for those countries which are not covered in depth by the private research institutions and the fact that IMF is one of the main sources of secondary data in this study.

Countries which fall under the IMF (2015) class of emerging markets are Argentina, Austria, Bangladesh, Belgium, Brazil, Bulgaria, Chile, China, Colombia, Czech Republic, Greece, Hong Kong, Hungary, India, Indonesia, Malaysia, Mexico, Pakistan, Peru, Philippines, Poland, Portugal, Republic of Korea, Romania, Russia, Singapore, South Africa, Thailand, Turkey, Ukraine and Venezuela. It should be noted, however, that the study only focused on emerging markets whose data for all the variables could be obtained from the reputable international sources for data consistency purposes. Table 6 lists the emerging markets studied per region.

Table 6: List of emerging markets studied per region			
Europe	Latin America	Asia	Africa
Czech Republic	Argentina	China	South Africa
Greece	Brazil	Hong Kong	
Poland	Colombia	Indonesia	
Portugal	Mexico	India	
Russia	Peru	Malaysia	
Turkey		Philippines	
		Republic of Korea	
		Thailand	
		Singapore	

Source: Author's compilation based on IMF (2015) Indices

Although classified as emerging markets by IMF (2015), there is a possibility that countries such as Singapore, Republic of Korea, Hong Kong and China could be outliers because their state of development is higher than others.

4.7 GENERAL MODEL SPECIFICATION OF THE FDI FUNCTION.

There are many factors that affect FDI inflows into the host countries. The most common ones identified by literature include financial sector development (FSD), economic growth (GROWTH), inflation (INFLATION), exchange rates (EXCHANGE), savings (SAVINGS), trade openness (TRADE), infrastructural development (INFR) and human capital development (HCD). Taking into account these factors, the FDI function is represented by the following general model specification:

$$FDI=f(FSD, GROWTH, INFLATION, EXCHANGE, SAVINGS, TRADE, INFR, HCD) [11]$$

While financial sector development has been identified as a determinant of FDI, GDP per capita, infrastructure, inflation, trade openness, exchange rate, human capital development and savings have been identified as significant explanatory variables for FDI (Hermes and Lensik, 2003, Alfaro et al. 2004, Kholdy and Sohrabian, 2008, Al Nasser and Soydemir, 2010, Asiedu and Lien, 2011). The impact of these explanatory variables on FDI was controlled for in this study in order to improve the accuracy of the overall results. A similar empirical study on FDI and financial development done by Soumare and Tchana (2015) used similar control variables such as education, inflation, exchange rate, governance, trade openness, infrastructure, interest rate and current account balance. Moreover, the choice of control variables, namely, GDP per capita, inflation, trade openness and exchange rates is consistent with similar prior studies carried out by Walsh and Yu (2010).

According to Denisia (1980:13), economic growth in the host country is a location advantage of FDI in line with the eclectic paradigm hypothesis. The market size hypothesis founded by Jorgenson (1963) argued that FDI is attracted into the host country by the level of GDP. Following Sghaier and Abida (2013), the current study used GDP per capita to measure economic growth whose data is extracted from the World Development Indicators (WDI). The study expects economic growth to have a positive impact on FDI. Nnadi and Soobaroyen (2015) observed that inflation is a measure of macro-economic instability and that higher inflation rate could chase away prospective

and already existing foreign investors. Inflation rate increase in host country reduces FDI as it erodes the value of the profits made by foreign firms (Sayek, 2009: 423). The current study used inflation consumer prices (annual %) as a measure of inflation and the data was obtained from the WDI. Consistent with theory, the current study expects inflation to negatively influence FDI.

The currency areas hypothesis reported that weak currencies in the host country attract FDI whilst strong currencies not only deter FDI inflows but promote FDI outflows (Aliber, 1970). This is mainly because multinational firms from nations with strong currencies can borrow capital at higher interest rates and still make profit as compared to the host country firms. This was supported by Moosa (2010:485) who averred that firms of a country characterised by a strong currency have got higher appetite to invest in other countries whilst the opposite is true for firms of weak currency countries. Consistent with Raza et al. (2012), the value of the local currency against the United States Dollar (US\$) is used as a proxy of exchange rate in this study. The proxy data is obtained from the WDI. This study expects exchange rates to have a positive and significant influence on FDI, following most prior studies on the same subject matter.

According to Solow (1957), the positive impact of savings on economic growth only happens for a short-lived time frame during which there is no shifting of capital between the local economy and other countries. Romer (1986) and Lucas (1988) however noted that savings through stimulating investment (domestic and foreign) activities lead to long term economic growth. Consistent with the theory, domestic savings are expected to positively influence FDI. The current study used gross domestic savings (% of GDP) as a measure of domestic savings. The data was collected from the WDI.

Trade openness is a political location advantage of FDI that arises from favourable government policies (Denisia, 2010: 108). Trade openness however exposes a country to external shocks, thus leading to an increase in the demand for financial services that help to manage such risks (Svaleryd and Vlachos, 2002). Following Tsaurai and Odhiambo (2012), the study uses a total of exports and imports as a ratio of GDP to

measure trade openness whose data is extracted from the WDI. Trade openness is expected to have a positive relationship with FDI in line with the eclectic paradigm theory.

Dunning (1977) noted that human capital development is one of the most important locational advantages that influences FDI flows. This was supported by Dunning (1988) who argued that high quality of the labour force and education level attracts FDI into the host countries. According to Craigwell (2012), high human capital development helps domestic companies to easily and quickly take advantage of new technology thereby increasing the FDI linked technology spill overs. The current study expects human capital development to have a positive effect on FDI. The data on human capital development index was extracted from various UNDP reports.

According to Denisia (2010), the state of the infrastructure is a locational advantage of FDI which provides a conducive environment which, not only attracts FDI but enables FDI to influence economic growth in the host country. Availability of good institutional infrastructure helps the host countries to benefit from technological spill overs of FDI and realise economic growth (Wang and Xie, 2009:106). Craigwell (2012) noted that, sufficient and high quality of infrastructure, apart from providing a support framework for new technology from FDI, improves and enhances FDI-domestic firms' linkages. This study expected infrastructure to have a positive influence on FDI. Due to unavailability of data on the infrastructural development index, this study opted for electric consumption (% of GDP) which is a very narrow representation of infrastructural development. The secondary data was obtained from the WDI.

Among these major factors that influence FDI inflow, several studies observed that financial sector development has to reach a certain minimum threshold level before host countries experience significant FDI inflow (Choong, 2012; Sghaier and Abida, 2013; Asong, 2014). It is against this background that the current study investigates minimum threshold levels of financial sector development that influence FDI inflows into emerging markets. The other factors that influence FDI are controlled for in order to gauge the independent partial correlation between FDI and financial sector development.

4.8 ESTIMATION MODEL–A DYNAMIC PANEL THRESHOLD REGRESSION MODEL

According to Verbeek (2004), one of the assumptions that must be met when using OLS is that the error terms and the explanatory variables in a model should be uncorrelated. In other words, endogeneity or simultaneity of the regressors must be absent for the OLS to be the best estimation procedure. In a case in which such an assumption is not met, it is impossible for the OLS estimator to remain consistent or unbiased thereby making the use of an alternative (instrumental variables estimator) a necessity (Verbeek, 2004:125). A GMM estimation approach is an example of the instrumental variables estimator and it is also applicable to non-linear models.

Furthermore, Verbeek (2004) claimed that measurement errors in the regressors, lagged dependent variable and error term and endogeneity of the regressors are some of the conditions which necessitate the use of the instrumental variables technique as an alternative estimator. The current study chose the dynamic panel threshold regression estimation model considering that the relationship between FDI and financial sector development is characterised by endogeneity problem.

This section discusses the model specification technique (dynamic panel threshold regression model) that has been selected to test the hypotheses developed in the introductory chapter. The modified Kremer et al.'s (2013) model was found suitable for this study because of the following reasons: (1) it uses GMM estimation technique which solves the endogeneity problem; (2) it allows the estimation of threshold effects with panel data where endogenous regressors are involved; (3) it employs the forward orthogonal deviations transformation approach developed by Arellano and Bover (1995) to eliminate the country specific fixed effects which are superior to the standard within transformation approach when it comes to managing serial correlation of the transformed error terms and (4) according to Islam (1995) and Folster and Henrekson (2001), it takes into account the variability within countries involved in the study.

Walsh and Yu (2010) observed that estimating a relationship between FDI and GDP per capita, real GDP growth, trade openness, exchange rates, human capital development and other macro- economic variables poses some endogeneity concerns which can be addressed by using GMM dynamic estimator based on Arellano-Bond methodology. Following these concerns by Walsh and Yu (2010), the current study chose Kremer et al.'s (2013) dynamic panel threshold regression technique which built on the cross-sectional threshold model of Caner and Hansen (2004) and employed the GMM estimators that allowed for endogeneity. The strength of the dynamic panel GMM approach, as noted by Arellano and Bond (1991), is that it precisely eliminates the endogeneity caused by the correlation between the time invariant and country specific variables. This further justifies the superiority of the Kremer et al. (2013) panel threshold regression model in dealing with the endogeneity problem.

The general econometric model developed by Kremer et al. (2013) is given by:

$$Y_{it} = \mu_i + \beta_1 x_{it} I(q_{it} \leq \gamma) + \beta_2 x_{it} I(q_{it} > \gamma) + \varepsilon_{it} \quad [12]$$

Where $i = 1, \dots, N$ stands for the country;

$t = 1, \dots, T$ represents time;

Where Y_{it} is the ratio of growth for country i at time t ,

μ_i stands for country specific fixed effect;

ε_{it} represents the error term for country i at time t ;

q_{it} is the threshold variable;

I is the indicator function showing the regime defined by the threshold variable q_{it} ;

γ represents the threshold level;

z_{it} represents a vector of conditional information set of explanatory regressors which include both endogenous and exogenous variables. β_1, β_2 and β_3 are the slope coefficients.

This study used a modified Kremer et al. (2013)'s dynamic panel threshold regression model. The theoretical underpinning of Kremer et al. (2013) model is that there is a maximum level of inflation beyond which economic growth would start to be undermined. This study's focus and theoretical perspective is that there is a minimum threshold level of financial sector development that is conducive to attracting significant FDI. Hence, following Kremer et al. (2013) approach, the modified structural equations in respect with different financial development indicators are as follows:

$$FDI_{it} = \mu_i + \beta_1 FDI_{it-1} + \beta_2 Stock_{it} I(Stock_{it} \geq \gamma) + \delta_i I(Stock_{it} \geq \gamma) + \beta_3 Stock_{it} I(Stock_{it} < \gamma) + \varphi z_{it} + \varepsilon_{it} \quad [13]$$

$$FDI_{it} = \mu_i + \beta_1 FDI_{it-1} + \beta_2 Bank_{it} I(Bank_{it} \geq \gamma) + \delta_i I(Bank_{it} \geq \gamma) + \beta_3 Bank_{it} I(Bank_{it} < \gamma) + \varphi z_{it} + \varepsilon_{it} \quad [14]$$

$$FDI_{it} = \mu_i + \beta_1 FDI_{it-1} + \beta_2 Bond_{it} I(Bond_{it} \geq \gamma) + \delta_i I(Bond_{it} \geq \gamma) + \beta_3 Bond_{it} I(Bond_{it} < \gamma) + \varphi z_{it} + \varepsilon_{it} \quad [15]$$

Where FDI_{it} is the ratio of net FDI inflow over GDP for country i at time t , φz_{it} stands for control variables such as GDP per capita, inflation, human capital development index, exchange rate, domestic savings, trade openness and infrastructural development, μ_i is the specific country fixed effect; γ represents the threshold level, β_1 , β_2 and β_3 are the slope coefficients whilst δ_i stands for the regime intercepts. Z_{it} represents a vector of conditional information set of explanatory regressors which include both endogenous and exogenous variables.

The vector of explanatory variables is further divided into two subsets, namely, Z_{1it} which contains exogenous variables that are not correlated with the error term (ε_{it}) and Z_{2it} which includes the endogenous variables that are correlated with ε_{it} . For the current study, Z_{1it} constitutes all the control variables (GDP per capita, inflation, exchange rates, gross domestic savings, trade openness, human capital development and infrastructural development) and the threshold variables (Stock, Bank or Bond). Z_{2it} is the lag of the dependent variable (FDI_{it-1}) which is the only endogenous variable or endogenous regressor and this study used the GMM estimators to address the endogeneity problem. Following Kremer et al. (2013), the current study treated all control variables and threshold variables as exogenous.

The independent variable $Stock_{it}$ represents stock market development for country i at time t . $Bank_{it}$ stands for banking sector development for country i at time t whilst $Bond_{it}$ represents bond market development for country i at time t . I is the indicator function showing the regime defined by the threshold variable (Stock, Bank or Bond). The error term (ε_{it}) is independently and identically distributed with a mean of zero and a variance which is constant.

The lag of FDI was used as one of the determinants of FDI in line with Walsh and Yu (2010:5), Wheeler and Mody (1992), Barrell and Pain (1999), Krugman (1991), who explained that previous FDI attracts FDI by enabling new investors to mimic tried and tested investment decisions, foreign investors can easily enjoy positive spill over benefits generated by the already established foreign investors in the host country, and providing a signal of a favourable business climate for other foreign investors. It is against this backdrop that the current study uses the lag of FDI as an endogenous regressor in the FDI dynamic panel threshold regression estimation technique.

Over and above the modified structural equations 13, 14 and 15, the adopted Kremer et al. (2013) needs a suitable set of instruments (X_{it}) and exogenous variables which are not correlated with the error term (Z_{1it}). The lags of the dependent variable are used as instruments following Arellano and Bover (1995). For the current study, the lags of the dependent variable are shown as ($FDI_{it-1} \dots \dots \dots FDI_{it-p}$). According to Roodman (2009), using only one lag of the dependent variable ($p=1$) avoids an overfit of instrumental variables that might produce coefficient estimates which are biased. The same study noted that using all the available lags of the dependent variable as instruments ($p=t$) increases the level of efficiency in the model. The current study used only one lag of the dependent variable as instrument in order to eliminate the bias in the estimated coefficients which the author felt was more important than the efficiency of the model.

The regime intercept is represented by δ_i following Bick (2010). Regime intercept in the panel threshold regression model is important in order to interpret and address the bias caused by correlation between any explanatory variable with regressor(s) or dependent variable (Bick, 2010:127). The latter also noted that the exclusion of the regime intercepts causes variable omitting bias and inaccuracy in the estimation of the slope of the regression and the threshold co-efficients.

Consistent with Alfaro, Kalemli-Sebnem and Volosovych. (2008), endogeneity can arise from the possibility that both FDI and financial sector development might be influenced by an omitted third variable. The study included as many control variables as possible in the dynamic panel threshold regression model in order to address such a source of endogeneity as recommended by Alfaro et al. (2008:358).

Following Kremer et al. (2013:864), eliminating the individual country specific fixed effects (μ_i) using fixed effects transformation is the first step in the estimation of the threshold levels. Hansen (1999) used the standard within transformation approach to eliminate the individual country specific fixed effects. The approach has two major shortcomings. Firstly, it results in inaccurate and inconsistent estimates because the lagged dependent

variable remains correlated with the mean of individual and transformed individual errors. Secondly, the first differencing it applies to remove the country specific fixed effects results in negative serial correlation of the individual error term, thus making it impossible for the distribution theory originated by Hansen (1999) to be relevant to panel data.

Kremer et al. (2013:864) noted that the forward orthogonal deviations transformation is superior in the following ways: It subtracts the average of the variable's all future observations, thereby avoiding serial correlation of the transformed error terms. The approach eliminates the country specific fixed effects without disturbing the assumptions raised by Hansen (1999; 2000) and Caner and Hansen (2004). Consistent with Kremer et al. (2013:865), the forward orthogonal deviations transformation methodology allows a cross-sectional model by Caner and Hansen (2004) to be applied to a dynamic panel threshold model set up. It also guarantees that the explanatory variables are uncorrelated with the error term, thereby helping in addressing the endogeneity problem (Matemilola et al. 2016:441).

There are six stages involved in the estimation of the threshold levels. The first stage involves the elimination of individual country specific fixed effects (μ_i) using forward orthogonal deviations transformation approach, whose superiority has been explained in the preceding paragraph. Secondly, the reduced form regression equation for the endogenous variable (Z_{it}) as a function of the instruments (x_{it}) is estimated, following Caner and Hansen (2004). The reduced form regression equation is a model of the conditional expectation of Z_i given X_i and appears as follows, consistent with Caner and Hansen (2004:816).

$$Z_i = g(x_i, \pi) + \mu_i, \quad [16]$$

$$E(\mu_i | x_i) = 0 \quad [17]$$

Where π is a $p \times 1$ parameter vector, μ_i is a $m \times 1$ vector and $g(\cdot, \cdot)$ maps $R^k \times R^p \times R^m$

Thirdly, the endogenous variables (Z_{2it}) are replaced in the respective structural equations 13, 14 and 15 by their predicted endogenous values (\hat{Z}_{2it}), consistent with Kremer et al.'s (2013:865).

Fourthly, this study then estimated the model using ordinary least squares for a fixed threshold γ where the endogenous variables (Z_{2it}) are then replaced by their predicted values from the third stage of the estimation process. The sum of squared residuals represented by $S(\gamma)$ result from the fourth stage. The fourth stage is repeated for a strict subset of the threshold variable (Stock, Bank or Bond). The fifth stage involves the estimator of the threshold value γ denoted by ($\hat{\gamma}$) being chosen as the one with the smallest sum of the squared residuals $S(\gamma)$. Once the threshold value γ has been estimated, the sixth and final stage involve the precise slope coefficients being estimated using generalised method of moment (GMM).

According to Hansen (1999) and Caner and Hansen (2004), the 95% confidence interval of the threshold variable is specified by the following critical values:

$$r = \{\gamma: LR(\gamma) \leq C(\alpha)\} \quad [18]$$

Where $C(\alpha)$ represents the 95% percentile of the asymptotic distribution of the likelihood ratio static $LR(\gamma)$.

4.9 ROBUSTNESS CHECKS.

After allowing the data to be subjected to a dynamic panel threshold regression model with GMM analysis, the results are compared with those from the static panel threshold regression estimation technique by Bick (2010) which used the OLS estimation technique.

The static panel threshold regression model which ignored the regime intercepts was originally developed by Hansen (1999) – see equation below.

$$y_{it} = \mu_i + \beta_{11} x_{it} I(q_{it} \leq \gamma) + \beta_{21} x_{it} I(q_{it} > \gamma) + \varepsilon_{it} \quad [19]$$

The theoretical underpinning of Hansen (1999) model is that there is a maximum level of financial constraints beyond which investment begins to be affected. Following Hansen (1999) methodology, the modified structural equations in respect to the relationship between different financial development indicators and FDI for the current study appears as follows:

$$FDI_{it} = \mu_i + \beta_1 \text{Stock}_{it} I(\text{Stock}_{it} \geq \gamma) + \beta_2 \text{Stock}_{it} I(\text{Stock}_{it} < \gamma) + \varphi z_{it} + \varepsilon_{it} \quad [20]$$

$$FDI_{it} = \mu_i + \beta_1 \text{Bank}_{it} I(\text{Bank}_{it} \geq \gamma) + \beta_2 \text{Bank}_{it} I(\text{Bank}_{it} < \gamma) + \varphi z_{it} + \varepsilon_{it} \quad [21]$$

$$FDI_{it} = \mu_i + \beta_1 \text{Bond}_{it} I(\text{Bond}_{it} \geq \gamma) + \beta_2 \text{Bond}_{it} I(\text{Bond}_{it} < \gamma) + \varphi z_{it} + \varepsilon_{it} \quad [22]$$

The exclusion of regime intercepts by Hansen's (1999) static panel threshold regression estimation technique is problematic as already been explained earlier on in this thesis by Bick (2010). The modified static panel threshold model regression equations would, after factoring in Bick's (2010) input and the theoretical grounding of the current study, appear as follows:

$$FDI_{it} = \mu_i + \beta_1 \text{Stock}_{it} I(\text{Stock}_{it} \geq \gamma) + \delta_i I(\text{Stock}_{it} \geq \gamma) + \beta_2 \text{Stock}_{it} I(\text{Stock}_{it} < \gamma) + \varphi z_{it} + \varepsilon_{it} \quad [23]$$

$$FDI_{it} = \mu_i + \beta_1 \text{Bank}_{it} I(\text{Bank}_{it} \geq \gamma) + \delta_i I(\text{Bank}_{it} \geq \gamma) + \beta_2 \text{Bank}_{it} I(\text{Bank}_{it} < \gamma) + \varphi z_{it} + \varepsilon_{it} \quad [24]$$

$$FDI_{it} = \mu_i + \beta_1 \text{Bond}_{it} I(\text{Bond}_{it} \geq \gamma) + \delta_i I(\text{Bond}_{it} \geq \gamma) + \beta_2 \text{Bond}_{it} I(\text{Bond}_{it} < \gamma) + \varphi z_{it} + \varepsilon_{it} \quad [25]$$

Following Drukker, Gromis and Hernandez. (2005), the modified Bick (2010) static panel threshold regression estimation technique used for robustness test in this study treated both threshold and control variables as exogenous and attempted to avoid endogeneity by excluding the endogenous regressor. Table 7 shows a comparison between the dynamic and the Bick (2010) static panel threshold regression model.

	Dynamic panel threshold regression model with GMM	Static panel threshold regression model (Bick, 2010)
Individual country fixed effects elimination approach	Forward orthogonal deviations transformation	Standard within transformation
Endogenous regressor	Included an endogenous regressor (lag of the dependent variable).	No endogenous regressor in the model.
Estimation approach and endogeneity	GMM estimators used allowed for endogeneity	OLS not the best for models with potential endogeneity
Treatment of the threshold variables	Endogenous threshold variables	Exogenous threshold variables
Regime intercept	Regime intercept included	Regime intercept included
Instruments	One lag of the dependent variable is used as instrument	One lag of the dependent variable is used as instrument
Beta estimates	Three Beta coefficients are estimated. The other one is for the lag of the dependent variable.	Two Beta coefficients are estimated

Source: Author's compilation

The current study compares the results of the dynamic against those of the static panel threshold regression estimation technique. Following Kremer et al. (2013), the results from the dynamic panel threshold model are expected to be superior to the static panel threshold regression model in a number of ways: (1) it takes into account and estimates the co-efficient of initial FDI (endogenous regressor), thereby reducing bias and errors (root mean square errors), (2) it addresses the endogeneity of the initial FDI using GMM estimation technique further improving the reliability of the results through reducing bias and (3) the estimation of the slope co-efficients (β_1 , β_2 and β_3) are more accurate and precise using GMM as compared to OLS. No previous empirical studies on the relationship between FDI and financial sector development have so far used either the dynamic or the static panel threshold regression model to the best of the researcher's

knowledge, let alone carry out a comparison between the two panel threshold regression models.

4.10 CHAPTER CONCLUSION

The chapter has dealt with four major methodological issues in this study. Firstly, various measures of financial sector development and FDI have been discussed. The chapter also acknowledges that the selection of the best proxy or proxies of stock market, banking sector, bond market and FDI is a challenge in empirical studies of this nature. The author identified these different proxies, discussed, critiqued and compared them against each other before choosing the ones that are used for the purposes of this study. Secondly, the endogeneity problem that is imbedded in the relationship between FDI and financial sector development has been described and explained. Different ways used by empirical theorists to address the endogeneity problem have also been explored. Thirdly, the evolution of threshold regression models was discussed. Fourthly, the different threshold regression models that have been used in previous FDI-financial development nexus were critiqued and evaluated.

A suitable econometric approach and research design to test the hypotheses formulated in the introduction chapter in light of these methodological issues was then developed. The chapter has justified the selection of the dynamic panel threshold regression model used to address the objectives and hypotheses of this study. In summary, the estimation technique chosen for the current study is able to help the researcher draw necessary findings and conclusions pertaining to impact of financial sector development minimum threshold levels on FDI inflows in emerging markets.

Previous empirical studies and the nature of the current study also played an instrumental part in as far as selecting the estimation technique for use in this study is concerned. Apart from dealing with the problems associated with the choice of data sources and sample size, the chapter also highlighted the main variables that formed part of the panel threshold regression equations defining the relationship between FDI and financial sector development in emerging markets.

The next chapter tests the hypotheses developed in the introductory chapter using the estimation techniques discussed in this chapter. The empirical results are then discussed in line with the theory, findings from previous similar empirical work and conjectures developed in the introductory chapter.

CHAPTER 5 ESTIMATION AND EMPIRICAL RESULTS

5.1 CHAPTER INTRODUCTION

The preceding chapter developed an econometric estimation technique relevant in addressing the research problem and objectives of the current study as spelt out in the introductory chapter. This chapter reports, discusses and interprets the results generated by the selected econometric estimation technique in line with the purpose of the study. Validation and robustness checks of the data are done in cases where it is necessary in this chapter. Pre-estimation diagnostics was done in order to understand the nature and character of data being used prior to the main data analysis. The rest of this chapter is organised as follows: Section 5.2 discusses the pre-estimation diagnostics results. These include descriptive statistics and cross- correlation analysis of the main variables used in the study. Section 5.3 covers endogeneity tests whilst section 5.4 reports the estimated empirical results generated by the dynamic panel threshold regression estimation technique. Section 5.5 presents the robust test results generated by the static panel threshold regression estimation procedure and finally, section 5.6 provides a summary of the chapter.

5.2 PRE-ESTIMATION DIAGNOSTICS

Two types of pre-estimation diagnostics, namely, the descriptive statistics and correlation analysis were done for the current study using both the E-views and Stata software packages. These software packages were chosen for the pre-estimation diagnostics because they are not complicated to use and can be used without any programming having to be done, consistent with Rykov et al. (2010:369).

5.2.1 Descriptive Statistics

This involved reducing the data into four descriptive statistics such as mean, standard deviation, minimum and maximum. The mean of all the main variables by country and the overall mean of the key variables is presented in detail in Table 8.

Table 8: Descriptive Statistics (Mean) of Key variables by Country (1994 -2014)								
	FDI	TURN	VTRD	MCAP	DCRED	DCFS	DPRDS	DPBDS
Argentina	2.34	34.86	5.43	15.40	15.48	31.94	4.43	13.43
Brazil	2.72	55.78	23.93	44.03	42.87	79.68	16.87	44.85
China	3.85	160.86	60.71	39.42	113.19	128.30	16.68	11.05
Colombia	3.33	11.23	4.50	32.33	35.43	49.55	0.47	18.07
Czech Republic	4.76	48.06	10.32	19.00	45.51	56.39	7.93	20.55
Greece	0.74	54.12	24.73	44.97	74.46	105.48	11.81	58.86
Hong Kong	20.63	54.01	342.78	628.51	163.10	157.91	15.30	16.10
Indonesia	1.62	37.66	11.02	32.29	33.36	47.85	3.65	11.64
India	1.29	102.44	42.71	56.20	36.80	59.03	1.94	10.35
Mexico	2.61	29.46	8.33	28.98	21.21	37.24	10.92	15.35
Malaysia	3.65	29.02	41.63	154.99	121.35	132.99	45.66	35.71
Peru	4.32	14.59	3.83	34.82	24.13	19.93	10.84	3.11
Philippines	1.56	22.77	12.88	57.38	35.39	54.77	1.20	30.93
Poland	3.32	47.69	8.99	23.15	31.85	46.48	0.95	19.24
Portugal	3.35	59.41	22.06	34.95	135.61	143.14	36.43	37.59
Republic of Korea	0.89	179.16	100.92	60.94	104.66	114.80	54.89	22.65
Russia	2.05	37.92	22.22	40.34	28.23	31.89	3.08	4.42
Thailand	3.01	72.36	43.90	61.39	119.93	137.49	22.88	16.78
Turkey	1.32	148.30	37.49	27.07	31.04	50.42	0.38	24.19
Singapore	16.00	54.39	101.59	194.42	100.87	79.13	14.23	30.19
South Africa	1.54	23.93	47.67	197.16	133.48	164.40	15.71	34.33
Overall Mean	4.04	60.86	46.55	87.04	68.95	82.32	14.11	22.83

Source: E-views

Where TURN stands for stock market turnover ratio, VTRD represents stock market value traded ratio, MCAP is stock market capitalisation, DCRED stands for domestic credit to private sector ratio, DCFS is domestic credit provided by financial sector ratio, DPRDS stands for outstanding domestic private debt securities whilst DPBDS represents outstanding domestic public debt securities ratio.

Czech Republic, Hong Kong, Peru and Singapore have mean FDI above the overall mean of 4.04% of GDP. Although the other seventeen countries have a mean FDI below the

overall mean, Greece and the Republic of Korea stand out as the lowest in terms of mean FDI. Hong Kong and Singapore are clear outliers in terms of mean net FDI received during the period under study. China, India, Republic of Korea, Thailand and Turkey have the highest mean stock market turnover ratio (above the overall mean of 60.86% of stock market capitalisation) whilst Colombia and Peru recorded the lowest mean (below the overall mean) during the period under study. Clearly, the four countries, China, India, Republic of Korea and Turkey, constitute the outliers.

Four countries whose mean stock market value traded ratios exceeded the overall mean of 46.55% of GDP include China, Hong Kong, Republic of Korea and Singapore, whilst Argentina, Colombia, Mexico, Peru and Poland have the lowest mean stock market value traded ratios (below the overall mean) during the period under study. Republic of Korea and Singapore constitute the outliers in terms of the mean stock market value traded ratios. On stock market capitalisation ratio, Hong Kong, Malaysia, Singapore and South Africa recorded the highest mean (above the overall mean of 87.04% of GDP). The same countries are outliers considering the size of their mean stock market capitalisation ratio which are well above the overall mean. Argentina and Czech Republic are the two countries with the lowest mean stock market capitalisation ratios which were below the overall mean of 87.04% of GDP and also below 20% of GDP.

The mean domestic private credit by banks ratios in nine countries, which include, China, Greece, Hong Kong, Malaysia, Portugal, Republic of Korea, Thailand, Singapore and South Africa were above the overall mean of 68.95% of GDP. The size of the mean domestic private credit by banks ratios of all these countries except Greece in comparison to the overall mean shows that they are outliers. On mean domestic credit by financial sector ratios, China, Greece, Hong Kong, Malaysia, Portugal, Republic of Korea, Thailand and South Africa were above the overall mean of 82.32% of GDP. Countries whose mean domestic credits by financial sector ratios were the smallest, below the overall mean, are Peru (19.93% of GDP), Argentina (31.94% of GDP), Russia (31.89% of GDP) and Mexico (37.24% of GDP). Peru, South Africa, Hong Kong constitutes the outliers in as far as mean domestic credit by financial sector ratios is concerned.

Brazil, China, Hong Kong, Malaysia, Portugal, Republic of Korea, Thailand, Singapore and South Africa have mean outstanding domestic private debt securities above the overall mean of 14.11% of GDP. Colombia, India, Philippines, Poland and Turkey have the lowest mean outstanding domestic private debt securities ratios below the overall mean. Malaysia and the Republic of Korea are clearly the outliers. The mean outstanding domestic public debt securities which is above the overall mean of 22.83% of GDP include that of Brazil, Greece, Malaysia, Philippines, Portugal, Turkey, Singapore and South Africa.

Overall, the mean values show an uneven pattern of FDI inflows and financial sector development among emerging markets. The Czech Republic, Hong Kong, Peru and Singapore attract high FDI inflows than their peers while Greece and Republic of Korea attract the least. With regard to financial sector development, there is a mixed pattern depending on which indicator is being measured. However, in terms of the size of stock markets, Hong Kong, Malaysia, Singapore and South Africa fare much better than their peers.

Argentina, Mexico, Peru and Russia fared much worse than their counterparts in terms of banking sector development. South Africa, Singapore, Thailand, Republic of Korea, Portugal, Malaysia, Hong Kong and China performed better than their peers in terms of banking sector development. Colombia, Poland and Turkey were characterised by the lowest private bond sector development whilst Malaysia, Republic of Korea and Portugal performed much better than their counterparts in this category. On public bond sector development, Greece, Brazil and Portugal were the highest whilst Peru, Russia and China fared much worse than their peers.

The standard deviation, minimum and maximum, was each further broken down into three categories which are the overall, between and within as shown in Table 9.

Table 9: Descriptive Statistics of Panel Data between 1994 and 2014 using Stata

Variable		Mean	Standard deviation	Minimum	Maximum	Observations
FDI	Overall	4.04	5.76	0.03	39.87	N = 441
	Between		4.93	0.74	20.63	n = 21
	Within		3.15	-12.29	23.28	T = 21
Turnover ratio	Overall	60.86	58.08	2.39	407.88	N = 441
	Between		47.52	11.23	179.16	n = 21
	Within		34.90	-32.45	332.04	T = 21
Value traded ratio	Overall	46.55	92.15	0.07	952.67	N = 441
	Between		73.52	3.83	342.78	n = 21
	Within		57.72	-230.14	656.45	T = 21
Market capitalization ratio	Overall	87.04	157.83	0.04	1254.47	N = 441
	Between		135.08	15.39	628.51	n = 21
	Within		86.57	-343.03	713.00	T = 21
Domestic private credit by banks	Overall	68.95	50.24	8.33	233.66	N = 441
	Between		47.17	15.49	163.10	n = 21
	Within		20.02	-10.05	139.51	T = 21
Domestic credit by fin. sector	Overall	82.32	49.68	10.81	236.45	N = 441
	Between		46.38	19.93	164.40	n = 21
	Within		20.35	13.94	160.86	T = 21
Outstanding domestic private debt	Overall	14.11	17.35	0.01	84.68	N = 441
	Between		15.01	0.38	54.89	n = 21
	Within		9.28	-13.48	62.36	T = 21
Outstanding domestic public debt	Overall	22.83	15.82	0.09	68.98	N = 441
	Between		13.85	3.11	58.86	n = 21
	Within		8.21	-13.89	49.38	T = 21

Source: StataIC 14.

The overall minimum net FDI inflow ratio for all the countries under study is 0.03% of GDP which coincides with Greece in 2002 whilst the overall maximum net FDI inflow ratio for all countries coincides with Hong Kong in 2014 at 39.87% of GDP. The minimum mean of net FDI inflow ratio between countries is 0.74% of GDP (Greece) whilst the maximum mean of net FDI ratio between countries is 20.63% of GDP (Hong Kong). Overall minimum stock market turnover ratio for the countries under study is 2.39% of stock market capitalisation which matches Mexico in 1999, whilst the overall maximum stock market turnover ratio for all countries is 407.88% of stock market capitalisation which coincides with Republic of Korea in 1997. The minimum mean of stock market turnover ratio between countries is 11.23% of stock market capitalisation (Colombia) whereas the

maximum mean of stock market turnover ratio between countries is 179.16% of stock market capitalisation (Republic of Korea).

Russia in 1994 had the overall minimum stock market value traded ratio of 0.07% of GDP in comparison to other countries whilst the overall maximum stock market value traded ratio for all countries is 952.67% of GDP which coincides with Hong Kong in 2007. The minimum mean of stock market value traded ratio between countries is 3.83% of GDP (Peru), whilst the maximum mean of stock market value traded ratio between countries is 342.78% of GDP (Hong Kong). Overall minimum stock market capitalisation ratio for the countries under study is 0.04% of GDP which coincides with Russia in year 1994 whilst the overall maximum stock market capitalisation ratio for all countries is 1254.47% of GDP which corresponds with Hong Kong in 2007. The minimum mean of stock market capitalisation ratio between countries is 15.39% of GDP (Argentina) whilst the maximum mean of stock market capitalisation ratio between countries is 628.51% of GDP (Hong Kong).

Overall minimum domestic private credit by banks ratio for the countries under study is 8.33% of GDP which coincides with Russia in 1996 whilst the overall maximum domestic private credit by banks ratio for all countries is 233.66% of GDP, which corresponds with Hong Kong in 2014. The minimum mean of domestic private credit by banks ratio between countries is 15.49% of GDP (Argentina) whilst the maximum mean of domestic private credit by banks ratio between countries is 163.10% of GDP (Hong Kong).

Overall minimum domestic credit by financial sector ratio for the countries under study is 10.81% of GDP which corresponds with Peru in year 1994 whilst the overall maximum domestic credit by financial sector ratio for all countries is 236.45% of GDP which coincides with Hong Kong in 2014. The minimum mean of domestic credit by financial sector ratio between countries is 19.93% of GDP (Peru) whilst the maximum mean of domestic credit by financial sector ratio between countries is 164.40% of GDP (South Africa).

The overall minimum outstanding domestic private debt securities ratio for the countries under study is 0.01% of GDP which coincides with Turkey in the years 1999, 2000, 2003, 2005 and 2006, whilst the overall maximum outstanding domestic private debt securities ratio for all countries is 84.68% of GDP, which matches with Portugal in 2014. The minimum mean of outstanding domestic private debt securities ratio between countries is 0.38% of GDP (Turkey) whereas the maximum mean of outstanding domestic private debt securities ratio between countries is 54.89% of GDP (Republic of Korea).

Overall minimum outstanding domestic public debt securities ratio for the countries under study is 0.09% of GDP which corresponds with Indonesia in 1994 whilst the overall maximum outstanding domestic public debt securities ratio for all countries is 68.98% of GDP which coincides with Greece in 1998. The maximum mean of outstanding domestic public debt securities ratio between countries is 58.86% of GDP (Greece) whereas the minimum mean of the same variable between countries is 3.11% of GDP (Peru). The lowest mean outstanding domestic public debt securities below the overall mean is recorded for Peru (3.11% of GDP) and Russia (4.42% of GDP). Clearly, Greece is an outlier in terms of the mean outstanding domestic public debt securities.

Table 10 shows the standard deviation of the key variables for each country and the overall standard deviation for each and every main variable used in the current study.

Table 10: Standard deviation of Key variables by Country between 1994 and 2014

	FDI	TURN	VTRD	MCAP	DCRED	DCFS	DPRD S	DPBDS
Argentina	1.56	66.92	9.73	5.32	5.24	9.86	2.86	6.63
Brazil	1.22	19.35	11.28	20.14	13.62	14.77	9.19	16.39
China	0.89	66.12	49.58	26.70	15.67	22.83	11.61	4.88
Colombia	1.41	6.56	3.14	20.92	8.87	13.05	0.18	7.43
Czech Republic	2.74	19.74	5.61	6.00	13.30	10.66	3.65	5.02
Greece	0.48	26.51	28.27	32.31	36.44	25.65	16.25	6.83
Hong Kong	12.19	22.81	251.63	385.32	28.04	33.69	3.27	13.23
Indonesia	0.86	15.99	4.09	12.38	13.31	8.71	1.34	7.40
India	0.82	68.22	24.39	30.97	11.61	11.92	1.70	10.78
Mexico	0.60	7.39	2.65	9.56	5.64	6.93	5.57	7.32
Malaysia	1.47	10.77	14.54	51.61	18.00	15.67	12.44	6.76
Peru	1.55	12.64	2.21	16.46	5.12	4.82	2.13	2.18
Philippines	0.77	13.13	7.93	25.21	7.20	7.69	1.60	4.31
Poland	1.48	33.28	5.19	13.88	14.16	14.32	1.08	8.70
Portugal	2.43	22.61	13.46	12.14	45.70	43.03	24.36	8.44
Republic of Korea	0.46	73.66	48.74	28.93	36.82	43.96	11.72	7.60
Russia	1.27	21.15	25.75	30.71	16.20	9.14	2.18	2.82
Thailand	1.47	21.39	22.09	25.85	23.41	21.12	20.22	8.99
Turkey	1.04	47.36	12.53	10.29	18.86	18.69	0.63	10.65
Singapore	5.79	15.39	34.44	59.62	13.09	17.23	4.74	10.11
South Africa	1.38	8.95	21.99	50.07	16.20	21.04	3.54	6.34
Overall S. deviation	5.76	58.08	92.15	157.83	50.24	49.68	17.35	15.82

Source: E-views

Only Hong Kong and Singapore have a standard deviation from the mean net FDI ratio above the overall standard deviation of 5.76%. Countries with the lowest standard deviation below the overall standard deviation include China (0.89%), Greece (0.48%), Indonesia (0.86%), India (0.82%), Mexico (0.60%) and Philippines (0.77%). Hong Kong is an outlier in terms of the standard deviation from the mean net FDI received. Argentina, China, India and the Republic of Korea have a standard deviation from the mean stock market turnover above the overall standard deviation of 58.08%. Countries with the lowest standard deviation from the mean stock market turnover and below 10% are Colombia (6.56%), Mexico (7.39%) and South Africa (8.95%). These same counties are also outliers in terms of the mean stock market turnover.

Only Hong Kong has a standard deviation from the mean stock market value traded ratio which is above the overall standard deviation of 92.15%. Colombia (3.14%), Indonesia (4.09%), Mexico (2.65%) and Peru (2.21%) have the lowest standard deviation from the mean stock market value traded ratio below the overall standard deviation of 92.15%. Hong Kong is an outlier in terms of the standard deviation from the mean stock market value traded ratios. Moreover, it is only Hong Kong that has a standard deviation of 385.32% which is above the overall standard deviation from the mean stock market capitalisation ratio of 157.83%. Hong Kong is an outlier in this case. Argentina and Czech Republic have the lowest standard deviation below the overall standard deviation from the mean stock market capitalisation ratio of 157.83%.

No single country has a standard deviation from both the mean domestic private credit by banks and financial sector credit ratios that is above the overall standard deviation of 50.24% and 49.68% respectively. Argentina, Colombia, Czech Republic, Indonesia, India, Mexico, Peru and Philippines are the eight countries whose standard deviation from both the mean domestic private credit by banks and financial sector credit ratios were the lowest from the overall standard deviation of 50.24% and 49.68% respectively.

Portugal is the only country whose standard deviation from the mean outstanding domestic private debt securities is above the overall standard deviation of 17.35%. Colombia (0.18%) and Turkey (0.63%) have the lowest standard deviation from the mean outstanding domestic private debt securities which is below the overall standard deviation. On the other hand, Brazil is the only country whose standard deviation from the mean outstanding domestic public debt securities is above the overall standard deviation of 15.82%. Countries whose standard deviation from the mean domestic public debt securities were the lowest below the overall standard deviation are China (4.88%), Peru (2.18%), Philippines (4.31%) and Russia (2.82%).

All the data was transformed into natural logarithms in order to ensure that outliers and high standard deviations do not lead to bias, inconsistency and misleading results. The

transformation of data into natural logarithms before using it for data analysis helps to achieve normality of some of the abnormal data values or outliers (Hair Jr. Black, Babin and Anderson. (2014:80). Following Nobakht and Madani (2014a), the use of logarithm values of all variables included in the model also effectively dealt with auto-correlation bias.

Hair et al. (2014) observed that the problem of missing data, if left unresolved, reduces the size of the sample that is available for analysis and can lead to biased and inaccurate results. Some of the missing values from the main sources of data (World Bank and IMF) were obtained from other websites whilst other missing data values were estimated in cases where data of the components of that variable were available.

5.2.2 Correlation analysis

After describing the mean, standard deviation, minimum and maximum of the data, the study established the direction and the nature of the association between the main variables using the correlation matrix, results of which are shown in Table 11. A priori, the relationship between FDI and financial sector development is linear and significant. This implies that: (1) an increase in financial sector development will directly result in a linear increase in FDI or FDI's influence on economic growth and (2) an increase in FDI is also expected to positively impact financial sector development.

	FDI	TURN	VTRD	MCAP	DCRED	DCFS	DPRDS	DPBDS
FDI	1.000							
TURN	-0.0605	1.000						
VTRD	0.7406	0.1907	1.000					
MCAP	0.7859**	-0.0655	0.8933	1.000				
DCRED	0.3996	0.1564	0.4926	0.5331*	1.000			
DCFS	0.2570*	0.1568*	0.4239**	0.4706	0.9537	1.000		
DPRDS	0.0337	0.2261	0.1872	0.1198	0.6124	0.6034	1.000	
DPBDS	0.0148**	-0.0921	0.0408	0.1123	0.2749	0.4104	0.3288	1.000

Source: Stata | C 14.

*/**/** indicate 10%/5%/1% respectively

Results in Table 11 show the positive correlation between (1) FDI and stock market value traded, (2) FDI and stock market capitalisation, (3) FDI and banking sector development variables and (4) FDI and bond market development variables. Stock market value traded and capitalisation are highly correlated to FDI indicating that countries having highly developed stock markets are better able to attract significant FDI inflows and vice versa. A negative correlation was observed between FDI and stock market turnover meaning that highly liquid stock markets facilitate significant FDI outflows more than inflows. Stock market capitalisation and outstanding domestic public debt securities were both found to be correlated negatively with stock market turnover, suggesting that an increase in stock market capitalisation and outstanding domestic public debt securities would lead to a decline in stock market turnover. However, this is in view of the fact that all other pertinent factors remain constant.

The results in Table 11 also support a positive correlation between (1) stock market turnover and stock market value traded (2) stock market turnover and domestic private credit by banks, (3) stock market turnover and financial sector credit and (4) stock market turnover and outstanding domestic private debt securities. As expected, stock market value traded is positively correlated with stock market capitalisation, domestic private credit by banks, financial sector credit and outstanding domestic private and public debt securities.

Outstanding domestic public debt securities is negatively correlated with stock market turnover, indicating that portfolio investors prefer to move their investments either from public bond market to the stock market or from the stock market to the bond market depending on which one is performing better than the other.

Moreover, stock market capitalisation was found to be positively correlated with domestic private credit by banks, financial sector credit and outstanding domestic private and public debt securities. Domestic private credit by banks was also found to be correlated positively with financial sector credit and outstanding domestic private and public debt securities whilst outstanding domestic private debt securities was also positively

correlated with outstanding domestic public debt securities. The results also show that financial sector credit was positively correlated with both outstanding domestic private and public debt securities. The correlation analysis results are in line with theoretical predictions. All the correlations between variables shown in Table 11 are below 80% save for the correlation between stock market capitalisation and stock market value traded and that between domestic credit provided by the financial sector and domestic credit by banks to the private sector. This shows that the problem of multi-collinearity might not exist between and among most variables used for the current study. Needless to say, this is consistent with Stead's (1996) observation.

The presence of correlation between FDI and financial sector development paved the way for further analysis such as the dynamic and static panel threshold regression analysis which served to determine among other things, the threshold level of financial sector development which must be exceeded to trigger significant FDI inflows into emerging markets.

5.3 ENDOGENEITY TESTS

In the dynamic panel threshold regression estimation technique used for the current study, the lag of the dependent variable (lag of FDI) is an endogenous regressor and as such suffers from endogeneity. The ability to manage the endogeneity problem emanating from the endogenous regressor (lag of FDI) is the main reason why the current study chose the dynamic panel threshold regression estimation technique by Kremer et al. (2013).

There are two methods that the current study used to test the existence of endogeneity problem in the relationship between FDI and financial sector development in emerging markets. These methods are the Hausman endogeneity test and the regressor endogeneity test (also known as Durbin-Wu-Hausman test).

5.3.1 Hausman endogeneity test

The Hausman endogeneity test is used to determine whether or not one of the explanatory variables in a regression model suffers from endogeneity. It tests the least

squares versus the instrumental variable (IV) estimators. The test used the first lag of each potential endogenous regressor as an instrument which is in line with Wooldridge's (2009) findings.

The null and alternative hypothesis are presented as follows:

H_0 : Co-efficient of the residual is non-significant and therefore there is no endogeneity.

H_A : Co-efficient of the residual is significant and therefore there is endogeneity.

The Hausman (1978) test is implemented in two stages which means that the two regressions must be estimated. The first stage regresses the potential endogenous regressor on its instrument(s) and the rest of the other exogenous variables. The second stage regresses the left hand variable (FDI) on the potential endogenous regressor, the other exogenous (control variables) and the residual from the first stage. If the coefficient of the residual is significant, the null hypothesis is rejected which means the regressor thought may be endogenous is truly endogenous. If the null hypothesis cannot be rejected, that its coefficient of the residual is not significant, then that regressor is exogenous. According to the Hausman test, results shown on Table 12 in the Appendice section, H_0 is not rejected for all seven models, meaning that none of the explanatory variables in the regression equations suffers from endogeneity.

For robustness checks, the study also tested to see if the coefficient of the residual is truly zero or not using Wald test. Using Wald test consistent with Windmeijer (2005), the study tested to see if the coefficient of the residual were not biased. The results showed that the co-efficients (estimators) of the model were not biased.

5.3.2 Regressor endogeneity test

The regressor endogeneity test shows whether or not the regressor in the model is endogenous or not. Following Wooldridge (2009), the regressor endogeneity test used the first lag of each potential endogenous regressor as an instrument. It is superior to the Hausman test in that it shows the regressors which cause endogeneity in the model.

Table 13 in the Appendices section presents the results for the regressor endogeneity test.

In summary, Hausman test results indicate that none of the explanatory variables in all the regression models suffers from endogeneity. The regressor endogeneity test showed that the main variables used in this study are exogenous or they do not suffer from endogeneity. It is against this backdrop that the threshold variables were treated as exogenous and also the reason why the lag of the dependent variable (FDI) was treated as the only source of endogeneity in the current study, in line with Kremer et al. (2016).

5.4 MAIN ESTIMATION TECHNIQUE - DYNAMIC PANEL THRESHOLD REGRESSION ANALYSIS

Consistent with Kremer et al. (2013), the current study logged all the data variables used in the study to do away with the distortion on panel threshold regression results caused by extreme observations. The logged and clean data was then transferred from the Microsoft Excel spread sheets into Matlab and Gauss softwares where all the panel threshold regression data analysis was carried out. Table 14 shows the results of the dynamic panel threshold regression approach which is the main estimation technique for the current study. Following Caner and Hansen (2004:823), all the threshold levels in Table 14 are significant because $\beta_2 \neq \beta_3$.

Table 14: Dynamic panel threshold regression model results						
	Model 1:FDI= f(turn, initial, controls)			Model 2:FDI= f(vtrad, initial, controls)		
Thresh. Est.	41.27%. C.I.[7.77%-126.47%]			53.55%. C.I.[7.77%-90.02%]		
	Coefficient	Std. error	T statistic	Coefficient	Std. error	T statistic
β_1 -Initial	0.1823*	0.0985	1.8508	0.2685***	0.0867	3.0969
β_2	0.2136**	0.1021	2.0921	0.6502***	0.1023	6.3558
β_3	0.2058*	0.1154	1.7834	0.1827***	0.0522	3.5000
δ_i	1.2152*	0.6419	1.8931	1.3493***	0.4531	2.9779
GROWTH	0.2566**	0.1155	2.2216	0.1775	0.1127	1.5750
INFLATION	-0.0092	0.0430	-0.2140	0.0071	0.0431	0.1647
EXCHANGE	0.1722**	0.0823	2.0923	0.1603**	0.0790	2.0291
SAVINGS	0.0898	0.2826	0.3178	0.0467	0.2909	0.1605
TRADE	0.3600	0.2335	1.5418	0.1278	0.2219	0.5759
HCD	0.1142	0.5613	0.2035	-0.2234	0.5622	-0.3974
INFR	-0.2996	0.2367	-1.2657	-0.3409	0.2345	-1.4537
	Model 3:FDI= f(mcap, initial, controls)			Model 4:FDI= f(pcred, initial, controls)		
Thresh. Est.	121.53%. C.I.[68.03%-160.77%]			114.43%. C.I.[29.96%-138.38%]		
	Coefficient	Std. error	T statistic	Coefficient	Std. error	T statistic
β_1 -Initial	0.4063***	0.0820	4.9549	0.3182***	0.0851	3.7391
β_2	1.0578***	0.1611	6.5661	1.9994***	0.5467	3.6572
β_3	0.1459**	0.0711	2.0520	0.2761**	0.1395	1.9792
δ_i	1.3482***	0.4394	3.0683	1.0934**	0.4391	2.4901
GROWTH	0.0758	0.1085	0.6986	0.0608	0.1409	0.4315
INFLATION	-0.0049	0.0450	-0.1089	-0.0237	0.0442	-0.5362
EXCHANGE	0.0953	0.0779	1.2234	0.1065	0.0787	1.3532
SAVINGS	0.1340	0.3008	0.4455	0.3293	0.2849	1.1558
TRADE	-0.1095	0.2346	-0.4668	0.0200	0.2221	0.0901
HCD	-0.1269	0.5942	-0.2136	0.2423	0.5724	0.4233
INFR	-0.1031	0.2126	-0.4849	-0.0894	0.2477	-0.3609

Table 14 continued						
	Model 5:FDI= f(fcred, initial, controls)			Model 6:FDI= f(bondpriv, initial, controls)		
Thresh. Est.	144.06%. C.I.[126.47%-151.41]			0.22%. C.I.[0.21%-35.87%]		
	Coefficient	Std. error	T statistic	Coefficient	Std. error	T statistic
β_1 -Initial	0.42858***	0.0811	5.2836	0.2613***	0.0855	3.0561
β_2	3.9125***	0.8579	4.5606	0.2261*	0.1249	1.8102
β_3	-0.0041	0.1494	-0.0274	0.0115	0.0723	0.1591
δ_i	1.7358*	1.0035	1.7297	0.0213	0.1256	0.1696
GROWTH	0.1107	0.1249	0.8863	0.3156***	0.1164	2.7113
INFLATION	-0.0348	0.0442	-0.7873	-0.0253	0.0426	-0.5939
EXCHANGE	0.0762	0.0821	0.9281	0.1287	0.0800	1.6088
SAVINGS	0.3808	0.3153	1.2077	0.1642	0.2617	0.6274
TRADE	0.0056	0.2300	0.0243	0.2864	0.2259	1.2678
HCD	0.2679	0.5792	0.4625	0.0843	0.5673	0.1486
INFR	-0.1073	0.2358	-0.4551	-0.4502	0.2398	-1.8774
	Model 7:FDI= f(bondpub,initial, controls)					
Thresh. Est.	41.26%. C.I.[2.61%-41.26%]					
	Coefficient	Std. error	T statistic			
β_1 -Initial	0.3300***	0.0820	4.0244			
β_2	-0.1627	0.2461	-0.6611			
β_3	0.0014	0.0503	0.0278			
δ_i	-1.2352	1.2189	-1.0134			
GROWTH	0.2613**	0.1137	2.2982			
INFLATION	-0.0277	0.0424	-0.6533			
EXCHANGE	0.1613**	0.0768	2.1003			
SAVINGS	0.3484	0.2709	1.2861			
TRADE	0.2707	0.2403	1.1265			
HCD	-0.2891	0.5650	-0.5117			
INFR	-0.5189	0.2442	-2.1249			

*/**/*** indicate 10%/5%/1% respectively

The parameter (γ) is the one that divides the observations into two different regimes depending on whether the threshold variable (Stock, Bank or Bond) is above or below the threshold value (γ). These two regimes are separated by the different slope co-efficients (β_2 and β_3).

The co-efficient (β_1) shows that the lag of FDI had a positive and significant impact on FDI at 10% level in model 1. Moreover, the lag of FDI was found to have had a positive and significant influence on FDI at 1% level in models 2, 3, 4, 5, 6 and 7. In summary, the results in Table 14 show that the lag of FDI positively and significantly influenced FDI inflows. The finding supports Walsh and Yu (2010:5); Wheeler and Mody (1992); Barrell and Pain (1999), whose studies observed that existing FDI stock (represented by previous year's FDI in this study) positively and significantly influence current FDI. This, according to these empirical researchers, is possible through the following channels: (1) the presence of foreign investors in the host country provide a signal of a favourable business climate for other foreign investors, (2) new investors can easily mimic successful investment decisions implemented previously by other foreign investors and (3) new investors are likely to benefit from the positive spill overs generated by the already existing foreign investors in the host country.

In model 1, the regime one where the stock market turnover ratio is greater or equal to a threshold level of 41.27% of stock market capitalisation, the estimate co-efficient of β_2 is 0.2136 and it is significant at 5%. This shows that FDI inflows increase by 21.36% as stock market turnover ratio goes up by 1%. In regime two in which the stock market turnover ratio is less than a threshold level, the co-efficient (β_3) is 0.2058 and significant at 10% level. In regime two, a 1% increase in stock market turnover ratio leads to a 20.58% surge in FDI inflows, thus clearly showing that there is no fixed value of the slope co-efficient of the dynamic panel threshold in the two different regimes. The stock market turnover ratio's estimated co-efficient (0.2136) in regime one is bigger than the estimated co-efficient (0.2058) of stock market turnover ratio in regime two. The results reveal that the relationship between stock market turnover and FDI changes depends on the levels of the stock market turnover and an increasing trend is observed. The results suggest

that there is an optimum stock market turnover level of 41.27% of stock market capitalisation at which point any further increase in stock market turnover more significantly and more positively increases FDI inflows in emerging markets.

In summary, stock market turnover levels that are greater or equal to a threshold value more positively and more significantly influenced FDI inflows in emerging markets. This finding resonates with conventional literature on the relationship between financial sector development and FDI which generally specifies that higher financial development leads to more positive and significant FDI inflows into the host country.

In model 2, the regime one where the stock market value traded ratio is greater or equal to a threshold level of 53.55% of GDP, the estimate co-efficient of β_2 is 0.6502 and it is significant at 1% level. This suggests that FDI inflows increase by 65.02% as stock market value traded goes up by 1%. In regime two in which the stock market value traded ratio is less than a threshold level, the co-efficient (β_3) is 0.1827 and is significant at 1% level as well. This means that that FDI inflows increase by 18.27% as stock market value traded goes up by 1%. The stock market value traded ratio's estimated co-efficient (0.6502) in regime one is greater than the estimated co-efficient (0.1827) of stock market value traded ratio in regime two. This shows that the relationship between stock market value traded and FDI is not stationary and it depends on stock market value traded turnover levels and an increasing trend is detected. The results mean that an optimum stock market value traded level of 53.55% of GDP exists, a point beyond which a further increase in stock market value traded level more positively and more significantly influences FDI inflows into emerging markets.

The size of the co-efficients (β_2 and β_3) shows that stock market value traded at levels above or equal to the threshold of 53.55% of GDP more positively and significantly influenced FDI inflows in comparison to the impact of stock market value traded levels (less than a threshold) on FDI inflows. This is clear evidence that higher levels of stock market value traded enhance significant FDI inflows into the emerging markets. The

results are consistent with a study by Levine (1997b) which observed that FDI projects are only viable under conditions of high stock market liquidity as this enables the less costly and easy raising of additional capital by foreign investors in the host country. They also support the liquidity easing rationale which argues that shallow financial markets through slowing down the trading of financial instruments and settlements reduces the volume of the foreign firms' activities in the host country (Antras et al. 2009).

In model 3, the regime one where the stock market capitalisation ratio is greater or equal to a threshold level of 121.53% of GDP, the estimate co-efficient of β_2 is 1.0578 and it is significant at 1% level. This suggests that FDI inflows go up by 105.78% as stock market capitalisation increases by 1%. In regime two in which the stock market capitalisation ratio is less than a threshold level, the co-efficient (β_3) is 0.1459 and is significant at 5% level. This shows that FDI inflows increase by 14.59% as stock market capitalisation increases by 1%. The stock market capitalisation ratio's estimated co-efficient (1.0578) in regime one is greater than the estimated co-efficient (0.1459) of stock market capitalisation ratio in regime two, thus indicating that the significant FDI inflows depend on the level of stock market capitalisation. An increasing trend is observed meaning that an optimum minimum stock market capitalisation threshold level (121.53% of GDP) exists at which point beyond which a further increase in stock market capitalisation level more positively and more significantly influences FDI inflows into emerging markets.

In summary, stock market capitalisation at levels less than the threshold value of 121.53% of GDP had a positive and significant influence on FDI inflows whilst levels of stock market capitalisation greater or equal the threshold level had a more positive and more significant influence on FDI inflows in emerging markets. The results support the allocative channel theoretical rationale which stipulates that higher developed financial markets are better able to increase productivity of foreign capital through being better able to allocate financial resources to projects with high rate of return (Ncube, 2007; Claessen and Laeven, 2003). The results further resemble findings by Seghir (2009) which noted that larger financial markets not only attracted significant FDI inflows but also positively and significantly boosted FDI's ability to impact on economic growth in Tunisia. They also

mirror findings by Shahbaz and Rahman (2010) which noted that the existence of a strongly developed financial sector were important to enable Pakistan to enjoy foreign capital inflows benefits emanating from technological diffusion. Other more recent empirical work which showed that FDI inflows were to a larger extent influenced by higher levels of stock market development were done by Suliman and Elian (2014) and Hajilee and Al Nasser (2015).

In model 4, the regime one where the private sector credit ratio is above or equal to a threshold level of 114.43% of GDP, the estimate co-efficient of β_2 is 1.9994 and it is significant at 1% level. This suggests that a 1% increase in private sector credit by banks lead to a 199.94% in FDI inflows. In regime two in which the private sector credit ratio is less than a threshold level, the co-efficient (β_3) is 0.2761 and is significant at 5% level. This indicates that FDI inflows increase by 27.61% as private sector credit by banks goes up by 1%. The difference in the estimated co-efficients of private sector credit by banks between the two regimes shows that the relationship between the two variables is not stationary and it depends on private sector credit by banks levels. An increasing trend is observed showing that there is an optimum private sector credit by banks threshold level (114.43% of GDP), a point beyond which an additional increase in private sector credit by banks level more positively and more significantly influences FDI inflows into emerging markets. In summary, the levels of private sector credit by banks greater than or equal to a threshold level of 114.43% of GDP had a more positive and more significant impact on FDI inflows in comparison to the impact of lower private sector credit by banks levels on FDI inflows.

The results support the economic efficiency rationale which according to Bartels et al. (2009) says that developed financial markets are better able to provide timely, efficient and cost cutting information to potential foreign investors thereby contributing to a decline in the level of asymmetric information that normally curtails international capital mobility. The finding also resonates with Shahbaz and Rahman (2010) whose study observed that an improvement in the financial sector efficiency did not only just attract FDI but allowed Pakistan to enjoy FDI spill-over benefits. Kaur et al.'s (2013) finding that better developed

financial markets enable host countries to attract FDI inflows through better provision of financial support in terms of quicker transactions, availing of loans, good foreign currency services and optimal allocation of capital to more deserving projects.

In model 5, the regime one where the financial sector credit ratio is greater or equal to a threshold level of 144.06% of GDP, the estimate co-efficient of β_2 is 3.9125 and it is significant at 1% level. This suggests that a 1% increase in financial sector credit levels leads to an increase in FDI inflows by 391.25%. In regime two, in which the financial sector credit ratio is less than a threshold level, the co-efficient (β_3) is -0.0041 indicating that a 1% increase in financial sector credit results in a decrease in FDI by 0.41%. The result indicates that the relationship between financial sector credit and FDI varies from one regime to the other depending on the level of financial sector credit at any given time. A rising or an increasing trend is observed meaning that there is an optimum financial sector credit threshold level (144.06% of GDP) at which point further increase in financial sector credit level results in a positive and significant influence on FDI inflows into emerging markets. In summary, the financial sector credit at levels below a threshold of 144.06% of GDP negatively influenced FDI inflow whereas financial sector credit equal to or greater than a threshold level had a strong positive and significant impact on FDI inflows.

The results agree with Agbloyor et al. (2014) who showed that less developed or weak financial markets are unable to efficiently allocate foreign capital towards the productive economic sectors and they expose the host country to financial and exchange rate crises, thus leading not only to outflow of foreign capital but also stifle economic growth. They also agree with Baharumshah and Almasaied (2009) whose study observed that high banking sector development spurred significant FDI and its ability to influence economic growth in Malaysia. They further resonate with (Bailliu, 2000; Agbloyor et al. 2014) who found out that a strongly developed banking system through efficiently discharging its intermediary functions, allows international capital flows to influence economic growth with ease.

In model 6, the regime one where the outstanding domestic private debt securities ratio is greater or equal to a threshold level of 0.22% of GDP, the co-efficient estimate of β_2 is 0.2261 and insignificant. This means that a 1% increase in outstanding domestic private debt securities leads to an increase in FDI inflows by 22.61%. In regime two in which outstanding domestic private debt securities ratio is less than a threshold level, the co-efficient (β_3) is 0.0115 which means that FDI inflows goes up by a mere 1.15% in response to a 1% increase in outstanding domestic private debt securities. The outstanding domestic private debt securities ratio's estimated co-efficient (0.2261) in regime one is greater than the estimated co-efficient (0.0115) of outstanding domestic private debt securities ratio in regime two thereby indicating that the relationship between outstanding domestic private debt securities and FDI varies with the levels of the outstanding domestic private debt securities. An increasing trend is observed indicating that an optimum level of outstanding domestic private debt securities (0.22% of GDP) exists at which point any further increase in outstanding domestic private debt securities level more positively impacts on FDI in emerging markets. In summary, outstanding domestic private debt securities at levels below the threshold of 0.22% of GDP has a weak positive impact on FDI inflows whilst outstanding domestic private debt securities at levels that are greater or equal a threshold had a strong positive impact on FDI inflows in emerging markets.

The results resonate with Guiso et al. (2004) who observed that well-functioning financial markets are well known not only for attracting FDI but for enabling individuals and companies to easily access external funds at a low cost. They also support Alfaro et al. (2010) whose study observed that host countries with highly developed and deep financial markets which guarantee low interest rate spread benefits more from FDI inflows. They are consistent with a study done by Klein et al. (2000) which revealed that the financial health status of United States (US), in particular, the accessibility of credit finance attracted a lot of FDI projects from Japanese firms into the US economy.

In model 7, the regime one, where the outstanding domestic public debt securities ratio is greater or equal to a threshold level of 41.26% of GDP, the estimate co-efficient of β_2 is -0.1627. This means that FDI inflows declined by 16.27% in response to an increase of outstanding domestic public debt securities by 1%. In regime two, in which the outstanding domestic public debt securities ratio is less than a threshold level, the co-efficient (β_3) is 0.0014, meaning that a 1% increase in outstanding domestic public debt securities led to an increase of FDI inflows by 0.14%. The outstanding domestic public debt securities ratio's estimated co-efficient (-0.1627) in regime one is less than the estimated co-efficient (0.0014) of outstanding domestic public debt securities ratio in regime two. This indicates that the relationship between outstanding domestic public debt securities and FDI changes and relies on the level of outstanding domestic public debt securities. A declining trend is detected showing that there is an optimum level of outstanding domestic public debt securities (41.26% of GDP), a point beyond which any further increase in outstanding domestic public debt securities negatively influences FDI inflows in emerging markets. In summary, levels of outstanding domestic public debt securities below a threshold of 41.26% of GDP positively influenced FDI inflows whilst outstanding domestic public debt securities at levels greater or equal to the threshold negatively influenced FDI inflows, a finding which contradicts most conventional literature on the subject matter. The theoretical explanation could be that foreign investors might prefer portfolio investment in a more developed and functioning financial system which could lead to portfolio investments crowding out FDI (Hailu, 2010:109). The results resembles that of Tan and Ismail (2015) who noted that high government debt crowds out investment (foreign and domestic) and consequently lowers economic growth.

The regime intercept results show the following: both stock market and banking sector development at levels equal to or above the respective thresholds positively and significantly influenced FDI inflows in emerging markets. The outstanding domestic private debt securities levels equal to or above a threshold of 0.22% of GDP positively but insignificantly impacted on FDI inflows whilst outstanding domestic public debt securities levels greater than or equal to a threshold of 41.26% of GDP negatively influenced FDI in emerging markets.

Economic growth (GROWTH) had a positive and significant impact on FDI inflows at 5% significance level in model 1 whilst GROWTH had a smaller positive and non-significant impact on FDI inflows in model 2. In model 3 and 4, the positive impact of GROWTH on FDI inflows were smaller and more non-significant as compared to model 1 and 2. In model 5, GROWTH had a weaker positive and insignificant influence on FDI inflows. However, FDI inflows was positively and significantly influenced by GROWTH in both model 6 and 7. The positive impact and significance of GROWTH on FDI inflows was more in model 6 as compared to model 7.

In summary, GROWTH was found to have had a positive impact on FDI inflows in all the seven models under the dynamic panel threshold regression model. This is line with Walsh and Yu (2010) who noted that market size positively influence FDI because of (1) increased higher demand potential and (2) lower costs arising from economies of scale. The result also concur with Dumludag (2009) whose study observed that GDP per capita was one of the variables which positively influenced FDI because of its ability to improve the quality of the business climate in the host country, Turkey.

Inflation has a negative impact on FDI inflows in models 1, 3, 4, 5, 6 and 7. Model 2 shows a slight difference from other models in that inflation had a very negligible positive and non-significant role in influencing FDI inflows. These results support Sayek (2009) who argued that an increase in inflation rate in the host country lowers FDI as it erodes the value of the profits generated by foreign investors. They also resonate with Nnadi and Soobaroyen (2015) who noted that higher inflation rate is a sign of macro-economic instability which could chase away prospective and already existing foreign investors.

Exchange rate positively and significantly had an impact on FDI inflows in models 1, 2 and 7. These results are significant at 5% level. Models 3, 4 and 5, however, show a weaker positive and non-significant impact of exchange rates on FDI inflows. In summary, higher exchange rates (weak local currency) had a positive impact on FDI inflows either significantly or non-significantly. The empirical finding resonates with the currency areas

hypotheses developed by Aliber (1970) which pointed out that exchange rates have an impact on FDI, with weak currencies attracting FDI, whilst the opposite is true for strong currencies. Moosa (2010) supported the same findings in as far as the relationship between exchange rates and FDI is concerned.

Gross domestic savings had a positive but non-significant impact on FDI inflows in all the seven models under the dynamic panel threshold regression estimation procedure. This is in line with Romer (1986) and Lucas (1988) who noted that, savings through stimulating both foreign and domestic investment activities result in long term economic growth.

Trade openness had a positive but non-significant influence on FDI inflow in models 1, 2, 4, 5, 6 and 7. This is in line with Ghosh (2007) whose study showed that trade openness had a positive but insignificant explanatory power on FDI. The results generally support the trade openness-led FDI hypothesis. The results follow Cuadros, Orts and Alguacil. (2004) whose empirical work noted that countries that have higher trade openness levels are able to significantly harness more FDI technological and spill-over effects. They also resonate with Buthe and Milner (2008) whose study noted that host countries that were part of the international and preferential trade agreements attracted more FDI as foreign investors feel safe and secure when operating in such nations.

Model 3 is the only one in which trade openness negatively influenced FDI. This finding supports Walsh and Yu (2010) who explained that a decline in trade openness increases horizontal FDI as multinational enterprises circumvent trade barriers by building production facilities in the host country. This implies that high trade openness reduces FDI as foreign firms see no need to set up production sites in the host county as they can still export their product(s) without any hindrance. Empirical work which mirrors these results include the one undertaken by Majocchi and Strange (2007) which found out that openness to foreign banks negatively affected FDI flows into the Central and East European countries. It also includes Wheeler and Mody (1992) who showed that trade openness negatively influenced FDI in the electronic and telecommunication sector of the United States of America.

Human capital development had a positive but non-significant impact in influencing FDI inflows in models 1, 4, 5 and 6. The positive influence of human capital development on FDI agrees with Ford, Rork and Elmslie. (2008) whose study observed that highly trained workforce in the US enabled firms to easily take advantage of foreign technology and allowed the economic beneficitation from the availability of foreign technology by developed nations as a whole. It also concurs with Mastromarco and Ghosh (2009) who found out that human capital development guaranteed the efficiency of FDI, imported capital goods and research and development in developing countries. Studies which support that the positive impact of human capital development (rate of literacy, secondary education and school enrolment) on FDI inflows is non-significant but positive include those done by Hanson (1996) and Narula (1996). The other models (2, 3 and 7) show a negative impact of human capital development on FDI, a finding that contradicted literature. The possible explanation could be that high cost of labour which is normally associated with high human capital development negatively affects FDI through increasing the cost of doing business by foreign investors in the host country in line with studies done by (Kang and Lee, 2007; Na and Lightfoot, 2006).

In all the seven models, infrastructural development as represented by electric power consumption negatively affected FDI inflows. This finding contradicts the eclectic paradigm hypothesis which mentions the state of the infrastructure as one of the locational advantages in the OLI framework, which provide a conducive environment for attracting FDI. The finding differs from Adams (2009) who noted that the extent to which the economy can benefit from FDI inflows depends on the host country's specific conditions such as good infrastructure, favourable policy environment and opportunities for linkages between FDI and domestic investment. It is also a contradiction to the work done by Wang and Xie (2009) which observed that good state of infrastructure allows the host country to benefit from technological spillovers of FDI.

The contradiction to theory in as far as the results on infrastructure development and FDI inflows is largely because of the type of the proxy used (electric power consumption)

which is not a true representative of infrastructural development. A possible explanation of why electric power consumption negatively influenced FDI was advanced by Lopez-Carlos and Schwab (2005;2007). They argued that countries with high energy reserves and energy consumption have adequate financial power and foreign currency reserves to sponsor their own home grown economic growth and development initiatives without assistance from foreign investors. Any foreign expertise that those countries may require is sought through engaging in contractual arrangements as opposed to sharing ownership of investments in form of FDI. Another possible explanation might be that high electric consumption might be an indicator of high demand and cost of energy which makes the host country environment less attractive to FDI in line with the eclectic paradigm hypothesis developed by Dunning (1973).

5.5 STATIC PANEL THRESHOLD REGRESSION RESULTS – SENSITIVITY ANALYSIS

The static model by Bick (2010) was used to compare and contrast the results against the dynamic panel threshold regression estimation technique. The running of the static model was simply for information purposes only and not as one of the main methods of data analysis. Table 15 shows the results of the Bick's (2010) static panel threshold regression model (equations 23, 24 and 25). All the threshold levels in Table 15 are significant because $\beta_2 \neq \beta_3$, consistent with Caner and Hansen (2004:823).

Table 15: Bick's (2010) static panel threshold regression model results						
	Model 1:FDI= f(turn, initial, controls)			Model 2:FDI= f(vtrad, initial, controls)		
Thresh. Est.	13.69%.	C.I.[11.40%-15.27%]		13.78%.	C.I.[10.43%-15.26%]	
	Coefficient	Std. error	T statistic	Coefficient	Std. error	T statistic
β_1	0.2193	0.3847	0.5701	0.5291***	0.1242	4.2601
β_2	0.1173	0.4902	0.2393	0.2250***	0.0544	4.1360
$\bar{\delta}_i$	0.3627	0.4258	0.8518	0.6552**	0.2928	2.2377
GROWTH	0.3201***	0.1157	2.7666	0.2706**	0.1193	2.2682
INFLATION	-0.0387	0.0384	-1.0078	-0.0088	0.0387	-0.2274
EXCHANGE	0.2579***	0.0819	3.1490	0.3015***	0.0827	3.6457
SAVINGS	-0.0389	0.2585	-0.1505	-0.1575	0.2561	-0.6150
TRADE	0.6704***	0.1960	3.4204	0.4214**	0.1958	2.1522
HCD	-0.0830	0.6336	-0.1310	-0.3018	0.6215	-0.4856
INFR	-0.4060	0.2584	-1.5712	-0.4781	0.2621	-1.8241
	Model 3:FDI= f(mcap, initial, controls)			Model 4:FDI= f(pcred, initial, controls)		
Thresh. Est.	14.81%.	C.I.[12.35%-18.42%]		13.14%.	C.I.[10.34%-19.41%]	
	Coefficient	Std. error	T statistic	Coefficient	Std. error	T statistic
β_1	0.8284***	0.1957	4.2330	0.8207**	0.3502	2.3435
β_2	0.1726**	0.0674	2.5761	0.7752**	0.3583	2.1636
$\bar{\delta}_i$	1.2461*	0.6738	1.8494	1.0084*	0.5382	1.8737
GROWTH	0.2748**	0.1183	2.3229	0.3170**	0.1316	2.4088
INFLATION	-0.0175	0.0399	-0.4386	-0.0254	0.0392	-0.6480
EXCHANGE	0.2475***	0.0829	2.9855	0.2774***	0.0839	3.3063
SAVINGS	-0.1665	0.2699	-0.6169	0.1536	0.2753	0.5579
TRADE	0.3532*	0.2018	1.7502	0.6017***	0.2070	2.9068
HCD	-0.2264	0.6337	-0.3573	-0.1522	0.6380	-0.2386
INFR	-0.3978	0.2560	-1.5539	-0.5899	0.2718	-2.1703

Table 15 continued						
	Model 5:FDI= f(fcred, initial, controls)			Model 6:FDI= f(bondpriv, initial, controls)		
Thresh. Est.	14.91%.	C.I.[13.47%-17.35%]		1.51%.	C.I.[1.32%-4.04%]	
	Coefficient	Std. error	T statistic	Coefficient	Std. error	T statistic
β_1	1.8368***	0.5699	3.2230	0.8302	0.6139	1.3523
β_2	-0.0492	0.1840	-0.2674	0.3219	0.2489	1.2933
δ_i	1.2394	0.8961	1.3831	0.9280	0.6721	1.3807
GROWTH	0.3346***	0.1178	2.8404	0.4411***	0.1184	3.7255
INFLATION	-0.0626	0.0388	-1.6134	-0.0510	0.0387	-1.3178
EXCHANGE	0.2448***	0.0841	2.9108	0.2795***	0.0862	3.2425
SAVINGS	-0.0113	0.2750	-0.0411	0.0771	0.2774	0.2779
TRADE	0.4615**	0.2167	2.1297	0.5487***	0.2097	2.6166
HCD	0.1900	0.6440	0.2950	-0.0002	0.6429	-0.0003
INFR	-0.3509	0.2686	-1.3064	-0.7112	0.2587	-2.7491
	Model 7:FDI= f(bondpub,initial, controls)					
Thresh. Est.	3.73%.	C.I.[0.77%-4.02%]				
	Coefficient	Std. error	T statistic			
β_1	-1.3468	0.8874	-1.5177			
β_2	0.4194	0.5890	0.7121			
δ_i	-0.6791	0.5119	1.3266			
GROWTH	0.4298***	0.1151	3.7341			
INFLATION	-0.0596	0.0391	-1.5243			
EXCHANGE	0.3143***	0.0850	3.6976			
SAVINGS	0.1336	0.2742	0.4872			
TRADE	0.6471***	0.2006	3.2258			
HCD	-0.3504	0.6441	-0.5440			
INFR	-0.7225	0.2702	-2.6739			

*/**/** indicate 10%/5%/1% respectively

The results from the Bick's (2010) static panel threshold regression model show that stock market turnover greater or equal to a threshold of 13.69% of stock market capitalisation positively but non-significantly influenced FDI inflows. On the other hand, stock market turnover at levels below the threshold level had a weaker positive and insignificant impact on FDI inflows in emerging markets. Stock market value traded at levels greater or equal to the threshold level of 13.78% of GDP was found to have more positively and more significantly impacted on FDI inflows in emerging markets whilst levels of stock market value traded below a threshold had a weaker positive and less significant impact on FDI inflows. Moreover, stock market capitalisation levels above or equal a threshold level of 14.81% of GDP had a stronger positive and more significant (at 1% level) impact on FDI inflows. In comparison, levels of stock market capitalisation below the threshold had a weaker positive and less significant (at 5% level) influence on FDI inflows in emerging markets. The results in summary show that higher levels of stock market development above a minimum threshold strongly and more significantly impacted on FDI in emerging markets. This finding resonates with theoretical predictions.

Absolute coefficients and t statistics evidently show that levels of private sector credit above or equal to a threshold of 13.14% of GDP had a higher positive and more significant impact on FDI inflows. In comparison, a weak positive impact of low private sector credit (below the threshold) on FDI inflows was observed in emerging markets. Levels of financial sector credit ratios below a threshold of 14.91% of GDP was found to have had a negative impact on FDI inflows. However, financial sector credit levels above the threshold had a positive and significant impact on FDI inflows in emerging markets. In a nutshell, this study observed that higher levels of banking sector development had a strong positive and significant influence on FDI in emerging markets. The finding resonates with theoretical and empirical literature on the subject matter. This could possibly be because more developed financial markets do have enough capacity to allocate foreign capital towards productive economic sectors in an efficient manner and vice versa for less developed financial sector (Agbloyor et al. 2014).

Levels of outstanding domestic private debt securities above a threshold of 1.51% of GDP positively influenced FDI inflows whilst outstanding domestic private debt securities below a threshold level had a weaker positive impact on FDI inflows in emerging markets. Outstanding domestic public debt securities levels greater or equal to a threshold of 3.73% of GDP negatively impacted on FDI inflows. On the other hand, levels of outstanding domestic public debt securities below the threshold positively but non-significantly influenced FDI inflows in emerging markets.

As expected, the direction and size of the influence of all the regime independent regressors (control variables) on FDI inflows is generally similar under both dynamic and static panel threshold regression estimation techniques. They are not supposed to vary significantly from one regime to another. Notable few and small similarities and differences are evident when it comes to the size and significance of the impact of the control variables on FDI inflows between the two panel threshold regression estimation techniques. For example, in models 2, 3 and 4, the positive impact of GROWTH on FDI is higher and significant at 5% in the static panel threshold regression technique whereas the same positive relationship is weak and not significant under the dynamic panel threshold regression estimation technique. In model 1, 5, 6 and 7, the positive impact of GROWTH is stronger and significant (at 1% level) in the static as compared to the dynamic panel threshold regression technique in which the significance was at 5% in models 1 and 7, 1% in model 6 and non-significant in model 5.

The negative relationship between inflation and FDI inflows is common under both estimation techniques in models 1, 3, 4, 5, 6 and 7. Comparing the absolute coefficient figures, the impact of inflation on FDI inflows is more under the static in comparison to the dynamic panel threshold regression technique in all the seven models. Moreover, inflation had a negligible positive impact on FDI inflows in model 2 under the dynamic panel threshold regression technique contrary to the results of the same model under the static panel threshold regression estimation procedure which shows a negative correlation between inflation and FDI inflows.

The positive influence of exchange rates on FDI inflows is significant at 5% in models 1, 2 and 7 and non-significant in models 3, 4, 5 and 6 under the dynamic panel threshold regression technique. In all the seven models under the static panel threshold regression estimation procedure, exchange rates had a higher positive and more significant (at 1%) impact on FDI inflows. This is in stark contrast to the impact of exchange rates on FDI inflows under the dynamic panel threshold regression model in which the relative size of the positive impact of exchange rates on FDI inflows was smaller across all the seven models.

Just like the results in all the seven models under the dynamic panel threshold regression technique, models 4, 6 and 7 under static panel threshold regression technique found out that gross domestic savings positively but non-significantly influenced FDI inflows. A negative impact of gross domestic savings on FDI inflows is evident in models 1, 2, 3 and 5 under the static panel threshold regression estimation procedure. This could be possibly due to the substitution effect between gross domestic savings (domestic investment) and FDI as observed by Herzer and Schrooten (2008).

Trade openness positively but non-significantly impacted on FDI inflows in models 1, 2, 4, 5, 6 and 7 under the dynamic panel threshold regression estimation technique. The positive impact of trade openness on FDI inflows under the static panel threshold regression technique is higher and significant in all models except in model 3 in comparison to results under the dynamic panel threshold regression estimation technique. Model 3 results under the static panel threshold regression technique show a positive but non-significant impact of trade openness on FDI inflows. The same model shows that trade openness had a negative influence on FDI inflows under the dynamic panel threshold regression technique.

The analysis of the impact of human capital development on FDI inflows produced mixed results under both static and dynamic panel threshold regression techniques. Under the former, human capital development negatively influenced FDI inflows in models 1, 2, 3, 4, 6 and 7 whilst under the latter, the same results are observed for models 2, 3 and 7.

However, model 5 under the static panel threshold regression technique and models 1, 4, 5 and 6 under the dynamic panel threshold regression technique show that human capital development positively in a non-significant manner influenced the FDI inflows. In all the seven models under both the dynamic and static panel threshold regression estimation procedures, infrastructure development as proxied by electric power consumption negatively influenced the FDI inflows.

Table 16 summarises a comparison of results between the dynamic and static panel threshold regression estimation techniques.

Table 16: Regime dependent regressors - summary of the results of the two panel threshold regression models										
	Impact of financial development on FDI -Dynamic					Impact of financial development on FDI- Static				
	Thresh. level	Direction $\geq \gamma$	Direction $< \gamma$	coefficient $\geq \gamma$	coefficient $< \gamma$	Thresh. level	Direction $\geq \gamma$	Direction $< \gamma$	coefficient $\geq \gamma$	coefficient $< \gamma$
TURN	41.27%	+	+	0.2136**	0.2058*	13.69%	+	+	0.2193	0.1173
VTRD	53.55%	+	+	0.6502***	0.1827***	13.78%	+	+	0.5291***	0.2250***
MCAP	121.53%	+	+	1.0578***	0.1459**	14.81%	+	+	0.8284***	0.1726**
DCRE D	114.43%	+	+	1.9994***	0.2761**	13.14%	+	+	0.8207**	0.7752**
DCFS	144.06%	+	-	3.9125***	-0.0041	14.91%	+	-	1.8368***	-0.0492
DPRDS	0.22%	+	+	0.2261	0.0115	1.51%	+	+	0.8302	0.3219
DPBDS	41.26%	-	+	-0.1627	0.0014	3.73%	-	+	-1.3468	0.4194

Source: Author's compilation

*/**/** indicate 10%/5%/1% respectively

5.6 CHAPTER CONCLUSION

The current study concludes that higher banking sector and stock market development is important in attracting significant FDI inflows in the emerging markets. On the other hand, low banking sector and stock market development levels either had a weaker positive or negative influence on FDI inflows in emerging markets. This conclusion is true under both the dynamic and static panel threshold regression estimation techniques. Higher levels of private bond sector development greater or equal to the threshold had a positive but insignificant impact on FDI inflows whilst lower private bond sector development below the threshold had a weaker positive and non-significant impact on FDI inflows. These findings are in line with theoretical predictions. Higher levels of public bond sector development equal or above the threshold negatively influenced FDI inflows whilst public bond sector development levels below the threshold positively but non-significantly influenced FDI inflows in contrast to most theoretical predictions.

The size and direction of the impact of the regime independent regressors (control variables) on the FDI inflows is mostly similar under both the static and dynamic panel threshold regression estimation techniques in all the seven models. The notable difference was on the significance of the results in some few cases. The size, direction, nature and significance of the impact of mostly all the control variables used on FDI inflow is supported by literature.

The threshold levels under the dynamic panel threshold regression procedure are much higher as compared to those under the static panel threshold regression estimation technique in all the models except in model 7. The results of the dynamic panel threshold regression technique more resemble the theoretical predictions in comparison to the results generated by the static panel threshold regression technique. Possible reasons for the better and more accurate results under the dynamic as compared to the static panel threshold regression technique results are threefold: (1) the former uses a special and more accurate way of dealing with country specific fixed effects known as the forward orthogonal approach in contrast to the standard approach used by the latter, (2) the former uses GMM estimation technique in comparison to the latter which employs the

OLS estimation procedure. GMM is known to be the best in estimating the beta coefficients because it takes into account the endogeneity of the variables under study whereas OLS is not known to be accurate when dealing with models in which there is possible endogeneity and (3) the former also uses the lag of the dependent variable as an endogenous regressor in line with literature whilst the latter does not include it. The next chapter derives contribution to new knowledge, conclusions of the study, recommendations and suggestions for future researcher based on the findings of this chapter.

CHAPTER 6

CONCLUSIONS, RECOMMENDATIONS AND IMPLICATIONS FOR FURTHER RESEARCH

6.1 CHAPTER INTRODUCTION

The major aim of this study was to determine the financial sector development threshold levels that must be reached to enhance significant FDI inflows in the emerging markets. Theory and empirical work on the subject provided the researcher with a solid foundation upon which such a study could be undertaken. Chapter 5 has provided the detailed results of both the dynamic and static panel threshold regression estimation techniques and their interpretation which clearly shows that higher financial sector development with the exception of the public bond sector is necessary to ensure there is significant inflow of FDI into the emerging markets.

There are five major aims of this chapter: the first is to summarise the empirical results observed in the preceding chapter in a way that makes it easier to advise the emerging markets on how best to formulate financial sector development policies that enhance FDI, the second is to elaborate the contribution of the current study to new knowledge and the third is to highlight the constraints and policy recommendations of the study. The fourth is to conclude the whole study and the fifth and final aim of this chapter is to put forward suggestions for further research.

The remaining part of this chapter consists of the following sections. Section 6.2 provides an overview of all the empirical results of this study. Section 6.3 presents the contribution of the study to existing knowledge whilst section 6.4 concludes the whole study. Section 6.5 discusses the constraints of the study while section 6.6 provides recommendations of the study. Section 6.7 details possible areas for future research based on the findings of the current study.

6.2 EMPIRICAL RESULTS DISCUSSION.

The correlation matrix results in the preceding chapter showed that there is a correlational relationship between FDI and financial sector development in emerging markets.

Borensztein et al. (1998) noted that the correlation between FDI and financial sector development could arise from an endogenous determination of financial sector development, where financial sector development as an independent variable might be affected by other variables in the process of influencing FDI. This view appears to be supported by the results from the correlation analysis in the preceding chapter. However, the Hausman (1978) test (see Appendix 1) provided evidence of the non-existence of the endogenous relationship between FDI and financial sector development in emerging markets. It is against this background that the current study recognised that the only source of endogeneity problem which needed to be addressed emanated from the relationship between FDI and the lag of FDI (endogenous regressor). Moreover, both the dynamic and static panel threshold regression estimation techniques showed in the preceding chapter that, in majority of cases, there is a positive and significant relationship between FDI and financial sector development in emerging markets. The next subsections discuss in detail the empirical results on the financial sector development threshold levels and FDI inflows in line with the major objectives of this study.

6.2.1 Financial sector development and FDI

The current study, using the dynamic panel threshold regression estimation technique, found out that forty three percent of the emerging markets under study had a mean stock market turnover below the threshold level of 41.27% of stock market capitalisation whilst the other fifty seven had a mean stock market turnover above the threshold level. The emerging markets which constituted the forty three percent include Argentina, Colombia, Indonesia, Mexico, Malaysia, Peru, Philippines, Russia and South Africa. On the other hand, stock market turnover had a strong positive and significant impact on FDI inflows in fifty seven emerging markets which were characterised by a mean stock market turnover ratio above the threshold level of 41.27% of stock market capitalisation. These include Brazil, China, Czech Republic, Greece, Hong Kong, India, Poland, Portugal, Republic of Korea, Thailand, Turkey and Singapore.

Eighty one percent of the emerging markets under study had a mean stock market value traded below a threshold of 53.55% of GDP whilst the remaining nineteen percent had a

mean stock market value traded above the threshold level. The emerging markets which constituted the nineteen percent are China, Hong Kong, Republic of Korea and Singapore whilst the remaining emerging markets under study make up the bulky eighty one percent. The results show that the stock market value traded above the threshold had a stronger positive and more significant influence on FDI inflows.

Another eighty one percent of emerging markets had mean stock market capitalisation below a threshold level of 121.53% of GDP whilst the remaining nineteen percent were characterised by mean stock market capitalisation above the threshold level. The interpretation is that nineteen percent of the emerging markets such as Hong Kong, Malaysia, Singapore and South Africa whose mean stock market capitalisation levels were above a threshold level of 121.53% of GDP more positively and more significantly influenced FDI inflows in emerging markets.

The results also show that seventy six percent of the emerging markets under study had a mean domestic credit to private sector by banks level below a threshold of 114.43% of GDP. These countries include Argentina, Brazil, China, Colombia, Czech Republic, Greece, Indonesia, India, Mexico, Peru, Philippines, Poland, Republic of Korea, Russia, Turkey and Singapore. These countries' domestic credit to private sector by banks had a weaker positive impact on FDI inflows. The other twenty four percent of the emerging markets under study which constitute Hong Kong, Malaysia, Portugal, Thailand and South Africa were characterised by a mean domestic credit to private sector by banks which was above the threshold level of 114.43% of GDP. It follows that the positive impact of these emerging markets' domestic credit to private sector by banks on FDI inflows was stronger and more significant.

Of all the emerging markets under study, only Hong Kong and South Africa have mean domestic credit provided by financial sector above a threshold level of 144.06% of GDP. The other ninety percent of emerging markets studied were characterised by mean domestic credit provided by financial sector which was below the threshold. The results show that mean domestic credit provided by financial sector of ninety percent of the

emerging markets was below the threshold level of 144.06% of GDP and thereby negatively impacted on FDI inflows. This happened in countries such as Argentina, Brazil, China, Colombia, Czech Republic, Greece, Indonesia, India, Mexico, Malaysia, Peru, Philippines, Poland, Portugal, Republic of Korea, Russia, Thailand, Turkey and Singapore. On the other hand, domestic credit provided by financial sector whose mean ratio values were above the threshold level in countries such as Hong Kong and South Africa strongly positively and significantly impacted on FDI inflows.

Furthermore, the results show that all levels of outstanding domestic private debt securities below the threshold level of 0.22% of GDP had a weaker positive and non-significant impact on FDI inflows. They also indicate that all levels of outstanding domestic private debt securities above the threshold had a positive and significant (at 10% level) impact on FDI inflows. One hundred percent of the emerging markets under study were characterised by mean outstanding domestic private debt securities ratios above a threshold level of 0.22% of GDP, meaning that the outstanding domestic private debt securities in all emerging markets had a stronger positive influence on FDI inflows.

Levels of outstanding domestic public debt securities below a threshold of 41.26% of GDP were found to have had a positive impact on FDI inflows in emerging markets. In contrast, outstanding domestic public debt securities above a threshold were found to have a negative influence on FDI inflows in emerging markets. Only two countries which represent ten percent of emerging markets under study had their mean outstanding domestic public debt securities above or equal to a threshold level of 41.26% of GDP whilst the mean outstanding domestic public debt securities of the remaining ninety percent were below the threshold. In summary, outstanding domestic public debt securities in Brazil and Greece negatively influenced FDI inflows. On the contrary, outstanding domestic public debt securities in Argentina, China, Colombia, Czech Republic, Hong Kong, Indonesia, India, Mexico, Malaysia, Peru, Philippines, Poland, Portugal, Republic of Korea, Russia, Thailand, Turkey, Singapore and South Arica had a positive but non-significant impact on FDI inflows.

6.2.2 Other factors influencing FDI inflows

The main estimation technique for this study shows that control variables such as GDP per capita, exchange rates, trade openness and gross savings positively influenced FDI inflows whilst inflation negatively affected FDI inflows in majority of cases in line with theoretical expectations. Infrastructural development (proxied by electric power consumption) negatively affected FDI inflows in contrast with the eclectic paradigm hypothesis but consistent with Lopez-Carlos and Schwab (2007). The latter argued that countries with high energy consumption have adequate foreign currency reserves to sponsor their own home grown economic growth initiatives without help from MNEs. Human capital development positively influenced FDI in model 1, 4, 5 and 6, in support of Mastromarco and Ghosh (2009) who argued that human capital guaranteed the efficiency of FDI in developing countries. It negatively influenced FDI in model 2, 3 and 7 consistent with Kang and Lee (2007) who noted that high cost of labour, which is associated with high levels of human capital development, negatively affects FDI through increasing the cost of doing business on the part of foreign investors.

6.3 CONTRIBUTION OF THE STUDY

This section discusses the new knowledge contributed by the current study from both a literature and methodological perspective.

6.3.1 Methodology focused contribution to new knowledge

The similarity of the empirical work that investigated financial sector development threshold level needed before significant FDI inflows done by Dutta and Roy (2011); Omran and Bolbol (2003); Hermes and Lensink (2003) is that they exogenously determined the threshold level using a methodology that did not cater for possible endogeneity. They did this by fixing the threshold level at an arbitrary value and then evaluated how significant the relationship between financial sector development and FDI was below and above that threshold. This study contributed new knowledge by estimating the threshold parameters endogenously using a dynamic panel threshold regression estimation technique that allowed for endogeneity.

These prior empirical studies employed cross-country threshold models which use OLS estimation technique which is known for its inability to address the endogeneity problem. The current study is the first that the author is aware of which determines financial sector development threshold level required to trigger significant FDI inflows using dynamic panel threshold regression estimation approach, a technique which uses a GMM estimator known for its ability to deal with the problem of endogeneity.

Moreover, no study according to the author's knowledge recognised that FDI is affected by the value of its own lagged variable as supported by literature (Walsh and Yu, 2010:5; Wheeler and Mody, 1992; Barrell and Pain, 1999) when investigating the financial sector development threshold level that enhances significant FDI inflows. This study filled in that gap by acknowledging that the dependent variable (FDI) is affected by its own lagged value (dynamic version). This was done by including the lagged value of FDI as an endogenous regressor on the right hand side of the equation.

By using only banking sector development variables in examining the threshold level of financial sector development needed to enhance significant FDI inflows, the similar prior empirical work took a narrow approach. This study deviates from the previous similar empirical studies by investigating the threshold level of banking sector, stock and bond market development that must be reached to enable significant FDI inflows into the emerging markets.

The empirical research work on the similar topic used the standard within transformation approach to eliminate the individual country specific effects, whose major shortcoming is that it is unable to effectively deal with serial correlation of the transformed error terms. There is no previous empirical study that investigated financial sector development threshold level necessary to attract significant FDI inflow that the author is aware of that eliminated the country specific fixed effects using a forward orthogonal deviations transformation approach. This is the new knowledge that the current study is going to contribute.

Previous studies in the similar research employed cross- country threshold models which totally ignored the impact that the regime intercepts have on the quality of the final results. The author found this to be problematic as it casts doubt on the adequacy of those research studies. Following Bick (2010:127), the regime intercepts are necessary as they help interpret and address any bias that might have been caused by a correlation between a dependent variable and explanatory variable(s). The current study contributed to the body of new knowledge by including the regime intercept in both the dynamic and static panel threshold regression estimation techniques thereby improving the quality of the findings.

The empirical studies that have so far investigated the financial sector development threshold levels that need to be reached to trigger significant FDI inflows have avoided focusing exclusively on emerging markets. In other words, no study has been done on emerging markets as a bloc with regards to the subject matter. For example, Omran and Bolbol (2003) focused on Arab countries whilst Azman-Saini et al. (2010) studied 91 nations drawn up from different economic sub groups and income levels. Hermes and Lensink (2003) used 67 less developing countries as a case study whilst Dutta and Roy (2011) focused on 97 countries from Central Asia, Europe, South Asia, East Asia and Pacific, Middle East, North Africa, Sub-Saharan Africa, Latin America and the Caribbean. The case study used by Dutta and Roy (2011) included some emerging markets. Their study was however narrow focused in that they used the ratio of private credit by deposit money banks to GDP as a true representative of the entire financial sector which is not correct. The exclusive emphasis on emerging markets by the current study fills in this knowledge gap.

6.3.2 Results based contribution to new knowledge

Omran and Bolbol (2003) observed that countries whose (1) domestic credit and commercial banks assets as a ratio of commercial banks and central bank assets and (2) domestic credit from commercial banks to the private sector as a ratio of GDP was below a threshold of 47% and 3.8% respectively failed to enjoy significant FDI. Moreover, Hermes and Lensink (2003) reported that developing countries whose credit to the private

sector (% of GDP) was below a threshold of 12% failed to attract significant FDI inflows. Azman-Saini et al. (2010) show that significant FDI inflow only was realised in the host countries when private sector credit ratio exceeded a threshold level of 49.7% of GDP, 43.1% of GDP for bank credit, 89.1% of commercial banks and central bank assets for domestic credit and commercial bank assets ratio and 68.8% of GDP for liquid liabilities ratio.

The author's results differ from the above findings in two ways: firstly, the minimum threshold levels for banking sector development variables are much higher, 114.43% of GDP for domestic credit to private sector by banks and 144.06% of GDP for DCFS; secondly, this study shows that countries whose levels of DCRED were below the threshold positively and significantly influenced FDI inflows whilst emerging countries whose DCRED were equal to and above the threshold more positively and more significantly received FDI inflows. In contrast, the above similar empirical studies demonstrated that countries characterised by banking sector development below the threshold level did not attract significant FDI.

Dutta and Roy (2011) reported that banking sector development positively influenced FDI inflows only up to maximum level of private credit by deposit money banks to GDP ratio of 130%, beyond which FDI outflow is triggered. On the contrary, the author's results show that a country whose DCRED is above a threshold level of 114.43% of GDP managed to significantly attract FDI inflows. The current study expanded the discussion by also focusing on threshold levels of stock market and bond sector development variables required to influence FDI inflows in emerging markets unlike the prior similar empirical studies which neglected both stock and bond market. Moreover, this study is the first the author is aware of that investigated financial sector development minimum threshold levels on FDI inflows using a dynamic panel threshold regression model that addressed endogeneity problems.

6.3.3 Literature focused contribution to new knowledge

The endogenous growth model was modified by Pagano (1993) to demonstrate the impact of financial sector development on economic growth in a closed economy. Bailliu (2000) expanded the Pagano's (1993) endogenous growth model to include international capital flows in order to demonstrate the role played by the banking sector in ensuring that international capital flows influence positive economic growth in the host country. The expanded model is premised on the assumption that international capital flows strictly through the domestic banking system of the host country. The model is bound to have a large error term as only one form of the financial sector is taken into account whilst stock and bond markets are ignored in contradiction to other empirical studies done by (Bilir et al. 2014; Adams, 2009; Sghaier and Abida, 2013; Nor et al. 2015) which acknowledged that international capital may also flow via other sectors of the financial system such as equity or bond markets. That is the knowledge gap the current study filled in.

The three theoretical rationales explained in detail in Chapter 3 which include the allocative channel, economic efficiency and the liquidity easing rationale provided theoretical bedrock upon which the discussion on the relationship between financial development and FDI inflows is based. The author is not aware of any empirical study on the theoretical rationales of FDI-financial development nexus which effectively dealt with the endogeneity problem. Most of the studies ignored the endogeneity problem whilst others simply acknowledged the problem without effectively addressing it. This is the knowledge gap that the current study has filled in.

6.4 CONCLUSION

This study has proven beyond any reasonable doubt that financial sector development is important in enhancing significant FDI inflows in the emerging markets. The following specific conclusions have been reached by the current study. The study found out that financial sector development threshold levels that influence significant FDI exist and they are significant in emerging markets.

Moreover, higher stock market development levels more positively and significantly influence FDI in emerging markets. On the other hand, the positive influence of lower stock market development on FDI was weak. A strong positive and more significant impact of higher banking sector development on FDI was also observed in emerging markets. Higher levels of private bond sector development were found to have positively influenced FDI whilst lower levels of private bond sector development had a weaker positive impact on FDI. Low levels of public bond sector development below the threshold positively but insignificantly influenced FDI whilst public bond sector development levels above the threshold had a negative impact on FDI. These findings are in line with most of the theoretical predictions.

6.5 CONSTRAINTS OF THE STUDY

The major aim of this study was to determine the threshold levels of financial sector development required to trigger significant FDI inflows. In carrying out the study, few constraints were evident.

The first constraint arose from the shortage of secondary data for some emerging markets. The study could have included more emerging markets but it was impossible due to the shortage of some secondary data. To manage that problem, the study ended up shortening the length of the period of study and dropping out some emerging markets. The time period of 21 years and the 21 emerging markets included in this study were considered to be adequate for the purpose of generalising the results.

Secondary data on infrastructural development index for the emerging markets was not available. To circumvent that challenge, the study ended up using the electric power consumption data which is not an accurate representation for infrastructural development. Since the data was used only as a control variable, the use of the electric power consumption instead of the infrastructural development index was not expected to have a significant impact on the overall results.

The second constraint was that literature on the relationship between bond market development and FDI is very scant. The absence of specialised theory or literature on bond market development and FDI made it difficult to interpret the results on bond market development-FDI nexus. The closest literature available that talks about long term private and public debt and stock market development and their relationship with FDI was used to help understand and interpret the bond market development-FDI nexus results.

Given the availability of sufficient financial resources, the author could have purchased data from private data management companies for some of the variables whose data could not be found in the public secondary sources. This includes data for all the variables (corruption, rule of law, government effectiveness, and regulatory quality) which theoretically have got an influence on FDI but were not used in this study because of data unavailability. In the presence of such a constraint, the study ended up utilising the publicly available data obtained from credible sources such as World Bank, IMF and United Nations (UNCTAD) and whose weakness is that some variables of interest to the current study either had no data or the data was incomplete.

6.6 RECOMMENDATIONS OF THE STUDY

The implication of the current study is that emerging markets should design and implement policies and programmes that boost the level of stock market, banking sector and private bond sector development in order to attract significant FD inflows. These include striking a good balance between under and overregulation of the financial sector in a way that allow easy entrance of new financial sector players whilst at the same time not exposing the current financial sector participants to failure. This increases not only the size, efficiency, effectiveness and liquidity of the financial sector but improves the role of the financial sector in the economy. Such an effort, if successful, goes a long way in boosting significant FDI inflows. The current study demonstrated that higher public bond sector development negatively influences FDI inflows in the emerging markets. It is against this backdrop that this study recommends that emerging markets must keep public bond sector development levels lower if they intend to benefit from FDI inflow related advantages. This is achieved if all other factors remain constant.

GDP per capita, exchange rates and trade openness were found generally to have a positive and significant impact on FDI inflows in emerging markets. The current study, therefore, recommends that emerging markets should ensure high economic growth, stability of their local currencies and high trade openness in order to attract significant FDI and harness the FDI induced spill overs to their advantage. Inflation levels and cost of labour and electrical power consumption were found to have a negative impact on FDI. Therefore, emerging markets must maintain low levels of inflation, cost and levels of electrical power consumption and labour cost despite high human capital development if they are to enhance significant FDI inflow.

6.7 SUGGESTIONS FOR FUTURE RESEARCH

The inclusion of as many control variables as possible in a dynamic panel threshold regression model helps to further address the endogeneity problem (Alfaro et al. 2008:358). It is against this background that the current study recommends future research on a similar study to include more control variables in order to further whittle down the effects of the endogeneity problem.

Subject to availability of secondary data, this study recommends the inclusion of more emerging markets in similar future studies in order to improve the generalisation of the results. Time and resources permitting, future similar studies should include as many financial sector development and FDI proxies as possible in order to enhance the usefulness of the results for policy making purposes by the emerging markets. Policymakers find it easy if they are aware of which exact different aspects of the financial sector they need to improve in order to attract significant FDI inflows. Future studies can also investigate why capital does not seem to flow to emerging/developing markets as they should as it has policy implications for financial development.

Literature has shown that FDI is critical for economic growth. On the other hand, the threshold level of FDI that triggers significant economic growth has not been empirically

tested in this study. Clearly this has not been shown in this study and would be a subject of further research.

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LIST OF APPENDICES

Table 12: Hausman test for endogeneity						
Model	Residual	Co-efficient of the residual	P-value	Result	Decision 1	Remarks
1	Res_turnover	0.000895	0.8863	Co-efficient of the residual is not significant at 1%, 5% and 10%.	H_0 not rejected.	None of the explanatory variables in a regression suffers from endogeneity
2	Res_valuetraded	0.006174	0.1675	Co-efficient of the residual is not significant at 1%, 5% and 10%.	H_0 not rejected	None of the explanatory variables in a regression suffers from endogeneity
3	Res_marketcap	0.013483	0.1249	Co-efficient of the residual is not significant at 1%, 5% and 10%.	H_0 not rejected.	None of the explanatory variables in a regression suffers from endogeneity
4	Res_precredit	0.020168	0.4095	Co-efficient of the residual is not significant at 1%, 5% and 10%.	H_0 not rejected	None of the explanatory variables in a regression suffers from endogeneity
5	Res_fincredit	0.026203	0.2022	Co-efficient of the residual is not significant at 1%, 5% and 10%.	H_0 not rejected	None of the explanatory variables in a regression is endoneous
6	Res_bondpriv	0.026171	0.6794	Co-efficient of the residual is not significant at 1%, 5% and 10%.	H_0 not rejected	None of the explanatory variables in a regression suffers from endogeneity
7	Res_bondpub	0.058800	0.2626	Co-efficient of the residual is not significant at 1%, 5% and 10%.	H_0 not rejected	None of the explanatory variables in a regression suffers from endogeneity

REGRESSOR ENDOGENEITY TEST	Model	Chi-squared P-value	Result	Decision 1	Remarks
	1	0.7787	Chi-squared P-value >0.05	H_0 not rejected.	Stock market turnover is exogenous
	2	0.0668	Chi-squared P-value >0.05	H_0 not rejected.	Stock market value traded is exogenous
	3	0.06345	Chi-squared P-value >0.05	H_0 not rejected.	Stock market capitalization is exogenous
	4	0.5865	Chi-squared P-value >0.05	H_0 not rejected.	Private credit by banks is exogenous
	5	0.3160	Chi-squared P-value >0.05	H_0 not rejected.	Financial sector credit is exogenous
	6	0.2991	Chi-squared P-value >0.05	H_0 not rejected.	Private bond market capitalisation is exogenous
	7	0.5245	Chi-squared P-value >0.05	H_0 not rejected.	Public bond market capitalisation is exogenous

Source: Author's compilation