List of Acronyms

ROE – Return on Equity

ROA – Return on Assets

2SL – Two stage least squares

GMM – General Methods of Moments

VEM- Vector error correction models

FDI – Foreign Direct Investment

JV- Joint Ventures

MNEs – Multinational Enterprise

UNCTDA – United Nations Conference on Trade and Development

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Chapter One

Introduction and background to the study

1.1 Introduction

This chapter seeks to flesh out the introduction and background of the present study. With specific reference to South Africa, the study examines the behaviour of multinational firms, their application of internationalisation and outward foreign direct investment. With the emergence of globalisation, in order to increase and enhance shareholder equity, according to Buckley and Cason (2010), investors have used outward foreign direct investment. South Africa is one of the most industrialised countries in Africa and for that reason; South African firms, which are interested in the available opportunities that increase the return on investment, have strongly invested in foreign markets (Rodríguez-Pose and Cols, 2017). Arguably, outward foreign direct investment enhances shareholder value and is one of the major contributors to much needed economic growth (Teece, 2014).

Contemporary studies indicate that outward foreign direct investment is frequently accompanied by some risk factors that can undermine the motivations and objectives of firms (Bernard, Bøler, Massari, Reyes and Taglioni, 2017; Buckley and Verbeke, 2016; Cavusgil and Knight, 2015). Most of the previous studies have limited their scope to macro-economic factors. As a result, there is scant or very limited empirical evidence that indicate the behaviour of multinational firms starting from their countries of origin as they create value synergy and capacities of firms and determine both capital investment and return on investment. This study seeks to fill that gap by using literature and data to illuminate the path dependency of firm and market level aspects in internationalisation process of firms at theoretical and practical levels in South Africa.

According to Augier and Teece (2009), the overriding objective of firms is to enhance return on investment in a context where profit maximisation revolves around a host of factors including a rigorous process of decision-making, resource utilisation, cost mitigation and good choice of investments. For that reason, the multinational behaviour of firms is decided via many rigorous processes. These processes are also affected by the impact of macro environmental factors equally as they are affected by

their internal environment. As a result, the process of making investment decisions by firms is not only rigorous but also risk laden. Worse still, multinational firms are exposed to volatile political, economic, trade and business, as well as environmental considerations, which shape both internationalisation processes (entry mode) and internalisation processes (firm behaviour). These processes are observed to be capable of sustaining investments in host destinations.

In a series of recent studies, (See, Zuchella and Magnami 2016; Yeung and Coe 2015; Deardorf, 2014; Ledenyov and Ledenyov, 2013), it has been asserted that investment decisions are diverse in time and relative in character. This is principally because of factors of resource utilisation and the risk factors that determine the behaviour of multinational firms, and condition their choice of operations. The foregoing observation is largely based on the premise that multinational firms use the experiences from their countries of origin to create synergy and competitive advantages, which influence patterns of investment and return on investment.

In the context of South Africa's outward investments, it has been established from empirical studies that a linkage between firm heterogeneity and host market conditions (Dunning, 2015; Yeung and Coe, 2015; Teece, 2014) influences the direction and pattern of investments. This linkage inevitably creates path dependency of market expansion strategies and internationalisation process (Van Houtum, 2017; Verbeke and Asmussen, 2016). Nevertheless, due to variation in firm heterogeneity and country or market specific aspects, path dependency of the internationalisation process tend to vary from one industry to another (Helpman, 2014). From a firm level perspective, risk in foreign markets and exploitation of opportunities is achieved through the compatibility of expansion strategies which are compatible to both firm heterogeneity and market specific aspects. Table 1.1 shows outward investments of South African MNEs in African host markets.

Table 1.1: Sectorial distributions of South African MNEs

Industrial Sector	Number of MNEs	Presence in host markets (Number of South African MNEs)
Mining and Construction	12	32
Retail	7	8
Technology and Communications	10	12
Financials and Banking	8	19

Table 1.1 indicates the presence of South African MNEs in African host markets. Notable, the mining and construction industrial sector has more MNEs than any other sector and has the highest number of markets penetrated. Technology industry has the second number of MNEs and has penetrated twelve host markets, closely followed by financials and banking industry that have eight MNEs and have penetrated nineteen host markets. Furthermore, the retail industry boasts a pool of seven MNEs, which have a presence in eight host markets.

1.2 Internationalisation theories and outward FDI: A synopsis

The linkage between firm heterogeneity and compatibility of specific host market aspects has been a consistent worry for economic policy makers who endeavour to create conducive environment for FDI inflows in their respective markets in Africa. Sadly though, African markets continue to record lowest inflows of FDI, while the most FDI inflows are recorded in developed markets, (Fryges , Vogel and Wagner, 2015 ; Ghauri, 2018), as well as emerging markets in Africa (Aregbeshola, 2018).

From a firm level perspective, expansion strategies rest on the linkages of firm heterogeneity that are created by institutional idiosyncrasies and their relative ability either mitigates or exploits opportunities in host markets (Dunning, 2015). Firm heterogeneity directly relates to synergies that a firm creates internalisation process. The resources of a firm are regarded as a competitive advantage and a strong foundation that create the capacity to enhance and sustain firm heterogeneity (Penrose, 1957). In this instance, multinational firms embarking on internationalisation process have specific firm level aspects, which give them the capacity to create ownership advantages and internal synergy that reduce transaction cost in host markets.This notion strongly anchors on a series of seminal literature notably from

Dunning's Eclectic Theory, Penrose's Boundaries of firm theory, Coarse's Transaction Cost theory, Valne's Process Theory – all that have been recently re-articulated by Rugman and Eden (2017), Buckley (2015) and Cantwell (2015).

In the context of country specific aspects, expansion strategies rest on the capacity of MNEs to exploit prospects of host market specific aspects as well as the pedigree of the investing firm to mitigate risk exposure in those specific markets. Country specific aspects relate direct to macro-economic variables in a particular host market. Porter's (1990) theory of competitive advantages of nations illuminates country specific aspects that include the size of the market, supporting industry, infrastructure and prices of factor inputs. Porter's theory has been recognized by a succession of studies most notably by Feenstra (2015) and Rugman (2014).

In this realisation, FDI decisions hinge on the path dependency between country and market specific aspects, which informs an investing firm on the expansion strategy to be adopted in host markets and the pattern of investment in terms of location choice and volumes (Lee, 2016; Luo and Tung, 2016). Nevertheless, due to the fact that firm heterogeneity varies across individual firms as well as economic segments, the compatibility of linkages and path dependency of internationalisation process inevitably varies.

In view to the fact that MNEs are profit making entities, the selection of a relevant expansion strategy in host market anchors on two decision making yardsticks. The first yardstick is the prospect of exploiting opportunities that relates to firm internal capacity to reduce transaction cost. The second yardstick relates to the ability of the MNEs to limit the impact of host market aspects in their commercial endeavours (Estrin, 2017). It is therefore, essential to benefit from gaining a clear understanding on path dependency of expansion strategies that influence the pattern and direction of capital flow.

1.3 Research problem statement

The study of international business has flourished in the past four decades although it has been handicapped by a lack of unanimous conceptual and theoretical approach (Buckley, 2014). There is an absence of a theoretical perspective that gives an insight on multinational firm behaviour; based on path dependency between country and firm specific aspects. On the one hand, most studies discuss macro level determinants of foreign investments, based on the assumption that firms in host markets achieve their objectives by aligning their activities with the prevailing environment (Lee, 2016). On the other hand, there is a growing surge of contemporary scholarship that attempts to understand and articulate multinational firms' behaviour from a micro-level perspective (Rugman and Eden, 2017; Buckley, 2015; Cantwell, 2015). This scholarship is motivated by the assumption that the integration of micro and macro level variables has solid factors that determine the sustainability of firms. The prevailing predicament is a consequence of polarised academic insights, which understand and articulate multinational firm behaviour from either micro or macro-environmental aspects (Oh and Li, 2015). This polarisation creates gaps on both sides of the divide, necessitating an attempt at a more complimentary rather than competitive approaches to the study of international business.

Documented evidence suggests that there is no focus on path dependency aspects from micro and macro level determinants, which create value and synergy for adoption of expansion strategies by multinational corporations in host countries (Estrin, 2017, Padmaja and Sasidharan, 2017). This absence and limit of focus has resulted in business policies that have caused the failure of business ventures through low return to investment and disinvestment. Much of the literature on international business ignores the impact of path dependency that is fundamental to firm performance in host markets and sustainability of their investments. It can be stated that multinational firm performance revolves around the creation of, and the aptitude to manage institutional idiosyncrasies that are determined by synchronisation of linkages and adoption of expansion strategies.

The problem of linkages has also been aggravated by the fact that the few existing studies that endeavoured to clarify the link of overlapping aspects on multinational firm performance, have failed to adequately incorporate the weight of overlapping aspects

of firm performance (Rugman and Eden, 2017; Rugman and Verbeke, 1993). Despite the fact that a handful of studies have offered essential insights on overlapping aspects, they fail to articulate in detail the causality of overlapping aspects and the direction of causality (Rugman and Eden, 2017; Rugman and Verbeke, 1993; Porter, 1990). The work on the assessment of multinational firm behaviour is based on path dependency of expansion strategies in host markets. This is essential in order to explain sustainability of outward investment in a way that closes the gap in the current studies and internationalisation theories. The lack of exploration of variables, levers, and capacity of a firm in host countries, has resulted in disinvestment, low rates of return on capital and failed business ventures.

It is observed that research could address these shortfalls by providing theoretical economic models backed by empirical studies. Added to the dearth of studies that link micro and macro level aspects of FDI, previous studies have failed to explain multinational firm behaviour based on industry specificity (Tang and Pearce, 2017; Rugman and Eden, 2017; Tang, 2017; Casson, 2015; Crescenzi, Gagliardi and Lammarino, 2015). Recent studies in this field have treated micro and macro level aspects that drive multinational firm activity with a one size fits all approach. However, due to variations in industries, there is need to assume that specific industry and country aspects are addressed in varying degrees and with a built of divergence by multinational firms.

1.4 Research questions

The current surge of globalisation and increase in foreign direct investment is an indication that most MNEs are increasing their investments in relative host market. Evidence indicates that outward FDI from developing markets is increasing in Africa (Rodríguez-Pose and Cols, 2017). It is crucial for both African markets and MNEs to understand the path dependency of expansion strategies of MNEs who are agents of international capital movement. In this context, this study answers the following general and specific questions: What are firm and market specific aspects that create path dependency of internationalisation process? Aside this question, the study also intends to provide answers to the following sub-questions:

- To what extent do linkages influence adoption of expansion strategies in host markets?

- What is the investment pattern of MNEs in terms of location selection?
- What is the significance of overlapping aspects between firm and market level aspect in different economic sectors?

1.5 Research objectives

The principal objective of this study is to explore the relationship between firm level aspects (firm heterogeneity) and market specific aspects and the direction of outward FDI. The research sub-objectives are highlighted below:

- To understand how linkages influences expansion strategies in host market.
- To understand investment patterns of MNEs in terms of location selection.
- To establish significance of linkages in firm and market level aspects of economic sectors in the study.

1.6 Research significance

This section of the research seeks to outline the significance or rationale of the present study at the practical and theoretical levels. This is important as far as it provides the justification of the study and its contribution to the discipline of the study of international business.

1.6.1 Practical significance

The failure by multinational firms to sustain investments in host destinations and subsequent disinvestments from global markets calls for practical intervention from firm executives and decision makers. By detailing the importance of overlapping factors that determine behaviour and performance of multinational firms, the proposed research endeavours to enable business executives and decision makers to construct and adopt comprehensive strategic positions and decisions that determine and sustain multinational firms, home and away. Appraisal and appreciation of overlapping factors of influence stands to enable multinational firms to align their objectives and resource allocation, and to consistently adopt firm-level adjustments that sustain business concerns in the competitive and rather challenging global markets.

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1.6.2 Theoretical importance

Most existing studies on international business have been designed using macro-level determinants and aggregate data, whereas it is arguable that micro-level determinants have a number of strong points that explain consequences of macro level determinants of FDI (Cantwell, 2015). The present study notes that path dependency of firm specific and market specific aspects are the causal link that is fundamentally influential in the behaviour of multinational firms and their performance. Conceptual recognition of overlapping determinants and sustainability of multinational firms is not common in contemporary studies and existing literature, a gap that this proposed study attempts to fill. Overlapping determinants of FDI, this study argues, are effective in exploring micro business causality and comprehending macro business consequences.

The study also contributes to the body of existing knowledge in the field of international business, economic and trade by relating how globalisation and international trade hinge on the heterogeneity of individual firms. The study advanced the frontier of understanding in the general field of international business, economic and trade by examining specific industrial factors and country traits, all of which are influential to different sectorial segments of international business. By distinguishing micro level and macro level determinants, the study attempts to marshal the literature about the two into one, and motivate the exploration of overlapping aspects in order to decrease the paucity and polarity of existing studies and literature.

1.7 Organisation of the study

The context of this study is organised as follows, the next chapter (Chapter Two) reviews existing literature on the theoretical framework of internationalisation theories and foreign expansion strategies of MNEs. This chapter also highlights discussion on firm level adjustment to FDI and focus on global MNEs and their relative market penetration strategy.

Chapter Three focuses on the theoretical assessment of South Africa outward FDI as well as location choices by MNEs. This chapter discusses the effects of country specific aspects on the attractiveness of markets and expansion strategies of South African MNEs in African markets.

Chapter Four discusses research methodology, which is adopted to answer initial research questions. It expounds research hypothesis and discusses methodological framework adopted in model specifications. Key in this chapter is the discussion on variables of both firm and market level aspects, as well as a discourse on data and sources of data that will be used in the study. Furthermore, the rationale of econometric measures that are adopted in this study is also highlighted. This chapter concludes with the discussion on error correction techniques that precedes empirical estimates.Chapter Five gives a detail of estimation process and results of the study. Estimation models adopted in Chapter Four are approximated using econometric measures and the outcomes and findings are interpreted and analysed.

Ultimately, Chapter Six relates to the findings of the study to questions, objectives, hypothesis, policy implications as well as a summary of recommendations and points of further study. This Chapter concludes the study by highlighting initial study questions, objectives, hypothesis, and the findings from empirical evidence. The Chapter also details the contributions of the study, recommendations, and indications of further study.

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Chapter Two

Internationalisation theories and foreign expansion strategies of MNEs

2.1 Introduction

For the present study to do justice to its stated objectives, internationalisation theories and foreign expansion strategies need to be understood. Studies have established the link between firm internationalisation strategies and factors that determine the pattern of FDI in terms of the direction and the flow (Dunning, 2015; Rugman, 2014; Hashai and Buckley, 2014). Recent studies propose that internationalisation theories are better seen as strategic positions that are determined by individual firm motives and capacity (Buckely and Casson, 2014).

This realisation entails decision making of an individual firm to select the right market penetration strategy based on the motives and many other aspects like resources of the firm, prospects and the environment of host markets. Internationalisation theories are therefore assumed to determine the linkage between firm heterogeneity and specific aspects in host markets (Andreff and Balcet, 2015; Dunning, 2015, Helpman, 2014; Aspelund, 2010).

The study is underpinned by the theory of competitive advantage of a nation (Porter, 1990). According to Porter (1990), multinational firm strategies are often heavily reliant on the ability to create capacity necessary to manage institutional idiosyncrasies. However, the creation of institutional idiosyncrasies is a consequence of the linkages between macro and micro environmental factors. This study reviews competitive advantage of nation's theory (Porter, 1990) and analyses the path dependency of micro and macro determinants and their relative impact on internationalisation process and outward FDI. The competitive advantage of nation's theory is used as the lens of illuminating the establishment and relationship between firm-level aspects and market level aspects.

The competitive advantage of nation's theory by Porter (1990) asserts that there are four favourable aspects, which determine the impact of international business and trade. The theory hinges on the four identified aspects.

In the first strand, Porter (1990) considers that demand conditions, the nature, and size of demand influence production and innovation of goods and services. A host of theoretical and empirical literature identify the size of the market as a major determinant of FDI inflows (Deng and Yang, 2013; Deng, 2013 and Luo and Wang, 2012). These studies assume that the size of the host market enables allocation and efficient utilization of resources.

In the second strand, Porter (1990) observed that factor conditions also influence the flow and direction of FDI. These relate to the availability and price of factor inputs, labour, capital and technology. For instance, host markets with low price factor inputs (high endowment) are more attractive to resource-orientated multinational firms, therefore enhancing the likelihood of investment in the extraction sector. In this regard, it is arguable that market with low prices of factor inputs (which is an important aspect of multinational firm investment sustainability) is an essential pull aspect for internationalisation process.

According to Porter (1990), relating and supporting Industries is one of the key issues for international investment, as supporting structure relate to the industries for synergy benefit, as well as an infrastructural development that supports and reduce the cost of investment. This gives credence to the fact that has been reinforced by a host of findings that network of both suppliers and related businesses are important pull factors for FDI (Buckley and Verberke, 2016).

Another aspect that is expounded by Porter (1990) is firm strategy and rivalry. This is one of the fundamental aspects of international trade as companies compliment government efforts by producing goods and services that are not only critical for household consumption, but national economic growth as well. Consistent with this argument, Buckely (2015) buttressed the importance of market efficiency and the role of government in enabling information that forms the causal aspect in international business.

Rugman and Cruz (1993) modified the theoretical underpinnings of Porter's original work by including the addition of vital aspect on firm-specific assets that determine multinational behaviour in host markets.

According to Rugman and Cruz (1993), the fundamental standpoint of the theory is flawed when applied in a small trading economy. Thus, the conceptual gap raises the need to reinforce Porter's proposition with resource-based view models, which are more aligned to Penrose's (1959) views on the boundaries of the firm. The later change by Rugman and Cruz (1993) added the dimension of individual firm heterogeneity but without specific reference to firm idiosyncrasies. This theoretical proposition also remains handicapped in explaining the impact of these asset-related factors on multinational behaviour and performance.

Recently, Nguyen and Rugman (2015) reinforced the double-diamond model through empirical evidence from a sample of 101 multinational firms. The study, using a principal component analysis, concluded that over the years, multinational firms have increased their competitiveness. Narula and Verbeke (2015) have also reinforced the double-diamond model and calls for more research on institutional idiosyncrasies that determine performance and their relative causal link. For this reason, this study proposes to bridge the academic gap in research by investigating the relevance of institutional idiosyncrasies , and the causal relationship between these factors with macro environmental factors in host markets, and their relative impact on performance and behaviour.

However, it is important to point out that the work of Porter (1990) does not suffice in explaining the impact of overlapping aspects on firm performance and behaviour. This is shown by the following arguments. First, the theory gives a hint on the trade-off of micro and macro factors; there is no link to firm level adjustments, which determine the intensity of firm behaviour and subsequent firm performance. Second, related to Heckscher-Ohlin's model is that they adopt similar productivity across the board. This is a significant drawback, especially, considering the rise of new theories that have taken into account aspects of the microenvironment.

Third, since the theory provides no link to firm-level determinants, there is also no establishment of a causal relationship of overlapping aspects, the direction of causality and relative weights of overlapping aspects.

This study assumes that multinational firm behaviour and performance hinges on three pillars: firm-level adjustment in host markets, the trade-off of interaction between micro-level decision making to either exploit an opportunity or mitigate a risk factor and the causal direction of the trade-off. Most studies that focused on this new intellectual direction have overlooked the importance of overlapping factors, and how they enable firms to adjust firm-level variables and to adopt strategic positions that add value (Verbeke and Asmussen, 2016; Narula and Verberke, 2015; Nguyen and Rugman, 2015).

The following sections of the chapter are arranged as follows: section 2.2 presents a review of motivations of multinational firms. Section 2.3 presents a synopsis of internationalisation theories. Sections 2.4 discusses micro aspects and expansion strategies, which are influenced by internal competencies. Section 2.5 presents host market and relative linkage on the expansion strategy. Section 2.6 surveys overlapping aspects and their influence on the strategic position of MNEs, while section 2.7 explores the economic perspective theory. The final section (2.8) concludes the chapter.

2.2 Motivations for multinational firms to venture abroad

According to Harris and Moffat (2015), understanding the motives of a multinational firm is at the core of understanding their strategic position as they invest in host markets. In this context , when a firm invests in international markets in pursuit of different aims, for this intention, the motivation for multinational firm are not exclusive. The issue of multinational motivations has not been examined as a causal aspect of investment patterns and subsequent behaviour of multinational firms in offshore markets. Motivations are subject to adjustment over the passage of time and they are heavily reliant on both internal variables (firm structure and key competencies), as well as the externally imposed variables of host markets, (Dunning, 2015).

In the context of background provided in preceding paragraph, this section assumes that motives of multinational firms are inherent to internationalisation strategies that they adopt in host markets. A genre of studies concur that motivations of firms have a direct impact on strategies that are adopted in the host markets (Teece, 2014). Nonetheless, there is no consistency on the direction of causality between firm objectives and internationalisation strategies.

In the context of the current study, motives of multinational firm are hypothesized to align the strategic position of the firm with conditions in the host markets.

According to Cantwell (2016) the most quoted seminal classification of multinational motivation is one suggested by Dunning‘s eclectic theory. It is therefore reasonable to consider the work of Dunning as the canon of our analysis. Dunning’s theory expounds why ownership advantage and how a firm decides to invest in global markets where it is considered most probable to invest. The taxonomy consists of three classifications as detailed in the paragraphs that follow.

2.2.1 Resource seeking

In this classification, the main objective of a multinational is to obtain specific categories that are not obtainable in domestic markets such as raw materials or natural resources , that are obtainable at cost-effective rate, for instance, a price of labour. In this connection, resource-seeking motive are more compatible with pull factors that are discussed in host country-based perspectives (Dunning, 2001; Dunning, 2015).

2.2.2 Market seeking

In this scenario, multinational firm invest in a host country to exploit opportunities granted by greater dimensions of markets. Several objectives are central in this option; amongst them are to serve customers and suppliers that have been present in foreign markets. Multinational firms may also seek to transform services to local needs and tastes, inevitably saving the cost of serving a market from a distance. In contemporary era, it is becoming more imperative to occupy a market and discourage potential entrants (Dunning, 2015). Consistent with this argument, market-seeking motives regard push factors, which are discussed under micro level-based aspects in section 2.4.

2.2.3 Efficiency seeking

Efficiency seeking occurs under two scenarios. In the first scenario, firms capitalize on differences in cost and availability of factor endowment in different host markets. While in the second scenario, firms capitalize on the economies of scales and scope and of different supply aptitude and consumer taste in host markets. This realization takes into account the bi-directional causal relationship firm specific aspects and

market level specific considerations. Hence, it gives credence to the proposition of firm and market level advantages perspective (Dunning, 2015).

2.3 Synopsis of internationalisation theories

This discussion explores internationalisation theories that explain MNEs activities. The paramount objective of literature review in this section is to understand theoretical suggestions that explain MNEs positions in host markets. In the context of this argument evidence from internationalisation theories, literature make a crucial connection with the study supposition that firm level and market level aspects have a causal relationship.

Seminal and contemporary theories offer essential insights into the operation of firms in business anywhere, including international firms. However, these theories fail to nuance the distinguishing characteristics of businesses operating among different nations and different business segments in host nations. The question of how then firm's internal mechanism influences results and macro environment (Fletcher and Harris, 2012) is not answered by these theories.

Since international business is the study of business activities that cross national borders, it is conceptually concerned with the firms that undertake that business, how they make expansion decisions (objectives), and set up internal mechanisms to achieve the stated objectives. Furthermore, the scope of this discourse seeks to extend the discourse from that trend, must also explain how multinationals set objectives and proactive mechanisms to achieve objectives. It must explain how the firms generate responsive mechanisms to respond to trade regulations and business risks in host destinations. As such, this study reviews a genre of theoretical models of internationalisation and economic models of internalization in order to achieve a wider and a deeper understanding of these intricacies and their praxis in global marketplace.

According to Johanson and Valne (2015), it is important to understand why some firms opt for outward investment (most do not), instead of opting for alternative methods of exporting and different methods involved. In the recent past, other firms follow the more dynamic process and a recent phenomenon of newly established firms, have emerged in the last decade that MNEs internationalise at inception or just after – the

born global (Cavusgil, and Knight, 2015; Andreff, 2014). Based on this discourse, it is imperative to understand the motivation and the behaviour of multinational firms.

2.4 Micro level aspects

Key to the discussion in this segment is internationalisation theories from firm-level perspectives. The initial objective of the outward investment is to exploit competitive advantages enjoyed by a firm compared to other firms in the targeted host country. This perspective considers push motivational factors to be a key competitive advantage in host markets that connects with market-seeking objectives that was discussed earlier in the chapter. Andreff and Balcet (2015) concluded that firm-specific advantages or competitive advantages can be segmented into two subsections.

The first segment revolves around ownership advantages that includes trademarks and patent. The second segment involves non-ownership advantages such as management structures, business networks, and production capacity. Due to the diversity of firm's competitive advantages, and in an attempt to illuminate the development of emerging multinational firms, the following genre models have been postulated, namely the process models, transaction cost, monopolistic advantage and resource-based models, as well as innovation related and entrepreneurial approach.

Traditional process models argue that internationalisation is incremental in nature and solely rests on risk adverse and reluctant adjustment to variations, to neither a firm nor its environment (Johanson and Vahlne, 1977, and 2015). Firms operate in a domestic market unless they are induced and pushed to invest in foreign markets by events such as demand of services, export orders and uncertain operational conditions in the home market. Once implemented, the process of internationalisation starts with a slow pace due to risk and uncertainty. The pace of firm at accumulating knowledge through exposure and experience of the foreign market determines the subsequent speed of internationalisation, and give a justification of more resource commitment for future activities in foreign destinations. In this regard, the process of internationalisation is perceived as more reactive than proactive to strategic alternatives when increasing pace in foreign markets. Internationalisation processes proceed regardless of the adoption of strategic decisions by management (Johanson and Vahlne 1977, and 2015). In this model, the objectives of the firm are assumed to be ensuring survival

through an increase in sales volume, greater market share and extending product life cycle. Hernández and Nieto (2016) echo this sentiment and they augment this model.

In the recent past, the process model has faced heavy criticism from the proponents of born-global concept who argue that some firms internationalise at inception or shortly thereafter, and therefore rendering the process model valueless (Zuchella and Magnani, 2016; Cantwell, 2015). In other words, some firms are formed to be international; and they do not grow into internationalism.

Despite the recent born-global firm model, there is substantive empirical evidence that suggests that multinational firms internationalise through incremental stages. First, firms penetrate markets that are close to their home countries and they increase the degree of commitment with the passage of time and growth of experience. Arguably, even if a particular firm is born-global, it still has to seek to accumulate adequate knowledge and experience if it is to make it in the international market (Magnami, Zuchella and Floriani, 2017; Pellegrino and McNaughton, 2015; Jones and Cassuli, 2014). This highlights the need to augment the process model and incorporate resources based theories, organisational perspective theories, and learning based views. The born-global model, in a way, therefore compliments rather than dismisses the process model.

Transaction cost theory considers the optimal options of market penetration models when the decision to internationalise has been upheld. As such, the model does not deal with the rationality of internationalisation, but rather addresses costs and efficiency comparisons of market entry strategies, given that asset specificity, uncertainty and information asymmetries exist. The mode of entry matters most, specifically in high technology industry, where the market has high pertinence of assets specificity and information asymmetries. Firms are forced to internationalise in order to recover the cost of research and development and generate revenue for their present budget. The cost of international market entry is always high. Such firms avoid the cost of intermediaries by direct exporting or setting up production units in host firms (Teece, 2014).

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In the early years of the internationalisation process, many firms incur a lot of costs and experience negative cash inflows resulting in reduced financial capacity to embark internal arrangement on their own. To that extent, strategic alliance with foreign firms in host markets may seem the most feasible and pragmatic contingency plan. The greatest challenge is that apart from sharing profits, both parties may incur marginal costs of training and developing a foreign partner in the processing of such an alliance (Teece, 2014). Based on this understanding, many academics argue that transaction cost theory has limited use. Instead, resource-based theories are considered suitable to address the fundamentals of the international business more effectively (Boddewyn, 2015; Hillemann and Verbeke, 2015).

Narula (2017) asserts that firms who already experience the risk of newness and small size take the risk of entering foreign markets early in their existence with great success, by sheer daring. This hypothesis is supported by empirical evidence by the author, that new firms penetrating a foreign market simultaneously determined their intensity of foreign market exposure, country risk exposure, and entry mode. According to this author, foreign experience toughens the new players and conditions them to the challenging international business climate. Furthermore, firms trade off these factors to an extent that when the degree of one is increased the degree of one or both of the others are decreased.

By implication, firms who enter high-risk countries rely on those markets for lower percentages of their total revenue and opt for cost-effective entry modes. However, firms with a high exposure of revenue in specific foreign markets or using a high-cost penetration strategy opt for less risky markets (Shrader, Oviatt, and McDougall, 2000). Recent literature (Boddewyn, 2015; Buckley, 2015) has argued that internationalisation process is influenced by the cost of market entry and economic conditions in host countries. Thus, a multinational firm evaluates cost and benefits in host markets before the decision to embark on internationalisation via outward FDI.Furthermore, resources based and monopolistic advantages models assert that a multinational firm can generate higher "Ricardian" rents by utilizing firm-specific assets, which cannot be re-incarnated by rival firms. The model hinges on the assumption that, despite the fact that local firms have competitive advantages over multinational firms (such as superior network, regulatory instruments, and alliances), multinational firms have intangible productive assets (such as, tacit knowledge,

competent management, exports contact, technology and resource capacity), that are able to give them a better competing and survival capacity.

The resource-based organisational strategy is fundamentally concerned with how value is created by generation, enhancement and utilization of resources, skills and aptitude both tangible and intangible (Barney and Mackey, 2016; Teece, 2014). The literature in this section discusses the firm defined by Penrose (1959, 2009), as a collection of various assets, human capital, financial capital, and technology. The discussions hinge on micro level activities rather than the macro environment. What a firm embarks on, supposedly, is determined by what it can accomplish. Furthermore, a firm with tangible assets operates in specific markets determined by firm's capabilities that mostly determine the firm's competitive advantage (Teece, 2014).

According to Teece (2010), firm dynamic capabilities are inherent of its competencies and capacities that enable the firm to create new products and processes as well as adapt to the volatile business environment. Teece (2014) echoes the same notion that dynamic capabilities influence (or are influenced by) managerial capacities and organisational process knowledge ,value chain process, positions such as endowment, technology, and intellectual property and path options available for strategic positions.

A series of studies seek to validate the resource-based model. These studies suggested an integrated approach to multinational behaviour that anchors on the intensity of competitive advantages. The greater the sophistication of the knowledge base, the greater the competitive advantage, the higher the likelihood of a firm to invest early in foreign markets. The theory also explains the difference between firms that are knowledge intensive and knowledge based (Dominguez and Mayrhofer, 2017; Hotho and Lyles 2015; Yeung and Coe, 2015).

In the recent past, the resource-based approach has undergone profound fundamental changes, even though it is still applicable in the internationalisation process. The advances in technology and rapid changes in the macro environment spectrum have resulted in a shorter product life cycle and saturation in various industries (Pezeshkan, Smith, Fainshmidt, and Sedeh, 2016). With the rapid change of the macro environment, strategic planning is no longer understood as a process of resource allocation and utilization (as in the traditional resource-based

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approach).Even aspects of the strategic management process like entrepreneurship, capacities, and competencies are quickly overtaken by events in a rapid business environment (Lessard, Teece and Leih, 2016).

2.4.1 Expansion strategies motivated by micro-level theories

Consistent with the above theoretical framework, this section discusses the linkage between conceptual underpinnings of internationalisation and MNEs' strategic positions that are adopted in the internationalisation process. This realisation entails two fundamental aspects. First, the nature of the industry as firm heterogeneity varies in line to industry traits. Second, the contribution of the firm internal capacities in the creation of competitive advantages that enhances the adoption and sustenance of strategic positions.

According to Dunning (2015), one of the motivations of MNEs is to exploit dimensions in the foreign markets using competitive advantages to enhance strategic positions. This motive is based on the market-seeking objective where MNEs are pushed by internal capacities to invest in host markets. Harris and Moffat (2015) documented evidence that considers exporting strategy as a strategic position adopted by MNEs in manufacturing and industrials economic sectors. The assumption of learning-by-exporting hypothesis has essential policymaking implication with regards to investment-making decisions.

Empirical research by Fryges, Wagner and Vogel (2016) concluded that historical exports are significantly related to better overall factor productivity and causative effect on the pattern and strategy of outward FDI. The study also indicates that the learning impact is more pronounced among established exporters. Furthermore, at a firm level survey of the manufacturing sector in British firms by Harris and Moffat (2015), it was found that productivity increase in post exporting era, but also provided additional sources and mechanism of productivity growth. The study concluded that firms make a series of decisions to increase their investment, training, and development to boost higher productivity. This narration is consistent with both resource-based and process models as discussed earlier.

Evidence from leading manufacturing MNEs, according to Fryges, Wagner and Vogel (2016), suggests that learning-by-exporting hypothesis provide a perfect basis for investment decisions and strategy adoption. In the manufacturing industry, leading MNEs would naturally adopt greenfield investments. Under the greenfield entry mode, a firm starts a new plant from scratch, yet the implementation revolves around mergers and acquisitions. In this case, greenfield and cross-border investments co-exist as perfect alternatives or extension options. The strategy is more pronounced in motorcar industry where MNEs establish manufacturing plants in host markets. This is evidenced by the strategy adopted by General Motors (Estrin, 2017)

According to Estrin (2017), General Motors investment strategies in 35 host markets on global scale reveal an interesting dynamic strategy formulation and implementation. In this organisation, expansion strategy has been largely implemented through greenfield investment in Europe and Africa. While in Asian markets such as Japan and China, the expansion strategy adopts both joint ventures and greenfield investment. This behaviour is also consistent with evidence of Mercedes Benz, BMW, and Nissan in the South African host market.

Furthermore, in retail and fast foods industry, MNEs expansion strategy is also diverse in character. Evidence from MacDonald’s, fast food giant, indicates that expansion strategy is achieved through a number of strategic positions, which vary from host markets to host markets. In developed countries, MacDonald’s expand their business through greenfield investments and affiliation (Lee and Ries, 2016). Nonetheless, in developing markets, the firm adopts franchising and affiliation as an expansion strategy. This complex strategy adoption process has enabled MacDonald's to be a global leader in the fast food industry. Strategic positions of MacDonald's also have a close resemblance to that of Kentucky Fried Chicken (KFC), which is also a second global leader in the fast food industry (Schmid, 2018).

One of the most successful expansion strategies in international business is licensing and franchising. Coca-Cola has used licensing in all its global operations with a great degree of success and has managed a global footprint. Nevertheless, there is no empirical or theoretical evidence that considers a licensing as a causative effect of outward FDI. The assumption is that firms that embark on licensing like Coca-Cola

have competitive advantages, which cannot be reproduced by rival firms (Ghauri, 2018).

The choice of location is motivated by factors derived from comparative advantage and transaction cost across phases of production. In many instances, host market location is a compliment of a strategy implemented in the domestic market of MNEs. Hence, the choice location is path dependent on key competitive strategies and prospects of host markets that are conducive to firm-level adjustment (Harris and Moffat, 2015). Firm-level adjustment is assumed to be implemented in incremental stages. From an economic perspective, MNEs expansion strategy is induced by the prospect of marginal cost reduction relative to purely national firms.

By expanding to foreign markets, MNEs avoid either logistics (horizontal or replicating strategies) or reduce the cost of production by investing close to factor inputs (Collinson, Narula and Rugman, 2016).

Table 2.1: Micro level aspects and expansion strategy.

Firm	Motive	Micro Aspect	Expansion strategy	Presence in host Markets
General Motors	Market-seeking	Size, Innovation, and product	Greenfield and Joint Ventures	35
MacDonald's	Market-seeking	Product, Service	Franchising, Affiliate	120
Coca – Cola	Market seeking	Size , Innovation	Licencing	188
Mercedes - Benz	Market seeking	Size , Innovation and product	Greenfield and Joint Ventures	29
Toyota	Market seeking	Size , Innovation and product	Greenfield and Joint Ventures	21
KFC	Market seeking	Product, Service	Franchising , Affiliate	113

Table 2.1 above illustrates macro level aspects and expansion strategies of MNEs, there is evidence that, Coca–Cola has the highest number of presence in host markets. Coca-Cola has managed a global footprint using licencing strategy. Kentucky Fried Chicken and MacDonald's have also made an impact using franchising and affiliate strategy. Furthermore, MNEs which use greenfield and joint ventures as expansion strategies record the least number of presence in host markets, these includes Mercedes–Benz, Toyota and General Motors.

2.5 Macro level aspects

The genre of literature in this section underscores the fact that insufficiency of a firm's competitive advantages has a causal effect on the internationalisation process as developing multinational firms endeavour to enhance their competitive advantages (Luo and Tung, 2017). These authors assume that aspect in host destination of investment prompt and motivate outward foreign investment. To this extent, various theories have been conceptualized of which the most important ones are the imbalance and springboard approach, the linkage, leverage learning theory and network theory (Andreff and Balcet, 2013).

Owing to substantial prominence of pull factors in the internationalisation process, imbalance and network model interpret outward foreign direct investment as a springboard for developing multinational firms. The theory assumes that outward foreign direct investment is fundamental to a company that has insufficient competitive advantages. Internationalisation process empowers the firm to acquire state of the art technology, strategic assets, knowledge, trademarks and key competencies, (Luo and Tung, 2017).

According to Moon and Yim (2014), multinational firms that invest in global markets do so, not only invest to improve their rates of returns on assets but also to improve or sustain the viability of firm-specific assets. Consequently, ownership disadvantages and ownership advantages equally motivate outward foreign direct investment. The justification of imbalance and network theory is to evaluate both advantages and disadvantages.

Taylor (2014) reinforces the theory and define disadvantages as either low market share, insufficient resources or inadequate management knowledge. In retrospect, it is possible for competitive advantages to be the outcome of global markets involvement than to be a pre-condition. Luo and Tung (2017) assert that internationalisation process from developing firms has progressed at a higher speed as compared to the multinational firm in developed markets. As a result, internationalisation process of developing firms is probably to be implemented through advancing rather than incremental process.

Furthermore, Sakr and Jordan (2016) comments that rapid growth of developing countries has inspired their firms to explore global markets and undertake immense acquisitions, precisely in developed countries.

According to Andref (2014), the expansion of multinational firms from emerging economies is motivated by three factors, which are linkage, leverage, and learning. The linkage is regarded by a multinational firm as a principal instrument of mitigating risk and uncertainty in global markets and for accumulating resources that are scarce in home countries. Multinational firms can create a variety of networks with incumbent domestic firms in host markets. Networks can be created in different forms such as joint ventures, engagement in international value chains and strategic alliances (Sakr and Jordan, 2017).

Leverage reflects the availability of external resources as a consequence of creating links between multinational firms and their foreign associates. From a logical perspective, multinational firms are assumed to target more transferable resources and easily imitable ones. The learning process is assumed to be at the end of a repeating sequence of linkage, leverage, and learning. Coviello (2016) further assumes that the internationalisation process takes off at a swift pace (*also see* Sakr and Jordan, 2017).

2.5.1 Expansion strategies motivated by macro-level theories

In this extension, this section discusses the linkage between macro-level aspects and MNEs strategic positions that are adopted in the internationalisation process. This realisation entails two fundamental aspects: the nature of the industry and are market level aspects, which give MNEs absolute advantages that may motivate pulling out investment from domestic economy to host destinations.

According to Dunning (2015), MNEs are pulled out of domestic markets to invest in foreign markets. This motive is based on resource-seeking objective, where aspects in the host market induce the inflow of investment. Furthermore, eclectic theory lays premises on location or country-specific advantages such as mineral endowments, cost of labour, and size of the economy. This discussion explores the relevance of markets aspects in the determination of investment and expansion strategy adopted

henceforth. In this connection, literature suggests that country-specific advantages are synonymous with mining industry (Narula, 2017).

Schmid (2018) asserts that leading mining MNEs such as Encore, Rio Tinto, and BHP-Billiton reveals an interesting dynamic strategy formulation and implementation. Their expansion strategies have been largely implemented through greenfield investments in developed markets. While in developing markets (Latin America, Asia, and Africa), the expansion strategies have adopted entry via subsidiaries through both mergers and acquisition. A number of reasons have been postulated to explain the dynamic process of expansion strategy in mining MNEs. Central to the discussion is the realisation that in developing markets, MNEs have to contend with many factors like political instability, security of tenure and institutional voids.

Likewise, to mitigate these challenges MNEs enter these markets through joint ventures, which also play a pivotal role in providing networks and alliances in host markets.

Table 2.2: Macro- level aspects and expansion strategy

Firm	Motive(Pull Factors)	Macro Aspect	Expansion strategy	Presence in host Markets
Glencore	Resource seeking	Mineral Endowment	Joint Ventures	5
Rio Tinto	Resource seeking	Mineral Endowment	Joint Ventures , Subsidiaries	13
BHP	Resource seeking	Mineral Endowment	Joint Ventures , Subsidiaries	11
De Beers	Resource seeking	Mineral Endowment	Joint Ventures , Subsidiaries	29
Anglo - Platinum	Resource seeking	Mineral Endowment	Joint Ventures , Subsidiaries	21
Vale	Resource seeking	Mineral Endowment	Joint Ventures , Subsidiaries	30

Table 3.2 illustrates macro level aspects and expansion strategies. From the table, mining firms are categorised as resource seeking and internationalisation process is implemented through joint ventures and subsidiaries. Vale has managed the highest number of presence in host markets with 30 operations, followed by De Beers with 29, Anglo–Platinum has managed 21, Rio – Tinto 13, BHP 11 and Glencore has 5 global operations.

2.6 Micro and macro path dependent theories

This genre of concepts is considered to be more comprehensible than the above-discussed models. Key to the discussion in this genre is the linkage of firm level and market level advantages. Consequently, the narration of global orientation is most likely to hinge on the objective of either to exploit multinational firm resources or attain scarce resources or both. To this extent, various theories have been conceptualized, of which two theories are the most important ones, namely the born global theory and the eclectic paradigm model.

According to Zander, McDougall-Covin and Rose (2015), contemporary studies recognise the early inception of international activity as the born-global concept. An extensive range of explanations have been postulated to describe this sensation, this includes *inter alia*, leapfrogging firms, global start up, international new ventures and infant multinational corporations. Contemporary studies differentiate between four categories of the early inception of internationalisation process based on a number of activities in which the multinational firm partakes. In import/export start-ups, the firm will be involved in small activities. With the multinational trader type, the firm partakes in small proceedings but in multiple markets. The firms that are geographically focused would be involved in a large number of activities but in few markets. Finally, in the global start-up, the firm is enormously involved in both markets and activities.

Almor (2013) asserts that a born global firm is involved through foreign direct investment, in global markets that span more than five markets with at least 40 % of its outcome in markets abroad. To be categorized as a born global, a firm must commence global sales within two trading years of inception. In the contrast, Knight (2015) views a firm as a born global if it manages to record at least 25 % of its production and pursue the development of a competitive advantage by exploiting its resources from multiple markets within 3 years of its existence.

Gabrielsson and Gabrielsson (2013) assert that early international alignment hinges on three main aspects. First, multinational firm characteristics include unique firm advantages comprising *inter alia*, technology and managerial capacity and customer orientations. Second, market level aspects refer to market specific aspects, advantages in host markets such as availability of information, profit opportunities, market intensity and export promotion programs. Third, decision maker traits refer to

a business executive who is assumed to have an influence in the internationalisation process.

The OLI framework (Dunning,2015), attempts to detail the advantages that are created by a multinational firms in host markets. The OLI model hinges on three fundamental concepts, namely ownership, location and Internalisation. According to the Ownership, Location and Internalization (OLI) model, own specific advantages relate to value created by investing firm, and the capacity to engage in their foreign production. A key fundamental is that firms are a collection of assets and that multinational firms have more than average level of assets.

These assets can be used on varied points of production without impacting on effectiveness, for example, on product development as well as managerial structures. While this is clearly a multi-dimensional factor, it is plausible to model it in the lens of a single index of firm productivity. A prospective firm must incur costs to determine its productivity, and when this is achieved, productive firms organize themselves into variable modes of production. Firms who have low production curves remain on the domestic market, firms with moderate production curves, opt to incur the landing cost of exporting. However, firms with high and sustainable production curves opt to pay higher fixed costs of embarking on foreign direct investment, (Feenstra, 2015; Helpman, 2014).

Location is the second strand of the eclectic model that discusses the fundamental differences between horizontal and vertical FDI. Horizontal FDI occurs when a multinational firm identifies a plant abroad to enhance it to access markets and customers in host destination. In broad terms, a horizontal FDI is when, a multinational firm replicates its domestic production in a host destination. Vertical FDI is not primarily or even concerned with production for sale in host markets but seeks to exploit low-cost advantages. In most cases, the firm's headquarters are in the country of origin and the firm-specific ownership advantages; generate a flow of services from the country of origin to the host destination. Nevertheless, the distinction between market access and cost motives of multinational firms is a paramount one.

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Internalisation is the third strand of the model that discusses competitive and cost advantages of own production as opposed to the joint venture, licensing or strategic partnership arrangement. Multinational firms may create, enhance and exploit their core competencies through this process. The greater the net benefit, the more rationale the decision to internalize cross-border operations in host markets.

2.6.1 Expansion strategies motivated by overlapping aspects

This section discusses the linkage between firm-specific aspects and market-specific aspects in the determination of MNEs expansion strategy. This realisation entails in three fundamental aspects; which are firm-specific aspects, market level aspects, and the linkage that create path dependency of MNEs.

Dunning (2015) asserts that MNEs are both pulled out of domestic markets to invest in foreign markets by factors in the host markets and pushed out to invest by key competencies that a firm owns. This motive is based on efficiency seeking objectives with compatibility between firm-level aspects and country-specific aspects that induce outward investment. This discussion explores the relevance of overlapping aspects in the determination of investment and expansion strategy adopted henceforth. In this connection, a series of studies suggest that MNEs who have better resources create institutional idiosyncrasies that enhance linkages in host markets.

A series of recent studies (Schmid, 2018; Lee, and Ries, 2016; Lebedev, Peng, Xie, and Stevens, 2015) suggest that MNEs who have managed a global footprint like Wal-Mart, Coca-Cola, MacDonald's and Exxon mobile adopts a dynamic strategy formulation and implementation that integrates both greenfield investments specifically for developed markets.

Whereas in developing economies such as in Latin America, Asia, and Africa, market penetration is implemented through an integration of both mergers and subsidiaries. Number of reasons that revolve around firm behaviour and the internationalisation process reinforces this dynamic process. First, considering the transaction cost arguments and firm behavioural perspective, MNEs expansion strategy are influenced by firm heterogeneity and the ability to create synergy, as well as the competitive advantages by using any of the two expansion strategies (Coarse,1937). For instance, firms which are knowledge-based often opts for wholly owned subsidiaries while MNEs

who are resource-seeking are most likely to opt for joint ventures so as to gain access to business network in downstream and upper stream value chains. Second, in view to Dunning (2015) location perspective, expansion strategy selection is moderated by conditions in host markets.For this reason, MNEs diversify the risk of internationalisation process by adopting both joint venture and subsidiaries, sometimes even in the same host market.

Table 2.3: Overlapping aspects and expansion strategy

Firm	Motive(Push and Pull)	Linkage	Expansion strategy	Presence in host Markets
Wallmart	Efficiency seeking	Network , services and products	Subsidiaries	28
Standard Chartered	Efficiency seeking	Network , Size and Products	Subsidiaries, associates and joint ventures	70
Barclays Bank	Efficiency seeking	Network , Size and Products	Joint Ventures , Subsidiaries	40
Royal Dutch Shell	Efficiency seeking	Network , Size and Products	Joint Ventures , Subsidiaries	29
Exxon Mobil	Efficiency seeking	Network , Size , Innovation	Joint Ventures , Subsidiaries	21
Vodafone	Efficiency seeking	Network , Size , Innovation	Joint Ventures , Subsidiaries	26

Table 2.3 depict overlapping aspects and expansion strategy. From the table, MNEs are motivated by efficiency seeking objectives. Standard Chartered has penetrated 70 host markets, followed by Barclays Bank, which is present in 40 host markets. Royal Dutch has managed 29, Vodafone 26 and Wallmart 28.

2.7 Economic models of Internationalisation

Contemporary economics literature views the importance of sunk costs and firm heterogeneity as fundamental aspects in internationalisation (Harris and Moffat, 2015; Gabrielsson and Gabrielsson, 2013). Although both aspects feature prominently in business theories reviewed above, it is also important to consider the economic perspective separately. The economic perspective of globalization motivates literature reviewed in the next chapter.

Bernard and Jensen (2001) offer the export model, which evaluates the rationale when exporting firms make a decision either to export, or not. Exporting firms are alleged to have different attributes that influences their profitability, and they incur entry costs in host markets. Entry costs potentially relate to information about demand schedules

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and patterns, the cost of establishing distribution network, and the need to improve products and process in line with institutional setup and regulations.

In reality, firms transfer investment to foreign markets only if the present value of their profits that are affected by their characteristics exceeds the fixed sunk cost. There is need to explore whether firm entry in a host market is due to certain plants reserved for exports because of transformation efficiency or as a result of sunk cost.

Grossman and Helpman (2004) developed a model that echoes the sentiments by Bernard, Jensen and Schott (2001). The theory assumes that in monopolistic competition, firms vary in levels of productivity, produce different outputs; customers have similar preferences, different market penetration strategies, and incur different costs (Stiglitz, 2017). This model discusses both entry modes and determinants of internationalisation process. Based on this assumption, firms opt for foreign direct investment over exporting if the revenue from avoiding logistics costs exceeds fixed cost of foreign direct investment. This suggests that internationalisation is not feasible for the least productive firms. The most productive firms are likely to opt for internationalisation, while firms with an intermediate level of production resort to exporting. Thus, the intensity of intra- industry firm heterogeneity determines the level and volume of foreign direct investment.

In line with the argument presented above, various authors have reinforced the sunk cost theory (Bernard et al., 2017; Padmaja and Sasidharan, 2017; Ruhl and Willis, 2017) and buttress that multinational firms invest in research and development to improve either the quality of their products or to increase product mix and variety. This model mainly emphasizes the mismatch between products and demand curves, while it assumes that product development is induced by persistent changes in customer preferences. This study takes note of the argument by Artopoulos, Friel and Hallak (2011) that product adoption (to satisfy needs of the more advanced economies), possibly through interactions with foreign distributors is important but not key. The most important determinant is to develop an adequate internalisation process. Table 2.4 illustrates the summary of leading seminal and contemporary studies that have been ventilated in this chapter, with specific bias towards a better understanding of the dynamics of internationalisation theories.

Table 2.4: Traits of leading seminal studies in internationalisation theories

Category	Firm level views	Market level views	Firm and Market level views	Economic views
Seminal studies	Process Model Transaction Cost Resource based view Entrepreneurial approach	Network Model Springboard and imbalance approach. Linkage, Leverage and learning model.	OLI Model Born Global	Export model Monopolistic Competition.
Fundamental target of MNEs	Internal competitive edge	Assets seeking and market level edge	Both firm level and market level edge.	Both firm level and market level edge.
Motivation of Internationalisation process	Resource capacity Firm knowledge Top management innovation. Adoption to firm and its environment.	Lack of competitive edge Linkage, Leverage and learning. Backward and forward networks.	Internal and external network. Firm environment and decision making traits. Ownership, location and Internationalisation.	Sunk and transaction cost reduction.
Investment pattern	Internationalisation is incremental. The firm adjust to micro and macro environment at slow calculated pace.	Internationalisation process is assumed to be fast to capture endowments that the firm has targeted.	Internationalisation process is both incremental and fast. OLI model assumes that the process is both incremental while born global concept assume that pace is fast.	The pattern of investment is both slow and fast. Sunk in cost cannot be capitalised whereas transaction cost can be recovered and capitalised.

Table 2.4 presents the summary of leading seminal and contemporary studies in internationalisation theories. Although not all of seminal and recent literature is included in table 2.4, however, the table contains information on summaries of key discussions in the genre of internalisation theories.

2.8 Conclusion

This chapter has reviewed some of the relevant literature on internationalisation theories and expansion strategies in international business. After reviewing some literature on internationalisation, it is clear that no single model is suitable in explaining outward FDI across all industries. Based on this understanding, this study firmly assumes that while some models are feasible in certain industries, they may not be expediently applied in others. In this regard, it is also noticeable that there exists a research gap in the conceptual framework of internationalisation process, as well as its empirical connotation.

This chapter reviewed three genres of business models of internationalisation process and one economic perspective. Evidence from the literature surveyed suggests that internationalisation process mainly targets linkages from both market level aspects and firm-level aspects. This is evident in respective categories of literature reviewed above - firm-level based theories, host markets advantage-based theories and firm level and market-level-advantages theories. Nonetheless, from the genres of literature discussed above, there is no sustainable evidence as regards the exploration of the specific aspects in both firm level and market level.

Furthermore, there is no evidence that separate multinational firms in respective of industrial sectors. To that extent, our proposition to shedding lights on further understanding the linkages from firm level and market levels environments is fundamental in contributing to existing body of knowledge in international business. From both theoretical and empirical literature reviewed above, there is scanty evidence that links overlapping aspects with an industrial sector perspective. To that extent, it is reasonably concluded that it is through exploring the peculiarity of industrial sectors and their relevant market environment that will bring out an improved understanding of the internationalisation process in a holistic manner. Efforts is directed in the chapter that follows to integrate these viewpoints, essentially in South African context.

Chapter Three

Theoretical appraisal of outward F.D.I behaviour – a South African imperative

3.1 Introduction

In fidelity to the objectives of the present study, and after an exploration of internationalisation theories and strategies of expansion in the previous chapter, this chapter delves into the subject of Outward FDI behaviour in the South African context. According to the Organisation for Economic Co-operation and Development (OECD, 2011) and Aregbeshola (2016), FDI contributes immensely to international trade and the agents of FDI are multinational enterprises. The most significant contributors of literature in this genre revolve around international finance, business and economics. Nonetheless, in specific reference to key assumptions and research questions in the current study, this chapter explores the linkage between internationalisation theories, as well as their causal relationship with the pattern of FDI outflow from South Africa.

A sequence of studies on internationalisation theories have established the link between firm heterogeneity and the destination of outward foreign direct investment, (Andreff and Balcet, 2015 ;Boddewyn 2015; Johannson and Valne 2015; Tang, 2017). Consistent with this argument, available literature seemingly regard internationalisation process as a catalyst for FDI volumes. For instance, the transition mechanism between Internationalisation process of business and volume of outflow FDI are considered a behavioural pattern that exhibits increases in the initial outlay of investments through innovation, investment in production facilities, as well as the development of human capital. This causal impact manifests itself through incremental commitment of resources by multinational corporations (MNCs) in the host country, given the prospects of adjusting in host markets (Lessard and Teece, 2016). A firm level adjustment is also assumed to enhance the size of the firm through accumulation of resources and increase further participation. A collection of resources enhances the firm capacity and enables the firm to sustain its investment in host markets (Teece, 2014).

In view of the importance of internationalisation process that determines both the volume and direction of outward investment, firm heterogeneity is widely discussed in the literature as a strong theoretical justification. Studies that have focused on this academic direction conclude that firm heterogeneity is diverse in nature and relative

in character, thereby fostering the dynamic homeostatic expansion of MNCs in the host market (Narula and Pineli, 2017; Aregbeshola, 2016; 2014; Dunning, 2015). For instance, the seminal work of Dunning (2015) concludes that firm heterogeneity enhances decision, ownership, location and Internalisation advantages. Since then, his work has been used by a series of contemporary researchers to explore the impact of firm heterogeneity on the pattern of outward FDI.

Furthermore, evidence from literature has acknowledged the relevance of Dunning's work as an important conceptual framework to buttress the causal impact of internationalisation process of MNCs (Bell and Young, 2016). The theory has also served as a framework to understand the firm strategic position in offshore markets and determination of FDI behaviour, especially the phases of commitments in offshore markets (Narula 2016; Narula, 2017).The theory of direct investment is closely aligned with Dunning's work, and the relevance of the latter to this study cannot be overemphasized.

According to the theory of direct investments, it is essential for a firm investing abroad to have competitive advantages more than domestic firms in that particular host market. Nonetheless, in the absence of competitive advantage, the multinational firm finds it difficult to sustain and enhance its investment or adjust in host markets. Consequently, the internationalisation strategy seeks specific location advantages, in the same market, while increasing the capacity of the firm through the process networking and adjustment in host markets (Dunning, 2015; Aregbeshola, 2014; Griffin and Pustay, 2010). Accordingly, the theory of direct investments hinges on the nature of a multinational firm; hence, it is imperative to define a multinational firm.

In the context of the current study, multinational firms are defined as unincorporated or incorporated firms comprising domestic/parent enterprises and affiliates abroad (UNCTAD, 2014). Accordingly, a parent enterprise controls production, assets, service and merchandise trade.Furthermore, an affiliate abroad is an unincorporated or incorporated entity in host markets in which a firm in another market owns a share that enables long terms interests in the foreign firm for the purpose of absolute control and extensive management influence (Aregbeshola, 2016).

3.2 FDI defined

According to Flento and Ponte (2017), FDI is defined as a category of global investment that reflects the intention of an institution based in one economic market in gaining control in an enterprise based in another economic market. In this connection, these authors consider the enterprise as a conduit of direct investment while the resident entity is viewed as a direct investor in the host market. Furthermore, Anyanwu (2017) define FDI as a direct objective of acquiring a long term interest by an institution resident in one market ("direct investor") in an institution resident in a market different from that of the investor ('direct investment enterprise"). This conceptual position echoes the aspect of long-term interests, therefore underscoring the existence of long term relationship between the enterprise and the investor, in regards to the control of the investment (Grossman, Helpman, and Kircher, 2017).

Consistent with above definitions, Ghauri (2018) defines FDI as a long-term investment revolving around long-term business relationship, which reflects a motive and control by a resident entity (either a foreign investor or parent enterprise or both) of one economic market in a corporate resident in an economic market, different from that of the investing corporate. Furthermore, Grossman et al. (2017) establishes the investment aspects of FDI as reinvested earnings, equity capital, and other capital. Relevant to the scope of the study is equity capital, retained earnings and other direct investment capital as a composite of capital inflows into the host market. The relevance of forms of capital is discussed in the succeeding section.

1. Equity Capital is understood as the value of the currency of a foreign investor investment in ordinary share of the enterprises. An injection of capital worthy more than 10 % of ordinary shares or control stake in an enterprise is mostly regarded as a lever of power over activities of the enterprise, which by implication, includes mergers and acquisitions.
2. Retained earnings are understood as a portion of net profits not paid as dividends to shareholders but reinvested to pay debts or to revamp the firm's core activities. Retained earnings are regarded as part of shareholders' equity. From business perspective, retained earnings are used as a yardstick to determine the wellness of the business concern.

3. Other direct investment capital, this is understood as short and long term debt and borrowing of capital encompassing debt securities, credits, and suppliers, between foreign associates and direct investors. The investor must bring along assets and machinery that will be used for production purposes. In the context of this study, networks and market information is enabled by government intervention as discussed later in this chapter. More still, a firm level adjustment to FDI is also discussed in detail. Empirical studies reveal that firm budget in machinery, research, and development increase after investment in host markets.

3.3 The evolution and determinants of FDI destination

According to Dunning (2015), the main determinants of the host market attraction to inflow of FDI are monetary and fiscal policies, domestic market size constraints and political stability (Aregbeshola, 2014). These aspects determine the decision of MNE on the optional decision on investment location (Aregbeshola, 2016). Categorically, there is a causal relationship between the political economy of a host market and the degree of FDI inflow attractiveness (Narula, 2018).

The theory of foreign direct investment is derived from the concept of multinational enterprises (MNEs); hence, the model of MNEs is developed from two main perspectives of international businesses, namely economic and trade. First, according to industrial organization theory, the benefits derivable from competition between foreign firms and their domestic counterparts, assert that domestic firms become more competitive as they take advantage of process reengineering and management competency form multinational firms that invest in the host country (Aregbeshola, 2014; Buckley and Casson, 2014). Second, Pathan (2017) and, Cantwell and Salmon (2016) assert that MNE emerged from location specific theory, which considers competitive advantages of certain host markets over other options. Central to the discussion in this theory is the assumption that MNEs invest in host markets that have specific location advantages that are scarce in their domestic markets (both comparatively and absolutely).

Narula (2017) and Aregbeshola (2016) suggest that the internationalisation process of multinational firms is the major determinant of certain aspects of FDI flows. The specific advantage theory gives weight to the geographical economic advantage and

agglomeration, which is an antecedence of economic advantages derived from production portfolio diversification in host markets. Narula (2017) asserts that the market seeking approach featured more prominently among an early generation of MNEs from the United States, who invested in host markets to exploit competitive advantages from economies in transition.

Central among the determinants of the internationalisation process is the need to identify markets for final products and to diversify production processes. For instance, some production raw materials (such as natural endowments) might be expensive to relocate from host markets to home market for manufacturing process hence investing in markets within the proximity of factor endowments is considered a feasible option for MNEs. In this regard, the industrial organization theory underscores the presence of firm specific advantages (Dunning, 2015).

Firm specific advantages are essential in conferring a superior competitive advantage on multinational firm intending to invest in competitive markets. Multinational firms enjoy a variety of competitive advantages that include the following advanced technology research, marketing skills, managerial competency, network and research and development (Mourao, 2017, Narula, 2017; Aregbeshola, 2016). Consistent with this argument, large multinational firms with more sophisticated distribution and marketing network have proven to have a more competitive edge over their domestic counterparts. Consequently, MNEs invest in host markets to enhance the profit margin and to exploit competitive efficiency that is a result of operational synergy in host markets (Narula, 2016).

The determinants of FDI approach by MNEs especially in economies in transition depend on a host of factors such as the volume of initial investment, firm level adjustment to FDI, market and political conditions in host markets, as well as competitive considerations. As indicated by available literature, if integrated into a long term framework of upgrading and productive aptitude enhancement, the causal impact of MNEs strategic positions on the pattern of investments has been substantial (Dunning, 2015). Given the causal relationship between FDI pattern and internationalisation process (strategic positions), evidence indicates that MNEs strive to create and enhance institutional idiosyncrasies that enable them to adjust and increase investment from initial investments.

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Contemporary scholarship that has focused on the direction of firm heterogeneity reveals that MNEs commit more resources to host markets, given the prospect of adjusting to host markets (Cantwell and Salmon, 2016). This is consistent with process theories advocated by Johansson and Valne (2015). This theoretical supposition is also augmented in the work of Park and Harris (2014), who buttresses that MNEs research and development budgets are comparatively bigger than that of their domestic counterparts. The study Park and Harris also reveals that commitment of resources is done on incremental basis within the purview of systematic model.

3.4 Macro – level determinants of FDI

Literature in this section builds a theoretical foundation of market specific aspects that are targeted by outward FDI; the evidence indicates that market level aspect is a pull factor for FDI attraction. This narrative is highly correspondent with host market-based theories as discussed in Chapter Two.Neo-classical scholars assume that FDI and global investment would flow from developed countries to economies in transition. This postulation concurs with a long-standing argument by Heckscher-Ohlin type theories. Given this assumption, there is scarce literature on outward foreign direct investment from Africa in general, and South Africa in particular. Nonetheless, contemporary statistics reveal that there is a growing surge of outward investment from developing countries including South Africa. According to UNCTAD (2014), foreign direct investment from developing countries has increased sharply over the past two decades.

On the macro-level determinants of FDI, Yimer (2017) identifies market size as determined by either GDP or GDP per capita, as the most influential determinant in contemporary economic literature. Market size seems to be more feasible in horizontal FDI rather than vertical FDI. Alfaro (2004) asserts that investment is most likely to flow to host destinations with colossal and growing markets and greater purchasing power, such that firms have a potential of enhancing a greater return on capital.

Alfaro (2004) argues that market size assumption buttresses the notion that a huge market is relevant for efficient resource utilization and exploitation of economies of scale. Alfaro (2004) further suggests that there is a causal effect between the value of the market size and the increase in outward investment. This assumption has been adopted by seminal and contemporary empirical studies, and the proxy representing

the size of host market has been interpreted as an explanatory variable in a series of studies (Kolstad and Wiig, 2012; Taran et al., 2016; Wang, 2017).

In the recent past, empirical studies testing covariance between population and investment flows confirm the relationship between the two variables (Kolstad and Wiig, 2012). Furthermore, some studies establish that GDP growth rate is a substantial explanatory variable whereas GDP is not, demonstrating that the current size of national income is insignificant. By implication, consideration for current market size is downplayed by the relevance of market potential/growth prospects to FDI decisions (Mourao, 2018; Kim and Aguilera, 2016).

Aregbeshola (2016) asserts that there exists inconclusive evidence in reference to the significance of trade openness, which is measured by the contribution of net exports and imports to GDP. The argument advanced is that due to the fact that most investments are projected to the tradable sector, a host market degree of visibility to international trade should be relevant at the point of decision-making.This debate stems from literature that ventilates the ‘tariff jumping' hypothesis (Kim and Aguilera, 2016), which postulate that multinational firms that invest in host markets might opt to set production plants in host market if it faced a challenge to export manufactured products to prospective markets. On the contrary, exporting multinational firms might opt to invest in a more open host market since higher transaction cost are caused by increased imperfections that accompany trade protection (Mourao, 2017).

A series of studies consider wages and other labour costs as the single most potent determinant of FDI patterns (Aregbeshola, 2017). In theory, advocates of both dependency hypothesis and modernization hypothesis support the influence of labour costs in influencing FDI trends although perspectives tend to differ. Nonetheless, there is no conclusive submission on the causal relationship between wage rates and foreign investment (Tang and Pearce, 2017).

According to the study of Yang and Deng (2015), empirical evidence reveals that higher wages deter foreign direct investment to a specific host market. Whereas Anyanwu and Yameogo (2015) is sceptical about the weight of low labour rates on the attractiveness of host countries, instead the study concludes that investments inflows are more sensitive to the competency of labour rather than the wage rate. Tang and Pearce (2017) buttress the fact that relative labour costs are statistically significant

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specifically for foreign investments in labour intensive industries. Nonetheless, in a scenario when labour costs are inconsequential, the competence of the force is assumed to influence FDI decisions.

A growing number of studies are inconclusive as to whether the political stability of host countries determines the inflows of FDI (Ackerman, 2017; Alfaro 2004; Baldwin and Gu, 2017). Anecdotal evidence suggest that if a host destination has host markets aspects that has a probability of increasing the return on investments of multinational firms, investment trends are not affected despite political instability. This narration is more prevalent in mining multinational firms. For instance, colossal mining multinational firms mitigate political risk by investing in their own security and developing their own infrastructure to support their economic activities.

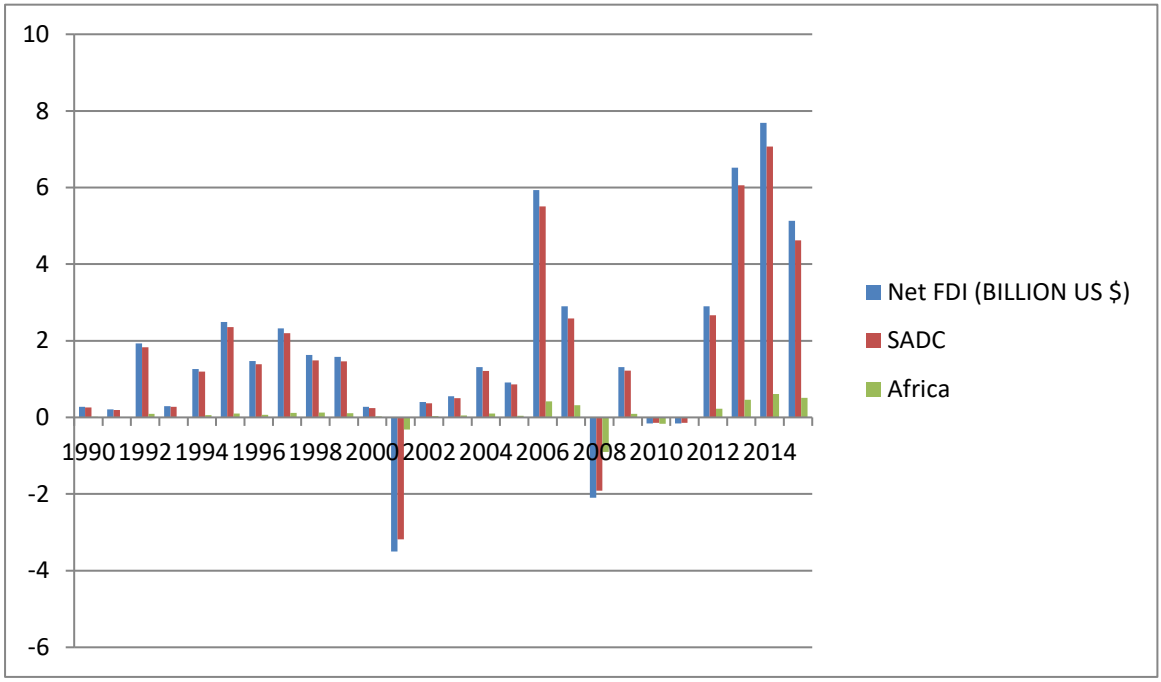
To that extent, the causal relationship between political stability and investment flows remains inconclusive. For instance, Narula and Pineli (2017) find no causal relationship between political instability and inflows in host markets, especially in developing economies.Nonetheless, empirical evidence by Anyanwu (2017) overlooks the impact of political stability but focuses on a whole range of the environment, which embraces policy framework that enhances FDI.

Furthermore, MNEs are assumed to focus on the determination of specific structural factors in increasing the likelihood of foreign direct investment. First, the importance of geographical factors as expounded by Van Houtum (2017), reviews studies on the economic geography of multinational activity and location of production. If evidence of host markets, opportunities and cost are asymmetric, then it is rational to assume multinational firms to cluster within the same industry or region so as to achieve market efficiency and minimize the cost of investment.

Co-location of multinational firms may overcome the problem of market inefficacy, hence provide an informed knowledge on channels to distribute goods and services and, and clearly identify cost drivers in host markets (Rugman and Eden 2017). Two dimensions of agglomeration are relevant to our study: regional and industrial agglomeration effects. Regional agglomeration effect, to begin with, explains spatial concentration of multinationals from various industries. In the context of regional agglomeration, Rugman, Oh and Lin (2012) provides empirical evidence drawn from global multinational firms and concludes that over 75 % of global firms have a regional

outlook rather than a global outlook. Meanwhile, documented evidence from Reserve Bank of South Africa suggests that most of outward FDI from South Africa are destined for Africa host markets with more than 95 % being within Southern Africa Development Community markets. Figure 3.1 depicts the net outflows for South Africa and regional disbursement within African host markets.

Figure 3. 1*: Volume of outward FDI.*



Source – Author's computation from World Bank dataset (2019)

The above graphical illustration depicts the trends in outward foreign direct investment from South Africa between the years 1990 – 2015. The statistics reveal that there are more outflows to SADC region than other parts of Africa. According to FDI markets (2016), an estimate of $500 billion dollars have been invested in Africa, most of the outflows occurred between 2009 and 2015 with 2013 and 2014 scoring the highest in investments trends.

3.3 Firm level determinants of outward FDI.

Together with the concern of why firms select to embark on international business is an equally important question with regards to firm level determinants of outward FDI. In view of the importance of productivity issues, correlation of firm level aspects, outward FDI patterns and investment growth is at the centre of our understanding. This linkage is well established in both outward FDI and internationalisation theories.

Contemporary studies (Baldwin, Gu, Seydor and Yan, 2017) have devoted more attention to outward FDI and its impact on firms, exploiting heterogeneity of individual firms. In this regard, the study reviews evolving studies in cognisance of the linkage between firm level aspects and the flow of investment.

The scope of the study attempts to find evidence in existing literature on how firm heterogeneity determines investment patterns. This notion buttresses the claimed commitment to further investments from the initial investment is determined by the intensity of firm level adjustment to FDI (Ackerman, 2015; Baldwin, Gu, Seydor and Yan, 2017).

According to Deng (2017), outward foreign direct investment is assumed to bring with it numerous benefits from a firm perspective. Principal among these benefits are economies of scale that are garnered from market growth and strategic exposure to international markets, and inevitable rise in demand for products and services offered in the host economy. It is however important to note that risk in product demand has a causative effect on the expansion of production facility in the host market, as well as the size of the multinational firm. Furthermore, mitigation of risk by spreading the product in host markets and expansion of foreign subsidiaries might stimulate investment. Furthermore, exposure in international markets enhances the multinational firm's efficiency through exploitation of knowledge and global competition. International knowledge spillovers, as well as exposure in global markets enable multinational firms to exploit foreign knowledge spillovers and outsmart their domestic rivals.

The emergence of foreign direct investment and subsequent, transferring of capital from markets of origin to host markets has necessitated the need to understand the behaviour of multinational firms as they attempt to increase the value of shareholders and sustain their business concern. Consequently, there has been a growing interest in microeconomics and international business research to uncover the specific impacts of foreign direct investment on firms, with focus on the heterogeneity of plants. The importance of the micro level approach has been galvanised by the availability of quality data, as well as improvement in the application of econometrics models (Buckley et al., 2018).

Apart from offering new knowledge that explains outward FDI- firm activity linkages; internal firm studies provide detailed information on multinational internal capacity and motives that determine outward FDI. It can be safely observed that internalisation models are built from resource-based approaches, process models and transaction cost models of internationalisation or perhaps is an extension of the former.

The argument being advanced is that the internationalisation of business (using any approach), is closely augmented by micro level value-adding decision, which shape not only behaviour of the firm but create predictor variables that sustain foreign direct investment. In this connection, the current study considers seminal works of Dunning's OLI theory as augmented by Buckley and Casson's (2016) internalisation theory as a premise of analysis.

Further work by Buckley and Casson (1976, 2010, 2014 and 2016) buttress the idea that OLI model hinges on market imperfections in intermediate product markets. To enhance detailed analysis, an intermediate product is classified into two categories. First, the knowledge process linking research and development to production. Second, supply chain and logistics process linking downward stream of factor inputs, production, warehousing and, upward stream of business (marketing and service). According to Buckley and Casson (2016), the model provides an internal analytical viewpoint and recognizes the aptitude to manage institutional idiosyncrasies as aptitude that is similar to research and advertising. These aptitudes are considered fundamental to the operational functions in internationalisation process.

In line with the argument advanced in the preceding paragraph, empirical evidence on foreign direct investment and multinational firms' behaviour by Casson and Buckley (1976, 2016) shifted the focus on country-specific to industry-specific and micro firm-level specifics of international investments trends. The theory of multinational firms' behaviour hinges on the following hypotheses.

- Multinationals maximise profits in oligopoly and monopoly markets.
- Imperfect intermediate goods market can be circumvented by designing new internal systems. Bypassing of intermediate goods market revolve around collective possession control of mechanisms that are linked to the industry.
- Internalisation of industries beyond geographical boundaries creates multinational firms.

Buckely and Casson (1976, 2016) argue that challenges of grave operational impacts leads industry for ‘intermediate products in certain multistage production processes' to galvanise and optimise market-related information. In a multistage production process, internationalisation is assumed a process of firm level planning and coordination of downstream business activity.

However, in intermediate product case, the absence of a sustainable prospective market in addition to bilateral saturation of industry strength and aspect of market uncertainty brings forth internalisation of products that represent adequate research and development. The emphasis of Buckely and Casson (2016) on innovation as a major specific advantage of internationalisation process differs from the seminal work of Hymmer (1976).

According to Cantwell and Salmon (2016), building on the work of Buckley and Casson (2016), innovation is regarded as the core determinant of multinational activity. From a firm viewpoint, multinational firms need to invest in research and development, internal training and development of human capital by absorbing, managing technologies and assimilating to the foreign market. Innovation enables firm aptitude advancement and results in scale and scope economics. The extent to which innovative ideas result in enhanced firm performance would enable firm's production efficiency, expansion, greater market share, exporting and ability to ultimately embark on greenfield investment. This argument augments the conceptual assumption by Teece (2014) that absorptive aptitude and the essential role of research and development in developing such aptitude enable firms to internalize external knowledge, and improve internal processes.

The innovation hypothesis may help close a friction of the existing gap in internalisation literature, but it does not explain the differences in productivity effect in foreign direct investment as detected in heterogeneous multinational firms. Evidence by Harris and Moffat (2015), concluded that they are significant variances in research and development budget at plant level between multinational firms and domestic firms in the United Kingdom manufacturing sector, hence the moderating effect of innovation of export productivity nexus as reported earlier in Canada (Baldwin et al., 2017).

In specific reference, Baldwin et al. (2017) used data from Canadian firm to determine if multinational firms have a high budget for research and development. The results revealed that embarking on research and development is 10% higher in multinational firms after controlling for other relevant covariates such as firm size. However, there is no clear significant variance in favour of multinational firms before their internationalisation. Thus, these authors revealed substantive evidence of increased innovation activity after internationalisation.

This approach is consistent with their assertions that profits from market entry are not instant, in order to attain post entry performance rewards, multinational firms need to spend more in research and development research and development as well as human capital. In addition, MNEs also need to invest in state of the art technology and develop enhanced absorptive capacities.

A series of contemporary studies attest that multinational firms increase research and development budget as they exploit market gaps and enhance performance in host markets. Some of these leading literature include empirical evidence by Ding, Guariglia and Harris (2016) for Chinese firms; Hall, Castello, Montresor and Vezzani (2016) for European firms; as well as Harris and Moffat (2015) for UK firms; buttress theoretical assumption that multinational firms increase resource allocation for R and D to sustain their investments in host markets.

Theoretical assumption of the internalisation model of Buckely and Casson (2014) has largely been augmented by hypothetical arguments and contemporary empirical evidence examining the link between an industry or a firm research development, advertising and its intensity on internationalisation process. Such alternatives for a firm capacity to innovate are frequently flawed (Buckely and Casson, 2016; Johansson and Valne, 2015).

In specific, the theory of internalisation focuses on managerial capacity of multinational firms that give a greater return to invest if they are rationally applied in expanding markets due to eradication of tariffs. This model gains more prominence as globalisation expands, given that the number of economies for international competition and private participation in an international business environment increases.

The specific importance of this model to international expansion stems from its emphasis on differences in the operational environment of domestic and offshore markets, which results in competitive advantage, hence a motivating factor of foreign direct investment (Buckley and Casson, 2015).

Consistent with this assertion, Ackerman (2015) suggests three success drivers of firm level determinants. According to this author, technology and managerial capacity is essential for multinational firms to develop the capacity to transfer both technology and managerial capacity. In addition, transfer linkage is crucial in developing mutual benefits with host authorities and attracting strategic partners in local industry. Second, they emphasize the importance of enhancing the relationship with host governance and relevant state agents and authorities that regulate and control big projects. Third, they argue that firms need to mitigate risk with the standards of the industry, in which regulation contractual and relationships may have a different gravity than those in developed markets.

Despite Ackerman's (2015) conclusions, most recent academic work underscores the significance of institutional perspective for local market structure (Ulrich and Hollensen, 2017), augmenting a long historical perspective in internalisation theory, with specific emphasis on evaluating firm capacity to manage institutional idiosyncrasies that was propounded long ago (Buckley and Casson, 1976; Vernon, 1971, 1974,1979). This argument has also been echoed that multinational firms sustain their investments and enhance outward FDI by developing a capacity to manage institutional idiosyncrasies (Dunning, 2015).

According to Narula (2017), institutional idiosyncrasies results when multinational firms possess firm level competitive advantages such as, structure, knowledge, finance, and managerial competence. When local financial system lacks the capital muscle to finance local firms, multinational firms have a great competitive advantage in raising capital from institutes in their country of origin. This advantage stems from multinational firm's comparative advantage in managing institutional idiosyncrasies that creates risk premium for firms in political significant industries, which cannot be wholly circumvented by finance and insurance markets or managerial decision-making.

The diversity in host environments are multidimensional and complex. They embrace laws that regulate purchase of equity, acquisition of property and licensing of new business (Buckley, 2015). This environment is also composed of the local or global contracting for the procurement of factor inputs or access to markets, fees payments and acquirement of government licenses, and the rate of corruption and market entry and exit barriers. In situations where laws and regulation seem comparable, differences in legal system may have a direct bearing on results as the rank between equity and creditors (loans and non-convertible preference shares). Cultural, social and other relevant aspects also have a direct impact on multinational behaviour and they vary from one host country to another (Strange and Magnami, 2017).

The complex nature of institutional dynamics and the differences of risk and opportunities that they generate create huge challenges for credit assessment and investment outlay. Acquisition, investment either by debt or equity in political significant industries at affordable conditions require massive hedging of a host of uncertainties that have a direct bearing on the firm performance and sustainability of investment in host countries (Buckley, Chen, Clegg and Voss, 2018). Multidimensional nature of industries, sectors in the management of institutional idiosyncrasies like diversity in technological and marketing capabilities, are results of different firms attributes such as size, age or industry segment, inter-firm linkages ,strategic alliances and external ties, consultancy groups and information about industry and business environment.

First on firm capacity, multinational firms are colossal with massive financial and technological muscle than local firms and they possess essential resources and political connections to lobby for favour (Buckley, Chen, Clegg and Voss, 2018). Multinational firms have a track record of experience and establishment. However, firms that are facing downward spiral are in most cases given uneven consideration by political actors, as are firms in markets that are in debt due to the fixed nature of assets. In addition, firms that have challenges in responding to diversified and undiversified risk through market strategy are also prone to political support (Rugman and Eden, 2017).

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Multinational firms have a wide range of peer groups to which they turn to, when they lobby for both strategy and political influence, because of their experience, size and age. Further, multinational firms have vast experience in managing business or government conflicts and thus more likely to have a point of reference when uncertainty prevails in host destinations. According to Buckley (2015), multinational firm possess direct and indirect capability in international markets or markets that have the same organizational traits can correspondingly widen the spectrum of analogues from which they refer when facing uncertainty, as to the feasibility of strategic reaction or position (Dang and Yang, 2015).

Second, as much as multinational firms can be in better position to exploit knowledge regarding the management of production and marketing within the firm, than through outsourcing and strategic alliances, they may exist related advantages to internal exploitation of knowledge regarding management of institutional idiosyncrasies. In reality, aptitudes relating to innovation are tough to develop by outsourcing of strategic partners (Harris and Moffat, 2015). Payments from promoting and influencing strategic positions accumulate with significant ambiguity over medium to long term, and yet they hinge on everyday market strategy of the firm. In the absence of potential market growth, which allows the investing firm to coordinate both long and short-term production schedules and long-term capital outlay, there exist strong incentive to vertical integration. For instance, construction of a road network is tightly coupled with the acquisition of relevant permits of concession to collect tollgate fees, as well as constant renewal of licenses and concession terms (Wang, Liu and Wang, 2017; Yi, Chen,Wang and Kafouros, 2015).

Wang, et al., (2016) suggest that outsourcing is the most cost effective mechanisms to engage with regulatory institutions, in respect of acquiring licenses and permits, and to improve the terms of the agreement and mitigate detrimental changes that are peculiar to this process. In addition, these authors suggest that strategic positions are industry-specific or even more firm specific. In that, the absence of exchange exposures acquirement from outside source with detailed political knowledge and political systems, may not necessarily generate competitive knowledge of industry specifics or firm specific (Buckley and Casson, 2016). Knowledge, therefore, remains a key rallying point as a driver of internalisation rationale.

However, preceding proxies used for the existence of that knowledge, namely research and development, marketing intensities, might not be evenly correlated with the occurrence of the multinational activity. Reasonably, the base of applicable knowledge may progressively shift to functional schedules that enhance management of institutional idiosyncrasies (Harris and Moffat, 2015).Furthermore, knowledge spillovers also play a pivotal role in the decision to invest in host markets for multinational firms. These spillovers occur if they are a transmission of knowledge from global markets to domestic firms. This linkage is derived from the studies on international or global knowledge diffusion. Grossman and Helpman (2015), argue that international trade is a conduit for the transfer of knowledge that enhances productive growth. From a multinational viewpoint, involvement in global markets expose firms into contact with global best practices and standards, as well as learning facilities and competency development. After the work of Grossman and Helpman's (2015) on international research and development spillovers, there has been a growing academic interest in the impact of spillovers. The general assumption is that spillovers provide positive information externalities (Grossman, Helpman and Kircher, 2017), and a public good, these knowledge spillovers enable domestic recipients to improve technological advances with less cost and effort.

The positive effects of spillovers arise from both supply and demand impacts. The supply side debate is consequent from the aspects of sunk cost as discussed in earlier sections. Foreign market entry cost is consequent market inefficiency when developing host market, marketing channels, developing product variations and adopting to bureaucratic procedures. Information spillovers may effectively mitigate challenges of information asymmetry and market inefficiency and hence, reduce initial outlay of foreign direct investment (Rugman, 2014).

According to Narula (2017) It is equally arguable that knowledge spillovers provide vital information that enables multinational to make informed decisions in host markets and sustain their investment in addition, knowledge spillovers allow rational firms to enter markets where the present value of projected revenue surpass fixed cost.In contrast, there might also exist demand side arguments related with spillovers, following the establishment of a presence in global markets. Further, foreign knowledge of domestic produced product may also rise and entice domestic firms to embark on multinational activity (Narula, 2016).

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Hervas-Oliver, Lleo and Cervello (2017) evaluated the role of foreign direct investment, industrial linkages in exploring export activity at the firm level. The study concluded that the decision to enter the foreign market was induced by the presence of plants of the same industry and region in foreign markets. The study further finds that expansion decisions regarding how much to export hinge on the presence of foreign firms in downstream industries. Earlier on, Harris and Moffat (2015) on empirical studies of United Kingdom firms also concluded the same positive impact of spillovers on multinational firms regarding the decision to invest in domestic markets and their propensity to enhance business goals.

3.6 Strategic positions of selected MNEs

As stated in previous sections, the current study segmented MNEs according to industrial sectors, to enhance our understanding of industry dynamics, and to uncover the relevance of both firm level and market level aspects in sectorial perspective. The scope of the study considered it imperative to review strategic positions and implementations that are adopted by MNEs in host markets as illuminated by Dunning OLI theory (2015) and Penrose resource based view (1959). In the paragraphs that follow, the review will be done on industrial segments of MNEs.

3.6.1 Strategic position of mining industry

For a very long past, De Beers group has been involved in foreign markets and has assumed the position of a market leader in diamond mining. The company has 28 global operations; nonetheless, major mining operations are centred in Southern African countries, namely Botswana and Namibia. In cognizance of Dunning's eclectic theory (2015) and strategic position of the multinational firm, De Beers groups' outward FDI patterns appear to be path dependent on both firm level and market aspects.

Market level aspects provide a close analysis of pull factors in the outward investment of De Beers, with specific reference to mineral endowment that are available in both Botswana and Namibia. Firm level aspects (size, internal and external networks, and managerial competence) further augment this aspect. These aspects create linkages of firm level aspects and country or market aspects and path dependency of both strategic options and location of outward FDI.

Given the resource of the firm and the objectives to exploit mineral endowment, the firm adopted a penetration strategic position to merge with the government of Botswana on a 50 – 50 basis of equity. The joint venture in Botswana operation is trading as Debswana, which is a subsidiary of De Beers. The same applies to investment in Namibia, which trade in the name of Namdeb holdings, a joint venture with the Namibian government. Applying the underpinnings of Dunning OLI theory (2015), the market penetration strategy of a merger with governments creates competitive advantages in the monopoly of the mineral endowment.

Firm level aspects to take second, a close analysis of push factors as expounded by Dunning theory and Penrose resource based perspective is the capacity of the firm measured in both intangible and tangible assets. The size of De Beers and key competencies like internal and external networking enhances the firm's strategic positions. This competitive advantage enables the firm to absorb sunk cost associated with outward FDI. Table 3.1 contains a synopsis of South African MNEs and their expansion strategies in mining industry.

Table 3.1: Expansion strategies of South African MNEs in the mining industry

Firm	Motive	Macro Factors	Expansion strategy	Presence in African Markets
De Beers	Resource-seeking	Diamond , Markets	Greenfield and Joint Ventures	2
Exxaro	Resource-seeking	Gold	Joint Ventures , Subsidiaries	4
Platinum	Resource-seeking	Platinum	Joint Ventures , Subsidiaries	3
Anglo Gold	Resource-seeking	Gold	Greenfield and Joint Ventures	8
African Rainbow Mineral	Resource-seeking	Platinum and , Gold	Joint Ventures , Subsidiaries	3

From the table 3.1, Anglo – Gold has presence in 8 African economies, Exxaro 4, African Rainbow Minerals 3, Impala Platinum 3, while De Beers has presence in 2 African markets, and they all adopt corroborative expansion strategy, save for De Beers and Anglo Gold that added greenfield approach to their profile.

3.6.2 Strategic positions in retail industry

The Pick and Pay group has been involved in foreign markets for a long period. The company has operations in Mozambique, Botswana, Zimbabwe, and Namibia. In cognisance of Dunning eclectic theory (2015) and strategic position of the

multinational firm, Pick and Pay group's outward FDI patterns is path dependent on both firm level and market aspects.

Market level aspects, to begin with, a close analysis of pull factors in the outward investment of Pick and Pay is the level of demand. This aspect is further augmented by firm level aspects (size, internal and external networks, and managerial competence), which compliments path dependency of both strategic options and location of outward FDI.

In view of the resource base of the firm and the intentions to exploit prospects in host market, the firm adopted a penetration strategic position in merger and acquisitions. The joint ventures in Botswana, Zimbabwe, Namibia, and Mozambique enables the multinational firm to retain market leadership through focus strategy, which adopted scheming price to recover sunk cost. Firm level aspects to take second, a close analysis of push factors as expounded by Dunning OLI theory (2015) and Penrose resource based perspective (1959) is the capacity of the firm measured in both intangible and tangible assets. The size of Pick and Pay and key competencies like internal and external networking enhances the firm strategic positions. This competitive advantage enables the firm to absorb sunk cost associated with outward FDI. Table 3.2 indicates expansion strategies adopted by South African MNEs in host market.

Table 3.2 – Expansion strategies of South African MNEs in retail industry

Firm	Motive	Micro Aspect	Expansion strategy	Presence in African Markets
Pick and Pay	Market-seeking	Size, Innovation, and product	Subsidiaries and Joint Ventures	6
Shoprite	Market-seeking	Product, Service	Subsidiaries	7
Edgars	Market seeking	Size , Innovation	Subsidiaries	6
Woolworth	Market seeking	Size , Innovation and product	Subsidiaries	11
Truworth	Market seeking	Size , Innovation and product	Subsidiaries and Franchising	6

Table 3.2 present expansion strategies in retail industry. The contents of the table reveal that Woolworth has penetrated 11 African markets, Edgars and Truworth stand at 6, Shoprite and Pick & Pay have 6 and 7 respectively. It is observed that their entry strategies vary widely from wholly owned subsidiaries, through to joint ventures and franchising.

3.6.3 Strategic position in manufacturing

Pretoria Portland Cement (PPC) group has been involved in foreign markets and has assumed the position of a market leader in mining and production of cement in host markets. The company has mining and production operations in Botswana, Mozambique, Zimbabwe, Rwanda, and Ethiopia. In cognisance of Dunning eclectic theory (2015) and strategic position of the multinational firm, PPC group's outward FDI patterns are path dependent on both firm level and market aspects.

Market level aspects takes a close analysis on the pull factors in the outward investment of mineral ore to produce cement. In this context, firm level heterogeneity such as size, internal and external networks, and managerial competence ,compliments path dependency of both strategic options and location of outward FDI.

Given the resource of the firm and the objectives to exploit mineral endowment, the firm adopted a penetration strategic position to merge with mining and producing plants in host markets. The joint ventures in host markets enable the firm to create and manage institutional idiosyncrasies. Applying the underpinnings of Dunning's OLI theory (2015), the market penetration strategy of merger creates competitive advantage and ownership advantage, which enhance firm heterogeneity.

Considering firm level aspects, a close analysis of push factors as expounded by Dunning OLI theory and similar resonates in Buckley (2015) Buckley and Casson (2016), is that the capacity of the firm is measured in both intangible and tangible assets. The size of PPC and key competencies like internal and external networking enhances the firm strategic positions. This competitive advantage enables the firm to absorb sunk costs associated with outward FDI and transaction costs related to firm level adjustment. Table 3.3 indicates expansion strategies adopted by firms in manufacturing industry.

Table 3.3 Expansion strategies of South African MNEs in manufacturing industry.

Firm	Motive(Push and Pull)	Linkage	Expansion strategy	Presence in African Markets
Pretoria Portland Cement	Efficiency seeking	Network , services and products	Subsidiaries	7
Murray and Roberts	Efficiency seeking	Network , Size and Products	Subsidiaries, associates and joint ventures	4
Nampak	Efficiency seeking	Network , Size and Products	Joint Ventures , Subsidiaries	5
Group Five	Efficiency seeking	Network , Size and Products	Joint Ventures , Subsidiaries	23

Contents of table 3.3 Illustrates expansion strategies in manufacturing industry. The information contained in this table reveal that in manufacturing industry, Group Five has presence in 23 African host markets, Pretoria Portland Cement 7, Murray Roberts 4 and Nampak 5. Further, their expansion strategies vary from wholly owned subsidiaries, through to corroborative arrangements.

3.6.4 Strategic position of finance and technology firms.

Old Mutual is one of the biggest and oldest financial institutes in South Africa. Over the years, the company has invested in both developed and developing markets. In cognisance of Dunning eclectic theory (2015) and strategic position of the multinational firm, Old Mutual's outward FDI patterns are path dependent on both firm level and market aspects.

From a Firm level perspective, a close analysis of push factors as expounded by Dunning theory (2015) and Penrose(2009) resource based perspective, suggest that firm heterogeneity enables these MNEs in the finance and technology sectors to exploit advantages as well as mitigate risk in host markets. The heavy capital outlay and key competencies like internal and external networking and product innovation enhance the firms' strategic positions. This competitive advantage also enable the firms to diversify risk and absorb sunk cost associated with outward FDI.

Second, the market level aspects proposition uncovers pull factors in the outward investment of demand, exchange rate and trade openness in host markets. This aspect is further augmented by firm level aspects (size, internal and external networks, and managerial competence), which compliment path dependency of both strategic options and location of outward FDI.

In view of the resource of the firm and the objectives to sustain investment, the firm adopted a penetration strategic position using greenfield investment, as well as wholly owned subsidiaries. The joint ventures in host markets enable the firm to create and manage institutional idiosyncrasies. Table 3.4 illustrates strategic positions of firms in finance and technology industry.

Table 3.4: Expansion strategies of South African MNEs in financials and technology

Firm	Motive(Push and Pull)	Linkage	Expansion strategy	Presence in African Markets
MTN	Efficiency seeking	Network , Size and Products	Subsidiaries, associates and joint ventures	10
Old Mutual	Efficiency seeking	Network , Size and Products	Joint Ventures , Subsidiaries	8
Aviva	Efficiency seeking	Network , Size and Products	Joint Ventures , Subsidiaries	23
Datatec	Efficiency seeking	Network , Size and Products	Joint Ventures , Subsidiaries	8
Mustek	Efficiency seeking	Network , Size and Products	Joint Ventures , Subsidiaries	6
Standard Bank	Efficiency seeking	Network , Size and Products	Joint Ventures , Subsidiaries	20
FNB	Efficiency seeking	Network , Size and Products	Joint Ventures , Subsidiaries	7

Table 3.3 Illustrates expansion strategies in financials and technology. Information contained in the table reveal that Standard Bank has penetrated 20 host markets in Africa, MTN 10, Aviva 23, FNB 7, Old Mutual 8, Mustek 6, and Datatec 8.

3.7 Decision-making criterion

Recently, studies have adopted and proposed different assumptions in an endeavour to explain the measuring yardstick adopted by MNEs to select the compatible host markets to their strategic positions (Rugman and Verbeke, 2017; Buckley and Casson, 2016; Aregbeshola, 2014). Given the difference in theoretical and methodological approach of these proposals, the results have been inconclusive. Nonetheless, there is a unanimous understanding that host market competitive advantages vary with industry and the competency of firm heterogeneity. Regardless of divergence in decision-making criteria, there is nevertheless a seeming unanimity that dependency path between firm and market level aspects determine the volume and pattern of investments (volume and direction).

Aregbeshola (2014) asserts that since the primary concern of multinational enterprises (MNEs) is to achieve their institutional motives, they will select host markets with prospects of high returns and developed infrastructure. Rugman (2014) observe that MNEs select host markets with the intention of enhancing MNEs motivations. Further to this argument, Buckley and Casson (2016) indicate that MNEs behave strategically in the internationalisation process; evidence of the systematic approach is entailed in past academic work by (Hymmer, 1976; Dunning, 2001, 2013), which concluded that FDI intentions hinge on industry conditions. The strategic approach by MNEs is largely motivated by uncertainty and unpredictable host market conditions. This may require risk management and mitigation for MNEs to sustain their investments (Aregbeshola, 2016).

3.8. Lessons from the literature

The genre of literature reviewed in Chapters Two and Three suggests that there is a link between Internationalisation process and outward FDI, whereas other studies have focused on the impact of bilateral trade on outward FDI. Nonetheless, the endeavour of the current study is different from the previous attempts. Earlier work in this area focused on developed countries. For instance, Harris and Moffat, 2015) examined the covariance between MNEs strategies and the flow of outward investment in the United Kingdom. The seminal work of Harris and Moffat (2015) established the link between individual firm strategic positions and the outflow of capital with specific focus on the United Kingdom.

In another Western-orientated study, Baldwin et al. (2017) and Baldwin et al. (2013) studied Canadian MNEs and their impact in the determination of investments outflow. Baldwin and Li (2017), Barney and Petaf (2014) and Teece (2014) conducted a similar study to determine firm level determinants of FDI. These studies indicated the link between MNEs and international trade. Nonetheless, the impact of firm heterogeneity on the pattern of outward FDI was not examined by these studies.

It must be pointed out that a host of studies have investigated FDI in developing economies. Rodríguez-Pose (2017) examined the determinants of infrastructural development FDI in Sub-Saharan Africa and found geographical influence as a crucial determinant of investment location. This gives credence to geographical phenomenon in FDI direction, a point that was also identified by Pathan (2017). However, the study did not link the impact of MNEs in the direction of FDI. Wailerdsak and Siengthai (2017) assessed the determinants of outward FDI in developing countries with specific attention to Thailand MNEs; where it was found that firm motivation and competitive advantages have a huge impact on the selection of FDI destination. Despite the ground-breaking effects of the study, it did not examine the duration of investments and was not segmented along industrial sectors.

Similar studies on outward FDI from developing economies such as Xie (2016) used a gravity model to investigate the surge of Chinese MNEs. Although the study was successful in linking the motivation of MNEs and their relative impact on investment flows, it failed to establish the firm level aspects either as push or pull factors of outward FDI. The omission of fundamental aspects of the internationalisation process from that study undermined its relevance to the gap being studied through this research.

Despite the relative success of handful studies to examine the relationship between firm level aspects and the direction of outward FDI, the weight of causality and the direction of causality is still elusive in literature and empirical studies. For instance, a series of studies (Baldwin and Yan, 2015; Harris and Moffat, 2015; Helpman, 2014) failed to articulate both the direction of causality and the relative weight. The closest work is that of Herzer and Donaubauer (2018) who investigated long run effects between firm level heterogeneity and outward FDI. The study used panel cointegration analysis in 49 developing countries, where it was established both the causality and

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the relationship within the nexus. However, the study suffers from a lack of sectorial bias and makes no distinction between the industrial sectors or strategic entry mode of different MNEs. This has a huge impact on the findings because the relevance of pull and push factors are totally ignored.

This study is different from existing literature as it takes into account the dimension of firm heterogeneity in the investigation of outward FDI from South Africa into other African host markets. The study assumes that sectorial variation would play a role in the direction of outward FDI.In this context, this study investigates the linkage between internationalisation theories and outward FDI using a sectorial approach. Sectorial dimension enhances a detailed understanding and the relevance of push and pull factors in each industrial segment. The literature review in Chapters Two and Three offered a detailed account on the relationship between the flow of Investment and MNEs strategic positions. The linkages of firm and market level aspects are also highlighted.

In summary Table 3.5 recap previous studies that have been reviewed on internationalisation theories as discussed in Chapter Two. In the context of recapping literature review discussed in Chapter Three, table 3.5 provide a recap of seminal studies on firm level and market level determinants of outward FDI.

Table 3.5: Summary of seminal studies on internationalisation theories

Author Name and year	Conceptual discussion	Methodology	Motive	Key Findings
Johannson and Paul (1975)	Internationalisation of the Firm	Case Study	Firm – Level (Push factors)	Construction of establishing profiles of MNEs
Johannson and Valne (1977)	Foreign Market commitment and knowledge development.	Conceptual modeling and Framework. Exploratory.	Firm – Level (Push Factors)	**Positive** - Firm level aspects are both pull and push factors.
Barney, (2001)	Resource Based View	Conceptual Modelling	Firm – Level (Push Factors)	**Positive** – The study established that competitive advantages propel a firm performance.
Andref and Balcet (2013)	MNEs from developing economies.	Gravity Model	Host – Market (Pull Factors)	**Positive** – The study established that host market conditions influence internationalisation process.
Dunning (1977)	Internalisation Theory	Conceptual Modeling	Firm and Host Advantages.	**Positive** – The study established that linkages from firm level and host markets influence the location of investment.
Buckley and Casson (2016)	Internalisation Theory.	Concept Modeling	Firm and Host Advantages.	**Positive** – The study established that linkages from firm level and host markets influence the location of investment.

As illustrated in Table 3.5, a sizable number of empirical and conceptual studies reviewed in Chapter Two and in the outline discussed in this chapter, vividly indicate a positive relationship between internationalisation theories (firm strategies) and the attractiveness of host markets. Table 3.5 does not encompass all references used in this study; nonetheless, it outlines a summary of leading previous studies in this area of interest.

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Table 3.6: Summary of outward FDI determinants

Author Name and year	Conceptual discussion	Methodology	Motive	Key Findings
Dunning (2001)	Determinants of FDI	Conceptual Modelling	Host Markets Aspects.	**Positive**- The study established that host markets influence FDI inflows.
Amighini, Rabelloti and Sanfillipo (2012)	Spatial Agglomeration	Regression	Firm and Host Market aspects.	**Mixed** – The study found causation between Industry and host market variables.
Rugman , Chen, Li and Shapiro (2015)	Country specific and Firm specific Framework.	Principal Component Analysis	Firm and Host Market aspects.	**Positive** – The study established that there is a linkage between firm and market level aspects.
Dunning (1976)	Internalisation Theory	Conceptual Modeling	Firm and Host Advantages.	**Positive** – The study established that linkages from firm level and host markets influence the location of investment.
Porter (1990)	Comparative Advantage	Conceptual Modeling	Firm and Host Advantages.	**Mixed** – The study established a causal relation between firm and market level aspects.
Caves (2007)	Economic Analysis and MNEs	Exploratory	Firm and Market Advantages.	**Positive** – The study gave evidence to the linkage of MNEs and patterns of investments.
Buckley, Cross, Voss and Zheng (2007)	Firm Heterogeneity	Regression	Firm and Market Advantages.	**Positive** the study established a causal relationship.

Table 3.6 contains a summary of leading seminal and contemporary studies reviewed in Chapter Three. Previous studies reviewed in this chapter indicate that a linkage between firm level and market level variables influences outward FDI. The significance of these variables in determining the pattern of outward FDI depends on the motive of the MNEs and individual firm heterogeneity. As observed from seminal and current studies, the eclectic model asserts that location advantage is considered a core determinant of outward FDI. Furthermore, the theory on internalization (firm level adjustment to FDI) encompasses management and the distribution of productive resources.

3.9 Conclusion

Literature on the behaviour of FDI in the context of South Africa has been reviewed in this chapter. The literature reviewed in this chapter validates the existing relationship between firm level aspects and the pattern of outward FDI. It is assumed that specific host market variables serve as pull factor for outward FDI by multinational firms. It is also noticeable that some aspects of country specific and firm level undercurrents must be considered for an MNE to commit further resources. A number of studies consider firm motives, resources, innovation and size of the firm and network links as key determinants of the location of outward FDI - these are regarded as push factors.

In addition, some studies consider economic fundamentals and bilateral agreements as pull factors. Given the evidence from existing literature, none of the studies evaluated internationalisation theories and outward FDI from African or South African perspective. Although a few studies fairly engaged with the linkage between firm level and market level aspects. Nonetheless, studies that took this academic direction overlooked the significance of sectorial dimension in the discourse of outward FDI. After reviewing a series of literature from previous studies on internationalisation theories and conceptual discourse on outward FDI, the next chapter, Chapter four, focuses on research methodology that is used to answer initial research questions and therefore achieve the research objectives.

Chapter Four

Research methodology

4.1 Introduction

For the propositions, arguments and conclusions drawn from this study to hold water, the research methodology should be clarified. It is on methodology that the validity and reliability of any study can be tested and confirmed. In the previous chapter, the literature reviewed provided evidence that anchors conceptual research model. The motive of this chapter is to advance insight on methodologies that are applied to answer initial research questions and achieve the research objectives. In this context, this chapter focuses on four fundamental aspects. The first phase focuses on measurable variables of internationalisation theories. Several estimations of individual firm heterogeneity that influence firm level aspects are raised. Similarly, the approach is also applied to evaluate determinants of outward FDI. Initial research questions are used to formulate research hypothesis and specification of the research model.

In the second strand, the chapter discusses data collection strategy, variables to be used for model estimation, the material in a sample size of the study and the rationale behind the choice. Third, the chapter discusses econometric techniques applied in estimating models that attempt to justify research hypothesis. Fourth, this chapter also discussed the estimation diagnosis that is applied, and the issue of endogeneity is also raised. The chapter concludes with a chapter summary.

4.2 Research hypothesis and models

Central to the discussion in this section is stating research variables and model specification. In the interest of simple analysis, the specific model estimation is segmented into two, in which each represents firm level and market level aspects. Segment A (Market level aspects) contains five equations that represent industrial sectors. Segment B (Firm level aspects) contains five equations that represent industrial segments.

4.2.1 Research hypothesis

In the context of the current study, it is attempted to test research hypothesis that has been formulated using initial research questions.

The research questions were initialised in order to formulate objectives. Furthermore, the hypothesis and research approaches were motivated by documented evidence from previous studies as reflected in literature in the previous two chapters.

Table 4.1: Proposed research hypothesis

Model Specification	**Market Level Aspects (Part A)**	**Hypothesised effects**
Fixed / Random effects Regression Model. Dependent Variable (FDI)	PPP % of GDP	Positive
	Factor Input	Positive
	Industries % of GDP	Positive
	Transport Services	Positive
	Trade Flows	Positive
Fixed / Random effects Regression Model	**Firm level Aspects (Part B)**	**Hypothesised effects**
Dependent Variable (Investment)	Size	Mixed
	Return to Assets	Positive
	Profit	Positive
	Joint Venture	Positive
	Subsidiary	Positive

In the context of Table 4.1, the following research hypothesis are formulated.

Hypothesis 1: There is a direct positive relationship between outward FDI and market aspects of host destinations, such as:

- Infrastructure of host destination,
- Supporting Industries,
- Demand,
- Factor conditions,
- Trade Flows (Bilateral agreement)

Hypothesis 2: There is a direct positive relationship between investments and firm level aspects such as:

- Size of the firm,
- Return to Assets,
- Profit on Investment,
- Joint Venture,
- Subsidiaries.

Hypothesis 3: There is a positive causal relationship between firm level and market level aspects as highlighted above:

- There is causal direction among firm level variables
- There is a causal direction among market level variables

Hypothesis 4: The intensity of relationship varies per industrial segment.

- The weight of relationship and causality in one industrial segment is not the same.

Hypothesis 5: Linkages from both firm and market levels create a dependent path for expansion strategy adoption:

- MNEs adopt a combination of penetration strategies depending on the prospects of firm level adjustment.

According to Caves (1974) and Aregbeshola (2014), multinational firms are the major agents of FDI and they pursue different strategies in the determination of outward FDI. The fact that investment patterns are determined by individual firm heterogeneity underscores the linkage between firm level and market level aspects.

Meanwhile, documented evidence suggests that the internationalisation process is path dependent on both firm level aspects and market level aspects. A series of studies emanating from Dunning eclectic theory both theoretical and empirical studies concur that internationalisation of business, which accumulates to outward FDI, is dependent on push factors and pull factors (Dunning 2015; Rugman 2014).

Even though, the assumption is that internationalisation process is path dependent as illustrated in both empirical and theoretical works, the factors in our sample are assumed to vary in line with industrial sectors. Furthermore, the variations in firm level heterogeneity and motives that underlie firm capacity such as size, innovation, technology, networks and managerial competence, play a significant role in the pattern of outward FDI. This justifies the rationale to consider a sectorial perspective intervention that is conceptualized in this study.

4.2.2 Model specification

In the context of research questions and hypothesis formulated from the purpose statement and objectives of the study, it is imperative to segment the study into two major segments that is market level aspects and firm level aspects.

First, the focus of the research is to establish aspects of firm heterogeneity, which determine path dependent process of the internalisation process. Nonetheless, and as established earlier on, market level aspects play a critical role in complimenting path dependent process as well as the outflow of FDI. Consequently, it is imperative to investigate market and firm level aspects, as well as their importance in the pattern of outward FDI in host markets.

Central to the above discussion, the specification model which captures path dependence of firm level aspects and the relative relationship among variables, is specified in part A. Part B considers path dependence of market level aspects to explain its statistical relationship with outward FDI.

4.2.3 Part A: Models specification on firm level aspects

In line with the rest of the study, this section considers the proposition that firm level aspects plays a deterministic role in multinational strategies and consequently, the flow of outward FDI. Based on the empirical literature reviewed in the previous two chapters, this study considered a host of methodologies that have been used in previous studies. To begin with, the current study considered the model used by Rugman, Oh and Lim (2012). It must be borne in mind that the objective of this study was to analyse the impact of FDI on individual firm heterogeneity.

Nonetheless, the model applied in that study emphasized the impact of FDI on firm competitiveness, which makes the model inappropriate in the context of this study. Furthermore, models used by Duanmu (2012) where the determinants of outward FDI of Chinese firms were investigated, used multivariate time series approach, and ignored the impacts of cross sections in international business, economics, and trade. In that study, Duanmu (2012) applied a linear regression model. More still, another major weakness in the models used by Duanmu (2012) is that macro level data and firm level data were run in one model, thus resulting in a challenge of collinearity in the series

In the context of this study, aggregate data is separated from micro level data as discussed earlier on. The motive of this decision is to reduce collinearity and enhance the reliability of results.

The present study adopted multivariate panel data analysis of the following variables, size, investment, profit, utilisation of resources, joint venture and wholly owned subsidiaries proxies. According to Dunning (2015), these firm level variables interpret both performance of multinational firms and pattern of investment. Data variables were arranged at annual intervals using the panel approach. In the recent past, econometrics studies have advanced several advantages of using panel data in empirical studies, (Baltagi, 2012; Gujarati, 2014; Wooldridge, 2015).

Documented evidence suggests that the model used by Levine and Zervos (1993) (log- linear model) has been adjudged to be effective in investigating correlation and regression of market-induced growth and has been adopted in a number of such related studies (Aregbeshola, 2016; Duanmu, 2012; Prats, 2017). The model is illustrated as follows: Equation 4.1

$$Log\ Y_{it} = a_0 + a_1\ MT_{it} + a_2 X_{it} + e_{it}$$

Where, Y_{it} represents economic growth estimated as the log of $(GDPC_t/GDPC_{t\_1})$ in the country i and time t. As evidenced, the proxy used for economic growth is averaged for a test of robustness in the growth model. The lag specification is also meant to accommodate autocorrelation in the series.

Where, MT_{it} is the market indicators for country i at time t

Where, X_{it} represents control variables and e_{it} is the error term for country i at time t

The baseline model specified in equation 4.1 is preferable for its robustness and augmented power property. To that extent, this model is adopted as the baseline model in this study. In the work of Lervine and Zervos (1993), the study focused on exploring the linkage between capital market development and inflow of FDI. Relevant to the current study standpoint, there is a need to remodel Lervine and Zervos' (1993) model.

In addition, the present study adopted autoregressive model. This is important in order to understand the pattern of investment. The remodelled log-linear equation is represented in the equation 4.2 that follows:

Industry Baseline Equation 4.2 (firm level):

$$Log\ Invest_{it}^{j} = a_{oi}^{j} + a_{1t}^{j} \quad Invest_{it}^{j} JV_{it}^{j}\ ROE_{it}^{j}\ ROA_{it}^{j} Size_{it}^{j} Subs_{it}^{j} + e_{it}^{j}$$

$Invest_{it}$ Represents MNEs annual investments in host markets as the log of $(Invest_t/Invest_{t-1})$ in the firm i and time t. As evidenced, the dependent variable (investment) is averaged for a test of robustness in the model and the lag length is introduced to assuage the fear of autocorrelation and extant endogeneity.

Where, $Invest_{it}^{j}$ = $(Invest_t/Invest_{t-1})$

Where, JV_{it}^{j} = joint ventures for firm i time t

Where, ROE_{it}^{j} = Return on Equity of MNEs i time t

Where, ROA_{it}^{j} = Return on Assets of MNEs i time t

Where, $Subs_{it}^{j}$ = wholly owned subsidiary of MNEs i time t

Where, $Size_{it}^{j}$ = the size of MNEs i time t

Where j = economic sector

Where, e_{it}^{j} is the error term.

The elements in the second equation require a detailed explanation. In regards to the study, six firm level variables have been selected to answer the research questions and achieve the research objectives. The dependent firm level variable is investment, based on the rationale of the discourse advanced in the preceding chapters. Foreign investment is considered as distinguishing aspects between a domestic firm and a multinational firm. According to the United Nations definition as presented in chapter two, a multinational firm must have more than 10 % of controlling stake in host market. As indicated in chapters two and three, foreign investment trends determine the process of internationalisation and outward investment. Foreign investment patterns feature prominently in the internationalisation process as advanced in chapter three, thereby making it an important variable of consideration.

The first explanatory variable is organisational size. According to Penrose theory, the objectives of a firm are defined by its size. This assertion has been upheld by

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contemporary economics and International business literature (Prats, 2017; Teece, 2014). In specific reference to this study, the size of the multinational firm is seen as a determinant of its capacity to create and manage institutional idiosyncrasies. Although, the size of the firm is not a prerequisite in the internationalisation process, it plays a crucial role in institutional capacity determination (Dunning, 2015).

The second explanatory variable is return to assets. A series of seminal and contemporary empirical studies assert that assets utilisation is a fundamental aspect of global markets and it enhances firms to both penetrate and sustain their activity in global markets (Harris and Moffat, 2015;Teece, 2014). In specific reference to this discourse, assets utilisation is inherent to internationalisation process as it enables aptitude advancement and has a direct bearing on firm assets, profitability and investment patterns.

The third explanatory variable is profitability. There is a unanimous perspective that profitability is a signal of a successful business endeavour. Recent literature in international economics and business studies echo that profitability has a causative effect on the size, foreign investment trends and innovation of a multinational firm (Harris and Moffat, 2015; Teece, 2014). These authors also argue that profitability depends on the optimal employment of capital, organisational size, innovation and efficiency of internal mechanism of the firm.

The fourth-explanatory variable is joint venture. This variable represents markets expansion strategy in which MNEs penetrate host markets by developing a strategic alliance in the form of merger with a domestic firm. Contemporary literature indicates that joint ventures are compatible to firm level adjustments as MNEs usurp downstream and upstream networks of domestic markets, and enhance ownership and transfer of tangible and intangible resources through the internalised network (Luo and Tang,2017; Knight, 2015).

The fifth explanatory variable is subsidiary. This variable represents market entry strategy in which MNEs enter host market by either greenfield or brownfield investment. Through this strategy, MNEs rely on their resources (tangible and intangible) to adjust to market dynamics in host markets. Most often, firm level adjustment in host markets is determined by networks that MNEs create prior to outward FDI. Subsidiary penetration strategy gives credence to learning by exporting

hypothesis. MNEs create networks and capacities that are necessary in sustaining long term business objectives in host markets (Meyer, 2017; Uetake and Wanatambe, 2017).

It must be remembered that the research questions and hypothesis that this study attempt to answer and satisfy lends credence to the formulation of model specifications that are arranged according to industrial segments. In this connexion, the model specification that satisfies sectorial perspective of the study, in line with the research questions and objectives, are formulated as follows:

It is considered worth mentioning that the equations listed below (equations 4.3 to 4.6), attempt to satisfy research hypothesis that intensity of relationship in firm level variables varies due to industrial sectors.

Equation 4.3 Mining and construction sector

$$Log\ Invest_{it}^{j} = a_{oi}^{j} + a_{1t}^{j} + Invest_{it}^{j} + JV_{it}^{j} + ROE_{it}^{j} + ROA_{it}^{j} + Size_{it}^{j} + Subs_{it}^{j} + e_{it}^{j}$$

Equation 4.4 Consumer goods and retail sector

$$Log\ Invest_{it}^{j} = a_{oi}^{j} + a_{1t}^{j} + Invest_{it}^{j} + JV_{it}^{j} + ROE_{it}^{j} + ROA_{it}^{j} + Size_{it}^{j} + Subs_{it}^{j} + e_{it}^{j}$$

Equation 4.5 Technology sector

$$Log\ Invest_{it}^{j} = a_{oi}^{j} + a_{1t}^{j} + Invest_{it}^{j} + JV_{it}^{j} + ROE_{it}^{j} + ROA_{it}^{j} + Size_{it}^{j} + Subs_{it}^{j} + e_{it}^{j}$$

Equation 4.6 Finance sector

$$Log\ Invest_{it}^{j} = a_{oi}^{j} + a_{1t}^{j} + Invest_{it}^{j} + JV_{it}^{j} + ROE_{it}^{j} + ROA_{it}^{j} + Size_{it}^{j} + Subs_{it}^{j} + e_{it}^{j}$$

4.2.4 Model specification for market level aspects

The importance of host market competitiveness on outward FDI is well substantiated in both theoretical and empirical literature. According to national competitive advantage theory, multinational firm's strategy hinge on market level variables, (Porter 1990). In the context of this study, the work of Porter is used as a lens of illuminating the linkage (overlapping aspects) of firm level aspects and market level aspects. Market level aspects are defined as variables, which are exploited by multinational firms to enhance and sustain their business concern in host markets. Porter's theory

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expounds on four aspects that are fundamental to international business activity, which can be augmented by adding bilateral agreements and trade inflows.

The first variable is the level of demand. According to Porter (1990) and as reinforced in other studies (Weder ,2017; Camagni, 2017; Rugman, 1993; Rugman and Cruz, 1993; Vernon, 1974, 1979). These studies converge on the fact that most multinational firms are motivated by the level of demand in host markets. The assumption is that high level of demand in host markets translate into a business opportunity that must be exploited by MNEs.

The second variable is factor conditions. This variable captures the availability and price of factor inputs, labour, capital, and technology. There is a unanimous perspective that business is sensitive to cost of factor inputs. As contained in chapter two and three, recent series of international economics, trade and business studies echo that cost of production has a causative effect on profitability and growth of the firm. This proposition explains why a number of MNEs from the West have increasingly been relocating their manufacturing facilities to emerging markets in Asia and South America.

The third variable is related and supporting industries, which are one of the key issues for international investment, as supporting structure relate to the industries for synergy benefit, as well as an infrastructural development process that supports and reduce the cost of investment in offshore markets.

The fourth variable is infrastructure. A number of studies as contained in the previous chapters indicate that infrastructural development has a positive impact on economic growth, and ultimately the attractiveness of a country to inflow of investment. This reinforces a long standing argument in international economics and business by Porter (1990). Based on this perspective, infrastructure is used as the variable in the context of this discourse in an attempt to uncover market level linkages.

The fifth variable is bilateral trade. According to Bellak (2013), there is a causal relationship between foreign direct investment and bilateral trade treaties. This augments the findings of Aregbeshola (2014), as well as Alfaro (2004), where the role of trade liberalisation was found to be weak. Consistent with this submission, this

variable is included in this study to uncover linkages through liberalisation nexus in host markets.

The study derived market specific aspects based on Porter diamond of competitive advantage theory, from the World Economic Forum, annual competitiveness report publication, and aggregate data from numerous secondary data sources such as World Bank database and the African Development Indicators. Annual reports from WEF are extensively used in contemporary international business studies, (Balabanis and Diamantopoulos, 2004; Goerzen and Beamish 2003; Rugman, 2014). This approach enables the study to uncover host market linkages, which are important in answering the research questions, and to achieve the key objectives of the study.

In this segment of the study, research questions and hypotheses that form the focus of this study are built into model specification, which is arranged in accordance with industrial segments. As indicated under firm level equations, market level model estimation adopted auto regressive model. In this scenario, the model specification that satisfies market level aspects of the study is proposed as follows:

Industry Baseline Equation 4.7 (market level) :

$$Log\ FDI_{it}^{j} = a_{oi}^{j} + a_{1i}^{j} FDI_{it}^{j}\ \ Indus_{it}^{j} Demand_{it}^{j} Infras_{it}^{j} Factor\ Inputs_{it}^{j} Trade_{it}^{j} + e_{it}^{j}$$

FDI_{it} Represents MNEs annual FDI in host markets as the log of (FDI_t/FDI_{t-1}) in the firm i and time t. As evidenced, the dependent variable FDI is averaged for a test of robustness in the model and to accommodate possible endogeneity traits in the series.

$Where, log\ FDI_{it}^{j}$ = inward FDI in specific economic sector i time t

$Where, FDI_{it}^{j}$ = (FDI_t/FDI_{t-1})

Where $Industry_{it}^{j}$ = country size of industry i time t

Where, $Demand_{it}^{j}$ = country size of demand i time t

Where, $Infras_{it}^{j}$ = country infrastructure in host markets i time t

$Where\ , Factor\ Inputs_{it}^{j}$ = host market prices of factor inputs i time t

$Where\ , Trade_{it}^{j}$ = trade openness in host markets i time t

e_{it}^{j} = the error term of economic sector.

Equation listed below attempts to satisfy research hypothesis that the intensity of relationship in market level variables varies due to industrial sectors.

Equation 4.8: Mining and construction sector

$$Log\ FDI_{it}^{j} = a_{oi}^{j} + a_{1i}^{j} FDI_{it}^{j}\ \ Indus_{it}^{j} Demand_{it}^{j} Infras_{it}^{j} Factor\ Inputs_{it}^{j} Trade_{it}^{j} + e_{it}^{j}$$

Equation 4.9: Consumer goods and retail sector

$$Log\ FDI_{it}^{j} = a_{oi}^{j} + a_{1i}^{j} FDI_{it}^{j}\ \ Indus_{it}^{j} Demand_{it}^{j} Infras_{it}^{j} Factor\ Inputs_{it}^{j} Trade_{it}^{j} + e_{it}^{j}$$

Equation 4.10: Technology industry

$$Log\ FDI_{it}^{j} = a_{oi}^{j} + a_{1i}^{j} FDI_{it}^{j}\ \ Indus_{it}^{j} Demand_{it}^{j} Infras_{it}^{j} Factor\ Inputs_{it}^{j} Trade_{it}^{j} + e_{it}^{j}$$

Equation 4.11: Finance industry

$$Log\ FDI_{it}^{j} = a_{oi}^{j} + a_{1i}^{j} FDI_{it}^{j}\ \ Indus_{it}^{j} Demand_{it}^{j} Infras_{it}^{j} Factor\ Inputs_{it}^{j} Trade_{it}^{j} + e_{it}^{j}$$

4.3 Motivation for choosing the variables

As informed by literature review and discussed under each equation, the suitability and determination of these variables have been used in various previous studies. In the sections that follow, attempt will be made to discuss and justify the inclusion of each of the variable in the equation. It is also relevant from this standpoint to understand that some variables used in the literature are not measurable through available data; hence the solution is to use proxies on the modifications and application of equations.

4.3.1 Dependent variable

Four dependent variables are used in this study, in a sequential order, ranging from equation 4.3 to equation 4.6. Firm annual investment is used as a dependent variable, as informed by literature, Investment has been adopted by previous studies although in different dimensions (Ashraf and Herzer, 2016; Lee, 2016; Helpman, Meltz and Yeaple, 2004; Grossman and Helpman, 2004).

Consistent with the objectives of this study, FDI outflow is measured through annual MNEs investment in monetary values in the host market, which is assumed to be a controlling share in the offshore subsidiary. A similar approach has been adopted in previous literature (Stiebale, 2016; Crescenzi, Gagliardi and Lammarino, 2015).

4.3.2 Independent variables

The theoretical foundation of firm heterogeneity, internationalisation theories, and outward FDI, suggest that different explanatory variables can be applied for their measurement, depending on research objectives and the researcher's perspective. More still, the measurement of FDI outflow might inform a sequence of likely regression models as evidenced in various studies, (Aregbeshola, 2016; Adams, 2009).

Independent variables used in this study appear in equations 4.3 to 4.6 (firm level aspects), taking credence from the literature reviewed in chapters Two and Three. The relevance of each independent variable is qualified by both the research questions that the study attempt to answer and research hypotheses that the study attempt to prove. Even through, the independent variables appear in each equation (equations 4.3 to 4.6); however, in the interest of simplicity, these variables will be defined only once to avoid duplication. Table 4.2 present sources of data and definitions of variables.

Table 4.2: Summary of firm level variables

Variables	Brief Description	Source of data
Investment (Dependent)	Annual foreign investment	McGregor BFA
Size (Explanatory)	Tangible and intangible assets	McGregor BFA
Joint Ventures	Joint Ventures existing in host markets.	McGregor BFA, Website and Annual reports.
R.O.E (Explanatory)	Value of R.O.E from foreign subsidy.	McGregor BFA
R.O.A	Assets utilisation	McGregor BFA
Subsidiaries	Subsidiaries existing in host markets.	McGregor BFA, Website and Annual reports.

4.3.3 Market level variables

As discussed earlier in equations 4.8 to equation 4.11, these equations are formulated in an attempt to prove hypothesis 1 and hypothesis 3. The theoretical framework of the study, i.e. Porter's diamond of national competitive advantage (1990), motivates variables used in the equations. This iconic model and its possible composite has already been discussed in chapter two, and that discourse will not be repeated here. In the context of this study, the model specification approach adopted panel regression analysis with inward FDI as a dependent variable. As such, market level variables are considered inseparable as either a dependent or independent variable or both. Table 4.3 present a synopsis of market level variables.

Table 4.3: Summary of market level variables

Variable	Brief Description	Source of data
FDI	Foreign direct investment, net inflows (% of GDP)	World Bank
Demand	Consumption % of GDP	World Bank
Factor Inputs	Industrial commodity prices	World Bank
Industries	Industries % of GDP	World Bank
Infrastructure	Transport cost (Proxy)	World Bank
Bilateral Trade	Trade % of GDP	World Bank

4.4. Population and sample size

According to Creswell and Creswell (2017), research population is a total number of research objects, subjects, members that conform to research specifications. In the context of this study, the population is adjudged 40 South African originated MNEs that have ventured into offshore markets. Creswell and Creswell (2017) further assert that the canon that guides the characteristics of subjects in the population must be clarified. In this discourse, eligibility canon hinge on three aspects. The first canon is that multinational firms of South African origin, which has their headquarters in South Africa, are considered as part of research population.

The second canon is that multinational firms must invest more than 10 % of the ordinary stock in the host markets. The third canon is that multinational firms must have been present in host markets for at least 20 years; this will ensure a sufficient time series to make conclusions and achieve the stated research objectives.

Nonetheless, market level canon of research will include host markets where outward foreign direct investment has been transferred. This legibility will also encompass host markets where multinational firms disinvested but were present in the time series of the research scope.

According to Penrod, Preston and Cain (2003), a sample size is the quantity of recognizable variables that constitute a sample in a study. The size of the sample has a direct bearing on credibility and accuracy of research conclusions. A bigger sample has much likelihood to produce precise results hence a small sample size has much likelihood to produce inconsistent results. For the purpose of this study, the sample size is 25 as drawn across industries (retail industry, 7; technology, 7; mining, 3, and finance, 8).

Dataset for all variables used in the equation is generated from World Bank database (market level aspects) and the Inert BFA dataset was used for firm level aspects. One key constraint in the current study is that data sets for firm level aspects only covered the time series between 1990 and 2015. Data was obtained with much ease, save for circumstances where in some variables there are missing units in the time series. Given the fact that, estimating regression equations with missing units may result in a sequence of sensitivity issues in estimation and inconsistence, (Baltagi, 2011).

Furthermore, according to Batlagi and Bresson (2017), balanced panels are assumed to have estimation superiority over unbalanced panels. To mitigate this challenge, the method of five-year moving average is adopted to cater for missing variables.

4.5 Estimation techniques

This section discusses econometric and statistical techniques adopted in the analyses of models specified, as discussed in section 4.4.2 of this chapter. Consistent with this research, given that a sequence of explanatory variables are regarded as possible determinants of foreign Investment at the firm level and FDI inflows at market level for a period of two decades across multiple host economies, a panel approach is regarded appropriate. In the recent past, econometrics studies have advanced several advantages of using panel data in empirical studies, (Gujarati, 2014; Wooldridge, 2014; Baltagi, 2012). The panel approach has the following advantages in empirical studies:

- Panel data approach allows a large number of data points, increasing the degree of freedom, and reducing collinearity among explanatory variables. Due to these benefits, it hence increases the efficiency of the estimation and validity of the findings. In addition, longitudinal data allows both cross section and time series to be analysed concurrently.
- Panel data take into account quite a number of heterogonous variables. These variables include firms, individual and countries. This enables estimation techniques of panel data to account for such heterogeneity by considering individual specific variables.
- In the process of analysing repeated cross section of observations, panel data are more effective to study dynamics of change.
- Panel data is more effective in measuring and detecting effects that cannot be both measured and detected in time series and cross sectional data analysis.
- Panel data is efficient when analysing sophisticated econometrics models.
- Panel data eliminates bias by ensuring availability of several units of analysis. Consequently, bias that might have resulted in reliability challenges are eliminated.
- Panel data enhances the possibility of consistent estimation of fixed effects model by allowing correlation of regressors with unobserved heterogeneity, which normally could lead to omitted variable bias.

According to Gujarati (2014), panel data reinforces the reliability of empirical studies in ways that cannot be feasibly practicable using either cross section data or time series data. Notwithstanding significant merits of panel data, however, panel data has inherent estimation and inference challenges. For instance, since panel data integrates both cross section and time series data, problems that are inherently peculiar to cross section data like heteroscedasticity need to be eliminated. More still, problems that are inherently unique to time series like autocorrelation need to be addressed. To eliminate challenges that are inherent in panel data, the research adopted pre and post diagnostic tests that are considered appropriate to eradicate the effects of both heteroscedasticity and autocorrelation. Post diagnostic tests are discussed later in this chapter.

4.6 Causality between model variables

Even though, weighted least squares and ordinary least squares approaches are commonly used to determine the intensity of the relationship between variables, however, their effectiveness is limited as they indicate the intensity relationship and not the causal relationship. To understand the causal relationship between variables, this study adopted Granger causality test. Granger (1969) asserts that causality is established between two variables (x and y) if the sequential behaviour of variable (x) can be forecasted by the current behaviour of another variable, (y); $i.e\, x(t_1) = f[y(t_2)]$.

According to Granger (1969:428), causality is defined as 'a useful way of describing the relationship between two (or more) variables when one is causing the other(s)'. Causality measures causal effects of one variable on the other. Econometric estimation assumes that the presence of causality is evidenced by a change in behaviour of variables that is caused by the impact of another variable (Gujarati, 2014). In the context of this study, the causal association between models specified and discussed in section 4.3 will be evaluated. It is imperative to highlight that despite the careful selection of variables based on theoretical evidence, the causal relationship between variables in all equations might be unidirectional or bidirectional. In this regard, an estimation technique that is capable of atoning the incidence of endogeneity is discussed in the paragraphs that follow.

4.6.2 Endogeneity challenges

A series of previous studies (Liu 2017; Aregbeshola. 2016; Campos and Hanousek , 1999), have identified the possible challenges of endogeneity, and meaningful attempts to mitigate the challenge were proposed and utilised. In the current study, the challenge of endogeneity is mitigated by employing various techniques. A series of previous studies suggest that endogeneity bias is caused by a potential correlation of variables used as a proxy for outward FDI (Pradhan, Arvin, Hall and Nair, 2017; Shen and Lee, 2017; Aregbeshola, 2014).

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To limit this challenge, the study adopted orthogonal deviation in the General Methods of Moment environment as recommended by Arellano and Bover (1995). Furthermore, Chudik and Peseran (2017) buttress the opinion of these authors that individual effects that are unobserved can be cancelled by forwarding orthogonal deviation in multivariate panel data.

The study further suggests that the GMM estimator of the model transformed by the forward orthogonal deviation is more effective than the estimator transformed at first difference in mitigating challenges of endogeneity/autocorrelation in estimations. For this reason, orthogonal deviation technique addresses the problem of endogeneity and enhances compatibility and validity of diagnostic tests built into the GMM approach (Dong and Fun, 2017).

4.6.3 Pre estimation diagnosis

In the context of the current study, two pre estimation diagnoses are adopted. First, as validated in a series of studies (Batlagi, Feng and Kao, 2016; Mao, 2015; Batlagi, 2011), the violation of estimation assumptions could lead to spurious regression. As informed by these studies and to avoid the possibility of reaching unreliable conclusions, the error correction model is conducted to detect probable errors in panel estimation. Consequently, the ECM model is conducted to provide an allowance of cross sectional effects and error components, which are excluded in the series.

Second, to test for stationarity in the datasets, Levin, Lin and Chu (2002) panel unit root was adopted. A series of empirical studies regard Levin, Lin and Chu (2002) unit root test (LLC) as the most dependable unit root test for panel data (Aregbeshola, 2014; Gujarati, 2014). Baltagi (2008:275) reinforces this diagnostic approach, where he observes that the technique ‘allows for fixed effects, individual deterministic trends and heterogeneous serially correlated errors’. Furthermore, according to Batlagi (2008), the interval of time series, which is susceptible to error component, is critical in the determination of estimator asymptotic properties.

4.7 Conclusion

The aim of this chapter has been to clarify the methodology that is deployed in the present study. For that reason, the chapter discussed a detailed account of the methodology that was adopted in this study. In that way, this chapter validates the scientific validity and reliability of the present study as a contribution to the subject of international business. This chapter encompassed data collection techniques, estimation approaches, the population as well as the sample size.

The techniques used for data analysis, which included pre-test in market and firm level aspects were discussed. To test for the relationship in firm level aspects, the study proposed the adoption of a series of econometric measures that include a linear panel regression (dynamic panel estimation). This approach was proposed in order to gauge the possible relationship between dependent variable and dependent variables in the face of a possible autocorrelation. Likewise, a similar approach is proposed to test the relationship between dependent variable (FDI) and independent variables (demand, factor prices, trade, Industry and infrastructure) in market level aspects.

Furthermore, the methodological approach of this study, as the chapter shows, also propose the adoption of Granger causality test and to forecast the relationship between dependent variables and explanatory variables through the utilisation of impulse response approach that is built onto the VECM approach. After the detailed presentation of the methodology approach in this chapter, the results of the analyses conducted in this study will be presented in the next chapter.

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Chapter Five

Data analysis and interpretation

5.1 Introduction

This chapter delves into the crux of the study by engaging in data analysis and interpretation. Using the methodology that was stated in the previous chapter, this chapter explores various methodological approaches that were suggested in the previous chapter, and interprets the information generated through the data analyses. In the previous chapter, the study discussed and restated research questions and their alignment to research hypotheses. This chapter attempts to provide answers to the questions of the study. A tabular illustration presented in the previous chapter illustrates the potential relationships between firm and market level aspects. The relationship depicted in Table 4.1 suggests a causal relationship between firm investment flows (outward FDI flows), size of the firm, return on assets and profitability of foreign assets, joint venture and subsidiary. In the macro level aspects, the hypothesis suggests that there is a causal relationship between FDI inflows and infrastructure, supporting industries, level of demand and bilateral trade.

After constructing econometric models to test the validity of proposed hypotheses, the present chapter addresses statistical analysis ensuing from statistical models as discussed in the previous chapter. The analysis of statistical methods is implemented in the order of the previous chapter as cognisant to the arrangement of research hypotheses. It is noticeable that micro level estimation are conducted for equations 4.3, 4.4, 4.5 and 4.6, while macro level estimation are conducted from equations 4.8, 4.9 ,4.10 and 4.11. In all estimation models, the value of adjusted R-Squared are hypothesised to be statistically significant and the coefficients are also envisaged to be meaningful in order to validate the proposed research hypotheses, especially in the face of individual firm heterogeneity and relevance of aspects in economic sectors.

5.2 Error correction model

Prior to the commencement of the estimation process, as discussed in chapter four, a series of pre-estimation diagnostic tests were conducted to enhance and ensure that there is no violation of estimation assumptions.

As advised by a series of studies (Batlagi, 2008; Isaacson and Keller, 2012), the violation of estimation assumptions could lead to spurious regression. In view to these considerations, the error correction model is conducted to detect probable errors in the proposed panel estimation. Consequently, the ECM model is conducted to provide an allowance of cross sectional effects and error components, which are excluded in the series. The conservative ECM model is adopted from the study of Aregbeshola (2014: 98):

$$y = ai\ NT + X\beta + U = Z\delta + U \qquad \text{Equation 5.2}$$

Where y is $NT^*\ 1$, X is $NT^*\ K$, $Z = [iNT\ , X], \delta' = \alpha'\beta'$ and iNT is a vector of one of the dimensions of. This equation can also be estimated as follows

$$u = Z_{\mu}u + v\ is \qquad \text{Equation 5.3}$$

Where $u' = (uii \ldots\ldots uiT, u21 \ldots. u2T \ldots. uN1 \ldots. uNT)$

The conversion executed in this equation arrange the observation in a manner that the slower index is placed over firms observed (cross sectional effects), whereas faster index is placed over the impact of time. This approach is followed because of the fact that firm specific aspects would normally lead to slower reactions in comparison to aspects of time that might induce unexpected volatility. For instance, a firm level forecast anticipating prospects for growth of business in host markets might motivate the increase in investment volumes.

Furthermore, firm ownership advantages and increased capacity in terms of tangible and intangible resources can trigger reactions from firms to invest, yet on the contrary, sharp decrease in prospects may also trigger disinvestments or reduce the rate of investments. Likewise, the conversion implemented above is regarded essential because if estimation errors align with error components specification, the results of OLS might be inaccurate and generate misleading test statistics. By implication, the estimate may correlate with biased standard errors, which necessitates the need to ascertain the presence of error components in the model as a pre estimation process prior to conducting a regression analysis.

Consistent with the rest of the study, macro level aspects (market specific aspects) are also analysed concurrently with firm level specific aspects. In this respect, equations 4.8, 4.9, 4.10 and 4, 11 estimates the assumption that dependent variable foreign direct investment (FDI) is explained by explanatory variables of industry, infrastructure, demand, price of factor inputs and trade. In line with the stated hypothesis, and key research question that MNEs strategies are heavily path dependent, we estimate a potential determination through the linkage of firm heterogeneity (firm level aspects) and market specific aspects.

In the context of this study and to estimate firm specific aspects, equations 4.3, 4.4, 4.5 and 4.6 is estimated separately, and industry and firm heterogeneity is considered. Likewise, market level aspects are estimated in equations 4.8, 4.9, 4.10 and 4.11. In all equations, vector error correction model (VECM) is estimated through the final prediction error (FPE and Akaike Information Criteria under the rank restriction that is pegged at 1. The rank is restricted because such restrictions allow steady estimation of the cointergration space within the parameters of the restriction. This methodology has been used with great degree of success in previous studies (Aregbeshola, 2014; Zivot, 2012). The context of this study is analysed in line with study designation parts and equations.

5.3 Retail Industry

Equation 4.3: estimating the relationship between investment and firm level aspects in retail industry.

Equation 4.8: estimating the relationship between FDI and market level aspects in retail industry.

The equation specified in this section would be estimated after the estimation of descriptive analysis and unit root test. In the interest of simplicity, each equation is presented with its own pre- and post-diagnostic analyses. Therefore, the arrangement follows this sequence: descriptive statistics, unit root test and dynamic panel estimations. After panel regression results, impulse response approach is analysed and presented. The impulse response approach is succeeded by cointergation analysis, which preambles causality analysis. Causality analysis is the last step in the analyses and thus its result is presented as such.

5.3.1 Descriptive Statistics

In the following paragraph, the analysis considers firstly descriptive statistics of micro level aspects in retail industry.

Table 5.1: Descriptive statistics (4.3)

	INVEST	J_V	ROA	ROE	SIZE	SUBS
Mean	516335.3	3.636	12.862	167152.2	4728915.	7.027
Median	15.53412	3.000	10.115	42.205	17.140	7.000
Maximum	7720000.	6.000	97.380	24190000	48267000	10.000
Minimum	0.000	1.000	0.250	0.000	0.000	5.000
Std. Dev.	1202422.	1.167	10.966	2001916.	8890306.	1.174
Skewness	3.28	0.553	3.666	11.957	2.881276	0.305
Kurtosis	15.704	2.923	26.295	143.989	12.110	2.715
Jarque-Bera	1244.435	7.485	3628.233	124404.6	706.962	2.769
Probability	0.000	0.023	0.000	0.000	0.000	0.250
Sum	75384958	531.000	1877.940	24404215	6.900	1026.000
Sum Sq. Dev.	2.100	197.760	17438.18	5.810	1.150	199.890
Observations	146	146	146	146	146	146

Table 5.1 illustrates firm level aspects in a descriptive manner as part of the pre-estimation diagnostic. One of the objectives of appreciating descriptive statistics is to understand measures of central tendency and symmetrical distribution of variables. One of the key indicators of normality of data variables is the value of the Jarque Bera. The Jarque – Bera test is a goodness fit test, which tests the presence of kurtosis and skewness matching normal distribution.

In table 5.1, the Jarque Bera test and its relative probability indicate the presence of skewness and kurtosis. According to the results in the table, the null hypothesis of investment variable is that the data distribution is normal if the probability value of the Jarque – Bera is more than 0.05 (i.e. Not statistically significant). Nevertheless, the value of Jarque- Bera test is 90.21 with a probability value of 0 %, this indicates that data may not be normally distributed. However, the power property of the variable suggests meaningful mean reversion, which alludes to its suitability in the face of the weak spread.

The size of the firm as presented in the analysis exhibits mean-reverting traits in the face of its positive skewness. In specific, the descriptive statistics indicates that data is positively skewed with the Jarque – Bera value of 706.25, and a probability value of 0.00. The indication of the Jarque- Bera is further augmented by skewness coefficient that has a value of 2.8. The same applies to return on assets, which has a Jarque – Bera value of 36.28 and a corresponding value of 0.00 and a skewness coefficient of

3.66. Likewise, the value of Jarque – Bera is 92, 88 and corresponding probability of 0.00 also indicate that data is positively skewed.

Variables that represent MNEs expansion strategies, which are Joint Venture (J.V) and subsidiary, indicate an almost symmetrical distribution. For instance, joint venture has a skewness coefficient of 0.55 and variable subsidiary has a skewness coefficient 0.32. Both of these values are very close to symmetrical distribution.

The following section present descriptive analysis of market specific aspects in retail industry. Table 5.2 presents descriptive analysis of market specific aspects in retail industry.

Table 5.2: Descriptive statistics (4.8)

	DEMAND	FDI	INDUSTR	INFRAS	INPUT_PRICE	TRADE
Mean	5.460	4.719	30.026	25.103	11.735	81.834
Median	241.417	3.541	30.080	21.469	8.207	78.269
Maximum	3.580	41.809	82.205	78.878	112.693	170.407
Minimum	0.366	-2.738	10.256	1.107	-2.879	13.410
Std. Dev.	8.740	5.888	12.495	17.302	12.657	34.815
Skewness	1.632	4.002	1.085	0.798	4.562	0.460
Kurtosis	4.883	22.314	5.303	3.020	32.271	2.458
Jarque-Bera	91.756	2823.184	64.721	16.460	6071.204	7.383
Probability	0.000	0.000	0.000	0.000	0.000	0.024
Sum	8.460	731.483	4654.088	3891.078	1819.021	12684.42
Sum Sq. Dev.	1.180	5340.142	24046.12	46102.32	24671.65	186662.4
Observations	155	155	155	155	155	155

Table 5.2 describes market level aspects. As advised by literature in econometric studies, the objectives of appreciating descriptive statistics is to understand measures of central tendency and symmetrical distribution of variables.

In the context of results in table 5.2, the Jarque-Bera test and its relative probability indicate the presence of skewness and kurtosis for the dependent variable. The outcome indicate that when FDI is not normally distributed the probability of Jarque-Bera is more than 0.05. The value of Jarque-Bera test is 28.23 with a probability value of 0 % indicating that data is not normally distributed and positively skewed. Again, the mean-reverting traits of the data lends credence to its usability in the estimation.

The size of demand in host markets is also analysed. The descriptive statistics indicates that data is positively skewed with the Jarque-Bera value of 91.75 and a probability value of 0.00. The same applies to trade, which has a Jarque-Bera value of 7.38 and a corresponding value of 0.02. Likewise, the value of Jarque-Bera is 60,

71 and corresponding probability of 0.00, which also indicate positively skewed data on factor input price variable. Furthermore explanatory variables infrastructure and Industry also reveal that the data is positively skewed. In all instances, the mean-reverting properties of the variables, essentially considering the moderate stance of the standard deviation, lends credence to their suitability in the estimation.

5.3.2 Vector error correction estimates

The succeeding section presents an analysis of vector error correction estimates for equations 4.3 and 4.8 of the study. This is regarded essential as the analysis, concluded in this process, indicates the precise relationship between the dependent variable and explanatory variables of the equation. This methodological approach also indicates on the probable relationship if the dependent variable is interchanged.

Likewise, the error correction terms outline how the time series adjust to imbalance. Breitung, Brüggemann and Lütkepohl (2004) assert that the modest interpretation of error correction estimation indicates that error terms that have positive coefficients would revert through negative future patterns, whereas error terms that have negative coefficients would attain stability through positive reaction trends. This was the underlying assumption of normalcy tests through descriptive statistics as presented in the preceding tables.

A series of studies assert that in both cases, the relevance of error term is indicated by its statistical significance (Alogoskoufis and Smith, 1991; Baltagi, 2008). In principle, the error term in the dynamic estimation is assumed to be ‘reasonable’ that if it regresses to equilibrium within a short run, rather than within the first time series. Table 5.3 illustrates the result of VECM for equation 4.3.

Table 5.3: Vector error correction estimates (4.3)

	INVEST	SIZE	ROE	ROA	SUBS	J.V
Lag 1	1.000	-0.126 (0.016) [-7.653]***	-0.079 (0.051) [-1.525]**	-4289.841 (9581.73) [-0.447]	796550.8 (153353.) [5.194]	815890.3 (113668.) [7.177]
Differenced	-0.764 (0.126) [-6.026]	-3.714 (0.818) [-4.537]	0.419 (0.349) [1.200]	-7.200 (1.700) [-0.427]	-4.880 (1.700) [-2.907]	-1.190 (1.300) [-9.274]
Differenced in lag 1	-0.703 (0.152) [-4.609]*	-0.999 (0.984) [-1.015]	-0.264 (0.419) [-0.630]	2.560 (2.00) [1.266]	6.460 (2.000) [0.320]	7.000 (1.500) [4.559]
Differenced in lag 2	-0.065 (0.125) [-0.522]*	1.107801 (0.80647) [1.37364]	-0.109 (0.343) [-0.317]	3.930 (1.700) [2.370]	3.490 (1.700) [2.112]	5.2500 (1.300) [4.140]

Estimated coefficients on the first line, standard errors in parenthesis (); and t-statistics in brackets [].
The results are computed separately for each equation using the appropriate residuals
**** p<0.01, ** p<0.05, * p<0.1 {Emphasis are placed on *** p<0.01, ** p<0.05}*

According to Baltagi (2008), the stability of VECM model is determined by the value of Durbin Watson test. The rule of thumb regards a Durbin Watson statistics of between 1.6 and 2.4 as stable, while statistical values outside of this bracket is considered a sign of first order autocorrelation (Aregbeshola, 2014). In view to the results, the model has a Durbin Watson value of 1.96 and a corresponding F-statistic of 1.96 as presented in OLS model that is depicted in Figure B 1.1 in the appendices.

As presented in Table 5.3 above and Table B 1.1 in the appendices, the VECM model indicates that the error correction estimate of C1 (A 1.1) is negative (-0.77) and has a significant p-value of 0 %. This signal augments three established empirical narrations. The first indication is that the model is stable and the speed of correction is 77 %. The second indication is that there is a long run causality flowing from dependent variable (investment) to explanatory variables (Subsidiary, Joint Venture, Size, Return on Assets and Return on Investment). The third indication is that it provides an indication of short run causality. The analysis contained in the Table reveals that there is evidence of short run causality between dependent and explanatory variables. Furthermore, results of the cumulative sum (cusum) test confirm that the model is within 5 % level of significance (See Figure, A 1.1 in Appendices).

According to the Table, the dependent variable (investment) indicates that the error correction estimates recorded negative estimates when differenced, which is 76%, as well as when differenced in lag 1, which is 70 %.

The coefficient estimate is a negative 6%. Although, the value is small but the overall indication in investment is that error estimates are corrected within the first two years.

The size of the firm assets is assumed to be an important determinant on the direction and volume of a firm's investment (Dunning, 2015). In this analysis, this variable has a negative coefficient at Lag 1, differenced and differenced in lag 1. Return on Equity also has a number of negative coefficients at lag 1, differenced in lag 1 and differenced in lag 2. While return on assets have negative coefficients in lag 1 and differenced. However, both variables are of short-term significance and their speed of adjustments is considerably high (within the first year). Nonetheless, the other variables in Table 5.3 indicate that they have no significant short term effects. Furthermore, other combinations that are presented in appendices B1.1 are not discussed as they are of weak statistical significance. An overall observation of the model is signified by the value and the probability of Durbin Watson statistics that is built into the OLS model as presented in appendices (Table A 1.1).

In the context of market level aspects, the succeeding section presents an analysis of (VECM) estimates for equation 4.8 of the study. This procedural method also indicates on the probable relationship if the dependent variable is interchanged. Table 5.4 presents VECM results for market level variables in retail industry.

Table 5.4: Vector error correction estimates (4.8)

	FDI	INFRAS.	FP	DEMAND	TRADE	INDUSTRY
Lag 1	1.000	0.535 (0.199) [2.68]	0.910 0.358) [2.538]	6.440 (6.500) [9.872]	-0.941 (0.168) [-5.581]	-0.571 (0.519) [-1.101]
Differenced	-0.244 (0.070) [-3.493]*	-1.640 (3.900) [-4.244]	0.006 (0.067) [0.100]	0.042 (0.055) [0.767]	0.167 (0.226) [0.741]	-0.196 (0.173) [-1.130]
Differenced in lag 1	-0.422 (0.091) [-4.639]*	0.056 (0.060) [0.937]	0.391 (0.137) [2.852]	5.760 (3.200) [1.79]	-0.153 (0.053) [-2.863]**	-0.042 (0.106) [-0.398]*
Differenced in lag 2	-0.317 (0.104) [-3.035]*	0.074 (0.055) [1.352]	-0.286 (0.143) [-2.003]	-1.990 (1.800) [-1.108]	-0.006 (0.046) [-0.134]**	0.051 (0.167) [0.304]

Estimated coefficients on the first line, standard errors in parenthesis (); and t-statistics in brackets [].
The results are computed separately for each equation using the appropriate residuals
**** p<0.01, ** p<0.05, * p<0.1 {Emphasis are placed on *** p<0.01, ** p<0.05}*

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As stated by Baltagi (2008), the stability of VECM model is determined by the value of Durbin Watson test. In view to the results, the model has a Durbin Watson value of 1.86 and a probability of 0.02 estimation of OLS model that is presented in Table B 1.2 in the appendices.

Table 5.4 above and Table A1.2 in appendices contain the result of VECM model, which indicate that the error correction estimate as indicated by C1 (A 1.2) is negative (-0.28) and has a significant p-value of 0 %. Statistical evidence deduced from the results confirm three established empirical narrations. The first indication is that the model is stable and the speed of adjustment to equilibrium is 28 %. The second indication is that there is a long run causality flowing from dependent variable, FDI to explanatory variables, demand, infrastructure, industry, trade and factor prices. The third narrative is a consequent of the second one, since the results in A 1.2 (appendices) indicate that there is a long run causal flow between dependent variable and independent variable. This subsequently means that there exist also a short run causality flow between dependent variable and explanatory variables. The stability of the model is further reinforced by results of the cusum test and residual analysis, which are presented in figure A 1.2 and figure A 1.3 in the appendices.

The above table 5.4 indicates that FDI recorded negative and statistically significant values in differenced, differenced in lag 1 and differenced in lag 2. One of the explanatory variables (trade) recorded negative and significant values in differenced in lag 1 and differenced in lag 2. Variable industry also records negative and significant values in Lag 1 and differenced lag 1.

Nonetheless, the other explanatory variables as contained in Table 5. Indicate that these variables have no significant short-term effects. Furthermore, other combinations that appears in appendix A 1.2 indicate that a sustainable number of combinations are negative and statistical significant. An overall observation suggests that the model is statistically stable and its explanatory properties are statistically strong. This observation is further reinforced by result contained in Table A1.2 in the appendix.

5.3.3 Panel unit root test

Before panel dynamic estimation, a unit root test of data stationarity was conducted. Documented evidence indicates that in time series estimation, the variables should bear similar order of integration. That is, if the variables in the series are not integrated in same order, the variables cannot maintain long run equilibrium (Johansen and Juselius, 1990; Granger, 1980). Likewise, for the purpose of panel regression and cointegration, it is important to conduct a unit root test to ascertain the order of integration of the variables. Hence, this study adopted Levin, Lin and Chu (2002) unit root test.

A series of empirical studies regard Levin, Lin and Chu (2002)'s unit root test (LLC) as the most dependable unit root test for panel data. This is also reinforced by Baltagi (2008:275) that the technique 'allows for fixed effects, individual deterministic trends and heterogeneous serially correlated errors'.

Furthermore, according to Batlagi (2008), the interval of time series, which is susceptible to error component, is critical in the determination of estimator asymptotic properties. The LLC approach therefore makes it possible to uncover these errors and indicates the form of diagnosis to adopt in the estimation process.

According to Pesaran (2007) and Baltagi (2008), the LCC approach enables a good estimation for empirical distribution of test statistics because it is also applicable to panel data with comparative small sample (for instance when T ranges between 20 – 25 and N ranges between 10 – 250), hence is it also applicable in the current study. Consideration of fixed effects is motivated by the reason that the study focuses on specific firms in the industry, hence the estimation inference is limited to the heterogeneity of firms across series. In addition, due to the fact that the estimation pooled firms together, the fixed effects diagnostic wipes out individual effects of firms in the series. Table 5.5 present the result of the stationarity test.

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Table 5.5 - Unit Root test (4.3)

Column 1			Column 2			Column 3		
Levin, Lin and Chu t*	**Level**	**First Difference**	**ADF - Fisher Chi-**	**Level**	**First Difference**	**Im, Pesaran and Shin W-stat**	**Level**	**First Difference**
Individual	27.307	259.564***	**Individual**	-5.65***	-55.379***	**Individual**	87.96***	226.891***
Obs.	812	858	**Obs**	812	797	**Obs**	812	797
Intercept and Trend	0.73423	-1.98420**	**Intercept and Trend**	-5.14***	273.616***	**Intercept and Trend**	82.344***	-49.85***
Obs.	806	789	**Obs.**	812	795	**Obs.**	812	795
None	2.78057	-62.1294**	**None**	4.34687***	1210.90***	**None**	126.835***	1580.34***
Obs.	795	797	**Obs.**	795	797	**Obs**.	868	858

Using the Levin, Lin & Chu (2002) test, probabilities are computed assuming asymptotic normality
****; **; * This indicates that we reject the null hypothesis of unit root at 1%, 5% and 10%.*
Automatic selection of maximum lags; Automatic lag length selection based on SIC: 0 to 5.

Table 5.5 presents results of Levin, Lin and Chu (2002) unit root test. In the above table, the unit root test was implemented using Bartlet Kernel's selection criteria and Newey-West Automatic Bandwidth Selection. Column 1 present unit root results of Levin, Lin and Chu test, the outcome indicate that Individual intercept is stationary at first difference.

The results of intercept and trend also indicate that data is stationary at first difference. The same result applies when neither intercept nor trend is introduced into the test. Column 2, presents the results of ADF - Fisher Chi-square test, the results suggest that Individual intercept is stationary at first difference. The results of intercept and trend also indicate that data is stationary at first difference. Furthermore the results on none indicate that data is stationary at first difference.

Column 3, presents the results of Im, Pesaran and Shin W-statistics which measures stationarity. As deduced from the above table, the outcome indicates that Individual intercept is stationary at level. The results of intercept and trend also indicate that data is stationary at level. The results of none also indicate that data is stationary at level. This approach suggest that the dataset could be applied in either at level or in first difference.

In the context of table 5.5, inclusive analyses of unit root test confirm that all variables are stationary at most in first difference. Nevertheless, the order of their integration varies slightly, depending on the type of analysis considered. Therefore, it may be important to convert each of the variables to first difference, this also important to satisfy cointegration criteria. It is worth remembering, however, that the use of orthogonal deviation would augment the integration of the series without necessarily adopting differencing approach.

In the context of market level aspects, the succeeding section presents unit root estimates for equation 4.8 of the study. From an econometric perspective, unit root test is regarded an essential diagnostic technique. This is essentially so because unit roots analysis would indicate the presence of unit root in both dependent and explanatory variables of the equation in market specific aspects. Table 5.6 present unit root test results for market level variables in retail industry.

Table 5.6: Unit root results 4.8

Column 1			Column 2			Column 3		
Levin, Lin and Chu t*	**Level**	**First Difference**	**ADF - Fisher Chi-**	**Level**	**First Difference**	**Im, Pesaran and Shin W-stat**	**Level**	**First Difference**
Individual	97.0934	-3056.4***	**Individual**	21.976**	130.466***	**Individual**	-1.208*	-1290.2***
Obs.	358	360	**Obs.**	358	360	**Obs.**	358	360
Intercept and Trend	319.24	-3177.3***	**Intercept and Trend**	26.6619***	127.143***	**Intercept and Trend**	2.6208***3	-1401.3***
Obs.	357	360		357	360		357	360
None	3.71918	-185.53***	**None**	8.12827	1349.69***	**None**	-	-
Obs.	360	359	**Obs.**	360	359	**Obs.**	-	-

Using the Levin, Lin & Chu (2002) test, probabilities are computed assuming asymptotic normality
****; **; * This indicates that we reject the null hypothesis of unit root at 1%, 5% and 10%.*
Automatic selection of maximum lags; Automatic lag length selection based on SIC: 0 to 5

Table 5.6 presents results of Levin, Lin and Chu (2002) unit root test. From the above table 5.6, the unit root test was implemented using Bartlet Kernel selection criteria and Newey-West Automatic Bandwidth Selection. Column 1, present the result Levin, Lin and Chu unit root test. The results indicate that Individual intercept is stationary at first difference. The results of intercept and trend also indicate that data is stationary at first difference. Results of none are stationary at level.

Still on Table 5.6, Column 2 presents the results of ADF - Fisher Chi-square test; the results suggest that Individual intercept is stationary at first difference. The results of intercept and trend also indicate that data is stationary at first difference. Furthermore, the results on none indicate that data is stationary at first difference.

Column 3, illustrate the results of Im, Pesaran and Shin W-statistics. As deduced from the above table, the outcome indicates that Individual intercept is stationary at level. The results of intercept and trend also indicate that data is stationary at level. The results of none also indicate that data is stationary at level.

Results presented in Table 5.6 further indicate that all the variables are stationary; however, the order of their integration varies, as regards the approach of the analysis that is adopted. In this realisation, it is important to introduce each of the variables in their first difference, this also important to satisfy cointegration criteria. However and as indicated in the paragraphs above, the use of orthogonal deviation would help augment the integration properties in the series.

5.3.4 Dynamic panel estimation equation

After conducting descriptive statistics for variables used in the study and a series of pre-diagnostics test (such as error correction estimates and unit root tests), we now proceed to estimate the equations specified in chapter four. In the context of this study, the panel dynamic estimation technique has been adopted. Several empirical studies of this nature have used this estimation technique with a great degree of success (Arebgeshola, 2014; Levine and Zervos, 1998). The main motive of selecting panel dynamic estimation is the probable limitations of inconsistency in dynamic conditions and possible estimation biases, which are accommodated in the dynamic panel estimation technique. The paramount objective of panel approach is to estimate the models in a system that will eliminate possible errors that may arise from firm level specific or time series in the dependent variables that might be correlated with independent variables or the error terms.

To mitigate the challenges of biases and errors, this study adopted dynamic instrumental variable model approach (General Methods of Moments) by Arellano and Bond (1991).

In dynamic model approach, lagged values of independent variable (Investment) and the differences of explanatory variables (in orthogonal deviation environment) are used as measures to control bias and errors. The use of appropriate instruments is essential in dynamic panel regression mainly because the lag of the dependent variable ($y_{it} - y_{it-1}$) will be correlated with lagged error terms [$e_{it} - e_{it-1}$] this process would absorb indogeneity limitation in the estimation. Furthermore, the current study adopted a lagged differences model in order to explore the impact of changes on year to analysis. This approach enhances a holistic view of variables over the period of study.

In the context of above assumptions that there is no serial correlation in the error terms and likelihood of weak exogeneity, the following conditions of dynamic regression apply to the instrumentation methodology.

$E(FH_{it} - j\Delta e_{it}) = 0 \; for \; j = 2, 3 \ldots, (T-1) \; ; i = 1 \ldots 6$ Equation 5.3

$E(z_{it} - \Delta e_{it}) = 0 \; for \; j - 1,2,3 \ldots (T-1); i = 1 \ldots . 6$ Equation 5.4

Where z_{it} represents a set of independent variables.

The dynamic regression model (GMM) by Arellano and Bond (1991) estimation is based on moment conditions as specified in equations 5.3 and 5.4. The estimates are only constant if lagged values of independent variables that are used in the approximation are valid instruments. The reliability of instruments used are verified by using the J- test of identifying restrictions, which examine the relationship between the model residuals and the instruments used in the estimation. Table 5.7 represent the results of Panel Dynamic estimation.

Table 5.7: Significance of individual variables (GMM) equation 4.3 (Significance and specification test results)

Variable	Coefficient	Prob.
C	-7.459804	0.2543
INVEST(1)	-0.036721	0.6037
INVEST(2)	-0.007533	0.9446
INVEST(3)	0.155226	0.1309
INVEST(4)	-0.042382	0.6900
INVEST(5)	0.084394	0.4911
JV(1)	-0.654390	0.4379
JV(2)	-3.656599	0.0008*
JV(3)	2.119995	0.2435
JV(4)	1.317248	0.2949
JV(5)	-2.025899	0.1860
ROA(1)	0.705333	0.0199**
ROA(2)	-0.213085	0.6508
ROA(3)	0.253249	0.3724
ROA(4)	0.172361	0.6374
ROA(5)	-0.059265	0.8679
ROE(1)	0.113814	0.5214
ROE(2)	0.070059	0.6273
ROE(3)	-0.162588	0.3766
ROE(4)	-0.015239	0.9311
ROE(5)	0.090323	0.4362
SUBS(1)	2.965950	0.1906
SUBS(2)	3.014134	0.3022
SUBS(3)	9.521405	0.0031***
SUBS(4)	3.884878	0.1228
SUBS(5)	0.299779	0.9143
SIZE(1)	-0.020310	0.8675
SIZE(2)	-0.236654	0.2056
SIZE(3)	-0.707426	0.0000***
SIZE(4)	-0.175178	0.1673
SIZE(5)	-0.518582	0.0083***
Statistical Measure	**Coefficient**	**Level of significance**
R-squared	0.907961	Strong and Positive
Adjusted R-squared	0.863426	Strong and Positive
Durbin-Watson stat	2.285167	Specified
J – Statistic	3.78102	Specified
Cusum Test	p<5%	Specified

*Robust standard errors,. *** p<0.01, ** p<0.05, * p<0.1. Cross-section weights instrument weighting matrix and convergence was achieved after 1 weight iterations. Cross-section weights (PCSE) standard errors & covariance (no d.f correction). Maximum lags of dependent and predetermined variables for use as instruments are limited to 1.*

In above Table 5.7 both time specific and cross sectional analysis were implemented. As stated in GMM model, the two way error correction methods were implemented in order to take into account the probability of either or both of these errors in the estimation. In this connection, the study adopted the weighting matrix in the criterion

function to identify the strength of the model against autocorrelation and heteroskedasticity of unknown form in the approximation (Baltagi, 2008). In this context, endogeneity and multicollinearity limitations are mitigated by adopting robust estimation procedure through the orthogonilisation and instrumentation.

Furthermore the estimation is implemented on two stage least squares, which include instrument weighting matrix in robust coefficient covariance that is conditional on conversion of residuals in orthogonal deviations situation. Arellano and Bover (1995) asserts that the weighting matrix exhibits strong attributes in that it estimates the optimum-weighting matrix for the transformed model specification.

In view to the results depicted in table 5.7, the estimation adopted an auto regressive regression model. This is informed by the nature of dependent variable (investment). In view of the results, size, one of the explanatory variables in the model, is significant in lag 3 and lags five; however, the relationship is inversely related to the dependent variable. The relationship between the independent variable (size) and the dependent variable (investments) sharply contrasts the pervious findings on firm level based theories(push factors), which include hypothesis on the boundaries of the firm as postulated by the seminal work of Penrose (1959) and Barney and Mackey‘s contemporary work of the resource based view (2016) as well as Teece (2014).

As evidenced in Table 5.7, empirical results are not consistent with the resource based view in the sense that the significance of results of size and dependent variable investment reveals an inverse relationship between the two variables. Results from the first lag indicate that the size of the firm, which include tangible and intangible assets, are insignificant to dependent variable in the first year, second year and forth years. The level of significance of these two variables is significant in years three and five; however, the relationship is negative.

As regards the process theory as postulated by Johanson and Vahlne (2015; 1990), a firm’s investment in foreign markets is assumed to be incremental and reactive to both the internal environment as well as the volatility of the macro environment. This theoretical perspective of the process model is not validated by empirical results contained in Table 5.7. The results indicate the relationship between dependent variable, which is autoregressed in time series against previous values from that time series, contradicts the view that investment is incremental.

For instance, when stretch to five lags, positive relationship is recorded in year three and year five, however the relationship is not statistically significant.

The results also indicate that *return on assets* - ROA has a positive relationship in years one, three, four and five. Nonetheless, the relationship is only statistically significant with the dependent variable (investment) in lag 1. As stated in the previous chapter that *ROA* signify optimal utilisation of resources including both assets and human capital (Innovation, experience and skills inventory). Dunning's eclectic theory (2015) is validated by the empirical evidence generated through the results contained in Table 5.7, in the sense that the internalisation aspect of the theory hinges on the efficiency of resource allocation. In the results depicted in the table 5.7, there is a steady increase of significance in the value of return on assets and the dependent variable.

Results between ROE as an explanatory variable and the dependent variable investment reveal that the relationship is mixed, as lags one, two and five are positive while lag three and four have inverse relationship. In all the lags both relationships are statistically insignificant. This relationship does not validate conceptual underpinnings of the process model by Johanson and Vahlne (2015; 1977). The theory assumes that the incremental nature of investment is determined by the prospects in the host market. The insignificant value of Return on Equity is not increasing with the value of investment. This sharply contrasts the hypothesis that MNEs sustain and increase their investment due to the prospects on year to date analysis.

The results indicating the relationship between dependent variable (investment) and expansion strategy (joint venture) is mixed with lag two recording a negative and statistically significant result, lags one and five are also negative but insignificant. While lags one and five are positive but they are also insignificant. In the context of results on expansion strategy (joint venture), we observed a mixed relationship with the investment flows.

The results between dependent variable (investment) and expansion strategy as proxied by (subsidiary) indicate a positive relationship in all lags; but the relationship is only significant in lag 3. In regard to the results, there is strong evidence that firms in the retail industry are more inclined to adopt wholly owned subsidiary in either brownfield or greenfield offshore investments.

In view to the outcome of the dynamic model in Table 5.7 the adjusted R-Squared, which indicates the test of goodness fit and explanatory property of the model, reflect a positive and strong relationship between the dependent variable (investment) and the explanatory variables (Investment, Size, Return on Assets, Return on Equity, Joint Venture and Subsidiary). Furthermore, the results indicate that one of the explanatory variables (size) has a significant relationship with the dependent variable (investment). From the model, the value of J-statistic indicate that the model is well specified. Furthermore, specification tests, such as the cusum test indicate that model stability is within 5 % level of significance. The Durbin Watson test also indicates that there is no presence of both negative and positive serial correlation.

In the context of this study, the succeeding section presents results of dynamic panel estimation of equation 4.8 (market/country specific aspects). Tables 5.8 depicts the results of dynamic panel estimation.

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Table 5.8: Significance of individual variables (GMM) equation 4.8 (Significance and specification test results)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-5.415101	18.06946	-0.299682	0.7721
FDI(1)	0.506155	0.550832	0.918892	0.3850
FDI(2)	0.407524	0.684419	0.595430	0.5680
FDI(3)	-0.354192	0.375423	-0.943447	0.3731
FDI(4)	0.632175	0.332863	1.899203	0.0941*
FDI(5)	0.266026	0.230255	1.155353	0.2813
FP(1)	-0.340307	0.405678	-0.838861	0.4259
FP(2)	-0.458294	0.407361	-1.125032	0.2932
FP(3)	0.507067	0.899945	0.563442	0.5886
FP(4)	1.207902	0.845015	1.429444	0.1907
FP(5)	-1.919898	0.797139	-2.408486	0.0426**
DEMAND(1)	0.091501	0.049487	1.849000	0.0712*
DEMAND(2)	-0.006118	-0.00611	0.048333	0.8999
DEMAND(3)	0.065689	0.046256	1.420117	0.1626
DEMAND(4)	-0.264132	0.225399	-1.171839	0.2476
DEMAND(5)	-3.524346	3.900270	-0.903616	0.3926
INDUSTR(1)	-0.057696	6.445706	-0.008951	0.9931
INDUSTR(2)	3.446663	5.259420	0.655331	0.5306
INDUSTR(3)	-6.132034	7.815964	-0.784552	0.4553
INDUSTR(4)	-1.008398	5.470904	-0.184320	0.8583
INDUSTR(5)	7.754653	5.585046	1.388467	0.2024
INFRAS(1)	-0.453833	0.841425	-0.539363	0.6043
INFRAS(2)	-0.126381	0.167229	-0.755734	0.4715
INFRAS(3)	0.023499	0.304936	0.077062	0.9405
INFRAS(4)	-0.066227	0.243975	-0.271451	0.7929
INFRAS(5)	-0.225738	0.377404	-0.598134	0.5663
TRADE(1)	3.574255	1.203450	2.970007	0.0179***
TRADE(2)	-3.524346	3.900270	-0.903616	0.3926
TRADE(3)	1.171866	1.888462	0.620540	0.5522
TRADE(4)	-0.124031	2.655262	-0.046711	0.9639
TRADE(5)	-0.517133	3.404323	-0.151905	0.8830

Statistical Measure	Coefficient	Level of significance
R-squared	0.903831	Strong and Positive
Adjusted R-squared	0.603302	Strong and Positive
Durbin-Watson stat	2.378467	Specified
J – Statistic	6.033232	Unspecified
CUSUM	p<5 %	Specified

*Robust standard errors are , *** p<0.01, ** p<0.05, * p<0.1. Cross-section weights instrument weighting matrix and convergence was achieved after 1 weight iterations. Cross-section weights (PCSE) standard errors & covariance (no d.f correction). Maximum lags of dependent and predetermined variables for use as instruments are limited to 1. Period fixed applied in the estimation.*

In the above Table 5.8, both time specific and cross sectional analysis were implemented. As stated in GMM model, the two way error correction methods were implemented in order to take into account the probability of either or both of these errors in the estimation.

Table 5.8 illustrates the significance of explanatory variables in all lags. The results indicate that in retail industry, market or country specifics aspects, four variables are statistical significant. The first variable to consider, factor prices, is statistically significant at lag five with a negative coefficient that suggest an inverse relationship between dependent variable (FDI) and explanatory variable.

The second variable to consider is trade, as indicated in table 5.8. The outcome is statistically significant in the first lag. The nature of the association between dependent variable (FDI) and explanatory variable (trade) is positively related, as the coefficient is positive whereas the probability value is less than 5 % - suggesting a statistical significance.

As depicted in the outcome of the dynamic estimation of model 4.8 in Table 5.8, the adjusted R-Squared, which indicates the test of goodness of fit, reflects a positive and relatively moderate relationship between the dependent variable (investment) and the explanatory variables (FDI, infrastructure, demand, factor inputs, industry and trade).

From the estimation, the value of J-statistic indicates that overriding restrictions have not been properly identified. The rule of thumb is that if overriding restrictions are properly identified, the value of J-statistic will be zero. Hence, a rule of thumb is that an equally accepted value should linger around 2. Nonetheless, according to Batlagi (2008) the J-statistic is frequently biased in equations with small samples, hence results from the Vector Error Correction model indicate that the model is stable. The cusum and residual test also fortify our reliance on the stability of the model.

As informed by theory , and as validated by empirical results in Table 5.8, market level aspects are exploited by the sampled MNEs to create dependency path and expansion strategies. These strategies and processes are largely adopted by the sampled MNEs in their offshore markets.

This realisation gives credence to market seeking objectives of MNEs where firms venture abroad through push factors into host markets. Market seeking objectives are heavily reliant on resource base of MNEs, and the resources and ratio of resource utilisation determine expansion strategy (Dunning, 2015).

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The ability of MNEs to use internal capacities (firm level aspects) and exploit aspects in host market (market level aspects) determines the expansion strategies that are adopted, as well as their long run strategic positions in the offshore markets (Estrin, 2017). In this realisation, the results generated for firm level aspects (equation 4.3 as contained in Table 5.7) indicates that explanatory variables, such as size and return on assets, are strong deterministic properties of overlapping aspects in retail industry. Furthermore, results from market level aspects (CSA) (equation 4.8) indicate that explanatory variables, such as industry, factor prices, infrastructure and trade create a path dependency linkage.

5.3.5 Impulse response approach

Even though, the auto lagged regression method is able to estimate the relationship between dependent and explanatory variables, it is also essential to estimate the intensity of adjustment of dependent variables to changes of explanatory variables. To that extent, impulse response approach was adopted. In econometrics application, this approach illustrates the impact of one time shock of the dependent variable to one of the changes on future and present values of potential endogenous variable (Koop and Korobilis, 2010).

In order to control the individual impact in all impulse response estimations implemented in the present study, the instrumental variables are restricted using AIC criterion whereas residuals are orthogonalised. In this connection, this restriction is essential in the sense that in its absence, there is no clarity of long run impulses influencing the process (Breitung, Br¨uggemann and L¨utkepohl, 2004).

Furthermore, and according to Breitung, Br¨uggemann and L¨utkepohl (2004), this approach also play the role of diagnostic, as it guarantees that endogeneity bias is eliminated and instrumental variables are contemporaneously uncorrelated. In the context of equation 4.3 and 4.8, the impulse response is generated by non-factorised on unit innovation approach.

The selection of these techniques is determined by the fact that the equilibrium point in speed of adjustment is at zero unit in all estimations of the impulse response. The speed of adjustment is set at zero unit because the unit zero is the pivoting point between negative and positive impulse responses. The result of equation 4.3 impulse

response approach is presented in Table 5.9. As presented in Table 5.9, both dependent and explanatory variables are processed simultaneously. The simultaneous approach is adopted because a robustness check suggests that linear estimation of both the dependent and explanatory variables yielded the same result. It is thus considered reasonable to estimate a system equation.

Table 5.9: Impulse response approach Equation 4.3

Period	INVEST	ROE	ROA	SIZE	SUBS	J_V
1	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	-0.468376	-0.008593	-13246.60	0.198334	-138164.2	-120707.9
3	0.014022	-0.013934	-2701.279	0.110258	-518434.3	-346406.0
4	0.016605	-0.005579	42562.53	0.081386	-285651.6	-271828.1
5	0.016038	-0.018530	3064.743	0.076787	-145762.6	-282566.6
6	0.279902	-0.003263	6459.391	0.046718	-159116.6	-135312.8
7	-0.030223	-0.000873	8883.256	0.101571	-240310.3	-207495.1
8	0.125143	-0.013888	6347.422	0.086964	-222624.6	-228286.4
9	-0.005210	-0.001546	12970.31	0.092431	-226728.6	-203588.9
10	0.080744	-0.014673	8748.937	-0.082252	-256221.0	-255538.0

The impulse response approach also enhances the establishment of stationarity of variables. According to Pesaran and Yongcheol (1998) and Baltagi (2008), if the estimated model is not stationarity, asymptotic values will not be visible since they are non-existent. In view to the outcome presented in Table 5.9, both these case hold, more on the fact that the impulse response approach asymptotes all explanatory variables to zero.

In Table 5.9, the coefficients presented in the analysis might be interpreted as indicating the responses of investment to impulses of firm heterogeneity hitting the system. The analysis of individual variables in Table 5.9 indicates that ROE, began with a negative response from the second year and continues the negative trend for the rest of the period estimated. The implication of the result depicts that if there is one unit innovation shock in investment, it may trigger a negative response in return on equity.

Results of *ROA*, which measures the utilisation of resources illustrates mixed reactions. The estimation begins in the second year with a negative coefficient, which progressed into the third year. However, the response changed to positive in the fourth year for the rest of the estimation period. Furthermore, the impulse response results for *size,* which measures resource capacity of the firm, illustrates mixed outcome. The first nine years depict a positive response to one unit innovation shock, while the concluding year changed to nagative. In view of the response by *joint venture and subsidiary*, both of the variables indicate that they have a negative response to the dependent variable (investment) over the period under investigation.

In line with the rest of the study, the section below presents impulse response approach for equation 4.8.

Table 5.10: Results of impulse response approach. (Equation 4.8)

Period	FDI	DEMAND	INFRAS	FP	INDUSTR	TRADE
1	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	0.333098	-9.98010	-0.074721	0.168700	0.097529	0.076625
3	0.099903	-1.22009	0.013173	-0.205776	0.123422	0.199219
4	0.470028	-3.820010	0.007827	0.199933	-0.052119	0.052201
5	0.662975	-2.000010	-0.014430	0.092909	0.205896	-0.010758
6	0.350709	-5.480010	0.099333	-0.011035	0.242311	0.018513
7	0.307845	-5.870010	0.068228	0.085239	-0.138949	0.149451
8	0.419373	-7.810010	-0.135143	0.033212	0.018580	0.126890
9	0.547742	-5.830010	0.020955	-0.063153	0.517258	-0.099828
10	0.370368	-1.200010	0.260543	0.256971	0.045796	0.062238

The above Table 5.10, presents the result for impulse response estimation for equation 4.3 - market level variables in the retail industry. Impulse response approach also enhances the establishment of stationarity in variables. Peseran and Yongcheol (1998) and Baltagi (2008) assert that if the estimated model is not stationarity, asymptotic values will not be visible since they are non-existent. As presented in Table 5.10, both of these case hold, more on the fact that the impulse response approach asymptotes all explanatory variables to zero.

In Table 5.10, coefficients presented in the analysis might be interpreted as indicating the responses of FDI to impulses of market aspects hitting the system. An analysis of individual variables in Table 5.10 indicates that *demand* is forecasted to have an inverse relationship with dependent variable *investment*.

Results of i*nfrastructure,* which measures support facility illustrates mixed reactions. The reaction begins in the second year with a negative coefficient, and that trend reoccurred in years eight and five. It was also observed that the rest time periods recorded positive response to one unit of innovation. Furthermore, impulse response results from *factor price,* which measures the price of raw material, illustrates mixed outcome. The response is negative in years three, six and nine, while the rest period depicts a positive response to one unit shock of innovation.

Variables *industry* and *trade* also display mixed responses. First, *industry* generates a mixed response over the periods under investigation. In specific, the responses are negative in years four and seven, while the rest of periods record positive responses.

Second, the responses of *trade* are also mixed; as the results depict that years five and nine recorded negative responses while the rest of periods have positive coefficients.

5.3.6 Cointergration Test

Having conducted the impulse response analysis, the next stage of the study is directed towards the causality test. Nonetheless, in order to perform the causality test, there is a need to establish long run cointergration of variables under consideration; this motivates the context of cointegration estimation. When implementing the cointegration estimation, deterministic trend components are specified through the trend specification process.

In econometrics, Johansen cointergration test is a procedure that tests cointergration in several cross section and time series equations. The Johanson test is regarded as a multivariate generalisation of the ADF test (Augmented Dicky Fuller Unit root test), which is the main reason for its preference in this study. First, the test assumes that the cointegrating vector is constant during the interval of study. In case of multi-cointergration, different orders of integration can be addressed. The cointergration test uses vector autoregressive (VAR), developed by Johannsen (1988) and further improved by Juselius and Johansen (1990).

Second, cointergration can also be tested using maximum likelihood estimation of coefficient using maximum probability (Johannsen, 1988). The Johansen method provides two statistics namely, the trace test value and the maximum eigenvalue of the matrix. These statistics are used to test the null hypothesis of rank 0; to the alternate hypothesis of rank 1.This approach is a likelihood ratio test for both scenarios (trace test and maximum eigenvalue of the matrix). The first test is a test of a null hypothesis of no integration compared to an alternative hypothesis, which suggests long-term cointegration. The outcome of the test differs in terms of the alternative hypothesis.

According to Johansen and Juselius (1990), the maximum eigenvalue test if the biggest eigenvalue is zero, comparative to the alternative that is the next biggest eigenvalue, which is zero.The first phase tests if the rank of matrix II is equal to zero. Likewise, the null hypothesis is that rank II is equal to zero. Further test of the null hypothesis is that rank $(II) =$ 1,2,3, …… and the alternative hypothesis is rank $(II) =$ 2,3 ….

Furthermore, the trace test examines whether the rank of the matrix $= r_0$. In this estimation, the null hypothesis is that rank $(II) = 0$. Hence, the alternative hypothesis is that $r_0 < rank\,(II) \leqslant n$, where n represents maximum number probable cointergrating equations. In this connection, if the null hypothesis is rejected, the next rank of the null hypothesis is that rank $(II) = r_0 + 1$, and the alternative hypothesis is that $r_0 + 1 < rank\,(II) \leqslant n$. Table 5.11 presents results of panel cointergration test using Johansen and Juselius approach for equation 4.3. This estimation focusses on the firm level aspects in retail industry.

Table 5.11: Unrestricted Cointegration Rank Test (Trace) for Equation 4.3

Hypothesized		Trace	0.05	
No. of CE(s)	**Eigenvalue**	**Statistic**	**Critical Value**	**Prob.****
None	0.700470	493.9105	95.75366	0.0001*
At most 1	0.539624	322.7237	69.81889	0.0001*
At most 2	0.391771	212.5727	47.85613	0.0000*
At most 3	0.329647	141.9697	29.79707	0.0001*
At most 4	0.304283	85.17675	15.49471	0.0000*
At most 5	0.211027	33.65731	3.841466	0.0000*

*Trace test indicates no cointegration at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level*

As discussed above, the trace test has a null hypothesis of no cointegration at 5 % error level. In view to Table 5.11, the results of trace statistics suggests that the null hypothesis is rejected because the value of trace statistics has a probability value of 0% that is rejected. In light of the results, the null hypothesis is rejected in favour of the alternative hypothesis. Consequently, the outcome indicates that there are five cointegrating equations in the model.

Table 5.12: Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized		Max-Eigen	0.05	
No. of CE(s)	**Eigenvalue**	**Statistic**	**Critical Value**	**Prob.****
None *	0.700470	171.1868	40.07757	0.0001
At most 1 *	0.539624	110.1511	33.87687	0.0000
At most 2 *	0.391771	70.60294	27.58434	0.0000
At most 3 *	0.329647	56.79299	21.13162	0.0000
At most 4 *	0.304283	51.51945	14.26460	0.0000
At most 5 *	0.211027	33.65731	3.841466	0.0000

*Trace test indicates no cointegration at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level*

Furthermore, maximum eigenvalue test has a null hypothesis of no cointegration at 5% error level. Results from table 5.12 indicates that the null hypothesis of maximum eigenvalue test is rejected because the result of the test statistics has a probability value of 0%. In light of the results, the null hypothesis is rejected in favour of the alternative hypothesis. Consequently, the outcome indicates that there are five cointegrating equations.

In line with the rest of the study, the succeeding section present and discuss the outcomes of Johnsen and Juselius cointergration test in market specific aspects. In this connection, tables 5.13 and 5.14 represents unrestricted cointegration rank test trace and maximum eigenvalue results respectively.

Table 5.13: Unrestricted Cointegration Rank Test (Trace)

Hypothesized		Trace	0.05	
No. of CE(s)	**Eigenvalue**	**Statistic**	**Critical Value**	**Prob.****
None	0.772669	221.9790	95.75366	0.0000*
At most 1	0.685547	134.5795	69.81889	0.0000*
At most 2	0.492604	66.32120	47.85613	0.0004*
At most 3	0.213729	26.29182	29.79707	0.1202
At most 4	0.185341	12.10507	15.49471	0.1520
At most 5	0.000184	0.010884	3.841466	0.9167

*Rank test indicates no cointegration at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level*

As discussed above, the trace test has a null hypothesis of no cointegration at 5% error level. In view of the results contained in Table 5.13, the results of trace statistics suggests that the null hypothesis is rejected because the value of trace statistics has a probability value of 0%, which is rejected. In light of the results, the null hypothesis is rejected in favour of the alternative hypothesis. Consequently, the outcome indicates that they are three cointegrating equations from at most 3 to at most 5. As a robustness

check, we conduct the same analysis with a different method, using the maximum eigenvalue approach. The result of that analysis is presented in Table 5.14.

Table 5.14: Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.772669	87.39950	40.07757	0.0000*
At most 1	0.685547	68.25827	33.87687	0.0000*
At most 2	0.492604	40.02938	27.58434	0.0004*
At most 3	0.213729	14.18675	21.13162	0.1304
At most 4	0.185341	12.09418	14.26460	0.1721
At most 5	0.000184	0.010884	3.841466	0.9167

*Rank test indicates no cointegration at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level*

Furthermore, maximum eigenvalue test has a null hypothesis of no cointegration at 5% error level. According to the results contained in Table 5.14, the eigenvalue test indicates that the null hypothesis of maximum eigenvalue test is rejected because the result of the test statistics has a probability value of 0%. In light of the results, the null hypothesis is rejected in favour of the alternative hypothesis. Consequently, the outcome indicates that there are three cointegrating equations in the market specific aspects model.

5.3.7 Granger causality test

In previous sections, the study adopted dynamic panel estimation and ascertained that there is a strong relationship between dependent variable (investment) and explanatory variables (size, return on equity and return on assets). This assertion was further fortified by the results of panel cointegration test (Johansen and Juselius, 1990). In the context of this study, Granger causality test is adopted to test the long run causality between the estimated variables. The study adopted VECM-based Granger causality test for each pair of variables. According to Granger (1980), the past and the present can cause the future, and not the other way round.

According to Granger, this approach of causality test examines the null hypothesis of no causality. The decision to either reject or accept the hypothetical statement is determined by the P-values of the variables. In specific reference, the null hypothesis is rejected in the series for p-values < = 0.05. Granger causality test is estimated in the following equation 5.5.

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$$\Delta y_t = u_1 + \sum_{i}^{p} = \beta_1 \Delta Y_{t-1} + \sum_{i}^{p} = Yi \Delta Xt_{-1} + \varepsilon_{1t}$$

The significance of the null hypothesis of $H_0 : Y_1 \succ Y_2 \ldots Y_p \succ 0)$;

Where Δ represents difference operator, $X \; and \; Y$ represents variables under causality test. While ε_{1t} and ε_{2t} represent constant error terms, β_1 and β_2 are coefficients of the estimate and p represents the lag length of the model.

From an econometric perspective, the significance of Granger causality test is determined when one variable y is compared to another variable x and the value is determined if the null hypothesis of the asymptotic chi-square is rejected. In this connection, a significance of test outcome suggests that variable x has predictive value to project parallel changes in another variable, say y. It must be noted however, that one of the major limitations of Granger causality test is that it hinges on asymptotic concept, which is based on the stationarity of variables. In the context of this equation, the asymptotic condition has been satisfied with the unit root test conducted earlier in this chapter. The results of the causality tests are presented in Table 5.15 and 5.16 firm and market level aspects respectively.

Table 5.15: Equation 4.3 Granger causality test results

Null Hypothesis:	Obs	F-Statistic	Prob.
J_V does not Granger Cause INVEST	145	2.62735	0.0658*
INVEST does not Granger Cause ROA	145	2.38004	0.0963*
INVEST does not Granger Cause SUBS	145	6.90050	0.0014***
ROA does not Granger Cause J_V	145	2.85972	0.0506**
SIZE does not Granger Cause J_V	145	5.60945	0.0045***
ROE does not Granger Cause ROA	145	5.09566	0.0073***
SIZE does not Granger Cause ROA	145	3.71475	0.0268**
ROA does not Granger Cause SUBS	145	5.98592	0.0032***
SIZE does not Granger Cause SUBS	145	7.99041	0.0005***
SIZE does not Granger Cause INVEST	145	3.67155	0.0282**

*F-statistics , *** p<0.01, ** p<0.05, * p<0.1.*

From Table 5.15 above, the results of the causality tests indicate that out of 30 possible scenarios, the null hypothesis of no causality is rejected in ten occasions. As indicated by the result, there are six causal relationships in the model and the relationships are all unidirectional.

In particular, causality runs from return on assets to assets as an explanatory variable, which explains firm utilisation of assets. The same relationship exists with subsidiary - an explanatory variable that measures marker entry strategy of greenfield investments in host markets. In all instances of these causal relationships, the statistical confidence level suggest strong causality.

The second causal relationship flows from *size* , that explains resources of the firm, as causal aspects of joint venture. It must be recollected that joint venture is utilised to proxy expansion strategy of MNEs in the host markets. The intensity of causality is very significant, and it thus augments the empirical soundness of resource-based view. The unidirectional nature of this result confirms that firm resources have a causation effects on the preference of MNEs to adopt joint venture as an entry strategy into African offshore markets.

The third causal relationship recorded is that of return on assets, which an explanatory variable that explains firm level efficiencies is a causative effect on expansion strategy *joint venture*. This variable shares a unidirectional causal relationship with joint venture. It must be borne in mind that return on equity explains efficiency in firm resource utilisation. The causality coefficient of this relationship is very significant. As discussed in literature, return on assets measures the efficiency of the utilisation of a firm's resources to achieve both long term and short term objectives.

The fourth causal relationship recorded in the above table is between dependent variable investment and explanatory variable subsidiary. Investment cause subsidiary. The significance of this relationship augment the rationality of transaction cost theory as expounded in literature review section. In the context of the transaction cost as postulated by seminal work of Coarse (1937) and a series of resonates from Williamson (1981, 1989, 2010) MNEs firm select host markets and expansion strategies that enhance the resource capacity. Empirical results depicted in the above table buttress transaction cost theory in internationalisation process.

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The fifth causal relationship recorded in this model is between two explanatory variables, namely *size* and *return on assets*. The result suggests that *size* Granger causes *return on assets*.The significance of this relationship buttresses a series of economics and business theories as documented in chapter two and three, which assert that economies of scale or the size of the firm enables firms to utilise their assets or investments more optimally.

Furthermore, in view to empirical outcome of the analysis contained in Table 5.15, causality relationship is also evidenced from *size* to *subsidiary*. This result suggests that the size of the firm may favour the adoption of foreign subsidiary, as documented in chapter two of this study.

Table 5.16: Granger causality for equation 4.8

Null Hypothesis:	Obs.	F-Statistic	Prob.
FDI does not Granger Cause DEMAND	217	4.45756	0.0127**
DEMAND does not Granger Cause FDI		3.37078	0.0362**
FP does not Granger Cause DEMAND	208	5.81604	0.0035**
TRADE does not Granger Cause DEMAND	130	9.45354	0.0002***
INDUSTR does not Granger Cause FDI	199	4.41527	0.0133**
FDI does not Granger Cause INFRAS	124	3.67155	0.0282**
FDI does not Granger Cause TRADE	130	3.24247	0.0424**
INFRAS does not Granger Cause FP	124	5.52735	0.0051***
TRADE does not Granger Cause FP	130	5.91873	0.0035***
TRADE does not Granger Cause INFRAS	93	3.75401	0.0273**
INFRAS does not Granger Cause TRADE	93	4.68744	0.0116**

*F-statistics . *** p<0.01, ** p<0.05, * p<0.1.*

Table 5.16 indicates results of causality test in market specific aspects in retail industry. In view of the results contained in Table 5.16, two-bidirectional causal relationship are recorded. The first bidirectional relationship is recorded between inward *FDI* and *demand*. In both instances, the causality coefficient is very significant. The second bidirectional causal relationship is recorded between *trade* and

infrastructure. In both instances, the causality coefficient is statistically significant. In addition, a number of variables recorded unidirectional causal relationship. Results from Table 5.16 indicate that *factor price* (FP) Granger causes *demand,* while *demand* does not cause *factor price*. Furthermore, *trade* is also indicated as having a unidirectional causal effect on *demand*, the same way *industry* shares a unidirectional causal relationship with *FDI*.

Furthermore, results authenticate that *FDI* does have a unidirectional causal effect on *infrastructure,* in a similar way that *FDI* show a causal influence on *trade.* Furthermore, the result contained in Table 5.16 suggests that *factor price* Granger causes *infrastructure,* and the causal relationship is unidirectional. The results also indicate that *trade* has a unidirectional causal effect on *factor price.*

The result of the analyses contained in Table 5.16 lend credence to some of the hypothetical findings in previous literature. For instance, Rugman , Oh and Lim (2012) observed that Canadian multinational enterprises improved their competitive advantages in host markets that attract high volumes of FDI due to the fact that inflows and increased trade due to FDI improve host market capacity to develop infrastructure. This observation is also noted in a series of studies such as in Ding, Guariglia and Harris (2016) for Chinese firms; Hall, Castello, Montresor and Vezzani (2016) for European firms, as well as in Harris and Moffat (2015) for UK firms.

5.3.8 Overlapping aspects in retail industry

In the context of results obtained in both firm level aspects and market level aspects, this section discusses linkages in both market level and firm level aspects that create dependency path of strategic positions of MNEs. In relation to firm and market level aspects in the retail industry, the following Table 5.17 presents a summary of panel regression results and causality test of firm level aspects. Table 5.18 presents results for the linkages in firm and market level aspects.

Table 5.17: Linkages in firm and market level aspects

Variable	Level of Analysis	Column 1	Column 2
Explanatory-Dependent Variable.	**Firm / Market level aspect**	**Regression Coefficient**	**Causality Coefficient**
Size	Firm – Level	-0.518582***	3.67155**
Return on Assets	Firm – Level	0.705333**	2.38004*
Demand	Market – level	-1.919898**	3.37078**
Industry	Market – Level	-	4.41527**

*Causality test, F-statistics *** p<0.01, ** p<0.05, * p<0.1.*
*Regression analysis, robust standard errors. *** p<0.01, ** p<0.05, * p<0.1. Cross-section weights instrument weighting matrix and convergence was achieved after 1 weight iterations. Cross-section weights (PCSE) standard errors & covariance (no d.f correction). Maximum lags of dependent and predetermined variables for use as instruments are limited to 1. Period fixed applied in the estimation.*

As illustrated in Table 5.17, the results for firm level aspects indicate that the *size* of a firm is an overlapping aspect in MNEs' expansion strategy considerations, with specific reference to the retail industry. The Table further indicates that in the *investment* model, *size* of the firm plays a statistically significant role in the expansion strategy adopted by an MNE. The Granger causality test also buttresses the importance of *size* as the unidirectional causal relationship comes from *size* to the dependent variable (*investment*).

A sequence of existing literature postulates that the size of the firm is an essential aspect in the growth of the firm. These conceptual premise anchors on Penrose (1959) classic work on the growth of the firm. Various authors in contemporary academic literature have echoed the view of Penrose (1959), and resource-based view can been seen as a strong addendum to the contribution of Penrose (Barney, 1991; Teece, 2014). In view of the results contained in Table 5.17, empirical evidence indicates that in retail industry, MNEs use their resources to induce and enhance internationalisation process (Barney, 1991; Teece and Petilis, 2014; Teece, 2014). Hence, the results uphold the views of Penrose (1959).

Furthermore, empirical evidence from firm level aspects in retail industry strongly indicates that *ROA* has a significant regression coefficient and has a causal effect on a firm's internationalisation process. From Table 5.17, *return on assets* indicate key internal competencies, which is in accordance with the Dunning's classical eclectic theory (2015). The theory more specifically suggests that key ownership advantages like patents, competitive advantages and efficiency, drive internationalisation process

of MNEs. Evidence from this study reinforce Dunning's theoretical assumptions and further reinforce the findings of a series of empirical studies (Buckley, 2014; Helpman, 2014; Buckley and Verbeke, 2017).

In the market level aspects model, two variables out of five explanatory variables have a significant regression coefficient and a significant causative effect on inward FDI in host markets. The first variable of interest is *demand.* In view of Porter's (1990) postulation, demand is one of the aspects that motivate the direction and volume of inward FDI. This view has been upheld by a series of authors (Rugman and Eden, 2017; Rugman, 2014; Rugman and Verbeke, 1993). In the context of empirical evidence from retail industry market level aspects, there is significant statistical evidence that buttresses Porter's (1990) assertions. As indicated in Table 5.17, the results show clear evidence that demand level in a host country motivates the inflow of inward FDI.

Consistent with the above discussion, empirical evidence also depicts that *industry* has a statistically significant coefficient and the causality statistics is of statistical significance. According to Porter's theory of national competitive advantage (1990) and a number of other recent studies, such as Rugman and Verbeke (1993), Rugman (2014) and Buckley (2014), MNEs invest in host markets that have a vibrant industry that can support and enhance strategic competitive position of firms. The results from this study buttress the view that the size and vibrancy of industry serve as catalyst to attract inward FDI to host markets.

5.3.9 Path dependency and expansion strategies

Consistent with empirical evidence from the previous sections, this section motivates the discussion that market and firm level aspects create a dependent path that determine expansion strategies and internationalisation process of MNEs. The argument is further presented here that the direction of outward FDI both in terms of volume and host market destination are path dependent. Table 5.18 illustrates aspects that influence the adoption of expansion strategy in host markets.

Table 5.18: Path dependency of expansion strategies

Variable and expansion strategy	Firm / Market level aspect	Causality Coefficient	Expansion Strategy/ Host Market
Investment	Firm – Level	6.90050***	Subsidiary
Return on Assets	Firm – Level	5.98592***	Subsidiary
Return to Assets	Firm – Level	2.85972*	Joint Venture
Size	Firm – level	5.60945***	Joint Venture
Size	Firm – Level	7.99041***	Subsidiary
Demand	Market – Level	4.45756**	FDI
Industry	Market – Level	4.41527**	FDI

*F-statistics , *** p<0.01, ** p<0.05, * p<0.1.*

Table 5.18 above presents path of expansion strategies in host markets, which are relevant in retail industry. The results satisfy the study hypothesis that expansion strategies are path-dependent on the linkage of firm and market level aspects.

As discussed in Chapter Three under review of relevant literature, MNEs adopt firm expansion strategies either to mitigate risk or to exploit opportunities (or both) in host markets. In the context of this study and based on empirical evidence drawn from a series of analyses conducted to test the hypothesis, it could be reasonably concluded that there is a positive relationship between dependent variables (*Investment* at firm level and *FDI* at market level) and the explanatory variables utilised in the estimations.

In specific terms, while both panel regression and cointegration tests determined a degree of relationship between the dependent and independent variables, these estimation approach could not ascertain causal effects of path dependency of the internationalisation process. Hence, this motivated the adoption of Granger causality test to determine how linkages create path dependency in expansion strategies of MNEs. In this regard, the study adopted two approaches with causal estimation properties, namely the Vector error correction model (VECM) and Granger Causality tests.

Although, the VECM model is powerful in establishing long-term causality and model stability, it cannot establish causality in each variable. However, the Granger Causality test is very effective in this regarded. This further reinforces the motivation for adopting both approaches in this study.

In view to results presented in Table 5.18, the analysis presents a total number of nine causal aspects of which seven are recorded in firm level and two are recorded in market level. Empirical evidence from the results indicate that MNEs in retail industry adopt both joint venture and wholly owned subsidiary (greenfield, acquisition and brownfield Investments) as market entry strategies. The empirical evidence that is generated in the present study prominently reinforces the popularity of both strategies among the sampled MNEs.

As evidenced by the causality analysis, the dependent variable (investment) has a causative effect on the adoption of *subsidiary* as an expansion strategy. This realisation buttress a series of existing studies that there is a positive relationship between the volumes of investment and market entry strategy as this is given by the volumes of investment. The realisation also entails that while both subsidiary and joint venture are market entry strategies, nonetheless wholly owned subsidiaries are more capital intensive than mergers.

The second strand is also explained by the causality relationship between *return on assets* and expansion strategies. The first relationship suggests that return on assets Granger causes expansion strategy (*subsidiary)*. This relationship is supported by a series of empirical studies, which asserts that efficiency in resource utilisation enhances a firm adoption of strategies, simply because efficiency reduces transaction costs, which in turn influence expansion strategies. In addition, efficiency in resource utilisation also influences the adoption of joint venture as an expansion strategy equally as it influences the adoption of subsidiary.

In summary, there is empirical evidence from the present study that resource utilisation and transaction costs influence the adoption of specific expansion strategy by MNEs. Transaction cost theory as discussed in Chapter Two, asserts that viable expansion strategy is determined by the cost of its present value.

This argument lends credence to the significance of both market entry strategies as both sunk cost and transaction cost differ in host markets and MNEs select the most appropriate strategy for a specific host market.

The third strand is also explained by the causal relationship between firm resources and expansion strategies. In view of the evidence deduced from the causality analysis, firm resources are considered to cause both *subsidiary* and *joint ventures* as expansion strategies adopted by MNEs. The first causal relationship indicates that firm resources as estimated by its *size,* influences joint venture as an expansion strategy. Furthermore, the size of the firm enables the firm to create institutional idiosyncrasies, which are fundamental in the creation of business opportunities. These institutional idiosyncrasies also allows firms to build and political networks all these important factors are intertwined in internationalisation of business. In regards to joint venture, the nature of firm resources that is both tangible and intangible, do influence an investing firm to acquire resources from a firm in a host markets. In this regard, tangible assets might include patent, trademarks, upper stream and lower stream networks and human capital. Empirical evidence also buttresses a series of resources-based perspectives.

Empirical evidence deduced from this study gives credence to a Dunning eclectic theory. According to Dunning (2013), MNEs that are motivated by internal competencies to invest in host markets are considered market-seeking. A multinational firm invest in a specific market to utilise greater dimensions of market size and achieve strategic objectives. Key in this discussion is that MNEs target customers and suppliers, which already exist prior to the investment. MNEs might also develop new products specific to market needs and reduce the cost of exporting or serving the market from a distance. Over the past decade, MNEs find it important to invest in host market rather than to export as the presence of MNEs in a particular market constrains market entry and exit points.

In the context of market level aspects, empirical evidence from the analyses indicate that in retail industry, there are two variables that create path dependency for inward FDI and subsequent expansion strategy. As indicated by the evidence from the analyses, demand level in host market is an influential aspect in the determination of investment pattern in terms of both volume and host market selection.

A series of econometric measures conducted in this study give undeniable evidence in this regard. For instance, the evidence from regression analyses, VECM as well as the Granger causality tests all point to the fact that *demand* has a statistically significant influence on inward FDI.The findings in this study also reinforce a sequence of both seminal and contemporary studies. For instance, the seminal work of Porter (1990) and a host of studies (both empirical and theoretical) assert that demand, which is proxied by the *size* of the market of a host market, is a fundamental market aspect that induce inward FDI.

As discussed in Chapter Three, the *size* of the market enables MNEs to utilise their resources to achieve strategic objectives more optimally. The resource utilisation process also hinges on transaction cost theory. As asserted by Coarse (1937) and more recently by Casson (2015), the transaction cost determine the entire business process as much that in international business when MNEs move their investment into a particular host market, all strategic decisions revolve around mitigation of cost and exploiting resources. In this respect, markets with high demand would naturally attract MNEs more than markets with low demand as further established by the findings of this study. Several essential aspects explain MNEs behaviour in this context. For instance, due to the size of the market, there is abundance of upper-stream network (customers) and lower-stream network (suppliers) support, which is assumed to provide MNEs with more economic dimensions for resource utilisation.

In line with the results obtained from empirical evidence in the present study, there is also evidence to suggest that the *size* of industry has a causal effect on *FDI*. This notion is also consistent with a host of seminal and contemporary studies as documented in Chapter Three. For instance, Porter's national competitive advantage asserts that the size of the industry attract MNEs as supporting industry reduce the cost of production and enhance networking, which is critical in business.

Conversely, this study does negate some hypothetical findings in previous studies. For instance, this study casts doubt upon the relevance of some assumptions postulated by Porter theory as regards their application to the sampled MNEs. First, Porter's theory suggests that prices of factor inputs is a motivator for MNEs to invest in a specific host destination.

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However, there is no substantive evidence that factor prices are fundamental in creation of path dependency that determines both investment pattern and expansion strategy in this study.

Second, Porter theory asserts that infrastructure is a fundamental element that inclines FDI towards a particular host market. However, there is no significant evidence that resonate Porter's hypothetical assertions in this regard. As such, the present study finds no evidence that in retail industry, MNEs are motivated by infrastructure to invest in particular host market. On the contrary, evidence from this study suggests that there is a flow of causality from FDI (dependent variable) to the development of infrastructure in the host market. This specific process has been uncovered in Walmart's foreign expansion strategy has this global retailers has continuously influence its host markets in infrastructural development.

5.3.10 Incremental process of investments pattern in retail industry

This section considers evidence from panel dynamic model to understand the nature of incremental process of MNEs investments in host markets. In this context, the following discussion is informed by the outcome of panel dynamic equation of autoregressive model of the dependent variable against its time series. According to Batlagi (2008), auto regressive lagged model is a time series of estimation of the same variable over time. Frequently, the measurements are estimated at evenly spaced intervals. In practical sense, an autoregressive lagged model is estimated when a variable from a time series model is regressed on previous values of the same variable. For instance, $y_t \; on \; y_{t-1}$.

$$invest_t = \beta_0 + \beta_{1_{Invest}} - 1 + \varepsilon_t$$

In the context of this study, the response of dependent variable (*investment)* in the previous time interval has become an indicator. The order of an autoregressive function assumes the value that directly precede values in the series that are used to approximate the coefficient at the present time. Hence, the preceding equation of the first order autoregression is illustrated as $AR(1)$.

To predict the order of autoregression in the succeeding interval, the model considers $Investment_{time}$ in the previous intervals ($Investment_t - 1$, $investment_t - 2$) then the autoregressive equation 5.6 is estimated as follows:

$$invest_t = \beta_0 + \beta_1 Invest_{t-1} + \beta_2 Invest_{t-2} + \varepsilon_t$$

The above equation is a second order autoregression, expressed as $AR(2)$ since the value of time is estimated from values $t-1$ and $t-2$. Precisely, a k^{th} order autoregression expressed $AR(k)$ is a multiple linear regression where the coeffiecient of series at any given time is a linear function of the values at times $t-1$, $t-2$, ... $t-k$. Table 5.19 presents the results of autoregressive lagged equation.

Table 5.19: Incremental Process of Investment patterns in retail Industry

Variable	Coefficient	Prob.
INVEST(1)	-0.036721	0.6037
INVEST(2)	-0.007533	0.9446
INVEST(3)	0.155226	0.1309
INVEST(4)	-0.042382	0.6900
INVEST(5)	0.084394	0.4911

*Robust standard errors *** p<0.01, ** p<0.05, * p<0.1. Cross-section weights instrument weighting matrix and convergence was achieved after 1 weight iterations. Cross-section weights (PCSE) standard errors & covariance (no d.f correction). Maximum lags of dependent and predetermined variables for use as instruments are limited to 1. Period fixed applied in the estimation.*

Results depicted in Table 5.19 indicate that there is inconclusive evidence to suggest that investment patterns in retail industry are incremental as suggested by the process theory of Johanson and Valne (2015). For example, results in the first lag reveal a negative relationship, which is not statistically significant. The second lag also records a negative relationship that is also not statistically significant; negative and statistically insignificant coefficient is also recorded in lag four. A positive relationship is recorded in lags three and five but this relationship is not statistically significant.

In view of the empirical evidence deduced from the analyses contained in this study, there is insufficient evidence to conclude that outward investment of South African MNEs in retail industry is incremental with age of the investment. To that extent, this empirical evidence does not support the practical application of process theory as postulated by Johanson and Valne (2015).

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5.4 Mining Industry

Before estimating the equations, it is considered important to first restate the equations.

1 Equation 4.4: estimating the relationship between investment and firm level aspects in mining industry.

2 Equation 4.9: estimating the relationship between FDI and market level aspects in mining industry.

Elements of equations 4.8 and 4.9 proposes to estimate both firm and market specific aspects in the mining industry. In firm level aspects, equation 4(a) estimates the relationship between the dependent variable (Investment) and the explanatory variables (size, return on equity and return to assets). In market level aspects, equation 4(b) estimates the relationship between the dependent variable (FDI) against the specified explanatory variables (industry, factor prices, infrastructure, demand and trade).

The analyses of each equation is presented in the following arrangement: descriptive statistics, unit root test, dynamic panel estimations, panel regression results, impulse response approach and Granger causality analysis.

5.4.1 Descriptive statistics

In the following paragraphs, the analysis considers firstly descriptive statistics of micro level aspects in mining industry. Table 5.20 depicts the descriptive statistics of firm level data in mining industry.

Table 5.20: Descriptive statistics (4.4)

	INVEST	JV	ROA	ROE	SIZE	SUBS
Mean	5.672028	0.857455	1.290773	2.686218	7.249818	0.471325
Median	6.241143	0.845098	1.297969	3.035061	7.315377	0.477121
Maximum	7.220814	1.041393	2.058540	6.311754	7.949522	0.698970
Minimum	2.795880	0.698970	0.117271	-0.387216	3.960471	0.301030
Std. Dev.	1.561394	0.090783	0.448226	1.593624	0.670122	0.105547
Skewness	-1.119456	0.029641	-0.127010	-0.041707	-2.835546	0.101300
Kurtosis	2.511632	2.186104	2.620763	2.970761	14.84900	3.211856
Jarque-Bera	9.189656	1.165396	0.364608	0.013673	301.9801	0.150377
Probability	0.010104	0.558390	0.833348	0.993187	0.000000	0.927569
Sum	238.2252	36.01310	54.21247	112.8211	304.4924	19.79566
Sum Sq. Dev.	99.95595	0.337901	8.237183	104.1251	18.41161	0.456744
Observations	42	42	42	42	42	42

In view of Table 5.20, the Jarque Bera test and its relative probability indicate the presence of skewness and kurtosis. According to the table above, dependent variable (investment) has a negative skewness of -1.12, suggesting that the data is negatively skewed. The descriptive statistics generated for the size of the firm indicate that the dataset is also negatively skewed as it records skewness coefficient of -2.84. We also consider the normality test for *return on investment,* which has a negative skewness coefficient that is almost symmetrical at -0.04. Furthermore, joint venture is taken into consideration, and it observed that this variable has an almost symmetrical data distribution as it records skewness coefficient of 0.02, while *subsidiary* also records a positive skewness coefficient suggesting that data is positively skewed.

In all instances, the dispersion of the dataset from the mean (standard deviation) are moderate and the abnormality discovered in the dataset can very easily been mollified through a simple lag diagnostic. The specific approach to ameliorate the inherent error in the distribution of the dataset will further be uncovered through VECM and unit root tests. The application of these diagnostics and their discourse are presented in the paragraphs that follow.

After presentation of firm level descriptive statistics, the following section presents descriptive statistics of market level aspects in mining industry. The results of the analyses are presented in Table 5.21.

Table 5.21: Descriptive statistics (4.9)

	DEMAND	FDI	FP	INDUSTR	INFRAS	TRADE
Mean	2.6200010	3.949704	11.61595	37.30857	20.72939	100.1638
Median	1.6700000	3.155658	8.929861	37.03897	17.86518	98.50058
Maximum	1.0800011	10.69522	80.75094	82.20506	50.13141	170.4072
Minimum	25.55468	-2.738912	-2.879048	19.65683	1.812865	13.41060
Std. Dev.	2.540000	3.008622	11.30746	11.30869	14.80030	28.52936
Skewness	1.610302	0.371128	3.355930	1.547831	0.718553	-0.337836
Kurtosis	5.057521	2.219272	19.19390	7.136875	2.270142	4.870354
Jarque-Bera	49.90273	3.964968	1049.913	91.21424	8.876388	13.51209
Probability	0.000000	0.137727	0.000000	0.000000	0.011817	0.001164
Sum	2.150012	323.8757	952.5082	3059.303	1699.810	8213.430
Sum Sq. Dev.	5.210022	733.1961	10356.54	10358.81	17742.97	65927.87
Observations	82	82	82	82	82	82

In view of the content of analyses presented in Table 5.21, the Jarque Bera test and its relative probability indicate that the dependent variable (FDI) has a distribution that is almost symmetrical. The Table further suggests that (FDI) has a mean and a median statistical value that are almost identical 3.94 and 3.15 respectively. The skewness coefficient is 0.37, which is almost symmetrical. This analysis suggests that the dataset passes the basic test of normal distribution not only because it is mean reverting, but also unitary in dispersion.

Still on Table 5.21, the explanatory variable, *demand in host markets* has a descriptive statistics that indicates positive skewness. In addition, it has a Jarque-Bera value of 49.90, and a significant probability value of 0.00. This is further attested by the variance between the mean and the median. The mean is 2.6 and the median is 1.67. The skewness coefficient is 1.61 , all tilting towards more dispersion from the mean and a reasonable level of normalcy in the distribution pattern.

Furthermore, the descriptive statistics of *factor price in host markets* indicates that the dataset is positively skewed with the Jarque-Bera value of 1049.90 and a significant probability value of 0.00. This is further attested by the variance between the mean and the median. The mean is 11.61 and the median is 8.92. The skewness coefficient 3.36. Although, the level of dispersion is moderate, the statistical significance of the variable (*p-value*) attests to its possible normalcy.

Another explanatory variable, *industry*, is also considered and it indicates the presence of moderate skewness. According to the analysis contained in Table 5.21, the statistical value of the skewness is 1.54, which attests to the fact that the data is moderately skewed.

Although, the statistical values of measures of central tendency which are mean and the medium, have no great variance but the range of data sets depict some moderate variance, which generated the skewness in distribution.

Furthermore, *infrastructure,* which is one of the explanatory variables, recorded data distribution pattern that is almost symmetrical. The statistical value of the skewness coefficient is 0.7, which is close to zero, and there is less variance between the median and the mean. The median is 17.86 and the mean is 20.82. The range of the data set also augments the assumption of normal distribution in this regard. The same applies to the last explanatory variable in this section of the analysis, *trade. Trade* has a Jarque-Bera value of 13.58 and a corresponding probability value of 0.02, which is significant. It is thus important to observe that the data distribution is moderately symmetry and passes the test of normalcy test, especially given the statistical significance of the *p-value*.

Table 5.22: Vector error correction estimates 4.4

	INVEST	SIZE	ROE	ROA	SUBS	JV
Lag 1	1.000	-1.528 (0.220) [-6.943]	0.174 (0.074) [2.363]	1.519 (0.292) [5.187]	1.508 (0.617) [2.444]	-9.857 (1.352) [-7.285]
Differenced	-0.308 (0.182) [-1.689]	0.044 (0.037) [1.183]	-0.048 (0.209) [-0.230]	-0.063 (0.044) [- 1.432]**	-0.063 (0.044) [- 1.432]**	0.071 (0.027) [2.555]
Differenced in lag 1	-0.712 (0.129) [-5.487]*	-0.036 (0.026) [-1.367]***	0.003 (0.148) [0.024]	0.029 (0.031) [0.931]	0.029 (0.031) [0.931]	-0.042 (0.019) [-2.145]***
Differenced in lag 2	-0.778 (0.081) [-9.606]*	-0.091 (0.016) [-5.459]***	-0.153 (0.092) [-1.648]*	0.033 (0.055) [0.611]	0.013 (0.019) [0.663]	-0.028 (0.012) [-2.296]***

Estimated coefficients on the first line, standard errors in parenthesis (); and t-statistics in brackets [].
The results are computed separately for each equation using the appropriate residuals
**** p<0.01, ** p<0.05, * p<0.1 {Emphasis are placed on *** p<0.01, ** p<0.05}*

According to Baltagi (2008), the stability VECM model is determined by the value of Durbin Watson Test. In view to the results, the model has a Durbin Watson value of 2.03 which is presented in Figure B 1.1 in the appendices. The results in C1 (Table B 1.1) indicate that there is an error correction rate of 31 %.

Consequently, the significance of probability at 9 % indicates that there is a long-term relationship between the dependent variable and explanatory variables. In addition, stability diagnosis of this model is further reinforced by results of the cusum test, which is within 5% error level, and the residual test presented in appendix table under Figures B 1.1 and B 1.2, respectively.

As presented in Table 5.22, differentiated investment is statistically significant when differenced in lag 2. When differenced, the variable recorded a coefficient of 30%, as well as 71% and 77% in lag 1 and 2 respectively. This result suggests that 77 % is corrected in the second year.

The *size* of the firm (tangible and intangible assets) is assumed an important determinant of the direction and volume of a firm's investment in this analysis (Teece, 2014). *Size* is statistically significant when differenced, as well as in differenced lag 1 and 2. *Return on equity* is statistically significant in differenced, differenced in lag 1 and differenced in lag 2.

Nonetheless the other variables in Table 5.22 confirm no statistical significant short term effects. Furthermore, other combinations that are presented in appendix Table B1.1, are not discussed as they add very limited statistical value to this study. An overall observation of the model is signified by the value and the probability of Durbin Watson test as contained in the OLS estimation presented in Table B 1.1, in the appendix table.

In the context of market level aspects, the succeeding section presents an analysis of VEC estimates for equation 4.9 of the study. This analysis is considered important In order to achieve one of the objectives set out in this study. This is essentially so because the error correction model helps to ensure the stability of a model.

In addition, the approach also helps to ensure long run and short run causality of variables. Table 5.23 presents the results of VECM analysis for market level variables in the mining industry.

Table 5.23: Vector error correction estimates 4.9

	FDI	DEMAND	FP	TRADE	INDUSTRY	INFRAS
Lag 1	1.000	-2.360 (0.380) [-6.199]	-0.818 (0.597) [-1.371]	5.116 (1.788) [2.861]	34.082 (5.499) [6.197]	-7.567 (1.204) [-6.282]
Differenced	0.026 (0.014) [1.842]	0.560 (0.037) [14.992]	0.008 (0.014) [0.542]	-0.030 (0.002) [-15.169]***	0.096 (0.011) [8.151]	0.113 (0.010) [10.924]
Differenced in lag 1	-0.757 (0.104) [-7.262]*	-0.391 (0.273) [-1.427]	0.042 (0.109) [0.392]	-0.028 (0.076) [-0.371]*	0.014 (0.014) [1.010]	-0.017 (0.086) [-0.202]*
Differenced in lag 2	-0.305 (0.101) [-3.021]*	-0.130 (0.265) [-0.492]	0.033 (0.105) [0.315]	0.071 (0.074) [0.961]	0.013 (0.014) [0.978]	0.189 (0.083) [2.257]

Estimated coefficients on the first line, standard errors in parenthesis (); and t-statistics in brackets [].
The results are computed separately for each equation using the appropriate residuals
**** p<0.01, ** p<0.05, * p<0.1 {Emphasis are placed on *** p<0.01, ** p<0.05}*

Baltagi (2008) asserts that the stability of VECM model is determined by the value of Durbin Watson test. Results indicated in Figure B 1.2 in the appendix depict that the VECM model is table as the value of Durbin Watson test is 2.04.

The general rule of thumb asserts that the value of Durbin Watson must be around the figure of 2, to negate the possible fear of autocorrelation in the estimation. As presented in table 5.23 dependent variable *FDI* has negative and significant coefficients in differenced in lag 1 and 2. The results indicate that 75 % is corrected within the first year while 30 % is corrected within year two.

Explanatory variable *demand* also records negative and significant values in differenced in lag 1 and 2. The results indicate that 39 % of vectors are corrected in the first year while 13 % is corrected in the second year. Furthermore, explanatory variable *trade* is statistically significant at differenced and differenced in lag 1, as well as explanatory variable industry is statistically significant at differenced.

Nevertheless the other variables and other lags in Table 5.23 give evidence that there have no significant short term effects. In this instance, other combinations which are presented in appendices B1.2 are not discussed as they have less significance. An overall observation of the model is signified by the value and the probability of Durbin-Watson test of the OLS model as presented in appendix (Table B 1.2).

5.4.2 Unit root test

This section presents results of the unit root test for equation 4.4 as indicated in research methodology chapter. As refreshment, the motive of adopting a unit root test is based on the rationale that the presences of unit root violates econometric procedures and reduces validity of estimations. In this view, unit root test are essential as the approach reveals the possible presence of unit root in both dependent variable and explanatory variables of the equation in firm specific aspects. Accordingly, Table 5.24 presents unit root test results for firm level variables in mining industry.

Table 5.24: Unit Root Test (4.4)

Column 1			Column 2			Column 3		
Levin, Lin and Chu t*	**Level**	**First Difference**	**ADF - Fisher Chi-**	**Level**	**First Difference**	**Im, Pesaran and Shin W-stat**	**Level**	**First Difference**
Individual	-2.92***	-39.046***	**Individual**	76.095***	218.563***	**Individual**	-5.58***	-43.315***
Obs.	364	358	**Obs.**	364	358	**Obs.**	364	358
Intercept and Trend	-3.74***	-38.057***	**Intercept and Trend**	-7.907***	220.629***	**Intercept and Trend**	91.13***	-47.508***
Obs.	364	359	**Obs.**	364	359	**Obs.**	364	359
None	1.46587	-41.239***	**None**	6.97434	1183.52***	**None**	22.971***	1580.34***
Obs.	358	358	**Obs.**	358	358	**Obs.**	372	366

Using the Levin, Lin & Chu (2002) test, probabilities are computed assuming asymptotic normality
****; **; * This indicates that we reject the null hypothesis of unit root at 1%, 5% and 10%.*
Automatic selection of maximum lags; Automatic lag length selection based on SIC: 0 to 5

Table 5.24 presents a summary results of Levin, Lin and Chu (2002), Peseran, and Augmented Dick Fuller unit root test. A series of unit root test was implemented using Bartlet Kernel selection criteria and Newey-West Automatic Bandwidth Selection. From the Table, results in column 1 depict the unit root test from Levin, Lin and Chu approach, column 2 depicts results from Im, Pesaran and Shin W-stat, and column 3 presents results for ADF - Fisher Chi-square.

The results shown in Table 5.24, using Levin, Lin and Chu test, reveal that individual intercept, intercept and trend, interaction reveals that the variables under consideration have no unit root problem at level. However at none the estimation indicate a unit root problem at level. To overcome this problem, we estimate the dataset in first difference and the series became stable.

Column 2 illustrates results of ADF - Fisher Chi-square test adopting in two dimensions (individual intercept, intercept and trend). The results indicate that there is no presence of unit root problem at level and first difference. However at none the result indicate a unit root problem. Therefore, the dataset was re-estimated in first difference and all the results became stable.

Column 3 of Table 5.24 contain the results of Im, Pesaran and Shin W-stat. The results indicate that there is no presence of unit root in individual intercept, intercept and trend and none at level. The analysis of unit root test indicates that majority of the test are stationary at level. As informed by the findings of the unit root test, were estimated within orthogonal deviation environment.

In addition, the market level unit root analysis was also conducted for the mining industry. The result of that analysis is contained in Table 5.25.

Table 5.25: Panel Unit Root Test (4.8)

Column 1			Column 2			Column 3		
Levin, Lin and Chu t*	**Level**	**First Difference**	**ADF - Fisher Chi-**	**Level**	**First Difference**	**Im, Pesaran and Shin W-stat**	**Level**	**First Difference**
Individual	57.6739	-427.25***	**Individual**	-2.04**	256.710***	**Individual**	22.912**	110.524***
Obs.	600	600	**Obs.**	600	600	**Obs.**	600	600
Intercept and Trend	96.3124	-475.43***	**Intercept and Trend**	-1.888**	214.982***	**Intercept and Trend**	21.413**	-280.14***
Obs.	600	600	**Obs.**	600	600	**Obs.**	600	600
None	0.19102	-343.53***	**None**	10.3164	1580.34***	**None**	-	-
Obs.	600	600	**Obs.**	600	600	**Obs.**	-	-

Using the Levin, Lin & Chu (2002) test, probabilities are computed assuming asymptotic normality
****; **; * This indicates that we reject the null hypothesis of unit root at 1%, 5% and 10%.*
Automatic selection of maximum lags; Automatic lag length selection based on SIC: 0 to 5

Table 5.25 presents a summary result of all the three approaches used in Table 5.24. Levin, Lin and Chu unit root test. Results presentation is arranged as follows, Column 1 of the table presents unit root results from Levin, Lin and Chu test. Column 2 depicts results from Im, Pesaran and Shin W-stat and column 3 depict results from ADF - Fisher Chi-square.

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The result of the unit root test presented in column 1 of Table 5.25 depicts the outcome of Levin, Lin and Chu test. The result indicates that Individual intercept is stationary in first difference. The results of intercept and trend also indicate that the dataset becomes stationary in first difference. Furthermore, results of none indicate that data is stationary at first difference.

Column 2 presents the results of ADF - Fisher Chi-square test. The results suggest that Individual intercept is stationary in level and first difference. In addition, the results of intercept and trend also indicate that the dataset is stationary in level and first difference. Furthermore, the results on none indicate that data becomes stationary in the first difference. In addition, column 3 presents the results of Im, Pesaran and Shin W-stat, as contained in Table 5.24. The outcome of the analysis indicates that individual intercept is stationary at level. The results of intercept and trend also indicate that data is stationary at level. By implication, the dataset can be used in estimations at level.

5.4.4 Dynamic panel estimation

The GMM estimation by Arellano and Bond (1991) is adopted in this section of the study. The analysis is based on moment conditions as specified in equations 5.3 and 5.4. The approximations are only specified if lagged values of explanatory variables that are used in model estimation are valid instruments. In this instance, reliability of instruments used in the model is verified by the J- test of identifying restrictions that examine the relationship between the model residuals and the instruments used in the estimation. Table 5.26 represents the results of Panel dynamic estimation.

Table 5.26: Panel Dynamic Regression results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.126927	2.312650	1.352097	0.1838
INVEST(1)	-0.069083	0.101936	-0.677711	0.5018
INVEST(2)	-0.158000	0.119817	-1.318677	0.1946
INVEST(3)	0.714930	0.178409	4.007259	0.0003***
JV(1)	-0.565350	0.937828	-0.602830	0.5499
JV(2)	0.189743	0.600435	0.316008	0.7536
JV(3)	0.731590	0.838434	0.872568	0.3880
SUBS(1)	0.035655	0.623728	0.057165	0.9547
SUBS(2)	-0.310958	0.421076	-0.738484	0.4644
SUBS(3)	-0.723362	0.484685	-1.492438	0.1432
ROE(1)	-0.037808	0.057309	-0.659735	0.5131
ROE(2)	-0.241423	0.131331	-1.838274	0.0733*
ROE(3)	-0.018228	0.089929	-0.202688	0.8404
ROA(1)	-0.159490	0.214041	-0.745136	0.4604
ROA(2)	0.125424	0.223081	0.562235	0.5770
ROA(3)	0.230714	0.198009	1.165170	0.2507
SIZE(1)	-0.054338	0.133170	-0.408036	0.6854
SIZE(2)	-1.093070	0.563749	-1.938931	0.0594**
SIZE(3)	1.194152	0.705597	1.692399	0.0982**

Statistical Measure	Coefficient	Level of significance
R-squared	0.861617	Strong and Positive
Adjusted R-squared	0.800864	Strong and Positive
Durbin-Watson stat	1.985715	Specified
J – Statistic	2.422370	Specified
Cusum Test	p<0.05	Specified

*Robust standard errors,. *** p<0.01, ** p<0.05, * p<0.1. Cross-section weights instrument weighting matrix and convergence was achieved after 1 weight iterations. Cross-section weights (PCSE) standard errors & covariance (no d.f correction). Maximum lags of dependent and predetermined variables for use as instruments are limited to 1. Period fixed applied in the estimation.*

In view of the results depicted in Table 5.26, one of the explanatory variables, *size* in lag 3, indicate a positive significant relationship with dependent variable *investment*. The significance of firm *size* lends credence to the rationality of firm level based theories (push factors), which include hypothesis on the boundaries of the firm as postulated by the seminal work of Penrose (1959) and Barney's (1991) contemporary work of the resource based views.

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The empirical results are consistent with the resource-based view in the sense that the significance of results of *size* and *investment* (as the dependent variable) reveals strong explanatory power between two variables. Results from the first lag indicate that the *size* of the firm in the previous year would significantly influence the volume of investment directed to any particular market in the current year.

As postulated by the process theory (Johanson and Vahlne 1977, 2015), a firm's investment in foreign markets is assumed to be incremental and reactive to both the internal environment as well as the volatility of the macro environment. Empirical evidence from Table 5.26 contrasts sharply with process theories, in that the dependent variable (investment), which is auto-regressed, reveals no statistically significant explanatory property. This suggests that in mining industry, firm level investment is not incremental.

As indicated by the outcome in Table 5.26, other explanatory variables have no significance to dependent variable. For instance, *return on assets*, a variable that indicate key internal competencies in MNEs, is not a statistically significant determinant of *investment* drive. This also applies to return on equity, which measures profitability of the internationalisation process. In this regard, insignificance of explanatory variables indicate that outward FDI in mining industry is more of resource-seeking and therefore investment is pulled from domestic markets to host markets by resources that are either scarce in home markets or abundant and cheap in host markets.

This realisation buttress the documented evidence in the seminal work of Dunning (2001). In his eclectic theory, Dunning argues that the main objective of a multinational firm is to accumulate specific category of input resources that are not obtainable in domestic markets (raw materials or natural resources), or that are only obtainable at non cost-effective rate in the home market. For instance, a price of labour on extraction work may be higher at one geographical location than the other, even though the two nations are equally endowed with these natural resources. In this connection, resource-seeking motive is seemingly more compatible with pull factors that are discussed in host country-based perspectives (Dunning 2001; Dunning 2015).

In view to the outcome of the dynamic model (equation 4.4) estimated and presented in Table 5.26, the adjusted R-Squared, which indicates the test of goodness fit, reflect a strong deterministic property. According to the result, the positive and strong explanatory property of the model suggests a good fitness within the interaction of the dependent variable, *investment* and the explanatory variables (auto-regressed *investment, size, return on assets, return on equity, joint venture* and *subsidiary*). Furthermore, the results strongly indicate that firm *size* has a strong significant relationship with *investmen*t. From the model, the value of J-statistic indicate that the model is well specified, and the value of Durbin Watson buttress the goodness of fit assumption by negating possibility of autocorrelation in the model. Furthermore, the Cusum and residual test in the appendix (Figures B 1.1 and B 1.2) buttress that the model is stable.

As informed by theory reviewed in Chapter Two and Three, and validated by empirical results, mining firms rely on pull factors in host markets that create dependency path of expansion strategies, which are adopted in host markets. This realisation lends credence to market resource objective where firms are motivated by pull factors into host markets. Resource seeking objectives heavily rely on resource in host market and, the resources and ratio of available resource to utilisation determine expansion strategy.

Table 5.27: GMM estimation of market level aspects in the mining industry (Equation 4.9)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.703007	3.577780	-0.475995	0.6353
FDI(1)	-0.170816	0.134621	-1.268862	0.2080
FDI(2)	-0.152177	0.105548	-1.441786	0.1531
FP(1)	-0.026663	0.189284	-0.140863	0.8883
FP(2)	0.011440	0.119975	0.095357	0.9243
TRADE(1)	1.476755	0.381638	3.869520	0.0002***
TRADE(2)	0.798228	0.239939	3.326801	0.0013***
INFRAS(1)	-0.259174	0.190424	-1.361038	0.1772
INFRAS(2)	-0.134936	0.137061	-0.984500	0.3277
DEMAND(1)	-0.271875	0.100639	-2.701496	0.0084***
DEMAND(2)	-0.163717	0.053626	-3.052928	0.0030***
INDUSTR(1)	-2.281556	1.214371	-1.878797	0.0638**
INDUSTR(2)	-0.926204	0.564909	-1.639564	0.1049*
Statistical Measure	**Coefficient**		**Level of significance**	
R-squared	0.635949		Strong and Positive	
Adjusted R-squared	0.556998		Strong and Positive	
Durbin-Watson stat	1.812351		Specified	
J – Statistic	6.150254		Not - Specified	
Cusum	*p<0.05*		Specified	

*Robust standard errors ,. *** p<0.01, ** p<0.05, * p<0.1. Cross-section weights instrument weighting matrix and convergence was achieved after 1 weight iterations. Cross-section weights (PCSE) standard errors & covariance (no d.f correction). Maximum lags of dependent and predetermined variables for use as instruments are limited to 1. Period fixed applied in the estimation.*

Table 5.27 depicts the significance of independent variables to the dependent variable. The results suggest that in mining industry market or country specifics aspects, only two explanatory variables are statistically significant. In specific, *demand* is statistically significant in first and second lags. This suggests that country specific aspects such as an expanded demand level over a period of years, does influence the adoption of FDI as an expansion strategy by MNEs in our sample. Nonetheless, a negative coefficient suggests an inverse relationship between inflow of investment (FDI) and *demand*.

Results in Table 5.27 further suggests that the relationship between *trade openness* (economic liberalisation polices) of a host market and the inflow of FDI is positive and statistically significant in both lags 1 and 2. This implies that government policies on market liberalisation over a period of years could ultimately attract inflow of FDI into

the mining industry. This result is consistent with Porter's Diamond of competitive advantage theory that asserts that one of the key drivers of inward FDI is trade openness of the host destination.

As indicated in the results of the dynamic model (equation 4.9) in Table 5.27, the adjusted R-Squared, which indicates the test of goodness of fit, suggests a strong explanatory property of 64%, suggesting that the variation in the adoption of FDI by the MNEs in our sample is conditioned on the interaction with each of the explanatory variables. In specific to this model, empirical evidence from Table 5.27 strongly indicates that 64 % of inward FDI in mining industry is explained by independent variables of the model.

From the model, the value of J-statistic indicate validity of overriding restrictions is high. This finding should not be surprising because dynamic estimations is normally biased in small sample size. However, the value of Durbin Watson indicates that there is no presence of both negative and positive serial correlation. The stability of the model is also reinforced by the results of the cusum, presented in figure (B1.3) and residual test presented in figure (B 1.4) in the appendix. This finding is consistent with discussions in the literature review (Chapters 2 and 3), and validated by empirical results. In summary, is safely observed that market level aspects are exploited by MNEs to create dependency path through the expansion strategies that are adopted in host markets. This realisation gives credence to resource seeking objective where firms are pulled by pull factors in host markets. Empirical evidence deduced from the Table 5.27 strongly indicate that only demand and trade openness are statistically significant to the inflow of FDI in mining industry. This is consistent with MNEs motives as postulated by Dunning (2015) that resource-seeking objectives are heavily reliant on resource availability in host markets and expansion strategy is determined by the resources and ratio of resource utilisation, as well as government policies designed to attract inflow of foreign investment.

MNEs capacity to use internal resources (firm level aspects) and exploit aspects in host market (market level aspects) determines both the pace of internationalisation process and market entry strategies. In the context of results from market level aspects (equation 4.9), the outcome strongly indicate that industry is the only overlapping aspects in mining industry, albeit weakly with tide of time.

5.4.5 Impulse response approach

The result of equation 4.4 impulse response approach is presented in table 5.28 In view to table 5.28 both dependent and explanatory variables are processed in the same time, particularly given that the introduction of dependent and explanatory variables independently introduced into the estimate produce the same outcome.

Table 5.28: Impulse response approach for equation 4(a)

Period	INVEST	ROE	SIZE	JV	ROA	SUBS
1	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	0.326482	-0.608314	-2.533954	1.007535	-0.714454	-0.057836
3	0.143287	-0.027054	1.248718	0.962840	-0.528777	-2.068689
4	0.759182	-0.001796	-0.081839	0.584073	-0.446546	1.245400
5	0.421939	-0.584029	-2.172034	0.758815	-0.599100	-0.876325
6	0.230100	-0.015711	0.736194	1.133573	-0.213038	-1.367394
7	0.674707	-0.077319	-0.023545	0.277732	-0.681196	0.794837
8	0.379769	-0.500904	-1.815154	1.023875	-0.641278	-0.856938
9	0.335707	-0.030585	0.545770	1.044058	-0.111994	-1.101352
10	0.625034	-0.134498	0.287185	0.264441	-0.676091	0.602482

In Table 5.28, the coefficients of the variables presented in the analysis might be interpreted as indicating the responses of investment to impulses of firm heterogeneity hitting the system in the mining industry. An analysis of individual variables in Table 5.28 indicates that *return on equity* (ROE) has negative responses for the entire estimated period. The implication of the result depicts that if there is one unit innovation shock in investment, there would be negative responses in return on equity.

Results for *return on assets* (ROA), which measures the utilisation of resources, also indicate negative reactions. The estimation begins in the second year and runs throughout the whole period under investigation; and records a negative coefficient to one unit of innovation shock in *innovation*.

Furthermore, impulse response results from firm *size*, which measures resource capacity of the firm, illustrates mixed outcomes as periods, two, four, five, seven and eight indicate a negative response while the rest of the time period depict a positive response to one unit shock of innovation.

The results of explanatory variables that explain expansion strategies of sampled firms also indicate mixed reaction to one unit shock of innovation. For instance, joint venture records positive response to i*nvestment* throughout the period under investigation. The analysis contained in table 5.28 suggests that in all the periods under estimation,

the dependent variable, *investment* and explanatory variable, *joint venture* share a proportional relationship and this trend could subsist as much as a period of ten years.

Furthermore, results of subsidiaries as explanatory variables that explain market entry strategy through greenfield or brownfield investment indicate mixed reactions to one unit of innovation shock. Results depicted in Table 5.28 indicate that periods two,three, five, six, eight and nine all recorded negative response to the dependent variable, *investment*. Whereas periods four and ten recorded positive responses to dependent variable *investment.* By implication, the entry strategy adopted by the sampled MNEs in the focussed country is contingent on the volume of investment committed to the expansion. This finding is particularly important as it points to the need to encourage mineral beneficiation on the continent, which is not only greenfield in nature, but also capital intensive.After the analysis presented in Table 5.28 for equation 4.4, we then proceed to present the analysis for equation 4.9 in Table 5.28.

Table 5.29: Impulse response approach for equation 4.9

Period	FDI	DEMAND	INFRAS	INDUSTR	FP	TRADE
1	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	0.633194	1.830010	-0.004326	-0.035837	0.021598	-0.019031
3	0.731574	-3.140011	0.013568	0.065266	0.006100	-0.001852
4	0.744812	-2.300009	-0.012891	0.031983	0.014527	-0.025707
5	0.666179	-1.660010	0.018306	0.043084	0.013650	-0.007097
6	0.767177	-2.120013	-0.006389	0.025254	0.011272	-0.016508
7	0.680903	-1.380008	0.009392	0.035897	0.014206	-0.012429
8	0.741856	-2.270000	0.000277	0.033667	0.011451	-0.013341
9	0.704238	-1.610033	0.004333	0.034072	0.013573	-0.014611
10	0.722660	-2.030078	0.003785	0.034297	0.012293	-0.012496

In respect of the analyses contained in Table 5.29, coefficients depicted in the analysis might be interpreted as indicating the responses of *FDI* to impulses of *market aspects* hitting the system.

An analysis of individual variables (explanatory and dependent variables) in Table 5.29 indicates that *demand* is forecasted to have an inverse relationship with *FDI.* This is signified by negative coefficients from year 3 to the rest of the period considered in this study.Furthermore, *infrastructure,* which is a variable that measures support facility for MNEs, illustrates mixed reactions. Beginning with the second year on a negative coefficient, the intermittent negative trend was repeated in the fourth and

sixth periods, while the rest post positive response to one unit of innovation were in the positive territory.

Furthermore, *factor price,* which measures the price of raw materials, indicate a positive outcome. The response is positive throughout the period under investigation. In addition, *trade* illustrates negative responses. Beginning on a positive note in the first year, the estimation changed to negatives from the second year through the entire period under investigation. By implication, *trade* is observed to share negative (inverse) reaction with market aspects.

Furthermore, *industry,* which measures the size of supporting industry in host markets, record mixed responses. The response is negative in year two, while the rest of periods under consideration record positive responses. The responses of explanatory variable (*trade*) forecasts an inverse relationship with the dependent variable – *FDI.* Throughout the period under investigation, the estimated responses are negative.

5.4.5 Cointergration test approach

In line with the rest of the study and after conducting the impulse response estimation, the focus of the study is directed towards the causality test. Nonetheless, in order to perform the causality test, there is a need to establish long run cointegration of variables under consideration; this motivates the context of cointegration estimation. When implementing the cointegration estimation, deterministic trend components are specified through the trend specification process.

Table 5.30: Unrestricted Cointegration Rank Test (Trace)

Hypothesized		Trace	0.05	
No. of CE(s)	**Eigenvalue**	**Statistic**	**Critical Value**	**Prob.****
None	0.865656	113.0968	95.75366	0.0019*
At most 1	0.677405	62.91306	69.81889	0.1570
At most 2	0.577739	34.62913	47.85613	0.4677
At most 3	0.307298	13.07581	29.79707	0.8881
At most 4	0.144332	3.896924	15.49471	0.9117
At most 5	4.400006	0.000110	3.841466	0.9928

*Rank test indicates no cointegration at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level*

Table 5.30 presents the results of trace statistics. From Table 5.30, the trace test has a null hypothesis of no cointegration at 5% error level. The results indicate that the null hypothesis is rejected because the value of trace statistics has a probability value of 0%. The results of the trace test confirm that there is a long-term association between the dependent and explanatory variables.

As a measure of robustness check, we conduct the cointegration test through the maximum eigenvalue approach. The result of the analysis is presented in Table 5.31:

Table 5.31: Unrestricted Cointegration Rank Test (maximum eigenvalue)

Hypothesized		Max-Eigen	0.05	
No. of CE(s)	**Eigenvalue**	**Statistic**	**Critical Value**	**Prob.****
None	0.865656	50.18375	40.07757	0.0027*
At most 1	0.677405	28.28393	33.87687	0.2007
At most 2	0.577739	21.55332	27.58434	0.2442
At most 3	0.307298	9.178887	21.13162	0.8177
At most 4	0.144332	3.896814	14.26460	0.8701
At most 5	4.400006	0.000110	3.841466	0.9928

*Rank test indicates no cointegration at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level*

Additionally, maximum eigenvalue test has a null hypothesis of no cointegration at 5% error level. Results from table 5.31 indicate that in the eigenvalue test, the null hypothesis of maximum eigenvalue is rejected because the result of the test statistics has a probability value of 0%. The null hypothesis is rejected in favour of the alternative hypothesis. Accordingly, the outcome is that all variables have a long run association.

In the context of the research questions and hypothesis, the section below presents results of the cointegration test in mining industry market level aspects. Tables 5.32 depicts the results of Unrestricted Cointegration Rank Test (Trace), while Table 5.33 presents the result of the Unrestricted Cointegration Rank Test (Maximum Eigenvalue) respectively.

Table 5.32: Unrestricted Cointegration Rank Test (Trace)

Hypothesized		Trace	0.05	
No. of CE(s)	**Eigenvalue**	**Statistic**	**Critical Value**	**Prob.****
None	0.996630	453.8068	95.75366	0.0001*
At most 1	0.932235	237.4766	69.81889	0.0000*
At most 2	0.824365	135.1915	47.85613	0.0000*
At most 3	0.772818	69.09632	29.79707	0.0000*
At most 4	0.226121	12.78024	15.49471	0.1231
At most 5	0.076867	3.039317	3.841466	0.0813

*Rank test indicates no cointegration at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level*

Consistent with results contained in Table 5.32, the results of trace statistics suggests that the null hypothesis is rejected because the value of trace statistics has a probability value of 0%, which is statistically significant.

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Consequently, the results in Table 5.32 suggest that we reject the null hypothesis of no cointegration in favour of the alternative hypothesis. Therefore, a conclusion can be drawn that there are four equations that exhibit long run association.

Table 5.33: Unrestricted Cointegration Rank Test (maximum eigenvalue)

Hypothesized		Max-Eigen	0.05	
No. of CE(s)	**Eigenvalue**	**Statistic**	**Critical Value**	**Prob.****
None	0.996630	216.3302	40.07757	0.0001*
At most 1	0.932235	102.2851	33.87687	0.0000*
At most 2	0.824365	66.09515	27.58434	0.0000*
At most 3	0.772818	56.31608	21.13162	0.0000*
At most 4	0.226121	9.740922	14.26460	0.2295
At most 5	0.076867	3.039317	3.841466	0.0813

*Rank test indicates no cointegration at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level*

Using the maximum eigenvalue test, the hypothesis of no cointegration at 5% significance has been rejected in at most three cointegrating equations. Results from Table 5.33 that contains the eigenvalue cointegration test reinforce the results of trace test. Likewise, in Table 5.33, the null hypothesis is rejected in favour of the alternative hypothesis. Consequently, the outcome indicates that there are four equations that have a long-term association.

5.4.6 Granger causality test

In previous sections, the study adopted dynamic panel estimation and ascertained that there is a strong relationship between dependent variable *(investment*) and the explanatory variables (*size, return on equity and return on assets)*. This assertion was further fortified by the results of panel cointegration test (Johansen and Juselius 1990). In the context of this study, Granger causality test is adopted to test the long-term causality between the variables adopted in the study. To establish causality, we use VECM-based Granger causality test for each pair of variables. According to Granger (1980), the past and the present can cause the future either in unison or on bidirectional basis. The table below indicate results of Granger Causality test.

Table 5.34: Results of Granger causality test –firm level mining industry (4.4)

Null Hypothesis:	Obs	F-Statistic	Prob.
SIZE does not Granger Cause INVEST	58	6.43202	0.0032***
INVEST does not Granger Cause SIZE	58	8.66190	0.0006***
INVEST does not Granger Cause SUBS	58	3.42159	0.0454**
ROA does not Granger Cause JV	60	5.30379	0.0091***
ROA does not Granger Cause ROE	56	4.21177	0.0225**
ROE does not Granger Cause SIZE	58	10.6459	0.0001***

*F-statistics, *** p<0.01, ** p<0.05, * p<0.1.*

From Table 5.34, the results indicate significant causal relationships in six out of thirty occurrences. As indicated by the outcome of the analysis, there are four causal relationships in the model that are unidirectional.

The first causal relationship is bidirectional between the dependent variable (*investment)* and one of the explanatory variables, *size*. In view of the significance of the results contained in Table 5.34, *size* does have a causal effect on investment with significant p-value of 0.00.

This is also reciprocated by a causality effect flowing from *investment* to *size* that is also very significant at 0.00. The absence of other firm level variables with a causal impact on dependent variable reinforces the notion that investment in mining industry is largely pulled by factors in the host markets. This aspect resonate with Dunning (2015) assertions that in most instances, outward FDI is pulled into host markets. Furthermore, the results also reinforce resource-based hypothesis of Penrose (1959), especially given the fact that firm *size* is a statistically significant causal aspect of outward FDI in the mining industry.

Another important causal relationship is the one that explain expansion strategies of MNEs in the mining industry. The first relationship is between *investment* and *subsidiary*, which explains the expansion strategy adopted by MNEs in the sampled countries. Results from Table 5.34 indicates that investment do have causal effects on the adoption of greenfield investment by MNEs in the mining industry.

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The second expansion strategy - *joint venture*, does not show any statistically significant relationship with *investment* but does have a statistically significant causal relationship with auto-regressed *investment* as well as return on assets (ROA). In this instance, *joint venture* is found to have causal effects on *return on assets*. This is consistent with the theory on expansion strategies that joint venture enables an investing firm to use resources of a domestic firm that they have merged with (Estrin, 2017).

Other causality relationships recorded in Table 5.34 are unidirectional between return on assets and return on equity, with the flow of causality originating from *return on assets* to *return on equity*. In addition, another statistically significant causal relationship is established between return *on equity* and the firm *size,* and the direction is flowing from *return on equity* to the *size* of the firm.

As discussed in Chapter Three and in consistence with key study hypothesis and questions, the succeeding section takes into account causality test of market level aspects in the mining industry. To that extent, Table 5.34 contains the results of Granger causality test in market level aspects of the mining industry.

Table 5.35: Results of Granger Causality test for market level aspects (Mining industry)

Null Hypothesis:	Obs	F-Statistic	Prob.
FDI does not Granger Cause DEMAND	91	3.73104	0.0279**
DEMAND does not Granger Cause TRADE	91	9.46507	0.0004***
INFRAS does not Granger Cause DEMAND	38	5.26274	0.0104**
DEMAND does not Granger Cause INFRAS	38	5.75237	0.0072**
FP does not Granger Cause FDI	103	2.44059	0.0924*
INDUSTR does not Granger Cause FDI	103	6.06454	0.0033**
FDI does not Granger Cause INDUSTR	91	9.80918	0.0001***
FDI does not Granger Cause TRADE	61	4.55021	0.0157**
FP does not Granger Cause INDUSTR	51	6.48232	0.0023***
FP does not Granger Cause TRADE	38	7.41572	0.0016***
TRADE does not Granger Cause INDUSTR	51	7.01260	0.0022***
INFRAS does not Granger Cause INDUSTR	38	3.93704	0.0293**
INFRAS does not Granger Cause FDI	38	8.37295	0.0011***

*F-statistics , *** p<0.01, ** p<0.05, * p<0.1.*

Table 5.35 illustrate results of causality test in market specific aspects in the mining industry. As evidenced in the results above, two bidirectional causal relationships are recorded. The first bidirectional relationship is recorded between *infrastructure* and *demand.* In both instances, the causality probability is statistically significant. The probability (*p*-value) of the causality that flows from *infrastructure* to *demand* is 0.01, while the one from *demand* to *infrastructure* is 0.00.

The second bidirectional causal relationship is recorded between *trade* and *infrastructure*. In both instances, the statistical significance of the causality is conspicuous. The causality test is able to establish that *industry* has a direct causal effect on *FDI,* and the probability of statistical significance is 1% level. The reverse causal relationship is established in the direction that *FDI* causes *Industry*. The causality probability in this flow is established at 1% level.

As illustrated in table 5.35, a number of variables recorded unidirectional causal relationship; results from the analysis indicate that dependent variable – *FDI*, has a causal effect on *demand* and the causal probability is statistically significant at 5% level.

This relationship is not reciprocal, as *demand* does not have a causal effect on *FDI*. Also established by results depicted is the fact that explanatory variable, *demand* does have a causal effect on *trade*. In this causal relationship, the causality probability suggest a statistical significance at 1% level.

In the causal relationship between *FDI* and *trade*, the results signify that *FDI* has a causative effect on *trade*. The *p*-value of the relationship is statistically significant at 1% level. Also significant is the causal relationship between *factor prices* (FP) and the *size* of Industry in host markets. The results signify that the flow of the direction is unitary as *factor price* cause the *size* of Industry with a *p*-value of 0%. Likewise, the causal relationship between *factor price* and *trade* is deemed significant; in that *factor price* has causative effects on the volume of *trade* and the relationship is statistically significant at 1% level.

The results from causality test also confirm that there is a unitary causal effect between *trade* and the *size* of industry. The analysis suggests that trade has a causative effect on the *size* of Industry and the statistical probability is significant at 1% level. Another significant causal effect is recorded between *infrastructure* and *industry*. In this

relationship, *infrastructure* is found to have a causal effect on *industry* and the level of significance is at 5% level. Furthermore, the results illustrate that *Infrastructure* has a causal effect on volume of *FDI*, with a significance confidence probability of 99%.

5.4.7 Overlapping aspects in mining industry

Sequel to the generation of results through the analysis conducted for both firm level aspects and market level aspects, this section articulate the linkages in both market level and firm level aspects that create dependency path of strategic positions of firms in the host market

In the context of firm level aspects in the mining industry, Table 5.36 presents a summary of panel regression results and causality test of both firm and market level aspects for the mining industry.

Table 5.36: Linkages in market and firm level aspects

Variables	Level analysis	Column 1	Column 2
Dependent-Explanatory Variable.	**Firm / Market level aspect**	**Regression Coefficient**	**Causality Coefficient**
Size	Firm – Level	-1.093070**	6.43202***
Infrastructure	Market – level	1.476755***	8.37295***
Industry	Market – Level	-	6.06454***

*Causality test, F-statistics , *** p<0.01, ** p<0.05, * p<0.1.*
*Regression analysis, robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Cross-section weights instrument weighting matrix and convergence was achieved after 1 weight iterations. Cross-section weights (PCSE) standard errors & covariance (no d.f correction). Maximum lags of dependent and predetermined variables for use as instruments are limited to 1. Period fixed applied in the estimation.*

In view of the analysis of linkages depicted in Table 5.36, the estimation of firm level aspect approach indicate that the *size* of a firm is an overlapping aspect in MNEs in the mining industry. The result of regression analysis is contained in the first column of the Table 5.35. The result of the analysis signifies that the *size* model is statistically significant. In more specific terms, the *p*-value of the interaction between *size* and i*nvestment* is statistically significant at 99% confidence level. The second column contains the result of causal analysis. According to this column in Table 5.35, the causal relationship between the two variables is statistically significant, suggesting that *size* has a causal effect on *investment*.

A sequence of studies have echoed that the *size* of the firm is an essential aspect in the growth trajectory of the firm. Literature that buttresses this perspective revolves around the work of Penrose (1959); Barney (2014); Teece (2014); Barney and Mackey (2017) firm. In the context of empirical results recorded by a series of econometrics tests conducted in this study (panel dynamic regression, cointegration and causality tests), this study provides evidence that reinforces the fact that MNEs use their resources to induce and enhance internationalisation process, essentially in the mining industry.

Furthermore, there is no evidence that return on assets has a significant causal effect on a firm's internationalisation process in the mining industry. It is however important to point out that return on assets indicate key internal competencies, which according to Dunning's eclectic theory, create key ownership advantages like patents, competitive advantages and efficiency-driven internationalisation process.The results reinforces Dunning's theoretical assumptions that in some instances, MNEs investment is "pulled out" by aspects in host markets like mineral and factor endowment, which are not available in domestic markets (Buckley, 2014; Rugman, 2014; Cason, 2015).

In the context of market level aspects, two variables out of five explanatory variables have a significant regression coefficient and a significant causative effect on inward FDI in host markets. First, infrastructure has a strong deterministic effect on inflow of FDI to the host country. In view of Porter's theory of national competitive advantage (1990), *infrastructure* is one of the aspects that motivate the direction and volume of inward FDI. In recent past, a series of studies have echoed the sentiments of Porter. For instance, Rugman (2014) and Rugman and Eden (2017). In view of empirical evidence obtained in this study, especially those on market level aspects, there is considerable evidence that reinforces Porter's (1990) postulation.

Consistent with the results above, empirical results also provide evidence that *industry* has a notable explanatory power and causal effect. The results generated in this study buttress Porter's theory of national competitive advantage (1990), which has been supported in a few contemporary studies (Rugman and Verbeke, 1993; Rugman, 2014, 2010; Buckley, 2014).

Furthermore, MNEs invest in host markets that have a vibrant industry to utilise resources optimally and to achieve both competitive advantage through the realisation of strategic organisational objectives. The results indicated above reinforce the perspective that the *size* of an industry in host market has an effect of host market selection by MNEs, essentially when they consider which market to penetrate as part of their expansion drives.

5.4.8 Path dependency and expansion strategies

Consistent with empirical evidence from the previous sections, this section motivates the discussion that market and firm level aspects create a dependent path that determine the internationalisation process of MNEs, and the direction of outward FDI both in terms of volume and host market destination. Table 5.36 illustrates aspects that influence expansion strategy adoption in host markets.

Table 5.37: Path dependency of expansion strategies

Variable	Firm / Market level aspect	Causality Coefficient	Expansion Strategy
Investment	Firm – Level	3.42159**	Subsidiary
Return to Assets	Firm – Level	5.30379***	Joint Venture
Industry	Market – Level	6.06454***	FDI
Infrastructure	Market – Level	8.37295***	FDI

*F-statistics , *** p<0.01, ** p<0.05, * p<0.1.*

Table 5.37 above presents path of expansion strategies in host markets, which are relevant to mining industry. The results satisfy the study hypothesis that expansion strategies are path dependent on the linkage of firm and market level aspects.

In line with the results presented in Table 5.37 above, empirical evidence from the results, indicate that MNEs in mining industry adopt both *joint venture* and *wholly owned subsidiary* (greenfield, acquisition and brownfield investments) as market entry strategies. As evidenced by causality analysis, the *investment* has a causative effect on the adoption of *subsidiary* as an expansion strategy.

The second strand is also explained by the causality relationship between *return on assets* and *expansion strategies*. In the context of mining industry, this assertion is buttressed by a series of empirical studies that efficiency in resource utilisation determines the choice expansion strategy adopted by MNEs. This also influences the

adoption of *joint venture* as expansion strategy equally as it influences the adoption of *subsidiary.* Hence, there is empirical evidence from this study confirm that resource *utilisation* and *transaction cost* justify adoption of expansion strategy. Transaction cost theory as discussed in chapter two, assert that expansion strategy is determined by the cost of its present value. Hence, this justify the significance of both market entry strategies as both sunk cost and transaction cost differ in host markets and MNEs select the most appropriate strategy for a specific host market.

The third strand is explained by the causal relationship between *firm resources* and *investment* trends. In view of the evidence deduced in the causality analysis, the two variables share bidirectional causal relationship. In the first instance, *firm resources* are considered to have causal effects on *investment*.

The causal relationship indicates that *firm resources* as estimated by its *size,* have causal effects on *investments*, as well as *investments* cause the *size* of the MNEs. The *size* of the firm enables the firm to create institutional idiosyncrasies that are fundamental in the creation of business and political networks, which are intertwined in the internationalisation process. Regarding the *joint venture* model, it is observed that the nature of firm resources (both tangible and intangible), influences an investing firm to acquire resources from a firm in a host markets. Tangible assets might include patent, trademarks, upper stream and lower stream networks and human capital. Literature as presented in Chapters Two and Three also buttresses the resource-based perspectives.

In the context of market level aspects, empirical evidence from this study indicates that there is only one variable that creates path dependency for inward FDI and subsequent expansion strategy in the mining industry. As indicated by the evidence, the *size* of the industry in host market is an influential aspect in the determination of investment pattern in terms of both volume of commitment and host market selection. A series of analysis conducted in this study give undeniable evidence in this regards. For instance, the evidence depict that explanatory variable, *industry,* cause dependent variable, inward *FDI*. The findings in this study also reinforce a sequence of both seminal and contemporary studies, such as the work of Porter (1990). Porter asserts that demand, which indicates the *size* of the market of a host country, is a fundamental market aspect that induces inward *FDI*.

As deliberated in Chapter Three, the *size* of the industry enables MNEs to optimally utilise their resources to achieve strategic objectives. This postulation also hinges on transaction cost theory. According to Corse (1937) and Casson (2015), transaction costs determine the entire business process in international business context. In practice, when MNEs move their investment into a particular host market, most of the decisions taken would revolve around mitigation of cost and exploiting resources.

In this respect, markets with high demand would attract MNEs more easily than markets with low demand. In practice, there is abundance of upper-stream network (customers) and lower-stream network (suppliers) supports for MNEs in foreign markets as a result of the *size* of the market. These processes offer MNEs more economic activity and investment opportunities.

Considering results obtained from the analysis documented in this study, there is also evidence to suggest that the *size* of industry has a causal effect on *FDI.* This notion is also consistent with the work of Porter's theory of national competitive advantage, which asserts that the *size* of the industry attract MNEs essentially because the related and supporting industry would reduce the cost of production in the host market and enhance networking. This proposition is also supported by a few authors (Krugman, 1979; Rugman and Verbeke, 1993), and reinforced by evidence from contemporary scholars (Rugman and Eden, 2017).

It must be pointed out however, that some of the empirical evidence that emanate from this study, with specific focus on the mining industry, differ with Porter's (1990) postulation. For instance, Porter's theory asserts that prices of factor inputs motivate MNEs to invest in a specific destination. However as informed by the results obtained, there is no substantive evidence that factor prices are fundamental in creation of path dependency that determines both investment pattern and expansion strategy.

Furthermore, Porter theory expound that *infrastructure* is a fundamental element that incline *FDI* towards a particular host market. In light of empirical evidence drawn from a series of econometric test conducted, there is substantial indication that resonate with Porter's hypothetical assertions. As such, the present study finds evidence that MNEs in the mining industry are motivated by infrastructure to invest in particular host market.

5.4.9 Investment patterns in mining industry

This section is motivated by the objective to understand the pattern of investment. The discussion and evidence is drawn from empirical evidence deduced from panel dynamic estimation.

Table 5.38: Investments patterns in mining industry

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.126927	2.312650	1.352097	0.1838
INVEST(1)	-0.069083	0.101936	-0.677711	0.5018
INVEST(2)	-0.158000	0.119817	-1.318677	0.1946
INVEST(3)	0.714930	0.178409	4.007259	0.0003***

*Regression analysis, robust standard errors. *** p<0.01, ** p<0.05, * p<0.1. Cross-section weights instrument weighting matrix and convergence was achieved after 1 weight iterations. Cross-section weights (PCSE) standard errors & covariance (no d.f correction). Maximum lags of dependent and predetermined variables for use as instruments are limited to 1. Period fixed applied in the estimation.*

Table 5.38 illustrates the relationship between investment as the dependent variable and the autoregressed investment (1; 2; 3) as the explanatory variable.In the research methodology chapter, it was indicated that in order to understand the pattern of investment an auto regressive model was adopted. The results from Table 5.38 indicate that the notion that investment is incremental as postulated by the process theory (Johanson and Valne, 1977) is not supported by empirical evidence in the case of South African mining MNEs. The results in the first and second lag results suggest a negative and statistically insignificant relationship.

Nonetheless, in the third lag, results reveal a positive and a statistically significant relationship. Despite the results of the third lag, it is still insufficient to concur that investment is incremental in nature. There is no empirical evidence from this study to buttress this notion.

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5.5 Technology industry

Equation 4.6: estimating the relationship between investment and firm level aspects in technology industry.

Equation 4.10: estimating the relationship between FDI and market level aspects in technology industry.

Consistent with the rest of the study, equation 4.5 estimates the relationship between dependent variable, *investment*, and the explanatory variables size, namely return on equity, return on assets, joint ventures and subsidiaries in technology industry. In this context, equation 4.10 estimates the relationship between dependent variable, *FDI* and explanatory variables - industry, factor prices, infrastructure, demand and trade.

A sequence of analyses conducted in this study to answer the hypothetical questions and achieve the research objectives have followed the pattern of descriptive statistics, unit root test, vector error correction model, dynamic panel estimations, impulse response and causality test. This pattern is also followed in this section of the study.

5.5.1 Descriptive statistics

In following paragraph, the analysis considers firstly descriptive statistics of micro level aspects in technology industry. Table 5.39 depict descriptive statistics of firm level data in technology industry.

Table 5.39: Descriptive statistics of firm level data in technology industry

	INVEST	JV	ROA	ROE	SIZE	SUBS
Mean	1.089201	0.420325	1.023031	1.654402	1.168486	0.855130
Median	1.071192	0.477121	0.989450	1.612360	1.162136	0.845098
Maximum	1.279877	0.698970	1.661339	6.546543	1.279125	0.954243
Minimum	0.951552	0.301030	-0.602060	0.093422	0.987253	0.698970
Std. Dev.	0.105732	0.129656	0.346613	0.838730	0.063176	0.067093
Skewness	0.400255	0.499544	-1.718448	3.678617	-0.486892	-0.626341
Kurtosis	1.977841	1.893919	10.21492	23.13714	4.193827	3.224823
Jarque-Bera	3.722422	4.906021	141.0404	1015.024	5.241432	3.576964
Probability	0.155484	0.086034	0.000000	0.000000	0.072751	0.167214
Sum	57.72765	22.27720	54.22062	87.68331	61.92974	45.32191
Sum Sq. Dev.	0.581316	0.874161	6.247302	36.58035	0.207543	0.234078
Observations	53	53	53	53	53	53

In the above Table 5.39, firm level variables are described using measure of central tendencies. In view of the table above, the symmetrical distribution of data is measured by indications from mainly the skewness and Kurtosis coefficients. According to the table above, investment (the dependent variable) is seen to have dataset that is seemingly positively skewed. This is given by the value of skewness coefficient of 0.400 and a Kurtosis statistics of 1.97. The mildness of the skewness could attest to its being regarded as a normally distributed dataset.

The *size* of the firm shows a descriptive statistics that is negatively skewed as the skewness coefficient has a value of -0.48, which is very close to symmetrical distribution of data. In some cases, this range of skewness is undefined skewness, and argument could then be raised on its successful validation of normal distribution. Meanwhile, return on equity and return on assets recorded negative and positive skewness coefficients respectively. In specific, return on equity recorded a skewness statistics of -1.72, while for return of assets generated a skewness statistics of 3.67. Although, these variables indicate moderately high skewness statistics, the dispersion of the series from the mean is moderate and both variables are statistically significant, suggesting normalcy in their distribution.

Furthermore, variables that gauge the expansion strategies of firms in foreign markets, such as joint venture and subsidiaries, record negative and positive skewness coefficients respectively.For *joint venture*, the skewness coefficient is 0.49 while for subsidiary the skewness is -0.62. Apart from the moderate nature of the skewness, both variables are statistically significant and their dispersion from the mean is moderate – suggesting that we uphold the assumption of normal distribution. By implication, an argument could be advanced that all the tests in this estimation pass the statistical normalcy test.

In line with the rest of the study, the following section presents descriptive statistics of market level aspects in technology industry. Table 5.40 presents descriptive statistics for market level aspects in the mining industry.

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Table 5.40: Descriptive statistics of market level aspects in technology industry

	DEMAND	FDI	FP	INDUSTR	INFRAS	TRADE
Mean	7.394862	0.415531	0.941842	1.493398	1.193391	1.762476
Median	10.15418	0.447969	0.967216	1.541151	1.259282	1.931467
Maximum	11.03486	0.978502	1.907148	2.039500	1.900221	2.231488
Minimum	0.000000	-1.178188	-1.124765	0.242972	0.000000	0.000000
Std. Dev.	4.175823	0.374395	0.437339	0.296499	0.517597	0.511620
Skewness	-0.638020	-0.920708	-1.079098	-1.942028	-0.852403	-2.848834
Kurtosis	1.445164	5.155935	6.778831	8.191212	2.836328	10.04751
Jarque-Bera	19.38610	38.51958	90.74159	201.4157	14.05470	393.5437
Probability	0.000062	0.000000	0.000000	0.000000	0.000887	0.000000
Sum	850.4092	47.78611	108.3118	171.7408	137.2399	202.6847
Sum Sq. Dev.	1987.875	15.97953	21.80421	10.02193	30.54130	29.84009
Observations	115	115	115	115	115	115

In view of the content of Table 5.40, the Jarque Bera test and its relative probability indicate that the dataset for FDI is negatively skewed, with a statistical coefficient of -0.9, while Kurtosis has a value of 5.15. However, the standard deviation suggests moderateness, and there is evidence of statistical significance of the normalcy test. This allays fear of possible skewness in the distribution of the dataset.

Still on table 5.40, the descriptive statistics of demand in host markets indicates that the data is moderately skewed with a skewness coefficient of 0.64 and a kurtosis of 1.44. Data distribution in this set is almost symmetrical or is sometimes referred to as undefined skewness due to the fact that it is close to zero. To that extent, the dataset is adjudged normally distributed.

Looking at the normalcy distribution of factor prices in host markets, descriptive statistics indicates that the dataset is positively skewed with a skewness coefficient of 1.08 and a kurtosis value of 6.77. The dataset is still adjudged normally distributed considering its dispersion from the mean, and its statistical significance. Furthermore, *industry* also indicates some degree of skewness, as revealed the value of skewness, which is 1.90. However, the fact that the values of measures of central tendency (mean and the medium, and more specifically, the standard deviation) show minimal variance.

Furthermore, *infrastructure* also recorded data distribution that is almost symmetrical, the value of skewness coefficient is 0.85, which is close to zero and there is less variance between the median and the mean. This result suggests that the dataset is normally distributed. Whereas, *trade* recorded a negative skewness coefficient of -2.85 and Kurtosis of 10.05. This result raises some concerns on the normal distribution pattern of the dataset, which is however, allayed by the standard deviation statistics and the *p*-value of the variable.

5.5.2 Vector Error Correction estimates

This section presents results of vector error correction estimates in technology industry. This is consistent with the procedures applied in equations 4.4 and 4.9, which is now repeated for equations 4.5 and 4.10. Table 5.41 depict results of correction estimates for firm level data in technology industry.

Table 5.41: Firm specific aspects in technology industry

	Invest	Size	ROE	ROA	Subs	JV
Lag 1	1.000000	-4.035866 (0.10785) [-34.2455]*	-0.085110 (0.01705) [-4.99088]**	-4.035866 (0.11785) [-34.2455]*	0.192265 (0.11144) [1.72522]	-0.053887 (0.07808) [-0.69015]*
Differenced	0.383705 (0.10629) [3.61014]*	0.315575 (0.03797) [8.31073]	2.942055 (0.69263) [4.24766]	-2.519885 (0.51695) [-4.87450]	0.012876 (0.11227) [0.11470]	0.007062 (0.16321) [0.04327]
Differenced in lag 1	0.014779 (0.11266) [0.13118]	0.229217 (0.04025) [5.69504]	-1.190925 (0.73415) [-1.62217]	1.566119 (0.54795) [2.85816]	-0.209736 (0.11900) [-1.76255]*	0.540307 (0.17299) [3.12334]
Differenced in lag 2	-1.299310 (0.53468) [-2.43007]	-10.55521 (2.80056) [-3.76897]	-3.850371 (4.80007) [-0.80215]	-0.595365 (0.24547) [-2.42542]	0.705861 (0.97167) [0.72644]	-1.304668 (0.81550) [-1.59984]

Estimated coefficients on the first line, standard errors in parenthesis (); and t-statistics in brackets [].
The results are computed separately for each equation using the appropriate residuals
**** p<0.01, ** p<0.05, * p<0.1 {Emphasis are placed on *** p<0.01, ** p<0.05}*

In view of the results contained in Table 5.41 for equation 5(a), the model has a Durbin Watson value of 2.2 as contained in the VECM detailed estimation presented in Figure C 1.1 in the appendices. Although, the regression equation has a positive value and insignificant coefficient, further test from CUSUM test (Figure C1.1) in the appendices and the Durbin Watson indicate that the model is statistically stable and it has a strong explanatory power as buttressed by Table C.1.1 in the appendices.

As presented in Table 5.41, differenced investment (dependent variable) is statistically significant at differenced, suggesting that the speed of adjustment for this variable is slow. The *size* of the firm (tangible and intangible assets) is found to be an important

determinant of the direction and volume of a firm's investment in this analysis. *Size* is statistically significant in lag 1, suggesting a moderately high speed of adjustment. In addition, differenced return on equity is statistically significant in lag 1, sharing a similar speed of adjustment with *size*.

Furthermore, ROA has negative coefficients in lag 1. Similarly, differenced *subsidiaries* have a negative value in lag 1 while differenced *joint venture* has a negative coefficient that is statistically significant in lag 1. All these variables are statistically significant with moderate speed of adjustments.

In the context of market level aspects, the succeeding section presents an analysis of (VEC) estimates for equation 4.5 of the study. This is regarded essential as the analysis, concluded in this process indicate on the precise relationship between the dependent variable and explanatory variables of the equation in market specific aspects. This methodological approach also indicates on the probable relationship if the dependent variable is interchanged. Table 5.42 presents VECM results for market level variables in technology industry.

Table 5.42: VECM for market specific aspects in technology industry

	FDI	Demand	FP	TRADE	Industry	Infras
Lag 1	1.000000	-0.364715 (0.03456) [-10.5527]**	-0.256536 (0.36510) [-0.70265]	2.964817 (0.41518) [7.14109]	-2.850767 (1.10414) [-2.58190]	-2.294697 (0.35629) [-6.44052]
Differenced	-0.252045 (0.11305) [-2.22951]	1.138296 (1.00300) [1.13489]	0.354415 (0.17795) [1.99162]	-0.279672 (0.18537) [-1.50873]	0.267780 (0.08897) [3.00978]	0.022352 (0.15704) [0.14233]
Differenced in lag 1	-0.552446 (0.22509) [-2.45435]	0.299082 (1.99703) [0.14976]	-0.042408 (0.35432) [-0.11969]	0.457944 (0.36908) [1.24077]	-0.314360 (0.17714) [-1.77460]	0.030620 (0.31268) [0.09793]
Differenced in lag 2	-0.043942 (0.16130) [-0.27242]	0.348048 (1.43111) [0.24320]	-0.184846 (0.25391) [-0.72800]	0.255410 (0.26449) [0.96567]	0.129980 (0.12694) [1.02391]	-0.129015 (0.22407) [-0.57578]

Estimated coefficients on the first line, standard errors in parenthesis (); and t-statistics in brackets [].
The results are computed separately for each equation using the appropriate residuals
**** p<0.01, ** p<0.05, * p<0.1 {Emphasis are placed on *** p<0.01, ** p<0.05}*

In this section, the study present results of VECM model in technology market level aspects (equation 4.5). The analyses conducted in this section helps to test short and long run adjustment of the variables to externalities.

Baltagi (2008) asserts that the stability of VECM model is determined by the statistical value of Durbin Watson test. Results contained in Figure C 1.2 in the appendices depict that the VECM model is stable as the statistical value of Durbin Watson test is

1.9. The general rule of thumb asserts that the statistical value of Durbin Watson must be around the figure of 2. Even though the coefficient of C1 is negative, but probability is not significant but the cusum and residual tests, (Figures C1.1 and C1.2) also indicate that the model is stable.

As presented in Table 5.42, the dependent variable, *FDI* is statistically insignificant in differenced, and when differenced in lag 1 and 2. Although, the coefficient is negative , but the value is of weak statistical significance. *Demand* is negative only statistically significant in lag 1. *Factor prices* are negative in lag 1 and differenced in lag 2, and statistically insignificant in both instances. *Trade* records a negative coefficient in its differenced form. In addition, *industry* also records a negative coefficient at lag 1 and differenced in lag 1 and it is instatistically significant in both instances, while *infrastructure* is negative in lag 1 and negative in differenced lag 2 of which it is statistically insignificant in both instances.

Nevertheless, the other variables in Table 5.42 give evidence that they have no statistically significant short or long term effects on the model. Furthermore, other combinations that are presented in appendices B1.2 are not discussed as they have meaningful statistical significance.

5.5.3 Unit root test

In line with the rest of the study, the succeeding section presents results of unit root test. In this study, we adopt the Newey-West Automatic Bandwidth Selection and Bartlett Kernel technique, which is prominent in panel data. The result of the analysis is presented in Table 5.43.

Table 5.43: Unit Root test for firm level aspects in technology industry

Column 1			Column 2			Column 3		
Levin, Lin and Chu t*	**Level**	**First Difference**	**ADF - Fisher Chi-**	**Level**	**First Difference**	**Im, Pesaran and Shin W-stat**	**Level**	**First Difference**
Individual	2.520	-31.348***	**Individual**	38.90***	140.982***	**Individual**	-2.84**	-44.663***
Obs.	392	372	**Obs.**	392	372	**Obs.**	392	372
Intercept and Trend	2.96554	-28.479***	**Intercept and Trend**	48.153***	378.209***	**Intercept and Trend**	-4.44***	-47.403***
Obs.	392	372	**Obs.**	392	372	**Obs.**	392	372
None	1.14676	-53.181***	**None**	15.3152	1580.34***	**None**	-	-
Obs.	372	380	**Obs.**	372	380	**Obs.**	-	-

Using the Levin, Lin & Chu (2002) test, probabilities are computed assuming asymptotic normality
****; **; * This indicates that we reject the null hypothesis of unit root at 1%, 5% and 10%.*
Automatic selection of maximum lags; Automatic lag length selection based on SIC: 0 to 5

Table 5.43 presents summary results of Levin, Lin and Chu (2002), Peseran, and Augmented Dick Fuller unit root tests. The combination of these approaches is necessitated by the need for robustness check.

The results shown in Table 5.43, column 1 (Levin, Lin and Chu test), indicate that at individual intercept, intercept and trend and none, the dataset exhibited some traces of unit root problems at level. This necessitated differencing the dataset where the unit root errors were eliminated.

Results contained in column 2 depict the ADF-Fisher Chi-square unit root test. Results from Table 5.43 indicate that individual intercept, intercept and trend have no unit problem at level. However, none measured at level have a unit root, this problem was corrected when the data was differenced.

In addition, results presented in column 3 of Table 5.43 contains the unit root analyses using Im, Pesaran and Shin W-stat approach. From this analysis, results reveal that individual intercept, intercept and trend are stationary at level. By implication, these dataset can very easily be used within the orthogonal deviation environment.

Table 5.44: Unit root test of market level aspects in technology industry

Column 1			Column 2			Column 3		
Levin, Lin and Chu t*	**Level**	**First Difference**	**ADF - Fisher Chi-**	**Level**	**First Difference**	**Im, Pesaran and Shin W-stat**	**Level**	**First Difference**
Individual	-13.1***	-7.9768***	**Individual**	260.44***	171.859***	**Individual**	-17.4**	-26.29***
Obs.	622	428	**Obs.**	622	428	**Obs.**	622	428
Intercept and Trend	-19.05***	-6.4396***	**Intercept and Trend**	276.73***	252.217***	**Intercept and Trend**	-20.2***	-33.48***
Obs.	679	485	**Obs.**	679	485	**Obs.**	679	485
None	0.72632	-35.212***	**None**	9.75745	993.539***	**None**	-	-
Obs.	485	428	**Obs.**	485	428	**Obs.**	-	-

Using the Levin, Lin & Chu (2002) test, probabilities are computed assuming asymptotic normality
****; **; * This indicates that we reject the null hypothesis of unit root at 1%, 5% and 10%.*
Automatic selection of maximum lags; Automatic lag length selection based on SIC: 0 to 5

Table 5.44 presents a summary results of Levin, Lin and Chu (2002), Im, Pesaran and Shin W-stat, and ADF-Fisher Chi-square unit root test. From the above Table, the unit root test is implemented using Bartlet Kernel selection criteria and Newey-West Automatic Bandwidth Selection approach.

Column 1 of the table presents unit root results for Levin, Lin and Chu test. Column 2 depicts results for Im, Pesaran and Shin W-stat and column 3 depict results from ADF - Fisher Chi-square.The results of the unit root tests shown in Table 5.44 column 1 (Levin, Lin and Chu test), indicate that the variables under consideration are stationary at individual intercept, intercept and trend, while “none” has a trace of unit root at level. The unit root weaknesses in the dataset is easily corrected in differenced form.

Empirical evidence from Column 2, which contains the ADF-Fisher Chi-square test, indicates that Individual intercept, intercept and trend are stationary at level whereas “none” record a unit root problem, which is easily corrected in first difference. In addition, column 3 presents the result of unit root test using the Im, Pesaran and Shin W-stat approach. Results from this analysis suggests that individual intercept, intercept and trend are all stationary at level.

5.5.4. Dynamic panel estimation

In specific reference to technology industry, the present section presents the result for dynamic regression model (GMM) by Arellano and Bond (1991). The estimation of the equation is based on moment conditions as specified in equation 5.3 and 5.4. In view to the dynamic regression model, the approximations are only stable if lagged values of explanatory variables that are used in the approximation are valid instruments. In this extension, reliability of instruments used in this estimation is verified by the value of J- test, which is a measure of identifying underlying restrictions. Table 5.45 represents the results of panel dynamic estimation.

Table 5.45: Significance of variables in firm level in the technology industry

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.796913	0.242064	3.292165	0.0812
INVEST(1)	0.896110	0.069050	12.97776	0.0059***
INVEST(2)	-0.098863	0.110745	-0.892710	0.4662
INVEST(3)	2.825438	0.094973	29.74999	0.0011***
INVEST(4)	0.402701	0.083228	4.838497	0.0402**
ROA(1)	-0.350255	0.016455	-21.28520	0.0022***
ROA(2)	0.196812	0.005650	34.83149	0.0008***
ROA(3)	-0.348533	0.010842	-32.14645	0.0010***
ROA(4)	0.025183	0.009318	2.702518	0.1140
ROE(1)	0.092897	0.005092	18.24446	0.0030***
ROE(2)	-0.062359	0.003387	-18.41384	0.0029***
ROE(3)	0.043414	0.002373	18.29329	0.0030***
ROE(4)	-0.157863	0.005571	-28.33788	0.0012***
SIZE(1)	0.506795	0.104787	4.836453	0.0402**
SIZE(2)	-1.675924	0.137898	-12.15333	0.0067***
SIZE(3)	-2.491122	0.105085	-23.70579	0.0018***
SIZE(4)	1.214608	0.149131	8.144567	0.0147**
SUBS(1)	0.315035	0.009092	34.64974	0.0008***
SUBS(2)	-0.931809	0.030939	-30.11776	0.0011***
SUBS(3)	-0.179715	0.027283	-6.587145	0.0223**
SUBS(4)	-0.268990	0.013859	-19.40952	0.0026***
JV(1)	0.745037	0.023032	32.34788	0.0010***
JV(2)	-0.564994	0.018293	-30.88565	0.0010***
JV(3)	0.179432	0.010114	17.74042	0.0032***
JV(4)	0.272779	0.015311	17.81573	0.0031***

Statistical Measure	Coefficient	Level of significance
R-squared	0.939024	Strong and Positive
Adjusted R-squared	0.931218	Strong and Positive
Durbin-Watson stat	2.468261	Specified
J – Statistic	2.246463	Specified
Cusum Test	p<0.05	Specified

*Regression analysis, robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Cross-section weights instrument weighting matrix and convergence was achieved after 1 weight iterations. Cross-section weights (PCSE) standard errors & covariance (no d.f correction). Maximum lags of dependent and predetermined variables for use as instruments are limited to 1. Period fixed applied in the estimation.*

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As depicted in Table 5.45, the majority of variables indicate a significant probability value to the dependent variable - i*nvestments*. First, the model is autoregressive and lagged, meaning that the dependent variable is regressed against itself to understand the pattern of investment.

The outcome of results contained in Table 5.44 indicates that lagged explanatory variable (auto-regressed investment) is positive and significant in explaining the variations expressed by the dependent variable - investment in lag 1, 3 and 4. The pattern of investment is illustrated to be incremental, and the significance of the relationship between the two variables flows in the same direction. This finding resonates with the process theory as asserted by Johansson and Valne (2015). As postulated by the process theory (Johanson and Vahlne, 1977, 2015), a firm's investment in foreign markets is assumed to be incremental and reactive to both the internal environment as well as the volatility of the macro environment. Empirical evidence form Table 5.44 echoes the hypothetical position of the process theory. In addition, the interaction of *size* and *investment* is found to be significant in lags 1, 2 and 3.

The empirical results are consistent with the resource-based view in the sense that the significance of the interaction of *size* and *investments* reveal long term relationship between the two variables. Results from lags 1 and 2 indicate that there exists an inverse relationship between the variables. Nonetheless, in lags 3 and 4, results indicate that the relationship is in tandem, as both variables moves towards the same direction and the regression coefficient is substantial.

The results uphold the resource-based views. By implication, there is a substantial relationship between the firm *size* and *investment* in the technology industry.As indicated by the outcome in Table 5.45, other explanatory variables also have significant relationship with the dependent variable. For instance, *return on assets* is significant in all lags. Lags 1 and 3 depict an inverse relationship while lags 2 and 4 illustrate a tandem relationship. This echoes a number of empirical and theoretical assertions. First, Dunning's seminal work indicates that firms are pushed out to seek markets by their internal capacities. This is also echoed by the study of Buckley (2015) and Helpman (2014).

The significance of statistical relationship between these variables also applies to return on equity, which measures the profitability of the internationalisation process. In this regard, the significance of explanatory variables indicate that outward FDI in technology industry is aided by market-seeking drives, which suggests that investment is pushed by firm's internal competencies from domestic markets to host markets. The nature of the relationship between profits in host markets vary in lags 2 and 4, where converse relationship is established as both variables (dependent and explanatory) move in different directions. While in lags 1 and 3 the nature of the relationship is proportional, given that both variables move along the same direction. This could be explained by the variation in profits made in host markets.

In the context of the above Table 4.45, variables that explains market expansion strategies are both significant, although the nature of the relationship vary with lag distributions. First variable *joint venture* (JV) is positive and significant in lags 1, 3 and 4 and the relationship reveal an incremental significance in lag distribution. Meanwhile, expansion strategy (*subsidiary*) is also positive and significant in lag 1. Nonetheless, lags 2, 3 and 4 are not statistically significant, and the nature of the relationship is negative.This illustrates that given the nature of greenfield and brownfield investments, the volume of investment seems to be significant in the first years while it tend to decline in the subsequent years.

In view of the results of the dynamic model equation 4.5 in Table 5.45, the adjusted R-Squared, which indicates the test of goodness of fit, reflects a strong positive relationship between the dependent variable (*investment*) and the explanatory variables (*size, return on assets, return on equity, joint venture* and *subsidiaries*). Furthermore, the results strongly indicate that *size* of a firm has a strong significant relationship with *investment.* From the model, the value of J-statistic indicate that the model is well specified. The statistical value of Durbin Watson indicates that there is no presence of both negative and positive serial correlation. Furthermore, stability diagnosis is reinforced by the results of the cusum and residual tests that are presented in appendices figure (C 1.1 and C 1.2).

In accordance with the research objectives, research questions and the hypotheses of this study, the section below provides and illustration of the results and relative

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interpretation of market level aspects in the technology industry, which is equation 4.10. Table 5.46 presents the result of market aspect in technology industry.

Table 5.46: Market level panel regression results in technology industry

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.433586	4.367591	1.930947	0.0797
FDI(1)	0.452205	0.355650	1.271489	0.2298
FDI(2)	0.730208	0.372535	1.960109	0.0758*
FDI(3)	-0.001943	0.285236	-0.006810	0.9947
FP(1)	-0.178621	0.692304	-0.258010	0.8012
FP(2)	-0.293047	0.570980	-0.513235	0.6179
FP(3)	-0.096036	0.333944	-0.287582	0.7790
TRADE(1)	2.723421	1.479031	1.841355	0.0927*
TRADE(2)	1.140535	1.017479	1.120942	0.2862
TRADE(3)	-1.107046	0.862801	-1.283083	0.2258
INFRAS(1)	0.462724	0.788510	0.586834	0.5692
INFRAS(2)	-0.200070	0.632421	-0.316356	0.7577
INFRAS(3)	0.416610	0.365131	1.140988	0.2781
DEMAND(1)	-0.326459	0.164080	-1.989635	0.0721*
DEMAND(2)	-0.030303	0.121311	-0.249794	0.8073
DEMAND(3)	0.333085	0.147685	2.255372	0.0455**
INDUSTR(1)	6.153064	2.404346	2.559143	0.0266**
INDUSTR(2)	4.970342	2.042513	2.433444	0.0332**
INDUSTR(3)	2.595251	0.928442	2.795275	0.0174**

Statistical Measure	Coefficient	Level of significance
R-squared	0.886008	Strong and Positive
Adjusted R-squared	0.637297	Strong and Positive
Durbin-Watson stat	2.468261	Specified
J – Statistic	9.766463	Not - Specified
Cusum	p<0.05	Specified

*Regression analysis - robust standard errors ,*** p<0.01, ** p<0.05, * p<0.1. Cross-section weights instrument weighting matrix and convergence was achieved after 1 weight iterations. Cross-section weights (PCSE) standard errors & covariance (no d.f correction). Maximum lags of dependent and predetermined variables for use as instruments are limited to 1. Period fixed applied in the estimation.*

Results presented in table 5.46, indicates a positive and significant relationship in lags 1, 2 and 3 between *industry* and the flow of inward *FDI*. This result is consistent with the theory of competitive advantage. The theory asserts that one of the key drivers of inward *FDI* is infrastructural development of a host destination. Furthermore the explanatory variable demand recorded a negative but a significant relationship with

dependent variable FDI in lag 1. Demand is statistically significant at lags 1 and 3; however, in both instances different types of relationships are illustrated. For instance in lag 1 the relationship is inverse while in lag 3 the relationship is direct.

As indicated in the results of the dynamic model (equation 4.10) in Table 5.46, the adjusted R-Squared (63 %) and its relative R-Squared (88 %) indicate the validity of the goodness of fit for the model. From the model, the value of J-statistic indicates that the validity of overriding restrictions is high and this indicates that over identifying restrictions were not properly identified. This is essentially so because GMM estimation is known to be biased on small samples. Furthermore, the value of Durbin-Watson test that is applied, indicates that there is no presence of both negative and positive serial correlation in the model.

Empirical evidence deduced from the above table strongly indicates that only three variables namely, infrastructure, trade and industry are significant to the inflow of FDI in technology industry. This is consistent with discussions in the literature review , and validated empirically by the results of market level aspects that are exploited by MNEs to create dependency path and expansion strategies in host markets. This linkage is critical in influencing the pattern of investment as well as moderating adoption of expansion strategies.

5.5.5 Impulse response approach

The results of equation 4.5 using impulse response approach are presented in Table 5.47 below. In view of Table 5.47, both dependent and explanatory variables are processed at the same time. Notably, the dependent and explanatory variables that are independently introduced into the estimate produce the same outcome.

Table 5.47 - Impulse response approach equation 4.5

Period	INVEST	ROA	ROE	SIZE	SUBS	JV
1	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	1.791914	-0.049267	0.084474	-2.202699	0.249165	-0.067035
3	-0.101784	0.045938	0.026161	-0.090785	0.043271	-0.138918
4	-0.210341	0.006400	-0.022856	1.035681	-0.078380	-0.073669
5	0.970306	-0.006939	0.026119	-0.200793	0.049822	-0.000170
6	1.721927	-0.044169	0.083623	-2.136055	0.243355	-0.052338
7	-0.097305	0.025248	0.008656	0.180609	0.034347	-0.102212
8	-0.066213	0.024276	-0.013677	0.610353	-0.045468	-0.111738
9	0.910066	-0.010222	0.031686	-0.128541	0.025465	-0.003120
10	1.598106	-0.047923	0.077236	-1.882030	0.231656	-0.035623

The impulse response approach applied here establishes the existence of stationarity of variables. According to Pesaran and Yongcheol (1998) and Baltagi (2008), if the estimated model is not stationarity, asymptotic values will not be visible since they are non-existent. In view of the outcome presented in table 5.47, all variables are therefore assumed to be stationary since they are asymptotic.

In Table 5.47 coefficients illustrated in the analysis are interpreted as indicators of the responses of investment to impulses of firm heterogeneity hitting the system. An analysis of individual variables in Table 5.47 indicates that variable *return on equity* (ROE), which starts in the second year, has negative responses in year four and year eight while the rest of time periods are positive. The implication of the result depicts that if there is one unit innovation shock in investment there is a mixed response in *return on equity*.

Results of *return on assets (ROA),* which measure utilisation of resources show mixed reactions. The estimation begins in the second year which has a negative coefficient that includes years five, six, nine and ten. While years three, four seven and eight indicate a positive response. Furthermore, impulse response results from variable *size* which measure resource capacity of the firm illustrates mixed outcome in years two, three, five, six, nine and ten a negative response is recorded. However, years four, seven and eight indicate a positive response to one unit shock of innovation.

Responses of variable *subsidiary* also indicate mixed reactions to the dependent variable, years four and eight reveal a negative response. The rest of the years registered a positive response. Furthermore, j*oint venture* recorded negative responses from year two until year ten.

Table 5.48 - Impulse response approach equation 4.10

Period	FDI	INDUSTR	TRADE	DEMAND	FP	INFRAS
1	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	0.195510	-0.319290	-0.486933	0.059487	0.280931	0.209365
3	0.659041	0.576220	-0.014683	-0.049382	0.079443	0.160246
4	0.091268	-0.326430	-0.514207	0.123694	0.056468	0.034575
5	0.926143	-0.394234	-0.152074	-0.023379	0.084862	-0.081450
6	0.169243	0.407951	-0.380995	0.089955	0.323954	0.226302
7	0.664491	-0.591182	0.072379	-0.046781	-0.168628	-0.280165
8	0.446385	0.026203	-0.809651	0.123797	0.515338	0.335992
9	0.534737	0.184788	0.784675	-0.111991	-0.359221	-0.329226
10	0.263489	-0.666508	-1.687061	0.216775	0.732280	0.512558

In view of coefficients depicted in Table 5.48 the results might be interpreted as indicating the responses of FDI to impulses of market aspects hitting the system. An analysis of individual variables (Explanatory and dependent variables) in Table 5.48 indicates that variable *demand* is forecasted to have a negative response with dependent variable *FDI* on years three, five, seven and nine. While years two, four, six, eight and ten have a positive response to the dependent variable.

Results of *infrastructure,* which measures support facility in the host market, illustrates mixed reactions. The estimation begins in the second year a negative coefficient is recorded in years five; seven and nine, while the rest of the periods post positive response to one unit of innovation shock. Furthermore, *factor prices,* which depicts the price of raw materials, indicates a mixed outcome. The response is negative in years seven and nine, while years two, three, four, five, six, eight and ten all responded positively.

In addition, *industry* that measures the size of supporting industries in host markets record mixed responses. The response is negative in years two; four, five, seven and ten while years three, six, eight and nine recorded positive responses. The responses of *trade* yielded largely inverse results with *FDI* and *trade*. More specifically, most of the periods under investigation (years two, three, four, five, six, eight and ten) indicate negative responses, while years seven and nine have positive responses.

5.5.6 Cointegration test

The following section responds to the objective of the study on linkages, which strive to establish long run cointegration between the variables in both firm and market level aspects. After adopting the impulse response approach, the next attempt is made to measure the causality between the interacting variables. However, before the causality test is estimated, it is important to establish long run associations between study variables. This then necessitates conducting cointegration test. Table 5.49 presents an unrestricted cointegration rank test (Trace) and table 5.50 presents an unrestricted cointegration rank test (maximum eigenvalue).

Table 5.49: Unrestricted Cointegration Rank Test (Trace)

Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.
None	0.985551	307.0994	95.75366	0.0000***
At most 1	0.969443	188.4593	69.81889	0.0000***
At most 2	0.861329	90.79098	47.85613	0.0000***
At most 3	0.608856	35.47275	29.79707	0.0100***
At most 4	0.277497	9.189742	15.49471	0.3481
At most 5	0.003167	0.088809	3.841466	0.7657

*Rank test indicates no cointegration at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level*

Results of trace statistics contained in Table 5.49 suggests that the null hypothesis of no cointegration is rejected because the value of trace statistics has a probability value of 0%, which is statistically significant. Thus, the results in Table 5.49 submit that we reject the null hypothesis of no cointegration in favour of the alternative hypothesis. In this extent, a conclusion can be drawn that there are four equations that exhibit long run association.

Table 5.50: Unrestricted cointegration rank test (Maximum eigenvalue)

Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob
None	0.985551	118.6400	40.07757	0.0000***
At most 1	0.969443	97.66835	33.87687	0.0000***
At most 2	0.861329	55.31824	27.58434	0.0000***
At most 3	0.608856	26.28300	21.13162	0.0086***
At most 4	0.277497	9.100933	14.26460	0.2778
At most 5	0.003167	0.088809	3.841466	0.7657

*Rank test indicates no cointegration at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level*

Results of the maximum eigenvalue test contained in Table 5.50 indicate that the hypothesis of no cointegration at 5% significance has been rejected in at most three

cointegrating equations. Table 5.50 depicts that the eigenvalue cointegration test reinforces the results of trace test. Equally, in Table 5.50, the null hypothesis is rejected in favour of the alternative hypothesis.

In response to the questions of the study and its hypothesis, the section below presents results of the cointegration test in technology industry on market level aspects. Tables 5.51 and 5.52 depict the results of unrestricted cointegration rank test (Trace) and unrestricted cointegration rank test (maximum eigenvalue) respectively.

Table 5.51: Unrestricted cointegration rank test (Trace)

Hypothesized		**Trace**	**0.05**	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob
None *	0.703087	207.5202	95.75366	0.0000***
At most 1 *	0.543701	131.0183	69.81889	0.0000***
At most 2 *	0.463334	81.58796	47.85613	0.0000***
At most 3 *	0.301691	42.37805	29.79707	0.0011***
At most 4 *	0.205214	19.75518	15.49471	0.0107***
At most 5 *	0.080469	5.285195	3.841466	0.0215***

*Rank test indicates no cointegration at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level*

Consistent with results depicted in table 5.51 on trace statistics, the null hypothesis is rejected because the value of trace statistics has a probability value of 0%, which is statistically significant. Consequently, the results in the above table reject the null hypothesis that there is no cointegration in favour of the alternative hypothesis. Therefore, the outcome strongly indicates that there are six equations, which have long run association.

Table 5.52: Unrestricted cointegration rank test (maximum eigenvalue)

Hypothesized		**Max-Eigen**	**0.05**	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob
None *	0.703087	76.50195	40.07757	0.0000***
At most 1 *	0.543701	49.43029	33.87687	0.0003***
At most 2 *	0.463334	39.20991	27.58434	0.0010***
At most 3 *	0.301691	22.62287	21.13162	0.0306***
At most 4 *	0.205214	14.46998	14.26460	0.0464***
At most 5 *	0.080469	5.285195	3.841466	0.0215***

*Rank test indicates no cointegration at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level*

In view of the maximum eigenvalue test, the hypothesis of no cointegration at 5% significance has been rejected in that there are at most six cointegrating equations. Results from table 5.52 eigenvalue test reinforce the results of trace test. Likewise in table 5.52 the null hypothesis is rejected in favour of the alternative hypothesis.

Consequently, the outcome indicates that there are six equations with long term association.

5.5.7 Granger causality test

This section presents results of the Granger causality test in firm and market level aspects. Consistent with the rest of the study, the previous sections through a series of econometric measures, was able to establish that there is a strong relationship between the dependent variable *investment* and explanatory variables *size, return on equity and return on assets*.

The rational of adopting Granger causality test is to test causality between the variables. Table 5.53 below represents the results of Granger causality test in the technology industry.

Table 5.52 - Granger causality test firm level aspects (Technology industry)

Null Hypothesis:	Obs	F-Statistic	Prob.
JV does not Granger Cause INVEST	52	6.66489	0.0028***
INVEST does not Granger Cause JV	52	8.98555	0.0005***
ROA does not Granger Cause INVEST	44	8.50104	0.0009***
INVEST does not Granger Cause ROA	44	4.80100	0.0137**
ROE does not Granger Cause INVEST	45	8.31843	0.0010***
INVEST does not Granger Cause ROE	45	8.98889	0.0006***
INVEST does not Granger Cause SIZE	48	7.29254	0.0017***
SUBS does not Granger Cause INVEST	55	6.41411	0.0033***
INVEST does not Granger Cause SUBS	55	4.67324	0.0138**
ROA does not Granger Cause JV	58	5.94444	0.0047**
JV does not Granger Cause RA	58	2.53591	0.0888*
ROE does not Granger Cause JV	61	2.76495	0.0716*
SIZE does not Granger Cause JV	71	2.65105	0.0781*
JV does not Granger Cause SIZE	58	5.59809	0.0057***
SUBS does not Granger Cause JV	79	4.23747	0.0181**
ROE does not Granger Cause RA	48	3.63071	0.0349**
ROA does not Granger Cause SIZE	71	4.23699	0.0200**
SUBS does not Granger Cause ROA	58	8.77840	0.0005***
SIZE does not Granger Cause ROE	61	6.48234	0.0029***
SUBS does not Granger Cause SIZE	74	3.32026	0.0420**

*F-statistics *** p<0.01, ** p<0.05, * p<0.1.*

Table 5.53 above illustrates and indicates the causal relationships in technology industry at firm level aspects. From the evidence contained in the Table 5.53, it can be deduced that a number of bidirectional and unidirectional relationships are

recorded.The results suggest that the relationship between *joint venture* and *investment* is bidirectional. Both variables are recorded to have a causative effect on each variable. Second, the causal relationship between dependent variable, *investment* and *subsidiary* is also has a bidirectional causal effects, as both variables have a significant causal coefficient.

Another relationship that is found to have a causal impact is between *size* and j*oint venture*; both variables are found to cause each other. The causal relationship between *return on assets* and *joint venture* is indicated to be flowing in both directions as this is evidenced by significant causal coefficients.

Furthermore, the results indicate that *return on assets* recorded a causal relationship with investment; also, this relationship indicates that the causal flow is inclined towards both directions. A number of variables also record unidirectional causal relationships in firm level estimation. Results indicate that eight occurrences have unidirectional causal effects. Results in this section further reveal that *investment,* which is the dependent variable; have a causal effect on the *size* of the firm as measured in both intangible and tangible assets.

Also indicated by the results is the causal relationship between the two expansion strategies included in our analyses - *subsidiary* and *joint venture*. This result validates the fact that with changing environments in host markets, MNEs reduce or increase investment through firm level investments (Dunning, 2015).The results also indicate that *return on equity* has a causal effect on *return on assets*. The evidence also validates the fact that profits from host markets enable MNEs to increase investments and resources that are fundamental in firm level investment. The results are consistent with process theories as postulated by Johanson and Valne (2015).

From the causality test, it is also established that explanatory variable *return on assets* contribute to *size*. This empirical evidence gives credence to the work of Barney (1991), as well as Teece (2014), when they assert that resource utilisation enhances firm growth; hence, evidence from the present firm level causality test resonates with these previous studies and the hitherto established scholarly views.

In the context of the present results, it can be deduced that causality flows from the *size* of the firm and *return on equity*. This realisation buttresses a number of previous

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studies (Penrose, 1959; Barney, 2015; Dunning, 2015) in the view that resources enable the firms to exploit opportunities and mitigate risk in host markets. Furthermore, the present results reveal that acquisition of *subsidiaries* in host markets contributes to the *size* of the firm. Results obtained in this segment concur with Harris and Fletcher (2015) that offshore investments, greenfield and brownfield increase the size of MNEs.

The following section discusses market level aspects in the technology industry. Table 5.54 represents market level aspects in the technology industry.

Table 5.54: Granger causality test market level aspects (Technology industry)

Null Hypothesis:	Obs	F-Statistic	Prob.
FP does not Granger Cause DEMAND	116	5.13414	0.0074**
DEMAND does not Granger Cause INDUSTR	81	3.02384	0.0526*
INFRAS does not Granger Cause DEMAND	91	3.05793	0.0521*
FDI does not Granger Cause INDUSTR	116	3.64049	0.0295**
INDUSTR does not Granger Cause FP	110	6.81630	0.0016***
INFRAS does not Granger Cause INDUSTR	81	5.16952	0.0079***

*F-statistics, *** p<0.01, ** p<0.05, * p<0.1.*

Results in Table 5.54 illustrate the causality direction in market specific aspects in the technology industry. In view of the results above, a total number of seven unidirectional relationships were registered. Nonetheless, in all causality relationships in the above table, none of the explanatory variables has a direct causative effect on the dependent variable, *investment*. This notion is consistent with Dunning's postulation that MNEs motives are driven by internal attributes that consequently push them to host markets.

Furthermore, the empirical evidence reveals that *factor prices of inputs* condition demand level of goods and services in host markets. Results also reveal that in host markets (with specific reference to technology industry), *infrastructure*, for instance, causes the size of *demand* in goods and services in markets penetrated by South African technology MNEs.Results of causality test in this segment reveal that dependent variable, *FDI* causes the size of *industry* in host markets. These results are consistent with a host of studies reviewed in chapters two and three in indicating that *FDI* inflows in host destination increases the size of the industry (Porter, 1990; Rugman and Verbeke, 1993; Rugman, 2014).

In light of the present results, it can be deduced that the size of the *industry* causes *factor price* of raw materials in host markets that are penetrated by MNEs in technology

industry. This realisation concurs with Stiglix (2017) that prices in oligopoly markets are determined by the size of the markets, as reviewed in economics perspectives of internationalisation processes in Chapter Three. Furthermore, these results reveal that *infrastructure* causes the size of the *industry*. The empirical evidence buttresses Porter's hypothesis (1990) that *infrastructure* in host markets increases the level of *industry* participation.

5.5.8. Overlapping aspects in technology industry

In regard to empirical evidence obtained from both firm level aspects and market level aspects, this section deliberates on the linkages in both market level and firm level aspects that create dependency path of strategic positions in offshore markets. In the context of firm level aspects in the technology industry, the following table (Table 5.55) presents a summary of panel regression results and causality test of both firm and market level aspects. Table 5.55 presents linkages in firm and market level aspects of the technology industry.

Table 5.55: Linkages in market and firm level aspects

Explanatory – dependent variable.	Firm / Market level aspect	Regression Coefficient	Causality Coefficient
Size	Firm – Level	8.144567**	-
Return on Assets	Firm – Level	34.83149***	8.50104***
Return on Equity	Firm – Level	0.043414***	8.31843***
Subsidiary	Firm – level	0.315035***	6.41411***
Joint Venture	Firm – Level	0.745037***	6.66489***
Industry	Market – Level	2.595251**	-
Demand	Market - Level	0.333085**	-
Trade	Market - Level	2.723421*	-

*Causality test, F-statistics. *** p<0.01, ** p<0.05, * p<0.1.*
*Regression analysis, robust standard errors. *** p<0.01, ** p<0.05, * p<0.1. Cross-section weights instrument weighting matrix and convergence was achieved after 1 weight iterations. Cross-section weights (PCSE) standard errors & covariance (no d.f correction). Maximum lags of dependent and predetermined variables for use as instruments are limited to 1. Period fixed applied in the estimation.*

In view of linkages depicted in table 5.55 (above), firm level aspects strongly indicate that internal firm level competencies are pushing investment in technology industry to offshore markets. The outcome signifies that all explanatory variables in firm level aspects have a significant relationship with dependent variable, *investment.* These

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results are consistent with a number of seminal and contemporary studies in the discipline of international business and economics (Barney, 1991; Teece, 2014).

First, a body of existing literature as discussed in Chapters Two and Three regarding the size of the firm is an essential aspect in the growth of the firm. The literature around this genre was orchestrated through the work of Penrose (1959). This earlier position has been reinforced by the rise of resource-based views as advocated by a series of empirical and theoretical studies (Barney, 1991; Teece, 2014; Teece and Petilis, 2014).

Second, in light of the empirical evidence here presented, it can be deduced that there is strong evidence that *return on assets* (ROA), a variable which measures the efficiency of firms, has a significant causal effect on a firm internationalisation process; *return on assets,* which indicates key internal competencies. According to Dunning's classical eclectic theory key ownership advantages like patents, competitive advantages and efficiency drive the internationalisation process of firms. The results fortify the Dunning's theoretical assumptions and further reinforces a number of empirical studies, most notably the contemporary studies by Buckley (2014) and Helpman (2014).

Third, specific to technology industry, *return on equity* is found to influence the direction of *investment*. In view of the results of the econometrics test conducted here, there is overwhelming evidence that investment in technology industry is influenced by *return on equity,* which is used to indicate business prospects in host market and return to investments. A host of empirical studies that include the works of Hashai and Buckely (2014), Helpman (2014) and Teece (2014) also supports this assertion.

In the context of market level aspects, three variables out of five explanatory variables have significant regression coefficients. However, the causal effect on inward *FDI* in host markets is not significant. Even though there is no direct causal relationship with inward *FDI* in technology industry, there are a number of relationships with the explanatory variables that are relevant to host market selection. Some of these relationships are discussed in the paragraphs that follow.

First, *infrastructure* in host markets, in view of Porter's theory of national competitive advantage (1990), *infrastructure* is one of the aspects that motivate the direction and

volume of inward *FDI*. In the recent past, a series of studies have echoed the sentiments of Porter. For instance, Ghauri (2018) and Rugman and Eden (2017). In view of the empirical evidence presented in the above section (market level aspects), there is substantial indication that reinforces the assertion by Porter (1990) or at least resonates with it.

Consistent with the results above, empirical results also provide evidence that *industry* has a substantial, regression coefficient. Results at hand buttress Porter's competitive advantage of nation's theory (1990), which has been reinforced by a number of contemporary studies; such as Rugman and Verbeke (1993), Buckley (2014), as well as Rugman (2014). In the view of these studies, MNEs would mainly consider investing in host markets that have a vibrant industry to utilise their resources and capable of achieving both competitive advantage and organisational objectives. The results presented in Table 5.55 , reinforce the perspective that the size of industry in host markets has an effect on host market selection.

Another fundamental aspect is the pattern of investment that is unearthed by autoregressive lagged model. This relationship is positive and statistically significant in lags 1, 3 and 4. From the evidence, it can be deduced that in the technology industry the pattern of investment tends to be incremental as the time series of the dependent variable is positive and statistically significant. Results in this segment strongly resonate with views of process theories that are largely purported by Johanson and Valne (1977, 2015).

5.5.9 Path dependency and expansion strategies

The discussion in this section is based on the results of the Granger causality test. The discussion explores path dependency of expansion strategies on firm and market level aspects. In view of the gathered evidence, the influencing factors that affect expansion strategies of MNEs into offshore markets can be deduced from Table 5.56.

Table 5.56 - Path dependency of expansion strategies

Variable and expansion strategy	Firm / Market level aspect	Causality Coefficient	Expansion Strategy/ Host Market
Investment	Firm – Level	4.67324**	Subsidiary
Return on Equity	Firm – Level	5.94444**	Joint Venture
Return on Assets	Firm – Level	2.76495*	Joint Venture
Size	Firm – level	2.65105*	Joint Venture
Investment	Firm – Level	8.98555***	Joint Venture

*F-statistics, *** p<0.01, ** p<0.05, * p<0.1*

The table above presents path of expansion strategies in host markets, which are relevant to the technology industry. The results fulfil the hypothesis of the study, which holds that expansion strategies are path dependent on the linkage of firm and market level aspects.

As informed by the literature review of this study, MNEs adopt firm expansion strategies to either mitigate risk or exploit opportunities in host markets or both. Given the credence of empirical evidence drawn from a series of econometrics test conducted to test the hypothesis, it is established that there is a positive relationship between the dependent variable (*Investment* at firm level) and explanatory variables. In market level analysis, three variables (*Infrastructure, trade* and *Industry*) have significant relationship with the dependent variable, *investment*. Both panel regression and cointegration analyses show a degree of relationship but do not ascertain causal effects of path dependency of the internationalisation process. There is therefore need for the adoption of a causality test to determine how linkages create path dependency of expansion strategies.

The results presented in Table 5.56 indicate a causal effect that runs from *investment* to *subsidiary,* as well as from *investment* to *joint venture*. Given this evidence from the results, there is a strong indication that MNEs in the technology industry adopt both *joint venture* and wholly owned *subsidiary* (greenfield, acquisition and brownfield investments) as market entry strategies. Both strategies feature prominently in the analyses contained in this section of the study.

As indicated by the results of causality analysis, the dependent variable, *investment* has a causative effect on both expansion strategies (*subsidiary* and *joint venture)*; however there is no other causal relationship between *subsidiary* and other firm level

aspects (*return on equity, return on assets and size*). In the contrast, *joint venture* has a significant causality flow from the dependent variable (*Investment*) as well as from other explanatory variables (*ROE , ROA , size*).This realisation indicates that firms in the technology industry prefer *joint venture* to *subsidiaries* (greenfield and brownfield).

As discussed in the literature review chapter, the transaction cost theory asserts that viable expansion strategy is determined by the cost of investment's present value. Hence, this justify the significance of both market entry strategies as both sunk in cost and transaction cost differ in host markets. MNEs select the most appropriate strategy for a specific host market. The results indicate that in the technology industry, there is a causal flow from *joint venture* to *return on equity*. This result suggests that firms adopt joint ventures to repeat short-term gains from their investment and to minimise financial risks.

Furthermore, as indicated in the results, there is a causal relationship between firm *resources* and *joint venture*. In view of the evidence from causality analysis, firm resources are considered to cause *joint venture*. The causal relationship indicates that firm resources as estimated by its *size* enables MNEs to tilt towards the adoption of *joint venture*. Further, the *size* of the firm enables the firm to create institutional idiosyncrasies that are fundamental in the creation of business and political networks - which are intertwined in the internationalisation of business. With regards to *joint venture*, the nature of firm resources both tangible and intangible, influences an investing firm to forge strategic corroborative alliance with a firm in a host market.

The empirical evidence gathered in this study buttresses the Dunning eclectic theory in that it proves that the prominence of firm level aspects in the internationalisation process reinforces the view that ownership advantages push MNEs to invest in host markets. According to Dunning (2001, 2013, 2015), MNEs that are "pushed" by internal competencies to invest in host markets are considered to be efficiency seeking.

A multinational firm invests in a specific market to utilise greater dimensions of market size and achieve strategic objectives. Key in this discussion is that MNEs target customers and suppliers that already exist prior to the investment. In addition, MNEs might also develop new products specific to market needs and reduce the cost of exporting or serving the market from a distance. In recent times, MNEs find it important

to invest in host markets rather than to export as the presence of MNEs in a particular market attenuates market entry and exit barriers.

5.4.9. Investment pattern in technology industries

This section illuminates the pattern of South African MNEs' in technology industry, and their investment in host African markets. In light of this motive, the following discussion presents results drawn from firm level equation that was analysed through the autoregressive approach. Table 5.57 presents the results of investment patterns in the technology industry.

Table 5.57: Investment patterns in technology industry

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.796913	0.242064	3.292165	0.0812
INVEST(1)	0.896110	0.069050	12.97776	0.0059***
INVEST(2)	-0.098863	0.110745	-0.892710	0.4662
INVEST(3)	2.825438	0.094973	29.74999	0.0011***
INVEST(4)	0.402701	0.083228	4.838497	0.0402**

*Regression analysis, robust standard errors. *** p<0.01, ** p<0.05, * p<0.1. Cross-section weights instrument weighting matrix and convergence was achieved after 1 weight iterations. Cross-section weights (PCSE) standard errors & covariance (no d.f correction). Maximum lags of dependent and predetermined variables for use as instruments are limited to 1. Period fixed applied in the estimation.*

Results in table 5.56 are deduced from equation 5(a). Evidence from the results buttresses the conceptual notion that investment is incremental as MNEs are induced by prospects in host markets and they increase their investment volumes through firm level adjustment with age of investment.

Results in the first lag reveal that there is a positive relationship between dependent variable against its own time series, and this relationship is statistically significant. The outcome in the third and fourth lags reveals that there is a positive and statistically significant relationship. Nonetheless, evidence from lag two records a negative and statistically insignificant relationship; but the statistical weakness of lag 3 result is not sufficient to disregard the incremental nature of investments in this industry.

5.6. Financial Industry

Equation 4.6: Estimating the relationship between investment and firm level aspects in finance industry.

Equation 4.11: Estimating the relationship between FDI and market level aspects in finance industry.

The equations that are stated above, in this section, estimate both firm and market specific aspects in the finance industry. Equation 4.6 estimates the relationship between dependent variable, *Investment* and explanatory variables, *size, return on equity, return on assets, joint ventures and subsidiaries* in finance industry. Equation 4.11 estimates the relationship between dependent variable, *FDI* and the explanatory variables, namely *industry, factor prices, infrastructure, demand and trade* in the finance industry.

The presentation of results and interpretation is done in a similar manner with the rest of the study and it is sequentially organised as follows: First is descriptive statistics, followed by vector correction model, unit root tests, impulse response analysis, cointegration test and lastly the causality test.

5.6.1 Descriptive statistics

In the following section, the analysis considers firstly descriptive statistics of micro level aspects in the financial industry. Table 5.58 depicts descriptive statistics of firm level data in the finance industry.

Table 5.58 - Firm level descriptive statistics for finance industry

	INVES	JV	R0A	ROE	SIZE	SUBS
Mean	1.150486	0.617959	0.910567	1.681871	1.181359	1.028590
Median	1.140000	0.602060	0.982271	1.519040	1.164947	1.000000
Maximum	1.900000	0.903090	1.661339	7.383636	1.340000	1.430000
Minimum	0.951338	0.301030	-1.301030	0.093422	0.987219	0.840000
Std. Dev.	0.166793	0.162035	0.581730	1.193274	0.073339	0.114081
Skewness	1.380257	-0.395925	-2.079068	3.213327	-0.056579	0.668010
Kurtosis	6.848046	2.493262	7.470179	14.76115	3.028509	3.787884
Jarque-Bera	68.21817	2.688253	113.3708	546.3639	0.041420	7.317371
Probability	0.000000	0.260767	0.000000	0.000000	0.979503	0.025766
Sum	83.98549	45.11104	66.47141	122.7766	86.23924	75.08706
Sum Sq. Dev.	2.003027	1.890394	24.36551	102.5210	0.387261	0.937035
Observations	73	73	73	73	73	73

Table 5.58 describes firm level aspects in the finance industry. As indicated before, the motive of conducting descriptive statistics is to understand measures of central tendency and symmetrical distribution of variables. In this instance, the key indicators of normality of data variables is the value of skewness and kurtosis, amongst others.

Dependent variable, *investment* recorded positive skewness with a positive value of 1.38 and a kurtosis of 6.8.however, the standard deviation is mild, and the dataset passes normalcy tests through statistical significance at 1% level. The descriptive statistics for the *size* of the firm indicates that data distribution in this variable is almost symmetrical at -0.05 and a kurtosis of 3.20.

Furthermore, *return on equity* recorded skewness that has a positive value of 3.21 and kurtosis value of 14.76 this mean that data is more inclined on the positive side of the normal distribution table. However, the statistical significance of the dataset alludes to its normal distribution. In a similar vein, *return on assets* is more inclined to the negative side of the normal distribution table with a negative value of -2.07 and kurtosis of 7, 4. However, its normal distribution is ascertained through the statistical significance of the *p*-value.

Explanatory variables that represent the expansion strategies, *joint venture* and *subsidiary* indicate negative and positive skewness respectively. The dataset for *joint venture* shows negatively skewed spread with a value of 0.30, which is almost symmetrical distribution thereby suggesting normal distribution. Looking at *subsidiary,* evidence points to the fact that data distribution in this variable is also almost symmetrical with a skewness coefficient 0.66 and a kutorsis value of 3.7.

In order to understand the description of variables in the finance industry, the following section presents descriptive statistics in the industry.

Table 5.59 Market level descriptive statistics (Finance industry)

	FDI	DEMAND	INDUSTR	FP	INFRAS	TRADE
Mean	0.517499	6.372261	1.470055	0.969750	1.250651	1.949411
Median	0.565523	9.862574	1.490212	0.967216	1.348257	1.961857
Maximum	1.621276	11.03486	1.703526	2.051899	1.896957	2.231488
Minimum	-1.379857	-0.436103	1.196635	-0.947988	0.000000	1.622223
Std. Dev.	0.440866	4.669686	0.139598	0.410794	0.463662	0.131209
Skewness	-0.683486	-0.368880	-0.307346	-1.130053	-0.988588	-0.037385
Kurtosis	4.959385	1.186131	2.020591	7.542042	3.271228	2.391047
Jarque-Bera	34.00900	22.84669	7.966812	153.3569	23.73079	2.242804
Probability	0.000000	0.000011	0.018622	0.000000	0.000007	0.325823
Sum	74.00241	911.2333	210.2179	138.6742	178.8431	278.7658
Sum Sq. Dev.	27.59950	3096.448	2.767232	23.96270	30.52750	2.444650
Observations	143	143	143	143	143	143

In view of the content of Table 5.58, the Jarque Bera test and its relative probability indicate that the distribution of the dataset for dependent variable; *FDI* is almost symmetrical. The table above indicate that dependent variable *FDI,* has a coefficient of skewness of -0.6 and a kurtosis value of 4.95.

The descriptive statistics for the size of host market indicates that dataset is positively skewed with a skewness coefficient of 0.36 and a kurtosis value of 1.18. The data distribution of this variable is almost symmetrical, thereby suggesting normal distribution. *Factor prices* in host markets also indicate that data is negatively skewed with a value of -1.13 and a Kurtosis of 7.54.

In addition, *industry* also indicates the presence of skewness (albeit mildly), as revealed by the value of skewness that is 1.54, which attests to the fact that data is normally distributed. Furthermore, *infrastructure* also recorded data distribution that is almost symmetrical, and the value of skewness coefficient is 0.7 (which is close to zero) and there is less variance between the median and the mean. The median is 17.86 and the mean is 20.82. The argument in support of its normal distribution is is also augmented by the range of the dataset.

The same applies to *trade,* which has a Jarque – Bera value of 13.58 and a corresponding probability value of 0.02, which is significant. Expectantly, the data distribution is almost symmetry, therefore lending credence to the normal distribution of the dataset.

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5.5.2 Vector error correction estimates

Consistent with the rest of the study, the succeeding section present results of error correction models for the finance industry. The motive behind implementation of error correction model is to test the stability of the model as well as to understand long and short term relationships between dependent and explanatory variables.

Table 5.59: Vector error correction estimates firm level

	Invest	Size	ROE	ROA	Subs	JV
Lag 1	1.000000	-2.470712 (0.49409) [-5.00053]	-0.048691 (0.04933) [-0.98700]**	0.057200 (0.05308) [1.07768]	-1.563727 (0.42004) [-3.72284]	0.395994 (0.21600) [1.83329]
Differenced	-0.188217 (0.15158) [-1.24171]	0.329860 (0.07277) [4.53303]	-1.824751 (0.91565) [-1.99285]	0.580941 (0.42446) [1.36867]	0.372153 (0.08629) [4.31293]	-0.174809 (0.12074) [-1.44784]*
Differenced in lag 1	-0.260284 (0.16618) [-1.56624]	-0.103542 (0.07978) [-1.29786]*	1.699030 (1.00387) [1.69248]	0.348097 (0.46535) [0.74803]	-0.266115 (0.09460) [-2.81301]*	0.329941 (0.13237) [2.49256]
Differenced in lag 2	-0.337374 (0.15479) [-2.17950]	-0.129996 (0.07431) [-1.74934]*	1.818310 (0.93507) [1.94457]	0.029005 (0.43346) [0.06692]	-0.197408 (0.08812) [-2.24026]*	0.485811 (0.12330) [3.94013]

Estimated coefficients on the first line, standard errors in parenthesis (); and t-statistics in brackets [].
The results are computed separately for each equation using the appropriate residuals
**** p<0.01, ** p<0.05, * p<0.1 {Emphasis are placed on *** p<0.01, ** p<0.05}*

According to Baltagi (2008), the stability of VECM model is determined by the value of Durbin-Watson test. In view of the results, the model has a Durbin- Watson test value of 1.9 and a corresponding F-statistic of 16.2 with a probability of 0.00. The stability of the model is reinforced by the result of OLS estimation that is presented in table D 1.2 in the appendices.

As presented in Table 5.59, the dependent variable, *investment* is negative in all instances - differenced, differenced in lag 1 and differenced in lag 2. This means that vector errors are being corrected in year one and year two.

The *size* of the firm (tangible and intangible) assets is assumed to be an important determinant on the direction and volume of a firm's investment in this analysis. Regarding the behavioural pattern of this variable, *size* records a negative coefficient when differenced in lag 1 and differenced in lag 2. While *return on equity* is negative in lag 1 and differenced. *Subsidiary* indicates negative coefficients in differenced, differenced lag 1 and differenced lag 2. Meanwhile expansion strategy, *joint venture* is only negative when differenced.

Other variables in Table 5.59 indicate that they have no significant short term effects. Furthermore, other combinations that are presented in appendices D1.1 are not discussed as they have less significance. An overall observation of the model is signified by the value and the probability of Durbin-Watson test of the OLS model as presented in appendices (Table D 1.1). Based on the statistical evidence presented in the referenced Tables, it can be safely concluded that the specified model is stable with reasonable explanatory properties.

In the context of market level aspects, the succeeding section presents an analysis of (VECM) estimates for equation 4.11 of the study. This is regarded essential as the analysis concluded in this process suggests more precise relationship between the dependent variable and explanatory variables. This relates specifically to the equation in market specific aspects. This methodological approach also indicates the probable relationship if the dependent variable is interchanged. Table 5.61 presents VECM results for market level variables in finance industry.

Table 5.61: Vector error correction estimates market level

	FDI	Demand	FP	TRADE	Industry	Infras
Lag 1	1.000000	-0.046980 (0.02358) [-1.99255]**	2.429042 (0.37847) [6.41803]	-2.017964 (1.11540) [-1.80918]	0.831665 (0.87016) [0.95576]	-1.838830 (0.28129) [-6.53722]
Differenced	-0.137317 (0.06095) [-.25288]*	0.008186 (0.00498) [1.64443]***	-0.211109 (0.05534) [-3.81460]**	0.003436 (0.00768) [0.44747]	0.003718 (0.00506) [0.73450]	0.096310 (0.03278) [2.93797]
Differenced in lag 1	-0.401133 (0.10730) [-.73852]*	-0.010611 (0.00876) [-1.21084]***	0.064101 (0.09742) [0.65796]	0.018338 (0.01352) [1.35646]	-0.017184 (0.00891) [-.92846]***	-0.195025 (0.05771) [-3.37959]**
Differenced in lag 2	-0.133537 (0.09898) [-.34912]*	-0.005358 (0.00808) [-0.66274]***	0.116773 (0.08987) [1.29932]	0.028601 (0.01247) [2.29333]	-0.003625 (0.00822) [-.44094]***	-0.056817 (0.05323) [-1.06730]**

Estimated coefficients on the first line, standard errors in parenthesis (); and t-statistics in brackets [].
The results are computed separately for each equation using the appropriate residuals
**** p<0.01, ** p<0.05, * p<0.1 {Emphasis are placed on *** p<0.01, ** p<0.05}*

The results in Table 5.61 indicate the outcome of the VECM analysis in market level aspects in financial industry. The stability VECM model is determined by the value of Durbin-Watson test. Results indicated in Figure D1.2 in the appendices depict that the VECM model is stable as the value of Durbin-Watson test is 2.08. Likewise, results in Table D1.2 indicate that the model is stable and being corrected at 13% velocity speed,

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this also indicate that there is a long term relationship between dependent variable ad independent variables.

In view to the results presented in Table 5.61, dependent variable, *FDI* recorded negative and significant coefficients in differenced, differenced in lag 1 and differenced in lag 2. Explanatory variable *demand* also records negative coefficients in lag 1, differenced in lag 1 and differenced in lag 2 and they are very significant. Variable, *industry* also records a negative coefficient and a significant probability value in differenced in lag 1 and differenced in lag 2. Meanwhile, *infrastructure* is negative and statistically significant at lag 1, differenced in lag 1 and differenced in lag 2. Furthermore, *factor price* is only negative and statistically significant when differenced.

Nevertheless, the other variables and other lags in Table 5.61 give evidence that they have no significant short-term effects. Furthermore, other combinations, which are presented in appendices B1.2, are not discussed as they have less significance. An overall observation of the model is signified by the value and the probability of Durbin - Watson test of the OLS model as presented in appendices Table D 1.2, which lends strong credence to the stability of the model.

5.6.3. Unit Root Test

As mentioned in the previous sections, Levin Lu and Chiu (LLC) panel unit root test was conducted to test the presence of unit root in the dataset. The following section presents results of panel unit root test conducted on the financial industry.

Table 5.62: Unit root test firm level analysis (4.6)

Column 1			Column 2			Column 3		
Levin, Lin and Chu t*	**Level**	**First Difference**	**ADF - Fisher Chi-**	**Level**	**First Difference**	**Im, Pesaran and Shin W-stat**	**Level**	**First Difference**
Individual	-14.04**	-18.36***	**Individual**	226.9***	426.949***	**Individual**	-14.65**	-35.836***
Obs.	773	722	**Obs.**	773	722	**Obs.**	773	722
Intercept and Trend	-15.86***	-14.855***	**Intercept and Trend**	214.3***	398.092***	**Intercept and Trend**	-14.85***	-34.33***
Obs.	773	690	**Obs.**	773	690	**Obs.**	773	690
None	0.989	-26.651***	**None**	14.5623	1580.34***	**None**	-	-
Obs.	716	722	**Obs.**	716	722	**Obs.**	-	-

Using the Levin, Lin & Chu (2002) test, probabilities are computed assuming asympotic normality
****; **; * This indicates that we reject the null hypothesis of unit root at 1%, 5% and 10%.*
Automatic selection of maximum lags; Automatic lag length selection based on SIC: 0 to 5

From the above table, the unit root test is implemented using Bartlet Kernel selection criteria and Newey-West Automatic Bandwidth Selection. Column 1 of the table presents unit root results from Levin, Lin and Chu test; Column 2 depicts results from Im, Pesaran and Shin W-stat and column 3 depict results from ADF-Fisher Chi-square test.

The results shown in Table 5.62 for unit root tests in column 1 (Levin, Lin and Chu test), indicate that Individual intercept and intercept and trend are stationary at level. Nevertheless, none has a unit root problem at level. In column 2, ADF-Fisher Chi-square test, results indicates that Individual intercept is stationary and intercept and trend are stationary at level.

None reveal a unit root problem at level. Column 3 adopted Im, Pesaran and Shin W-stat, and the results indicate that Individual intercept is stationary at level. The results of intercept and trend also indicate that data is stationary at level. In all instances, the dataset can be used in the estimation without any fear of unit root.

Table 5.63: Panel unit root test (4.11)

Column 1			Column 2			Column 3		
Levin, Lin and Chu t*	**Level**	**First Difference**	**ADF - Fisher Chi-**	**Level**	**First Difference**	**Im, Pesaran and Shin W-stat**	**Level**	**First Difference**
Individual Intercept	97.0934	-3056.44***	**Individual Intercept**	21.98**	130.466***	**Individual Intercept**	-1.21*	-1290.21***
Obs.	358	360	**Obs.**	358	360	**Obs.**	358	360
Intercept and Trend	319.204	-3177.32***	**Intercept and Trend**	26.66***	127.143***	**Intercept and Trend**	-2.62***	-1401.32***
Obs.	357	360	**Obs.**	357	360	**Obs.**	357	360
None	3.71918	-185.531***	**None**	8.12827	1349.69***	**None**	-	-
Obs.	360	359	**Obs.**	360	359	**Obs.**	-	-

Using the Levin, Lin & Chu (2002) test, probabilities are computed assuming asymptotic normality
****; **; * This indicates that we reject the null hypothesis of unit root at 1%, 5% and 10%.*
Automatic selection of maximum lags; Automatic lag length selection based on SIC: 0 to 5

Table 5.63 presents summary results of Levin, Lin and Chu, Peseran, and Augmented Dick Fuller unit root test. From the above table, the unit root test is implemented using Bartlet Kernel selection criteria and Newey-West Automatic Bandwidth Selection. Column 1 of the table presents unit root results from Levin, Lin and Chu test. Column 2 depicts results from Im, Pesaran and Shin W-stat and column 3 depict results from ADF - Fisher Chi-square.

Column 1 presents unit root results (Levin, Lin and Chu test). The results from this analysis indicate that individual intercept, intercept and trend and none had unit root problem at none. Given that intercept and trend show no unit root, we may simply apply the dataset as is, in our panel estimation. However, the unit root problem was eliminated through converting data into first difference.

Column 2, presents the results of ADF-Fisher Chi-square test, the results suggest that individual intercept is stationary at level. The results of intercept and trend also indicate that data is stationary at level. Furthermore, the results of none indicate that data is stationary in first difference.

Column 3, presents the results of Im, Pesaran and Shin W-stat. As deduced from the above table, the outcome indicates that individual intercept is stationary at level. The results of intercept and trend also indicate that data is stationary at level. In all instances, the dataset can safely be used in our panel estimation without any form of conversion.

5.6.4 Panel dynamic regression for finance industry

The following section presents and interprets results of the panel dynamic regression model (GMM), using the Arellano and Bond (1991) approach. The estimation is based on moment conditions as specified in equations 5.3 and 5.4. The results are specific to financial industry in the present study. As discussed in the previous sections and informed by a series of econometrics literature (Batlagi, 2014; Peseran, 2007) the reliability of instruments used is verified the value of J- statistic, a test of identifying restrictions that examine the relationship between the model residuals and the instruments used in the estimation. Table 5.64 represent the results of panel dynamic estimation.

Table 5.64: Panel dynamic results (firm level analysis)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.772481	3.285162	0.843940	0.4311
INVES(1)	-0.150227	0.128605	-1.168119	0.2871
INVES(2)	0.266929	0.077041	3.464751	0.0134**
INVES(3)	0.388584	0.292161	1.330036	0.2318
INVES(4)	-0.190141	0.208446	-0.912184	0.3968
INVES(5)	0.027092	0.160947	0.168329	0.8719
INVES(6)	0.467560	0.184467	2.534657	0.0444**
INVES(7)	0.173453	0.242967	0.713897	0.5021
ROE(1)	-0.127910	0.110115	-1.161598	0.2895
ROE(2)	-0.169462	0.047562	-3.562993	0.0119**
ROE(3)	-0.073862	0.022846	-3.232956	0.0178**
ROE(4)	0.007369	0.025943	0.284025	0.7859
ROE(5)	-0.009914	0.021347	-0.464405	0.6587
ROE(6)	-0.038290	0.023417	-1.635159	0.1531
ROE(7)	-0.025194	0.037874	-0.665205	0.5306
ROA(1)	-0.053544	0.027897	-1.919384	0.1034*
ROA(2)	-0.067783	0.033065	-2.049984	0.0862
ROA(3)	0.057640	0.034427	1.674246	0.1451
ROA(4)	-0.094979	0.037555	-2.529039	0.0447**
ROA(5)	-0.085164	0.042427	-2.007317	0.0915*
ROA(6)	0.195081	0.040532	4.813013	0.0030***
ROA(7)	-0.080465	0.047100	-1.708394	0.1384
SIZE(1)	-0.322387	0.594215	-0.542542	0.6070
SIZE(2)	-0.720878	0.191491	-3.764559	0.0093*
SIZE(3)	-0.737170	0.220006	-3.350683	0.0154**
SIZE(4)	-0.191261	0.203927	-0.937889	0.3845
SIZE(5)	-0.475858	0.448516	-1.060961	0.3295
SIZE(6)	-0.709161	0.215263	-3.294394	0.0165**
SIZE(7)	-0.897270	0.565528	-1.586605	0.1637
JV(1)	-0.100438	0.083360	-1.204866	0.2736
JV(2)	0.254556	0.163529	1.556646	0.1706
JV(3)	-0.007218	0.138223	-0.052223	0.9600
JV(4)	-0.070419	0.153735	-0.458053	0.6630
JV(5)	0.558785	0.270488	2.065836	0.0844*
JV(6)	-0.096970	0.282186	-0.343639	0.7428
JV(7)	0.233586	0.309992	0.753523	0.4796
SUBS(1)	-0.021067	0.252950	-0.083285	0.9363
SUBS(2)	0.406063	0.246817	1.645197	0.1510
SUBS(3)	0.219841	0.749401	0.293356	0.7791
SUBS(4)	0.550950	0.244898	2.249715	0.0655*
SUBS(5)	0.101098	0.202859	0.498363	0.6360
SUBS(6)	-0.146215	0.364580	-0.401050	0.7023
SUBS(7)	1.254111	0.285447	4.393498	0.0046***

Statistical Measure	Coefficient	Level of significance
R-squared	0.944994	Strong and Positive

Adjusted R-squared	0.879952	Strong and Positive
Durbin-Watson stat	2.588469	Specified
J – Statistic	2.246463	Specified
Cusum Test	*p<0.05,*	Specified

*Regression analysis, robust standard errors *** p<0.01, ** p<0.05, * p<0.1. Cross-section weights instrument weighting matrix and convergence was achieved after 1 weight iterations. Cross-section weights (PCSE) standard errors & covariance (no d.f correction). Maximum lags of dependent and predetermined variables for use as instruments are limited to 1. Period fixed applied in the estimation.*

In view to the results presented in Table 5.64, *size* of the firm has an inverse relationship with the dependent variable in lags 2, 3 and 6. Results on variable, *return on equity* indicate an inverse relationship in lags 2 and 3. The result of the analysis contained in Table 5.63 also indicate that variable, *return on assets* (ROA) is significant in four lags, lags 2, 4 ,5 and 6 – all of which illustrate an inverse relationship, save for lag 6 that indicates a positive relationship.

Furthermore, *subsidiary* moves along the same direction (proportional relationship) with dependent variable in lags 4 and 7. There is insubstantial evidence that establish the relationship between dependent variable, *investment* and joint *venture,* only lag 5 is positive and statistically significant. This suggests that most firms in this industry prefer *subsidiaries* as opposed to *joint ventures*.

In view of the outcome of the dynamic model as specified in equation 4.6 and as contained in Table 5.64, the adjusted R-square and its specific adjusted R-squared indicate a strong test of goodness fit. This result reflects that there is a significant relationship between the dependent variable, *investment* and explanatory variables (*size, return on assets and return on equity, subsidiary and joint venture*). From the model, the value of J-statistic indicates that the model is well-specified so as the value of Durbin-Watson test, which indicates that there is no presence of both negative and positive serial correlation. Model stability is further reinforced by the results of the cusum test, which is significant at less than 5%, and the residual test as presented in appendices (figure D 1.1 and D 1.2) also reinforce the argument in support of the model stability. The succeeding section discusses results of market level aspects in finance industry. Table 5.65 depict market level aspects of finance industry.

Table 5.65: Panel Dynamic results (Market level aspects).

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	3.595611	1.282718	2.803119	0.0077
FDI(1)	0.731289	0.159208	4.593306	0.0000***
FDI(2)	-0.029860	0.190492	-0.156750	0.8762
FDI(3)	-0.141084	0.136767	-1.031566	0.3083
FDI(4)	0.080926	0.115141	0.702840	0.4861
FDI(5)	-0.196193	0.113044	-1.735546	0.0902*
FDI(6)	-0.040272	0.128779	-0.312720	0.7561
FDI(7)	0.136295	0.106542	1.279261	0.2080
INFRAS(1)	-0.388404	0.218315	-1.779098	0.0826*
INFRAS(2)	-0.185756	0.264924	-0.701167	0.4872
INFRAS(3)	0.423824	0.223071	1.899950	0.0645*
INFRAS(4)	0.277992	0.221706	1.253881	0.2170
INFRAS(5)	-0.092075	0.202165	-0.455442	0.6512
INFRAS(6)	0.153244	0.201486	0.760572	0.4513
INFRAS(7)	0.098461	0.172096	0.572126	0.5704
FP(1)	-0.041879	0.125628	-0.333359	0.7406
FP(2)	0.057990	0.112733	0.514404	0.6097
FP(3)	0.047392	0.110235	0.429920	0.6695
FP(4)	0.010764	0.138721	0.077592	0.9385
FP(5)	-0.409706	0.144931	-2.826904	0.0072***
FP(6)	0.014603	0.150862	0.096796	0.9234
FP(7)	-0.454422	0.168264	-2.700649	0.0100**
INDUSTR(1)	3.975432	1.270685	3.128574	0.0032***
INDUSTR(2)	-3.306987	1.808055	-1.829030	0.0747*
INDUSTR(3)	-1.699002	1.826609	-0.930140	0.3577
INDUSTR(4)	1.568713	1.758457	0.892096	0.3775
INDUSTR(5)	-1.260946	1.873956	-0.672879	0.5048
INDUSTR(6)	1.304355	1.912282	0.682094	0.4990
INDUSTR(7)	-1.249066	1.270751	-0.982935	0.3314
TRADE(1)	-2.238031	0.892330	-2.508074	0.0162**
TRADE(2)	0.031882	1.199475	0.026580	0.9789
TRADE(3)	2.804085	1.117107	2.510131	0.0161**
TRADE(4)	-3.215023	1.330796	-2.415865	0.0202**
TRADE(5)	1.619566	1.409706	1.148868	0.2573
TRADE(6)	0.232024	1.249452	0.185701	0.8536
TRADE(7)	-0.166046	0.838648	-0.197993	0.8440
DEMAND(1)	1.983441	1.318950	1.503803	0.1403
DEMAND(2)	-4.219431	1.959279	-2.153564	0.0372**
DEMAND(3)	4.417483	2.031174	2.174843	0.0355**
DEMAND(4)	-5.316992	2.206622	-2.409561	0.0205**
DEMAND(5)	4.224977	2.392884	1.765643	0.0849*
DEMAND(6)	-2.533048	2.007818	-1.261592	0.2142
DEMAND(7)	1.447057	1.256708	1.151466	0.2562

Statistical Measure	Coefficient	Level of significance

R-squared	0.818350	Strong and Positive
Adjusted R-squared	0.632269	Strong and Positive
Durbin-Watson stat	2.104432	Specified
J – Statistic	9.246463	Not - Specified
Cusum Test	*p<0.05*	Specified

*Regression analysis, robust standard errors, *** p<0.01, ** p<0.05, * p<0.1. Cross-section weights instrument weighting matrix and convergence was achieved after 1 weight iterations. Cross-section weights (PCSE) standard errors & covariance (no d.f correction). Maximum lags of dependent and predetermined variables for use as instruments are limited to 1. Period fixed applied in the estimation.*

Table 5.65 depicts the significance of independent the variables in autoregressive model. The results suggest that in finance industry, market aspects indicate that a number of market level aspects serve as pull factors for investment into host markets. In a more specific term, *infrastructure* is statistically significant in lag 3 with a positive coefficient as well as lag 1, with an inverse relationship. The result is consistent with Porter's (1990) diamond of national competitive advantage theory, which asserts that one of the key drivers of inward FDI is infrastructural development of a host destination.

Factor prices results indicate that there is a negative and significant relationship in lags 5 and 7. The results of the size of *industry* in host markets reveal that the relationship is significant on lag 1, which is a positive relationship while on lag 2 the relationship is inverse. This also applies to *trade* which is positive and significant in lags 1 and 3, while lag 4 records an inverse relationship. Furthermore, variable *demand* also records an inverse relationship to dependent variable, as significant lags 2, and 5 are negative while 3 and 4 are positive.

In the context of results in Table 5.65, there is evidence that support both Porter (1990) and Dunning (2015) theories. In regards to finance industry, a number of explanatory variables are statistically significant with the dependent variable. This result validates certain aspects of the theoretical lens used in this study. Likewise Dunning's (2015) assertions on the motives of MNEs is also validated by empirical results that in some instances, MNEs motives to invest in host market is induced by a series of linkages in both firm level and market specific aspects.

Results of the dynamic model (equation 4.11) indicate that value of the R-Square, which measure goodness of fit is 81%. This indicates that 81 % of changes in dependent variable are explained by the explanatory variables. This assertion is fortified by the results of adjusted R-Square, which is more than 60%. From the model, the value of J-statistic indicate validity of overriding restrictions, which was normal in this instance. In addition, the value of Durbin-Watson indicates that there is no presence of both negative and positive serial correlation in the model. In addition, the stability of the model is reinforced by the outcome of the cusum and residual tests that are presented in appendices figures D 1.3 and D 1.4.

5.5.4 Impulse response approach for equation 4.6 and 4.11

The result of impulse response estimation for equation 4.6 is presented in Table 5.66. In light of results in Table 5.66, both dependent and explanatory variables are processed in the same time, particularly given that the introduction of dependent and explanatory variables independently introduced into the estimate produce the same outcome.

Table 5.66 Impulse responses from firm level analysis

Period	INVES	ROE	ROA	SIZE	SUBS	JV
1	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	0.551499	-0.047906	-0.007086	-0.105423	-0.141773	-0.199573
3	0.156648	-0.012731	0.043559	0.398602	0.301890	-0.037582
4	0.498199	-0.015566	0.008912	0.023457	0.300109	-0.212106
5	0.594704	-0.041243	0.048570	-0.177974	-0.099456	-0.332216
6	0.424160	-0.010381	0.025612	-0.026781	-0.090703	-0.035922
7	0.479062	-0.009219	0.000226	-0.092675	0.208469	-0.029575
8	0.601728	-0.030147	0.015552	-0.043550	-0.072556	-0.158229
9	0.439355	-0.017629	0.016902	0.154943	-0.035922	-0.123524
10	0.410728	-0.018368	0.023191	0.015770	0.276682	-0.084551

In light of the outcome presented in Table 5.66, all variables are assumed stationary since they are asymptotic. An analysis of individual variables suggest that *return on equity* (ROE) has negative responses for the entire timeline under consideration. The implication of the result depicts that if there is one unit innovation shock in *investment,* there would be a negative response from *return on equity*.

Results on *return on assets* (ROA), which measure the utilisation of resources, illustrates mixed reactions. Beginning from the second year, which has a negative coefficient to one unit of innovation in dependent variable innovation, the rest of the

years under the estimation are positive coefficients. Furthermore, impulse response results from *size,* which measures resource capacity of the firm, illustrates mixed outcome year two, five, six, seven and eight indicate negative response, while the rest of the period under consideration depicts a positive response to one unit shock of innovation.

The indication on expansion strategies, *subsidiary* and *joint venture,* also depict mixed reactions. In specific, *joint venture* indicates a negative estimation in all periods. In addition, *subsidiary* indicates mixed reactions in years two, five, six, seven and nine and the coefficients are negative, while the rest of the years recorded positive coefficients.

Table 5.67: Impulse response results market level aspects.

Period	FDI	INFRAS	INDUSTR	TRADE	DEMAND	FP
1	1.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	0.461550	0.357410	1.314935	-0.511923	2.093574	-0.245106
3	0.447445	0.233024	-0.538620	-1.221052	1.171084	-0.142799
4	0.499441	0.306625	0.219051	-0.631071	0.676422	-0.154427
5	0.476543	0.296794	0.678480	-0.609507	0.905488	-0.174140
6	0.488497	0.280117	0.528417	-0.740003	0.755377	-0.154215
7	0.487110	0.286521	0.512177	-0.744920	0.680743	-0.152843
8	0.484670	0.284372	0.517269	-0.744930	0.660285	-0.157820
9	0.485098	0.284844	0.532642	-0.744256	0.642838	-0.159875
10	0.483851	0.286649	0.551040	-0.741765	0.629291	-0.160797

As indicated above, the result of impulse response analysis for equation 4.11 on market level variables in finance industry is contained in Table 5.67. As discussed earlier in this chapter, the impulse response approach is used not only to establish the response of variables to innovation shocks, but also to establish stationarity of variables. In view of the above table, the coefficients of the variables in the analysis as depicted in the table suggest that *demand* is forecasted to move along the same direction with *FDI*. This is signified by positive coefficients in the entire timeline under consideration.

In addition, *infrastructure,* which measures support facility in the host market, illustrate positive reactions throughout the estimation period. This indicates that *infrastructure* and *FDI* move in the same direction for the entire estimation period. Furthermore, *trade* recorded a consistent negative coefficient, hence the indication is that *trade* and *FDI* will move inversely for the next ten years.

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Furthermore, *factor price,* which measures the price of raw material, indicate a nagative outcome. The response indicates that *FDI* and *factor prices* will move opposite direction for the next ten years. In conclusion, *industry,* which measures the size of supporting industry in host markets, recorded positive coefficients, in lags 2, 4, 5, 6,7,8,9 and 10 while lag 3 is negative, which mean that there is an indication of positive relationship between *industry* and *FDI*.

5.6.8 Cointegration test approach for equations 4.6 and 4.11

After conducting the impulse response analysis, the mandate of the study is directed towards the causality test. Nonetheless, in order to perform the causality test, there is a need to establish long run cointegration of variables under consideration, which motivates the context of cointegration estimation. When implementing the cointegration estimation, deterministic trend components are specified through the trend specification process.

Table 5.68: Unrestricted cointegration rank test (Trace)

Hypothesized		Trace	0.05	
No. of CE(s)	**Eigenvalue**	**Statistic**	**Critical Value**	**Prob****
None	0.602020	126.4921	95.75366	0.0001*
At most 1	0.352216	70.28964	69.81889	0.0458*
At most 2	0.306498	43.80356	47.85613	0.1142
At most 3	0.202538	21.47750	29.79707	0.3285
At most 4	0.097226	7.671948	15.49471	0.5011
At most 5	0.023213	1.432713	3.841466	0.2313

*Rank test indicates no cointegration at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level*

As contained in Table 5.68 above, the trace test has a null hypothesis of no cointegration at 5% level. In view of the content presented in Table 5.68 using the trace statistics, the null hypothesis of no cointegration is rejected because the value of trace statistics has two probability values that are less than 5%. In light of the results, the null hypothesis is rejected in favour of the alternative hypothesis in two occasions. Consequently, the outcome indicates that there are two cointegrating equations in the model.

Table 5.69: Unrestricted cointegration rank test (maximum eigenvalue)

Hypothesized		Max-Eigen	0.05	
No. of CE(s)	**Eigenvalue**	**Statistic**	**Critical Value**	**Prob.****
None *	0.602020	56.20249	40.07757	0.0004
At most 1	0.352216	26.48608	33.87687	0.2919
At most 2	0.306498	22.32606	27.58434	0.2041
At most 3	0.202538	13.80556	21.13162	0.3812
At most 4	0.097226	6.239235	14.26460	0.5827
At most 5	0.023213	1.432713	3.841466	0.2313

*Rank test indicates no cointegration at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level*

Furthermore, maximum eigenvalue test has a null hypothesis of no cointegration at 5% significance. Results from Table 5.69 using the eigenvalue test indicate that the null hypothesis of no cointegration is rejected because the result of the test statistics has a probability value lower than 5% level. In light of the results, the null hypothesis is rejected in favour of the alternative hypothesis. The results indicate that there is one cointegrating equation.

The following section presents results of the cointegration test in finance industry within the market level aspects. Tables 5.70 depict the results of unrestricted cointegration rank test (Trace) and unrestricted cointegration rank test (maximum eigenvalue).

Table 5.70 Results of the Cointegration Test

Hypothesized	Fisher Stat.*		Fisher Stat.*	
No. of CE(s)	**(from trace test)**	**Prob.**	**(from max-eigen test)**	**Prob.**
None	175.4	0.0000*	104.8	0.0000*
At most 1	87.67	0.0000*	72.30	0.0000*
At most 2	82.24	0.0000*	59.88	0.0000*
At most 3	43.45	0.0000*	31.91	0.0014*
At most 4	22.54	0.0319*	17.15	0.1439*
At most 5	23.14	0.0265*	23.14	0.0265*

*Rank test indicates no cointegration at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level*

Table 5.70 present the results of trace and maximum eigenvalue statistics, where the null hypothesis is rejected because the value of trace statistics has a probability value of 0%, which is significant. Accordingly, the results in the above table reject the null hypothesis that there is no cointegration in favour of the alternative hypothesis. Therefore, the outcome strongly indicates that there are four equations that have long run association.

In view to maximum eigenvalue test, the hypothesis of no cointegration at 5% significance has been rejected in at most three cointegrating equations. Results from Table 5.70 using eigenvalue test approach, reinforces the results of trace test. Likewise in table 5.70 the null hypothesis is rejected in favour of the alternative hypothesis. Consequently, the outcome indicates that there are four equations that has long term association

5.6.9 Granger causality test for equation 4.6 and 4.11

In the context of this study, Granger causality test is adopted to test the long run causality between the variables under consideration in this study. To strengthen the deterministic properties of the analysis, the study adopted VECM-based Granger causality test for each pair of variables. The results of the causality test is presented in Table 5.71.

Table 5.71 Results of Granger causality test for firm level aspects (finance industry)

Null Hypothesis:	Obs	F-Statistic	Prob.
INVES does not Granger Cause JV	130	4.18653	0.0177**
ROE does not Granger Cause INVES	107	5.57131	0.0051***
SIZE does not Granger Cause JV	137	2.57258	0.0802*
JV does not Granger Cause SUBS	108	5.95489	0.0033***
ROE does not Granger Cause SUBS	106	6.59998	0.0019***
SIZE does not Granger Cause INVES	107	5.60120	0.0050***
ROA does not Granger Cause INVES	108	4.74073	0.0101**

*F-statistics ,*** p<0.01, ** p<0.05, * p<0.1*

From Table 5.70, results indicate significant causal relationship in five occurrences of which all of them are unidirectional. In particular, causality runs from *investment* to *joint venture*. This relationship is unidirectional. The second causality relationship is recorded from *return on equity* to the flow of *investment* and the intensity of causality is very significant. This relationship is unidirectional as causality results indicate that profitability in host markets sustain and induce further future financial commitments.

According to the results, the *size* of the firm also causes expansion strategy - *joint venture*. Likewise, it is also evident that *joint venture* also causes *subsidiary*. This is consistent with the process theories (Johanson and Valne, 2015) and empirical study by Helpman (2015). In both instances, the theoretical assumption is that when there are potential prospects, more financial resources are availed for various expansion

projects. In addition, the results indicate that *return on equity* causes *subsidiary*. This implies that financial rewards in offshore markets may prompt entering another market through physical presence, which is not only expensive but non-easily reversible as well.

In line with the rest of the study and as discussed in chapter four, the succeeding section presents results and discussion of causality of variables in market level aspects. The table below (Table 5.72) presents the outcome of market level aspects in the finance industry.

Table 5.72: Causality test for market level aspects

Null Hypothesis:	Obs	F-Statistic	Prob.
FP does not Granger Cause DEMAND	145	5.13387	0.0071***
INDUSTR does not Granger Cause DEMAND	152	4.74073	0.0101**
TRADE does not Granger Cause DEMAND	140	4.88123	0.0090***
FDI does not Granger Cause INFRAS	140	5.01723	0.0079***
INFRAS does not Granger Cause FP	133	3.92707	0.0221**
FP does not Granger Cause INFRAS	145	2.39971	0.0948*
TRADE does not Granger Cause FP	140	2.92582	0.0570**
TRADE does not Granger Cause INDUSTR	130	5.95489	0.0033***
INDUSTR does not Granger Cause TRADE	130	2.47144	0.0883*
TRADE does not Granger Cause INFRAS	128	3.02340	0.0523**

*F-statistics , *** p<0.01, ** p<0.05, * p<0.1*

Table 5.72 illustrates results of causality test in market specific aspects in the finance industry. As evidenced from the results above, one bidirectional causal relationship is recorded. This is from *industry* to *trade*, as well as from *trade* to *industry*. The rest of the relationship is unidirectional. The first unidirectional relationship is recorded from *industry* to *demand.* In both instances, the causality coefficient is very significant. The causality coefficient from *industry* to *demand* is very significant. The second unidirectional causal relationship is recorded between *factor price* and *demand*. The causality test establishes that *FDI* has a causal effect on *infrastructure*, while *industry* is indicated to cause *factor prices*.

5.6.10 Overlapping aspects in finance industry

Based on the results obtained in both firm level aspects and market level aspects, this section discusses the linkages between market level and firm level aspects that create dependency path of market expansion strategies. In this connection, Table 5.73 below represents linkages in the finance industry.

Table 5.73: Linkages in market and firm level aspects

Explanatory- Dependent Variable.	Firm / Market level aspect	Regression Coefficient	Causality Coefficient
Size	Firm – Level	-0.720878***	5.60120***
Return on Assets	Firm – Level	0.195081***	4.74073**
Return on Equity	Firm – Level	-0.169462***	5.57131***
Factor Price	Market – level	-0.409706***	-
Industry	Market – Level	3.975432***	-
Trade	Market –Level	2.804085**	-

*Causality test, F-statistics, *** p<0.01, ** p<0.05, * p<0.1.*
*Regression analysis, robust standard errors, *** p<0.01, ** p<0.05, * p<0.1. Cross-section weights instrument weighting matrix and convergence was achieved after 1 weight iterations. Cross-section weights (PCSE) standard errors & covariance (no d.f correction). Maximum lags of dependent and predetermined variables for use as instruments are limited to 1. Period fixed applied in the estimation.*

In view to linkages depicted in Table 5.73 (above), firm level aspects strongly indicate that *size, ROA* and *ROE* have significant linkages to the pattern of outward *FDI*. The outcome signifies that firms in financial industry are "pushed" by internal competencies to invest in specific host markets.

Based on empirical evidence presented above, there is an indication that *return on assets* (ROA) has a significant causal effect on a firm's internationalisation process. The causal significance of *return on assets* suggest that key internal competencies, which according to Dunning's eclectic theory, are identified as key ownership advantages like patents, competitive advantages, as well as efficiency, all drive internationalisation process of firms. The results reinforce Dunning's theoretical assumptions and further reinforces the findings of a series of empirical studies in that regards (Buckley, 2015; Boddewyn, 2015; Buckley and Cason, 2016).

Another firm level aspect that is significant in finance industry is *return on equity*. This variable estimates the degree of sustainability in foreign investments and is a strong indication of firm level adjustments in host markets. As indicated by empirical evidence deduced from analysis contained in this section of the study, there is strong evidence to suggest that *investment* in finance industry is influenced by *return on equity,* which is used to indicate business prospects in host market; and influenced as well by *return to investments*. A host of contemporary literature, which include the works of Rugman and Eden (2017), Harris and Moffat (2015) and Helpman (2014) also supports this assertion.

In view of the linkages in market level aspects, three variables out of five explanatory variables have significant regression coefficients when interacted with *FDI*. First, *industry*, in regard to Porter's national competitive advantage (1990), *industry* is one of the aspects that motivate the direction and volume of inward FDI. In view of empirical evidence presented in the above section (market level aspects), there is an evidence that reinforces Porter's (1990) assertion that the size of *industry* in host markets motivate inward *FDI*.

Consistent with the results above, empirical results also provide evidence that *trade* has a statistically significant and strong regression coefficient. This result also buttresses Porter's competitive advantage of nation's theory (1990), and recent studies by Buckley (2014) and Rugman (2014). In the perspective of these studies, MNEs invest in host markets that have open trade policies to utilise their resource and achieve both competitive advantage and organisational objectives within the purview of free market system.

5.6.11 Path dependency and expansion strategies

In the context of empirical evidence deduced from the previous sections, this section motivates the discussion that market and firm level aspects create a dependent path that determines the expansion strategies (internationalisation process) and the direction of outward FDI both in terms of volume and host market destination. Table 5.74 illustrates aspects that influence expansion strategy adoption in host markets.

Table 5.74: Path dependency of expansion strategies

Variable and expansion strategy	Firm / Market level aspect	Causality Coefficient	Expansion Strategy/ Host Market
Investment	Firm – Level	4.18653**	Joint Venture
Return on Equity	Firm – Level	6.59998***	Subsidiary
Size	Firm – level	2.57258*	Joint Venture

*F-statistics , *** p<0.01, ** p<0.05, * p<0.1*

The Table 5.74 above presents path of expansion strategies in host markets, which are relevant to the finance industry. The results satisfy the hypothesis that expansion strategies are path dependent on the linkage of firm and market level aspects.

Empirical evidence from the results indicates that MNEs in finance industry adopt both *joint venture* and wholly owned *subsidiary* (greenfield, acquisition and brownfield investments) as market entry strategies. Both strategies feature prominently in the empirical evidence presented in Table 5.74. It is however, observed that there is more preference of *joint venture* than there is of *subsidiary* as an expansion strategy. Furthermore, there is a strong indication that *joint venture* has a causal effect on *subsidiary*. This is so because; expansion strategies and strategic positions of MNEs are diverse with time and relative in character.

As indicated by causality analysis, *investment* has a causative effect on the adoption of *joint venture* as an expansion strategy. This validates the findings of Estrin (2017), where it was argued that there is a tandem relationship between the volumes of investment and market entry strategy adopted by MNEs. The realisation also entails that while both *subsidiary* and *joint venture* are market entry strategies, however as pointed by evidence, *joint venture* seems to be more popular than *subsidiary* in our sample. This indicates that in this industry, investment assumes an incremental pattern.

The second strand is also explained by the causality relationship between *return on equity* and *subsidiary*. This relationship is supported by a series of empirical studies, which assert that prospect from initial investment induce firms to commit more financial resources (Buckley, 2015, 2014; Harris and Moffat, 2015; Teece, 2014). As indicated in the preceding section that investment seems to be incremental in this industry, hence *return on equity* is observed (not surprisingly) to have causal effects on *subsidiary* as MNEs commit more resources towards firm level adjustment to outward *FDI*.

Furthermore, this causal effects also influences the adoption of *joint venture* as expansion strategy equally as it influences the adoption of *subsidiary.* Hence, there is empirical evidence from this study that resource utilisation and transaction cost justify the choice of expansion strategy adopted by MNEs. In addition, transaction cost theory as discussed in chapter two, asserts that *expansion strategy* is determined by the *cost* of its present value. Hence, this justifies the significance of both market entry strategies as sunk cost and transaction costs differ in host markets, which motivates MNEs to select the most appropriate strategy for a specific host market.

Empirical evidence analysed in this study gives credence to the validity of Dunning's eclectic theory. According to Dunning (1977), MNEs that are "pushed" by internal competencies to invest in host markets are considered to be efficiency-seeking. As such, MNEs invest in a specific market to utilise greater dimensions of market size and achieve strategic objectives. Key in this discussion is that MNEs are "pushed" equally by an inter-linkage of aspects from both firm and market level. MNEs might also develop strategies that reduce the cost of transaction by mitigating risk and exploiting opportunities that are peculiar to specific offshore markets.

In the context of market level aspects, empirical evidence from the analysis conducted in this study suggests that in finance industry, there are no market level variables that cause path dependency for inward FDI and subsequent, the expansion strategy that is adopted. In contrast, evidence from this analysis casts some doubts on the generic relevance of some of the assumptions postulated by Porter's theory.

First, Porter's theory expounds that price of *factor inputs* motivate MNEs to invest in a specific destination. However, as informed by the results obtained from this study, there is no substantive evidence that *factor prices* are fundamental in the creation of path dependency that determines both investment pattern and expansion strategy, especially in the finance industry.

Second, Porter's theory asserts that *infrastructure* is a fundamental element in that it inclines FDI towards a particular host market. However, with regard to empirical evidence drawn from this study, there is no significant evidence that resonates with Porter's theoretical assertions. As such, the present study finds no evidence that in the finance industry MNEs are motivated by *infrastructure* to invest in particular host markets. On the contrary, what emerges from the analysis of the study is the suggestion that there is a flow of causality from *FDI* (dependent variable) to the development of *infrastructure*.

5.4.8 Investment patterns in finance industry

In an effort to further understand the nature and pattern of investment of South African MNEs (finance industry) in host markets, the following discussion draws conclusions from the panel dynamic estimation as depicted in panel dynamic estimation equation 4.6. Table 5.75 illustrate results of investment patterns in the finance industry.

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Table 5.75: Investment patterns in finance industry

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.772481	3.285162	0.843940	0.4311
INVES(1)	-0.150227	0.128605	-1.168119	0.2871
INVES(2)	0.266929	0.077041	3.464751	0.0134**
INVES(3)	0.388584	0.292161	1.330036	0.2318
INVES(4)	-0.190141	0.208446	-0.912184	0.3968
INVES(5)	0.027092	0.160947	0.168329	0.8719
INVES(6)	0.467560	0.184467	2.534657	0.0444**
INVES(7)	0.173453	0.242967	0.713897	0.5021

*Regression analysis, robust standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1. Cross-section weights instrument weighting matrix and convergence was achieved after 1 weight iterations. Cross-section weights (PCSE) standard errors & covariance (no d.f correction). Maximum lags of dependent and predetermined variables for use as instruments are limited to 1. Period fixed applied in the estimation.*

Evidence portrayed in table 5.75 suggests that in the finance industry *investment* is incremental. This buttresses the process theories as discussed in chapters two and three. The results record the relationship between dependent variable, *investments* that is auto-regressed against its own time series. The outcome indicates that in lags one and four, the results are negative and statistically insignificant.

Evidence from lags two, three, five, six and seven indicate that there are positive relationships. However, the relationships are only statistically significant in lags two and six. The empirical evidence generated from this result reinforces the notion that MNEs' *investment* in host markets are incremental as investment decisions are informed by business prospects and risk aversion strategies in host markets. The results also reinforce the notion that firm level adjustment adds to the volume of investment as MNEs increase their operational capacity (*investment)* and develop capacity in technology, machinery and other capital expenditure that require further injection of funds into the subsidiary facility.

5.7 Conclusion

This chapter has provided both the analyses and interpretation of the data collected as part of this study. This is the chapter that directly responds to the objectives and research questions of the present study using the elected methodology that is articulated in the previous Chapter Four. After interpreting results of the study, it becomes clear that both firm level heterogeneity and host market aspects vary greatly in terms of the nature of the industry. Based on the empirical evidence from this study, it is firmly substantiated that firm and market level aspects create a path dependency that also vary in line with industrial segments of the economy.

This chapter analysed available data to generate empirical evidence from four industrial segments namely, retail, mining, manufacturing and finance, and the relative host markets where South Africa-originated MNEs have invested. Empirical evidence suggests that each segment has linkages in both firm and market level that vary with each segment. This is evident in segments that were analysed. In view of the empirical results, there is evidence to suggest that internationalisation process is sequential, as well as path dependent on inter-linkages between firm and market specific aspects. This seems to vary per industrial segment and the degrees of causality flows vary per explanatory variable.

Empirical evidence also substantiate that the pattern of investment in terms of volume and location also vary with path dependency linkages between firm and market level aspects. In a few of the industries considered in this study, investment seems to be incremental in nature (essentially in technology and finance), while in mining and retail industries, investment seems to involve a once-off huge initial investments. Furthermore, there is also substantial evidence that MNEs use a number of expansion strategies as long as the strategy reduces transaction costs and recover sunk cost.

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Chapter Six
Summary of findings, policy implications, recommendation and conclusion

6.1 Introduction

This chapter provides a summation of the entire study, starting with findings and their policy implications. In a way, it is in this chapter that this study is located amongst other studies and makes its contribution to the subject of international business. It is considered important to reiterate that this study is aimed at establishing a linkage between internationalisation process and trends of outward investment, with specific focus on investment flows from South African MNEs into other countries in African as host markets. In this regard, the study further proposed to investigate the pattern of investments and the path dependency between firm heterogeneity (firm level aspects) and market specific aspects. After data analysis and interpretation, the aim of this chapter is to advance a synopsis of findings, discuss policy implementations, draw up recommendations in regard to the findings and conclude the study. In that way, it is in this chapter that ideas for further research and study would be advanced.

The previous chapter discussed study results deduced from a series of econometric models and estimations, following methodological approach that was advanced in Chapter Four. The sequence of results analysis started with descriptive statistics, pre estimation diagnostics and it was later followed by a series of estimation techniques, which were done in each industrial segments for both firm and market level aspects. The findings vary as firm heterogeneity tends to vary per industrial segment and the conditions of firms in each market vary. This chapter encapsulates the major findings of the study, discusses relative policy implication to the results and propose relevant intervention mechanism.

6.2 Summary of findings and policy implications

This section discusses the summary of findings, which are presented in sequential order as they appear in the analysis chapter. In this context, each research objective is reviewed, accompanied by the findings that are generated by the analysis, as they are closely aligned to the objective. Furthermore, each research hypothesis is presented and the findings of the study are nuanced in view of the specific hypothesis.

6.2.1 Research objectives

As indicated in Chapter one, the overarching objective was to establish a possible path dependency of firm and market level aspects of South Africa originated MNEs' expansion into the other African countries and to evaluate the possible influencing factors of the expansion strategies that are adopted when venturing into these offshore markets. The main objective is then decompressed as follows:

- To understand how linkages influences expansion strategies in host market.
- To understand investment patterns of MNEs in terms of direction and volumes.
- To establish linkages in firm and market level aspects of economic sectors in the study.

In an attempt to achieve study objectives, initial research questions were raised. In the context of chapter one, the main question of the study linger around the path dependency of firm heterogeneity and market level aspects as they influence outward FDI of South African MNEs in African host markets. The sub questions are stated as follows: autarky

- To what extent do linkages influence adoption of expansion strategies in host markets?
- What is the investment pattern of MNEs in terms of direction and volumes?
- What are overlapping aspects (linkages) between firm and market level aspect in different economic sectors?

Aside the series of diagnostics and estimations, the study also adopted Granger causality test in all four economic segments to answer the main research question and the sub-questions that are raised as means of achieving the research objectives.

In retail industry, empirical evidence from this study concludes that expansion strategy is largely motivated by firm level aspects and MNEs adopt both subsidiary and joint venture as mainstay expansion strategies. MNEs in this industry are largely regarded

as market-seeking and physical presence in the form of greenfield subsidiary and joint venture are considered expedient to bolster physical presence in those markets.

Results generated for the mining Industry suggests that the linkages are seemingly limited to three aspects - two firm levels and one market level. In addition, MNEs in this industry adopt both joint venture and subsidiary. In the technology industry, evidence of linkages point out three firm level aspects influence the expansion strategies more than the market level aspects. The skewness of linkage indicates that most MNEs in this industry are pushed by internal capacities to penetrate offshore markets. In financial industry, path dependency indicates that expansion strategies are motivated by both internal capacities and host markets factors. Briefly, as evidenced by results generated through various statistical approaches, MNEs adopt both expansion strategies regardless of industry orientation.

The second question attempted to uncover the nature of investment patterns in terms of volumes and direction. To answer this question, the study adopted auto regressive dynamic lagging model. This model enables the dependent variable to regress against itself, similar to the first question the regression model was organised in line with various economic sectors. The paragraphs below contain the sectoral appraisal of this relationship.

In retail Industry, the pattern of investment is not incremental; therefore, it does not follow the process theories narration, which postulates that investments could generally be incremental in nature. From the analysis, investment has an inverse relationship with the lagged autoregressive investment. It is evident from the analysis that investment in this industry is not incremental, as both evidence of exponential trend and firm level investment cannot be substantiated by empirical evidence generated from the study.

In the mining sector, the results strongly disputes that investment is incremental, as the investment, which is the dependent variable, has no significant relationship with the lagged autoregressive investment. Conversely, in the financial sector, there is significant evidence that investment patterns are incremental in trend. Results observed from autoregressive model conclude that there is an incremental pattern of investment. In addition, this result also ensues at firm levels in the investment pattern.

In the context of technology industry, results also indicate that investment trend is incremental in nature. Conclusion drawn from the autoregressive model gives substance to the process theories as postulated by Johanson and Valne (1957). The third question attempted to establish linkages in both market and firm level variables across industries. To answer this question, the study adopted both regression model and causality test.

In the retail industry, evidence depict that firm level variables, *size*, *return on equity* (ROE), and *return of assets* (ROA) have a statistically significant relationship with the dependent variable, *investment.* In market level aspects, results conclude that variables such as the *market size* in the host markets, as well as *supporting industry* has a significant relationship with *inward FDI*. This realisation conclude that MNEs in retail industry are market-seeking and the size of the offshore market is an important determinant of expansion motive.

In mining industry, empirical evidence concludes that only one firm level aspect has relationship with the dependent variable, *investment*. In market level aspects, empirical evidence concludes that two aspects create the linkage; these aspects are *infrastructure* and the *size of supporting industry*. The inclination of MNEs in this industry is largely resource-seeking. This is stance is buttressed by the results of firm level aspects that are significant in the direction of foreign direct investment.

In the context of technological industry, empirical evidence conclude that firm level aspects such as *size, return on assets, return on equity, subsidiaries* and *joint venture* have significant relationship with the dependent variable, *investment*. This finding is also reinforced by the causality test, save for *size* that is found to have no causal relationship with *investment*. In market level aspects, industry, demand and trade have a significant relationship with the dependent variable*, investment*. Nonetheless, these variables have no causal relationship with dependent variable, *investments*. In the face of findings generated in this study, it could be safely concluded that MNEs in technology industry are efficiency-seeking as they are driven by key internal competencies, as opposed to the financial and mining industries that are market-seeking.

Empirical evidence from financial industry conclude that firm level aspects such as return on assets and return on equity have a significant relationship with the dependent

variable, *investment.* These relationships are also causative in nature. In market level aspects, only two variables - *industry* and *trade* have a significant relationship with the dependent variable; however, this relation has no causal effects. In conclusion, evidence from the economic sector concludes that MNEs in finance industry are more of efficiency-seeking in nature, but market considerations are also statistically strong.

6.3 Research hypothesis

As discussed in chapter four, a number of hypotheses were postulated as depicted in Table 6.1. A recap of the hypotheses is considered important here as a refreshment.

Table 6.1 Hypothesised effects and observed effects

Fixed / Random effects Regression Model	Market Level Aspects (Part A)	Hypothesised effects
Dependent Variable FDI	PPP % of GDP	Positive
	Factor Input	Positive
	Industries % of GDP	Positive
	Transport Services	Positive
	Trade Flows	Positive
Fixed / Random effects Regression Model	Firm level Aspects (Part B)	Hypothesised effects
Dependent Variable (Investment)	Size	Mixed
	Return to Assets	Positive
	Profit	Positive
	Joint Venture	Positive
	Subsidiary	Positive

As indicated in Table 6.1, the results vary in line with economic sectors. The content of Table 6.1 depicts the research hypotheses and actual effects.

- In retail industry, the evidence from firm heterogeneity indicates that explanatory variables - *size*, *return on assets* and *return on equity* in foreign assets have a causal effect on dependent variable, *investment*. In firm level aspects, evidence signify that explanatory variables, *demand* and the *size* of the Industry have a causal effect on dependent variable, *FDI.* Furthermore, evidence deduced from the analysis also suggests that MNEs in the retail industry adopt both *subsidiaries* and *joint venture* as expansion strategies. On the causality consideration, explanatory variables like *size*, *ROA* and *ROE* cause both expansion strategies in retail industry, suggesting that these

variables do play strong deterministic roles on the choice and approach of overseas expansion by MNEs.

- In mining industry, evidence from firm heterogeneity confirms that *size* has a causal effect on the dependent variable, *investment*. Equally in firm level aspects, evidence signify that *size* of the Industry have a causal effect on *FDI*. In addition, evidence deduced from empirical results suggest that MNEs in mining industry adopt both *subsidiaries* and *joint venture* as expansion strategies. Of particular interest is the finding that establish causal relationship between *investment* and *subsidiary*, as well as between *ROA* and *joint venture.*

- In technology industry, empirical evidence deduced from firm heterogeneity suggests that *ROA, ROE, joint –venture* and *subsidiaries* have a causal effect on *investment*. In the context of expansion strategies, evidence deduced from empirical results also signify that MNEs adopt both *joint venture* and *subsidiaries.* The causality test establishes a causal relationship that flows from *investment* through to both *joint ventures* and *subsidiary,* while ROE, *ROA* and *size* are found to have causal effects on *joint venture*.

- Furthermore, in financial industry, empirical evidence deduced from firm heterogeneity suggests that explanatory variables, *ROA, ROE* and *size* have causal effects on the dependent variable, *investment*. Meanwhile in market level aspects, *industry* and *trade* have causal effects on the dependent variable, *FDI*. In regards to the expansion strategies, evidence deduced from empirical results also signify that MNEs adopt both *joint ventures* and *subsidiaries*, and the dependent variable, *investment* has causal effect on *subsidiary*, while *ROE* and *size* have causal effects on *joint venture*.

6.4. Policy implications

Empirical evidence deduced in this study indicates the need to improve a number of market and country specific aspects to attract FDI into African offshore markets, and to enhance performance of firms in the host markets. As informed by a series of results in chapter five, there is a clear path dependency of investment flows into host markets. From this perspective, two arguments can be advanced.

The first indication is that economies that have poor concentration of host market aspects receive a small portion of investment inflows. The poor concentration of host market aspects has been the cause of poor attractiveness of developing economies to inflow of investment, as opposed to the developed economies. The second indication is that from a firm level perspective, host market aspects are considered as augments that enhance the attractiveness of firms to invest in offshore economies. In most cases, investment decisions are likely to follow host markets attributes.

Furthermore, evidence from this study indicates that host markets can attract more of FDI if host market aspects that are compatible to MNEs profit making objectives are improved. As suggested by a series of existing studies conducted in developed and developing economies, market-level variables in the host markets are indicated to influence the pattern of FDI flows in terms of volumes and direction. This is so as MNEs invest in markets where firm level adjustments can be sustained and investment can be enhanced.

From a host market perspective, it is apparently vivid that the inflows of investment also improves other aspects of the economy. As indicated by the results of this study, host markets benefit from inflow of FDI through economic spillover effects. This finding is reinforced by the fact that a number of market aspects have a bidirectional causal relationship with *FDI,* although the variation is due to the economic segments and possible supply chain network in host markets.

In view to the evidence that is deduced from the series of analyses conducted and documented in chapter five, there is more prominence on the *size of the industry*, the *size of the economy* and *infrastructure*, while *factor prices* and *trade* are also indicated to be significant in some industries. In this regard, the implication is that for African host markets to improve FDI inflows, conscious efforts to invest in macroeconomic fundamentals, as they are deemed compatible to FDI flows are considered essential.

From firm level perspective, evidence indicate that there is a path dependency of linkages between conditions in host market (that have been explained above) and firm heterogeneity aspects. In firm level aspects, results indicate the *size* of the firm; *ROA* and *ROE* are fundamental aspects in the internationalisation process, as well as firm level adjustments in the host markets. Although, the prominence of firm level aspects varies in the context of Industrial segments of the study, the study established a

significant relationship of firm level aspects with the internationalisation process and subsequently with market expansion strategies.

6.5 Contributions to knowledge

As discussed in the previous section, the present study accomplished its objectives by testing the research hypothesis and answering the proposed research questions. In this context, the study contributes to the body of existing knowledge as it enhances our understanding of the investment dynamics within the African continent, essentially across industry levels. Furthermore, the study improves our appreciation of significant issues on internationalisation theories as they relate to outward investments of South Africa originated MNCs as they venture into other markets within the African continent. In more specific terms, some of the contributions that the study achieved are detailed in the succeeding sections.

6.5.1 Sectorial approach

A very rare approach was formulated in this study. In existing literature, firm heterogeneity was considered an investment commonplace, while host markets aspects were assumed to be homogenous to every MNE. Nonetheless, the present study uncovered the variation in firm heterogeneity, which influences linkages in host markets and path dependency of both internationalisation process and expansion strategies. The sectorial approach is thus considered a novelty. Using this approach, the study was able to establish a number of fundamental aspects that have deterministic effects on the internationalisation process in line with respective industries that were considered in this study. These patterns include patterns in investment in all industrial segments, linkages (firm and market levels) as well as the prominence of expansion strategies adopted by MNEs across various industries.

6.5.2 Pooled data estimation

The present study employed pooled data and numerous estimations to test the research hypotheses, answer the research questions, and ultimately accomplish the research objectives. The pooled data was generated from South African MNEs from firm level perspective in various offshore markets. As indicated in the research methodology chapter (chapter four), the dataset spans a period over twenty years (1995 – 2015). The application of pooled data enables the study to examine the

dynamic effects of various interactions between the estimated variables. It is thus noticeable that the application of various diagnostic approaches as well as the application of panel data approach enabled the study to estimate a series of dimensions within a dynamic environment without compromising the integrity of the results. The advanced econometrics estimation adopted in this study is rarely embraced in international business literature. While the approach was able to shed more lights on the robustness of the estimations, it also helps to open up academic engagement in international business through econometrics nexus.

6.5.3 Data generation technique

Probably the most challenging aspect in firm level analysis is the availability of useful data; the present study was not spared. As discussed in chapter four, most of the series were pervaded with incomplete data. To overcome the challenges of incomplete data particularly the omission of dependent variable, it is inevitable to generate missing data. Therefore, to achieve this daunting task, the study relied extensively on econometrics measures of ration moving average (both forward and backward). The capacity to generate this new set of data is a substantial contribution to the body of knowledge.

6.5.4 Estimation techniques

The context of this study adopted a series of econometric estimations to answer research questions and test research hypotheses. Descriptive statistics was used to understand data distribution tendencies; the VECM was used to establish model stability and error correction diagnostics, whereas GMM was used to test the relationship of variables as well as limit the challenge of endogeneity. The impulse response approach was adopted to forecast long and short run reactions of explanatory variables on probably shocks on dependent variables. The causality estimation was adopted to establish causal effects among the variables. This is very important in firm level decision-making and host market development of aspects, which are compatible to FDI inflows. These set of approaches are rarely adopted extensively in a single study, and hence makes an important contribution to international business literature, essentially because of the stability and reliability of the findings.

6.6 Recommendations

In the context of the present study, this section discusses recommendations that are deduced from literature review conducted in chapters two and three, as well as the empirical results in chapter five. In line with the rest of the study, this section accounts for both MNEs and host markets.

As indicated in the analysis, evidence suggests that African host markets have a potential to attract more FDI inflows only if aspects in host markets are conducive to MNEs investment, and if their profit objectives. To achieve this, there is a need for African host markets to improve fundamental aspects that attract investment. In fact, government must induce internal investment and improve macroeconomic investments such that aspects in host markets are inevitably improved.

From the results, undeniable evidence point out that host markets who receive more FDI inflows have a big economic size, big industry to support investment, high demand of goods and services and a good infrastructure. These results resonates well with a number of studies, which were reviewed in Chapters Two and Three.

For instance, Porter's competitive advantage theory (1990), which has been echoed by a series of conceptual and empirical studies, asserts that these conditions are fundamental in creating path dependency of inward inflows in host destinations. This position has also been supported by a few studies (Rugman and Verbeke, 1993; Rugman, 2014; Rugman and Eden, 2017).

From a firm level perspective, a number of recommendations can be nuanced. Evidence from the study points out that a number of explanatory variables such as the size of the firm; firm efficiency (ROA) and profitability in host market (ROE) are fundamental aspects in creating institutional idiosyncrasies that enhance firm heterogeneity. This is consistent with a number of studies, prominent among them is Dunning's classical OLI theory (2015); process theory of Johanson and Valne (2015); Resources Based Views (Penrose 1959, 2009; Barney, 1991; Barney and Mackey, 2016; Teece, 2010, 2014). The results from this study indicate that firm heterogeneity is essential in firm level adjustment in foreign markets.

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6.7 Conclusion

As informed by literature review in chapters two and three, this study established relationship between internationalisation theories and outward FDI. Consistent with literature review, there is undeniable sequence of path dependency between firm heterogeneity and market level aspects as uncovered in this study. Nonetheless, the intensity of the relationship seems to vary with the industrial segment. The industrial process seems to stem from firm level objectives, which are motivated by the internal capacities and host markets aspects. Another aspect established from literature review and reinforced by this study is that internationalisation process is incremental in nature, and reactive to prospects in host markets.

In regards to firm level results, the present study finds evidence that firm heterogeneity is fundamental in the internationalisation process as push factors. In retail industry, evidence conclude that the *size* of the firm, efficiency as measured by *ROA* and prospects in host markets as measured by *ROE*, all enhance the internationalisation process of MNEs and firm level adjustments in host markets. These aspects also create path dependency with host market demand and infrastructure, and subsequently, the choice of expansion strategies.

Empirical evidence from this study was able to establish that MNEs in retail industry adopts both *joint venture* and *wholly owned subsidiaries* as preferred expansion strategies, which would not only result in job creation for the host market, but also helps to boost fiscal stability in the host market. Efforts should thus be directed towards creating necessary infrastructural renewal that would enhance the attractiveness of the sampled African markets to inflow of FDI, essential investments from South Africa.

Furthermore, empirical evidence from this study suggests that the size of the firm and prospects of demand in host markets are strong determinants of internationalisation process in the mining industry. Although, the resource-seeking aspiration of participants in this industry cannot be undervalued, the role of firm level adjustments in the host market is also important. To this extent, environmental pool factors have to be improved and regulatory intervention may be required to achieve this on a sustainable basis, especially given that investments in mining industry is capital intensive and break even analysis always suggests a very long financial period.

Although, empirical evidence from this study points out that industry participants in the retail industry adopts both joint ventures and wholly owned subsidiaries, the strive to commit non-easily reversible investments in host markets should be encouraged with regulatory and subsidy-related incentives. The application of instruments of trade/investment promotion to entice long-term orientated investment would further the attractiveness of the offshore markets, albeit on a competitive basis.

Evidence from technology industry indicates that firm level aspect “pushes out” investment to host markets. In this instance, there is more intensity on push aspects from MNEs that are deemed to be efficiency-seeking. These aspects also create path dependency with host market demand and infrastructure, and they subsequently determine the expansion strategies that are adopted by MNEs in offshore markets. Evidence points out that MNEs in retail industry adopts both *joint venture* and *subsidiaries*. Empirical evidence in this sector strongly indicates that investment is incremental.

This finding suggests that regulatory intervention may be required boost the attractiveness of offshore markets, essentially in the areas of local skills and competence development. In addition, the expansion of domestic skilled manpower will not only improve the household per capita income but also the technological development of the host countries as well.

Furthermore, evidence from financial industry indicates that firm level aspect “pushes out” investment to host markets. In this instance, there is more intensity on push aspects from MNEs that are deemed to be efficiency seeking. These aspects also create path dependency with host market demand capacity and infrastructural development. These two dimensions collective influence the expansion strategies adopted by MNEs in host markets, which are either joint ventures or wholly owned subsidiary, or both. Given the efficiency-orientation of this industry, the need to upgrade infrastructural facilities and improve market capacity cannot be overemphasised.

6.8 Suggestions for further study

Within the subject of international business, the topic of structural linkage between internationalisation theories and their implications on outward foreign direct investment is one of the vigorously debated topics that cannot be exhausted in one study. The present study investigated the roles of internationalisation theories (firm level heterogeneity) and their influence on the direction of outward FDI. The study also looked at linkages that create path dependency and influence adoption of expansion strategies in offshore markets.

The evidence generated from this study indicates that in all sectors investigated, there is path dependency of firm and market level aspects, although path dependency aspects seem to vary per economic sector. Even through the present study was successful in answering the research questions, accomplishing research objectives and testing research hypothesis, the study did not endeavour to understand the influence of geographical and cultural aspects of outward FDI. This is a notable shortcoming because; there is an ongoing argument that most MNEs are not global but rather regional. Further studies may therefore be required to investigate the impact of regional dynamics (which is documented in gravity models as “distance”). This may be of particular interest especially considering the geographical spread of South African originated MNEs in other African offshore markets.

References

Adams, S., 2009. Foreign direct investment, domestic investment, and economic growth in Sub-Saharan Africa. *Journal of Policy Modelling*, *31*(6), pp.939-949.

Åkerman, N., 2014. An international learning typology: strategies and outcomes for internationalizing firms. *Baltic Journal of Management*, *9*(4), pp.382-402.

Alfaro, L., Chanda, A., Kalemli-Ozcan, S. and Sayek, S., 2004. FDI and economic growth: the role of local financial markets. *Journal of international economics*, *64*(1), pp.89-112.

Almor, T., 2013.Conceptualizing paths of growth for technology-based born-global firms originating in a small-population advanced economy. *International Studies of Management and Organization*, *43*(2), pp.56-78.

Alogoskoufis, G. and Smith, R., 1991. On error correction models: specification, interpretation, estimation. *Journal of Economic Surveys*, *5*(1), pp.97-128.

Amighini, A., Rabellotti, R. and Sanfilippo, M., 2012. Do Chinese SOEs and private companies differ in their foreign location strategies?

Andref, W. and Balcet, G. (2013). Emerging countries' multinational companies investing in developed countries: at odds with the HOS paradigm. *The European Journal of Comparative Economics*. Vol. 10, No.1, pp. 3-26.

Andreff, W. and Balcet, G., 2015. Emerging Multinational Companies Investing in Developed Countries: At Odds with HOS? *World Scientific Reference on Globalisation in Eurasia and the Pacific Rim: (In 4 Volumes) Volume 1: Foreign Investment Volume 2: Innovation Volume 3: Energy: Policy, Legal and Social-Economic Issues under the Dimensions of Sustainability and Security Volume 4: Migration: Economic Drivers of Contemporary Labour Mobility in East Asia*, p.313.

Andreff, W., 2014. Outward foreign direct investment by Brazilian and Indian multinational companies: comparison with Russian-Chinese multinationals.

Anyanwu, J.C. and Yameogo, N.D., 2015. What drives foreign direct investments into West Africa? An empirical investigation. *African Development Review*, *27*(3), pp.199-215.

Anyanwu, J.C., 2017. Foreign direct investment. *Handbook of globalisation and development*, *8*, pp.131-152.

Aregbeshola, R. A. 2014. Effects of Capital Market Development on Inflow of Foreign Direct Investment to African Countries; unpublished PhD Thesis, University of the Witwatersrand Business School, Park Town, Johannesburg.

Aregbeshola, R.A., 2016. The Relationship between Capital Market Development and Inflow of Foreign Direct Investment in Africa-a VECM-conditioned Impulse. Kasmera, Vol. 44 Issue: 1, pp. 452-470.

Aregbeshola, R. A. 2017. The Political Economy of Foreign Expansion; in Aregbeshola, R. A. *Global Business Management,* Cape Town, Juta; pages 75 to 91.

Aregbeshola, R. A., 2018. The machination of foreign direct investment flow to emerging markets – a focus on Africa", African Journal of Economic and Management Studies, Vol. 9 Issue: 4, pp.430-448.

Arellano, M. and Bond, S., 1991. Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The review of economic studies*, *58*(2), pp.277-297.

Arellano, M. and Bover, O., 1995. Another look at the instrumental variable estimation of error-components models. *Journal of econometrics*, *68*(1), pp.29-51.

Artopoulos, A., Friel, D. and Hallak, J.C., 2011. *Lifting the domestic veil: the challenges of exporting differentiated goods across the development divide* (No. w16947).National Bureau of Economic Research.

Ashraf, A., Herzer, D. and Nunnenkamp, P., 2016. The effects of Greenfield FDI and cross-border M&As on total factor productivity. *The world economy*, *39*(11), pp.1728-1755.

Aspelund, A., 2010. International entrepreneurship and international new ventures. Power Point slides. University of Oslo. Norway.

Balabanis, G. and Diamantopoulos, A., 2004. Domestic country bias, country-of-origin effects, and consumer ethnocentrism: a multidimensional unfolding approach. *Journal of the Academy of Marketing Science*, *32*(1), pp.80-95.

Baldwin, J.R. and Li, J., 2017. *The Changing Importance of Foreign Control in Canadian Manufacturing* (No. 2016387e). Statistics Canada, Analytical Studies Branch.

Baldwin, J.R. and Yan, B., 2015. *Empirical Evidence from Canadian Firm-level Data on the Relationship between Trade and Productivity Performance* (pp. 1974-1999). Statistics Canada= Statistique Canada.

Baldwin, J.R. and Yan, B., 2016. *Global value chain participation and the productivity of Canadian manufacturing firms*. Institute for Research on Public Policy.

Baldwin, J.R., Gu, W., Sydor, A. and Yan, B., 2017. Material Offshoring: Alternate Measures. *Review of Income and Wealth*, *63*(2), pp.253-268.

Baltagi, B., 2008. *Econometric analysis of panel data*. John Wiley and Sons.

Baltagi, B.H. and Bresson, G., 2017. Modelling Housing Using Multi-dimensional Panel Data. In *The Econometrics of Multi-dimensional Panels* (pp. 349-376).Springer, Cham.

Baltagi, B.H., 2011. *Spatial panels* (pp. 435-454). Chapman and Hall: London.

Barney, J., 1991. Firm resources and sustained competitive advantage. Journal of management, 17(1), pp.99-120.

Barney, J.B. and Mackey, A., 2016. Text and metatext in the resource-based view. *Human Resource Management Journal*, *26*(4), pp.369-378.

Barney, J.B. and Peteraf, M.A., 2014. Comment on Hashai and Buckley: Transactions costs, capabilities, and corporate advantage considerations in theories of the multinational enterprise. Global Strategy Journal, 4(1), pp.70-73.

Barney, J.B., 2001. Resource-based theories of competitive advantage: A ten-year retrospective on the resource-based view. *Journal of management*, *27*(6), pp.643-650.

Barney, J.B., 2014. How marketing scholars might help address issues in resource-based theory. *Journal of the Academy of Marketing Science*, *42*(1), pp.24-26.

Bell, J. and Young, S., 2016. 1 Towards an Integrative Framework. *Internationalisation: Process, Context and Markets*, p.1.

Bellak, C., 2013. How bilateral investment treaties impact on foreign direct investment: A meta-analysis of public policy. In *Version for 2013 MAER Network Colloquium*.

Bernard, A.B., Bøler, E.A., Massari, R., Reyes, J.D. and Taglioni, D., 2017. Exporter dynamics and partial-year effects. *American Economic Review*, *107*(10), pp.3211-3228.

Bernard, A.B., Jensen, J.B. and Schott, P.K., 2001. *Factor price equality and the economies of the United States* (No. w8068).National bureau of economic research.

Boddewyn, J.J., 2015. Political aspects of MNE theory. In *The Eclectic Paradigm* (pp. 85-110). Palgrave Macmillan UK.

Breitung, J., Brüggemann, R. and Lütkepohl, H., 2004. Structural vector autoregressive modeling and impulse responses. *Applied time series econometrics*.

Buckley, P., 2014. *The multinational enterprise and the emergence of the global factory*.Springer.

Buckley, P.J. and Casson, M., 1976. The future of the multinational enterprise. *New York: The McMillan Company, Buckley. The Future of the Multinational Enterprise1976*.

Buckley, P.J. and Casson, M., 1996. An economic model of international joint venture strategy. *Journal of international business studies*, *27*(5), pp.849-876.

Buckley, P.J. and Casson, M., 2010. The optimal timing of a foreign direct investment. In *The Multinational Enterprise Revisited* (pp. 25-40). Palgrave Macmillan, London.

Buckley, P.J. and Casson, M., 2014. Marketing and the multinational: Extending internalisation theory. *The multinational enterprise and the emergence of the global factory*, pp.20-51.

Buckley, P.J. and Casson, M., 2016. *The future of the multinational enterprise*. Springer.

Buckley, P.J. and Verbeke, A., 2016. Smiling and crying curves in international business. *International Business Review*, *3*(25), pp.749-752.

Buckley, P.J., 2015. Key Research Issues for the International Business Agenda. *MNE Academy journal*, (8), pp.1-14.

Buckley, P.J., Chen, L., Clegg, L.J. and Voss, H., 2018. Risk propensity in the foreign direct investment location decision of emerging multinationals. *Journal of International Business Studies*, *49*(2), pp.153-171.

Camagni, R., 2017. On the Concept of Territorial Competitiveness: Sound or Misleading? In *Seminal Studies in Regional and Urban Economics* (pp. 93-113).Springer, Cham.

Camagni, R., 2017. Regional competitiveness: towards a concept of territorial capital. In *Seminal Studies in Regional and Urban Economics* (pp. 115-131). Springer, Cham.

Campos, N.F., Hanousek, J. and Filer, R.K., 1999. *Do Stock Markets Promote Economic Growth?* (No. wp151).The Center for Economic Research and Graduate Education-Economics Institute, Prague.

Cantwell, J. and Salmon, J., 2016. Vernon's Contribution to International Business. *The Palgrave Encyclopedia of Strategic Management*, pp.1-4.

Cantwell, J., 2015. An introduction to the eclectic paradigm as a meta-framework for the cross-disciplinary analysis of international business. In *The Eclectic Paradigm* (pp. 1-22). Palgrave Macmillan UK.

Casson, M., 2015. Coase and international business: The origin and development of internalisation theory. Managerial and Decision Economics, 36(1), pp.55-66.

Casson, M., 2016. Alan Rugman's methodology. International Business Review, 25(3), pp.758-766.

Caves, R.E., 1974. Multinational firms, competition, and productivity in host-country markets. *Economica*, *41*(162), pp.176-193.

Cavusgil, S.T. and Knight, G., 2015. The born global firm: An entrepreneurial and capabilities perspective on early and rapid internationalisation. *Journal of International Business Studies*, *46*(1), pp.3-16.

Chudik, A. and Pesaran, M.H., 2017. A Bias-Corrected Method of Moments Approach to Estimation of Dynamic Short-T Panels.

Chudik, A., Mohaddes, K., Pesaran, M.H. and Raissi, M., 2017. Is there a debt-threshold effect on output growth? *Review of Economics and Statistics*, *99*(1), pp.135-150.

Coase, R.H., 1937. The nature of the firm. economica, 4(16), pp.386-405.

Collinson, S., Narula, R. and Rugman, A.M., 2016. *International business*. Pearson.

Coviello, N., 2015. Re-thinking research on born globals. *Journal of International Business Studies*, *46*(1), pp.17-26.

Crescenzi, R., Gagliardi, L. and Iammarino, S., 2015. Foreign multinationals and domestic innovation: Intra-industry effects and firm heterogeneity. *Research Policy*, *44*(3), pp.596-609.

Creswell, J.W. and Creswell, J.D., 2017. *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

Cross, A.R., Buckley, P.J., Clegg, J., Voss, H., Rhodes, M., Zheng, P. and Lui, X., 2007. An econometric investigation of Chinese outward direct investment. Edward Elgar.

Deng, P. and Yang, M., 2015. Cross-border mergers and acquisitions by emerging market firms: A comparative investigation. *International Business Review*, *24*(1), pp.157-172.

Deng, P., 2013. Chinese Outward Direct Investment Research: Theoretical Integration and Recommendations. *Management and Organization Review*, *9*(3), pp.513-539.

Bestpfe.com

Ding, S., Guariglia, A. and Harris, R., 2016. The determinants of productivity in Chinese large and medium-sized industrial firms, 1998–2007. *Journal of Productivity Analysis*, *45*(2), pp.131-155.

Dominguez, N. and Mayrhofer, U., 2017. Internationalisation stages of traditional SMEs: Increasing, decreasing and re-increasing commitment to foreign markets. *International Business Review*.

Dong, Y. and Fan, C., 2017.The effects of China's aid and trade on its ODI in African countries. *Emerging Markets Review*, *33*, pp.1-18.

Duanmu, J.L., 2012. Firm heterogeneity and location choice of Chinese multinational enterprises (MNEs). *Journal of World Business*, *47*(1), pp.64-72.

Dunning, J.H., 2001. The eclectic (OLI) paradigm of international production: past, present and future. *International journal of the economics of business*, *8*(2), pp.173-190.

Dunning, J.H., 2003, May. Determinants of foreign direct investment: globalization-induced changes and the role of policies. In *Annual World Bank Conference on Development Economics, Europe, "Toward Pro-Poor Policies Aid, Institutions, and Globalization. Edited by Bertil Tungodden, Nicholas Stern, and Ivar Kolstad* (pp. 279-290).

Dunning, J.H., 2013. *Multinationals, Technology and Competitiveness (RLE International Business)* (Vol. 13).Routledge.

Dunning, J.H., 2015. Reappraising the eclectic paradigm in an age of alliance capitalism.In *The Eclectic Paradigm* (pp. 111-142). Palgrave Macmillan UK.

Estrin, S. (2017). Foreign direct investment and employment in transition economies. IZA

World of Labor

Feenstra, R.C., 2015. *Advanced international trade: theory and evidence*.Princeton university press.

Flentø, D. and Ponte, S., 2017. Least-developed countries in a world of global value chains: are WTO trade negotiations helping? *World Development*, *94*, pp.366-374.

Fletcher, M. and Harris, S., 2012. Knowledge acquisition for the internationalisation of the smaller firm: Content and sources. *International Business Review*, *21*(4), pp.631-647.

Fryges, H., Vogel, A. and Wagner, J., 2015. The impact of R and D activities on exports of German business services enterprises: first evidence from a continuous treatment approach. *The World Economy*, *38*(4), pp.716-729.

Gabrielsson, P. and Gabrielsson, M., 2013. A dynamic model of growth phases and survival in international business-to-business new ventures: the moderating effect of decision-making logic. *Industrial Marketing Management*, *42*(8), pp.1357-1373.

Ghauri, P.N., 2018. Multinational Enterprises and Sustainable Development in Emerging Markets. In *Global Phenomena and Social Sciences* (pp. 21-36). Springer, Cham.

Goerzen, A. and Beamish, P.W., 2003. Geographic scope and multinational enterprise performance. *Strategic Management Journal*, *24*(13), pp.1289-1306.

Granger, C.W., 1969.Investigating causal relations by econometric models and cross-spectral methods. *Econometrica: Journal of the Econometric Society*, pp.424-438.

Granger, C.W., 1980. Testing for causality: a personal viewpoint. *Journal of Economic Dynamics and control*, *2*, pp.329-352.

Griffin, R.W. and Pustay, M., 2010. Strategies for analyzing and entering foreign markets. *International Business (6th ed.). Upper Saddle River, NJ: Prentice Hall*.

Grossman, G.M. and Helpman, E., 2004. Managerial incentives and the international organization of production. *Journal of International Economics*, *63*(2), pp.237-262.

Grossman, G.M. and Helpman, E., 2015. Globalization and growth. *American Economic Review*, *105*(5), pp.100-104.

Grossman, G.M., Helpman, E. and Kircher, P., 2017. Matching, sorting, and the distributional effects of international trade. *Journal of political economy*, *125*(1), pp.224-264.

Gu, W. and Li, J., 2017. Multinationals and Reallocation: Productivity Growth in the Canadian Manufacturing Sector, 2001–2010. *Canadian Public Policy*, *43*(S2), pp.S15-S28.

Gujarati, D., 2014. *Econometrics by example*. Palgrave Macmillan.

Hall, B.H., Moncada-Paternò-Castello, P., Montresor, S. and Vezzani, A., 2016. Financing constraints, R&D investments and innovative performances: new empirical evidence at the firm level for Europe.

Harris, R. and Moffat, J., 2015. Plant-level determinants of total factor productivity in Great Britain, 1997–2008. *Journal of Productivity Analysis*, *44*(1), pp.1-20.

BESTNAIJA.COM
List of research project topics and materials

Harris, R. and Moffat, J., 2015. Total factor productivity growth in local enterprise partnership regions in Britain, 1997–2008. *Regional Studies*, *49*(6), pp.1019-1041.

Hashai, N. and Buckley, P.J., 2014. Is competitive advantage a necessary condition for the emergence of the multinational enterprise? *Global Strategy Journal*, *4*(1), pp.35-48.

Helpman, E., 2014. Foreign Trade and Investment: Firm-level Perspectives. *Economica*, *81*(321), pp.1-14.

Helpman, E., Melitz, M.J. and Yeaple, S.R., 2004. Export versus FDI with heterogeneous firms. *American economic review*, *94*(1), pp.300-316.

Hernández, V. and Nieto, M.J., 2016.Inward–outward connections and their impact on firm growth. *International Business Review*, *25*(1), pp.296-306.

Hervas-Oliver, J.L., Lleo, M. and Cervello, R., 2017. The dynamics of cluster entrepreneurship: Knowledge legacy from parents or agglomeration effects? The case of the Castellon ceramic tile district. *Research Policy*, *46*(1), pp.73-92.

Herzer, D. and Donaubauer, J., 2018. The long-run effect of foreign direct investment on total factor productivity in developing countries: a panel cointegration analysis. *Empirical Economics*, *54*(2), pp.309-342.

Hillemann, J. and Verbeke, A., 2015. Efficiency-driven, comparative institutional analysis in international business. *The Multinational Business Review*, *23*(3), pp.188-199.

Hotho, J.J., Lyles, M.A. and Easterby-Smith, M., 2015. The mutual impact of global strategy and organizational learning: Current themes and future directions. *Global Strategy Journal*, *5*(2), pp.85-112.

Hymer, S.H., 1976. *International operations of national firms*. MIT press.

Isaacson, E. and Keller, H.B., 2012. *Analysis of numerical methods*. Courier Corporation.

Johannson, J. and Wiedersheim-Paul, F., 1975. The internationalization of the firm. *Journal of Management Studies*, *7*(4), p.305ff.

Johansen, S. and Juselius, K., 1990. Maximum likelihood estimation and inference on cointegration—with applications to the demand for money. *Oxford Bulletin of Economics and statistics*, *52*(2), pp.169-210.

Johansen, S., 1988. Statistical analysis of cointegration vectors. *Journal of economic dynamics and control*, *12*(2-3), pp.231-254.

Johanson, J. and Vahlne, J.E., 1977. The internationalization process of the firm—a model of knowledge development and increasing foreign market commitments. *Journal of international business studies*, *8*(1), pp.23-32.

Johanson, J. and Vahlne, J.E., 2015. The Uppsala internationalisation process model revisited. *International Business Strategy: Theory and Practice*, p.33.

Jones, M.V. and Casulli, L., 2014. International entrepreneurship: Exploring the logic and utility of individual experience through comparative reasoning approaches. *Entrepreneurship Theory and Practice*, *38*(1), pp.45-69.

Jones, M.V. and Casulli, L., 2014. International entrepreneurship: Exploring the logic and utility of individual experience through comparative reasoning approaches. *Entrepreneurship Theory and Practice*, 38(1), pp.45-69.

Kim, J.U. and Aguilera, R.V., 2016. Foreign location choice: Review and extensions. *International Journal of Management Reviews*, *18*(2), pp.133-159.

Knight, J., 2015.New rationales driving internationalisation. *International Higher Education*, (34).

Knight, J., 2015.Updated definition of internationalisation. *International higher education*, (33).

Kolstad, I. and Wiig, A., 2012. What determines Chinese outward FDI?. *Journal of World Business*, *47*(1), pp.26-34.

Koop, G. and Korobilis, D., 2010. Bayesian multivariate time series methods for empirical macroeconomics. *Foundations and Trends® in Econometrics*, *3*(4), pp.267-358.

Krugman, P.R., 1979. Increasing returns, monopolistic competition, and international trade. *Journal of international Economics*, *9*(4), pp.469-479.

Lebedev, S., Peng, M.W., Xie, E. and Stevens, C.E., 2015. Mergers and acquisitions in and out of emerging economies. *Journal of World Business*, *50*(4), pp.651-662.

Ledenyov, D.O. and Ledenyov, V.O., 2013. On the accurate characterization of business cycles in nonlinear dynamic financial and economic systems. *arXiv preprint arXiv:1304.4807*.

Lee, H.H. and Ries, J., 2016. Aid for trade and greenfield investment. *World Development*, *84*, pp.206-218.

Lee, H.H., 2016. Policy Factors Influencing FDI Inflows to Developing Countries. *Asian Development Bank Asian Economic Integration Report*.

Lessard, D., Teece, D.J. and Leih, S., 2016. The dynamic capabilities of Meta-multinationals. *Global Strategy Journal*, *6*(3), pp.211-224.

Levin, A., Lin, C.F. and Chu, C.S.J., 2002. Unit root tests in panel data: asymptotic and finite-sample properties. *Journal of econometrics*, *108*(1), pp.1-24.

Levine, R. and Zervos, S.J., 1993. What we have learned about policy and growth from cross-country regressions? *The American Economic Review*, *83*(2), pp.426-430.

Liu, B.H., 2017. *Statistical genomics: linkage, mapping, and QTL analysis*. CRC press.

Liu, H., Fang, C., Zhang, X., Wang, Z., Bao, C. and Li, F., 2017. The effect of natural and anthropogenic factors on haze pollution in Chinese cities: A spatial econometrics approach. *Journal of cleaner production*, *165*, pp.323-333.

Liu, T.M., 2017. Testing on-site sampling correction in discrete choice experiments. *Tourism Management*, *60*, pp.439-441.

Luo, Y. and Tung, R.L., 2017. A general theory of springboard MNEs. *Journal of International Business Studies*, pp.1-24.

Luo, Y. and Wang, S.L., 2012. Foreign direct investment strategies by developing country multinationals: A diagnostic model for home country effects. *Global Strategy Journal*, *2*(3), pp.244-261.

Magnani, G., Zucchella, A. and Floriani, D.E., 2017. The logic behind foreign market selection: Objective distance dimensions vs. strategic objectives and psychic distance. *International Business Review*.

Mao, G., 2015. Model selection of M-estimation models using least squares approximation. *Statistics & Probability Letters*, *99*, pp.238-243.

Mao, G., 2015. Testing for Error Cross-Sectional Independence in a Two-Way Error Components Panel Data Model.

Meyer, M.W., 2017. Going Out by Going In: Business Model Innovation with Chinese Characteristics. *Thunderbird International Business Review*.

Moon, H.C. and Yim, S., 2014. Re-interpreting Ownership Advantages and Re-categorizing Investment Motivations of Multinational Corporations: From the Perspective of Imbalance Theory. *Journal of International and Area Studies*, pp.87-99.

Mourao, P.R., 2017. What is China seeking from Africa? An analysis of the economic and political determinants of Chinese Outward Foreign Direct Investment based on Stochastic Frontier Models. China Economic Review.

Mourao, P.R., 2018. What is China seeking from Africa? An analysis of the economic and political determinants of Chinese Outward Foreign Direct Investment based on Stochastic Frontier Models. *China Economic Review*, *48*, pp.258-268.

Narula, R. and Pineli, A., 2017. Multinational Enterprises and Economic Development in Host Countries: What We Know and What We Don't Know. In Development Finance (pp. 147-188). Palgrave Macmillan, London.

Narula, R. and Pineli, A., 2017. Multinational enterprises and economic development in host countries: What we know and what we don't know. In *Development finance* (pp. 147-188). Palgrave Macmillan, London.

Narula, R. and Verbeke, A., 2015. Making internalization theory good for practice: The essence of Alan Rugman's contributions to international business. *Journal of World Business*, *50*(4), pp.612-622.

Narula, R., 2016. *The Modern MNE as an Efficient Meta-integrator: Emerging Market MNEs Need to Foster Internal Embeddedness to Succeed* (No. jhd-dp2016-02). Henley Business School, Reading University.

Narula, R., 2017. Emerging market MNEs as meta-integrators: the importance of internal networks. *International Journal of Technology Management,* 74(1-4), pp.214-220.

Narula, R., 2017. Emerging market MNEs as meta-integrators: the importance of internal networks. International Journal of Technology Management, 74(1-4), pp.214-220.

Nguyen, Q.T. and Rugman, A.M., 2015. Multinational subsidiary sales and performance in South East Asia. *International Business Review*, *24*(1), pp.115-123.

OECD. (2011). Globalisation, comparative advantage and the changing dynamics of trade. Paris: OECD.

Oh, C.H. and Li, J., 2015. Commentary: Alan Rugman and the theory of the regional multinationals. *Journal of World Business*, *50*(4), pp.631-633.

Padmaja, M. and Sasidharan, S., 2017. Sunk Costs, Firm Heterogeneity, Export Market Entry and Exit: Evidence from India. *Journal of Quantitative Economics*, *15*(2), pp.367-393.

Pathan, S.K., 2017. An empirical analysis of the impact of three important aspects of Eclectic Paradigm on Foreign Direct Investment (FDI). *International Research Journal of Arts & Humanities* (IRJAH), 45(45).

Pellegrino, J.M. and McNaughton, R.B., 2015. The co-evolution of learning and internationalisation strategy in international new ventures. *Management International Review*, *55*(4), pp.457-483.

Penrod, J., Preston, D.B., Cain, R.E. and Starks, M.T., 2003.A discussion of chain referral as a method of sampling hard-to-reach populations. *Journal of Transcultural nursing*, *14*(2), pp.100-107.

Penrose, E.T., 1959. *The Theory of the Growth of the Firm*. Oxford university press.

Penrose, E.T., 2009. *The Theory of the Growth of the Firm*.Oxford university press.

Pesaran, M.H. and Shin, Y., 1998. An autoregressive distributed-lag modelling approach to cointegration analysis. *Econometric Society Monographs*, *31*, pp.371-413.

Pesaran, M.H., 2007. A pair-wise approach to testing for output and growth convergence. *Journal of Econometrics*, *138*(1), pp.312-355.

Pezeshkan, A., Smith, A., Fainshmidt, S. and Sedeh, A.A., 2016. National business systems and firm innovation: A study of developing economies. *Journal of Business Research*, *69*(11), pp.5413-5418.

Porter, M.E., 1990. The competitive advantage of nations. *Harvard business review*, *68*(2), pp.73-93.

Pradhan, R.P., Arvin, M.B., Hall, J.H. and Nair, M., 2017. Trade openness, foreign direct investment, and finance-growth nexus in the Eurozone countries. *The Journal of International Trade & Economic Development*, *26*(3), pp.336-360.

Prats, M.A. and Sandoval, B., 2017.On the relationship between financial systems and economic growth. *International Advances in Economic Research*, *23*(1), pp.133-135.

Rodríguez-Pose, A. and Cols, G., 2017. The determinants of foreign direct investment in sub-Saharan Africa: What role for governance? *Regional Science Policy and Practice*, 9(2), pp.63-81.

Rugman, A. and Verbeke, A., 2017. *Global corporate strategy and trade policy*. Routledge.

Rugman, A.M. and D'cruz, J.R., 1993. The" double diamond" model of international competitiveness: The Canadian experience. *MIR: Management International Review*, pp.17-39.

Rugman, A.M. and Eden, L. eds., 2017.*Multinationals and transfer pricing*. Routledge.

Rugman, A.M. and Verbeke, A., 1993.How to operationalize Porter's diamond of international competitiveness. *Thunderbird International Business Review*, *35*(4), pp.283-299.

Rugman, A.M., 1993. *Fast forward: Improving Canada's international competitiveness*. DIANE Publishing.

Rugman, A.M., 2010. Reconciling internalization theory and the eclectic paradigm. *Multinational Business Review*, *18*(2), pp.1-12.

Rugman, A.M., 2014. Subsidiary specific advantages and multiple embeddedness in multinational enterprises. *Academy of Multinational Enterprises*, (7), pp.1-8.

Rugman, A.M., Oh, C.H. and Lim, D.S., 2012.The regional and global competitiveness of multinational firms. *Journal of the Academy of Marketing Science*, *40*(2), pp.218-235.

Ruhl, K.J. and Willis, J.L., 2017. New exporter dynamics. *International Economic Review*, *58*(3), pp.703-726.

Sakr, M. and Jordaan, A., 2016. *Emerging Multinational Corporations: a prominent player in the global economy* (No. 201623).

Sakr, M. and Jordaan, A., 2017. *Foreign market selection of emerging multinational corporations: evidence from South African and Egyptian corporations* (No. 201734).

Schmid, S., 2018. *Internationalization of Business*. Springer International Publishing.

Shen, J. and Li, L., 2017. Host countries' growth opportunities and China's outward FDI. *Asian-Pacific Economic Literature*.

Shrader, R.C., Oviatt, B.M. and McDougall, P.P., 2000. How new ventures exploit trade-offs among international risk factors: Lessons for the accelerated internationization of the 21st century. *Academy of Management journal*, 43(6), pp.1227-1247.

Stiebale, J., 2016. Cross-border M&As and innovative activity of acquiring and target firms. *Journal of International Economics*, *99*, pp.1-15.

Stiglitz, J.E., 2017. Monopolistic Competition, the Dixit-Stiglitz Model, and Economic Analysis. *Research in Economics*.

Strange, R. and Magnani, G., 2017. The performance consequences of manufacturing outsourcing: Review and recommendations for future research. In *Breaking up the Global Value Chain: Opportunities and Consequences* (pp. 217-244). Emerald Publishing Limited.

Tang, M.C., 2017. Total factor productivity or labor productivity? Firm heterogeneity and location choice of multinationals. *International Review of Economics and Finance*, *49*, pp.499-514.

Tang, Y. and Pearce, R., 2017. The Growth of Chinese Multinationals: A Micro–Macro, FSA–CSA Framework. In *Growth Frontiers in International Business* (pp. 71-101). Palgrave Macmillan, Cham.

Țaran, A., Mironiuc, M. and Huian, M.C., 2016.Examining the Influence of Some Macroeconomic Factors on Foreign Direct Investments. *Review of Economic and Business Studies*, 9(2), pp.159-182.

Taylor, H.L., 2014. Sector Creation and Evolution: The Role of the State in Shaping the Rise of the Indian Pharmaceutical Sectoral Business System. In *Multinational Corporations from Emerging Markets* (pp. 109-129). Palgrave Macmillan UK.

Teece, D.J., 2010. Business models, business strategy and innovation. *Long range planning*, *43*(2), pp.172-194.

Teece, D.J., 2014. A dynamic capabilities-based entrepreneurial theory of the multinational enterprise. *Journal of International Business Studies*, *45*(1), pp.8-37.

Teece, D.J., 2014. The foundations of enterprise performance: Dynamic and ordinary capabilities in an (economic) theory of firms. *The Academy of Management Perspectives*, *28*(4), pp.328-352.

The United Nations Conference on Trade and Investment (UNCTAD). 2014. Global Investment Trends Monitor. No. 15 (28 January 2014). New York and Geneva: United Nations Conference and Trade and Development.

The United Nations Conference on Trade and Investment (UNCTAD). 2014. Global Investment Trends Monitor. No. 15 (28 January 2014). New York and Geneva: United Nations Conference and Trade and Development.

Uetake, K. and Watanabe, Y., 2017. Entry by merger: Estimates from a two-sided matching model with externalities.

Ulrich, A.M.D., Gretzinger, S. and Hollensen, S., 2017. Getting better integrated into foreign markets supported by the incubator: the case of Linak A/S. In *8th Biennial International Conference on Business Marketing Management in Association with EMAC*.

UNCTAD, G., 2014. Trade and Development Report 2014. *Global governance and policy space for development, UN New York and Geneva*.

Van Houtum, H., 2017. The determinants of cross-border economic relations - the case of the Netherlands and Belgium. Revival: Gaining Advantage from Open Borders (2001): An Active Space Approach to Regional Development.

Verbeke, A. and Asmussen, C.G., 2016. Global, local, or regional? The locus of MNE strategies. *Journal of Management Studies*, *53*(6), pp.1051-1075.

Vernon, R., 1971. Sovereignty at bay: The multinational spread of US enterprises. *Thunderbird International Business Review*, 13(4), pp.1-3.

Vernon, R., 1974. The location of economic activity. *Economic analysis and the multinational enterprise*, pp.89-114.

Vernon, R., 1979. The product cycle hypothesis in a new international environment. *Oxford bulletin of economics and statistics*, *41*(4), pp.255-267.

Wailerdsak, N. and Siengthai, S., 2017. Business Networks in Thailand: Import Substitution, Export Oriented, and Expansion in AEC. In *Business Networks in East Asian Capitalisms* (pp. 211-233). Elsevier.

Wang, H., Liu, H., Cao, Z. and Wang, B., 2016. FDI technology spillover and threshold effect of the technology gap: regional differences in the Chinese industrial sector. *Springer Plus*, *5*(1), p.323.

Wang, M., 2017. Does foreign direct investment affect host-country firms' financial constraints? *Journal of Corporate Finance*, *45*, pp.522-539.

Weder, R., 2017. The Ricardian Trade Model: Implications and Applications. In *200 Years of Ricardian Trade Theory* (pp. 73-97). Springer, Cham.

Williamson, O.E., 1981. The economics of organization: The transaction cost approach. *American journal of sociology*, *87*(3), pp.548-577.

Williamson, O.E., 1989. Transaction cost economics. *Handbook of industrial organization*, *1*, pp.135-182.

Williamson, O.E., 2010. Transaction cost economics: The natural progression. *American Economic Review*, *100*(3), pp.673-90.

Wooldridge, J.M., 2015. *Introductory econometrics: A modern approach*. Nelson Education.

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Xie, Y., 2016. *The Evolving Network of Chinese Multinational Firms* (Doctoral dissertation, School of Economics, Fudan University).

Yeung, H.W.C. and Coe, N., 2015. Toward a dynamic theory of global production networks. *Economic Geography*, *91*(1), pp.29-58.

Yi, J., Chen, Y., Wang, C. and Kafouros, M., 2015. Spillover effects of foreign direct investment: how do region-specific institutions matter? *Management International Review*, 55(4), pp.539-561.

Yimer, A., 2017. Macroeconomic, Political, and Institutional Determinants of FDI Inflows to Ethiopia: An ARDL Approach. In Studies on Economic Development and Growth in Selected African Countries (pp. 123-151).*Springer Singapore*.

Zander, I., McDougall-Covin, P. and Rose, E.L., 2015.Born globals and international business: Evolution of a field of research. *Journal of International Business Studies*, *46*(1), pp.27-35.

Zivot, E. 2012. Estimation and Inference in Cointegration Models. Economics 582 class note: Washington State University. Available online at: https://faculty.washington.edu/ezivot/econ582/cointegrationtestingandestimatingslides.pdf [accessed 2019/01/24].

Zucchella, A. and Magnani, G., 2016. Theoretical Foundations of International Entrepreneurship. In *International Entrepreneurship* (pp. 4-36). Palgrave Macmillan, London.

Appendices

Appendix 1 Table A 1.1 VECM Firm Level Retail Industry

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.778619	0.125633	-6.197589	0.0000***
C(2)	-0.670132	0.146780	-4.565554	0.0000***
C(3)	-0.043893	0.122035	-0.359678	0.7197
C(4)	-16331.48	6231.094	-2.620964	0.0098***
C(5)	-8557.192	6224.231	-1.374819	0.1716
C(6)	-0.070281	0.030981	-2.268543	0.0250***
C(7)	-0.028796	0.032166	-0.895243	0.3724
C(8)	488513.4	121989.2	4.004564	0.0001
C(9)	-35583.03	92039.22	-0.386607	0.6997
C(10)	0.096702	0.026453	3.655587	0.0004
C(11)	-0.036540	0.019609	-1.863408	0.0647***
C(12)	507944.1	88274.76	5.754126	0.0000
C(13)	91083.48	78372.37	1.162189	0.2473
C(14)	-8998.916	74317.10	-0.121088	0.9038
R-squared	0.713128	Mean dependent var		19887.93
Adjusted R-squared	0.683763	S.D. dependent var		1562571.
S.E. of regression	878711.0	Akaike info criterion		30.30431
Sum squared resid	9.81E+13	Schwarz criterion		30.59709
Log likelihood	-2122.454	Hannan-Quinn criter.		30.42329
F-statistic	24.28509	Durbin-Watson stat		1.963275
Prob(F-statistic)	0.000000			

Estimated coefficients on the first line, standard errors in parenthesis (); and t-statistics in brackets [].
The results are computed separately for each equation using the appropriate residuals
**** p<0.01, ** p<0.05, * p<0.1 {Emphasis are placed on *** p<0.01, ** p<0.05}*

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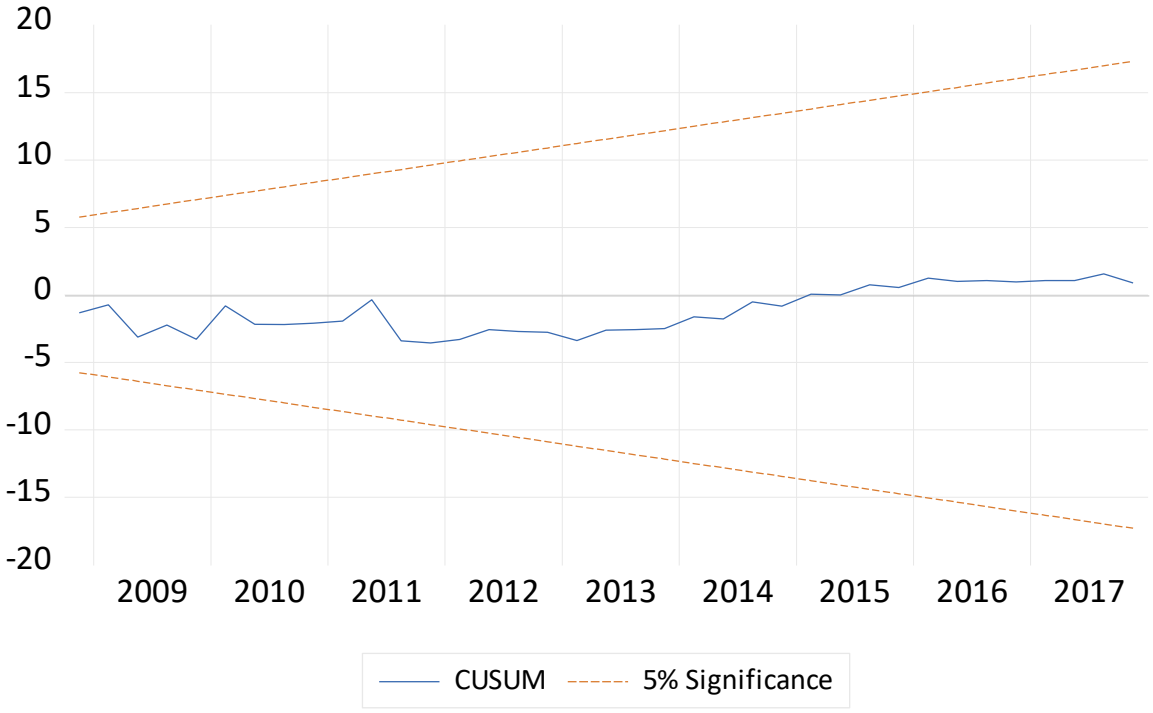
Appendix 2 - Table A 1.2 *VECM (Market level Retail Industry)*

	Coefficient	**Std. Error**	**t-Statistic**	**Prob.**
C(1)	-0.284140	0.062298	-4.560983	0.0000***
C(2)	-0.541897	0.080806	-6.706166	0.0000***
C(3)	-0.420140	0.090850	-4.624546	0.0000***
C(4)	9.79E-10	2.74E-10	3.568377	0.0007
C(5)	-1.04E-10	1.64E-10	-0.635915	0.5271
C(6)	0.255332	0.114929	2.221661	0.0298
C(7)	-0.095397	0.121526	-0.784995	0.4354
C(8)	-0.059682	0.095820	-0.622849	0.5356
C(9)	0.044915	0.089073	0.504251	0.6158
C(10)	0.106712	0.054799	1.947343	0.0559
C(11)	0.012464	0.044577	0.279597	0.7807
C(12)	-0.210502	0.044938	-4.684285	0.0000***
C(13)	-0.023006	0.027439	-0.838416	0.4049
C(14)	-1.890334	0.727037	-2.600051	0.0116**
R-squared	0.774716	Mean dependent var		-1.926119
Adjusted R-squared	0.728956	S.D. dependent var		8.974124
S.E. of regression	4.672102	Akaike info criterion		6.082244
Sum squared resid	1397.027	Schwarz criterion		6.505243
Log likelihood	-223.2075	Hannan-Quinn criter.		6.251578
F-statistic	16.92971	Durbin-Watson stat		1.855433
Prob(F-statistic)	0.000000			

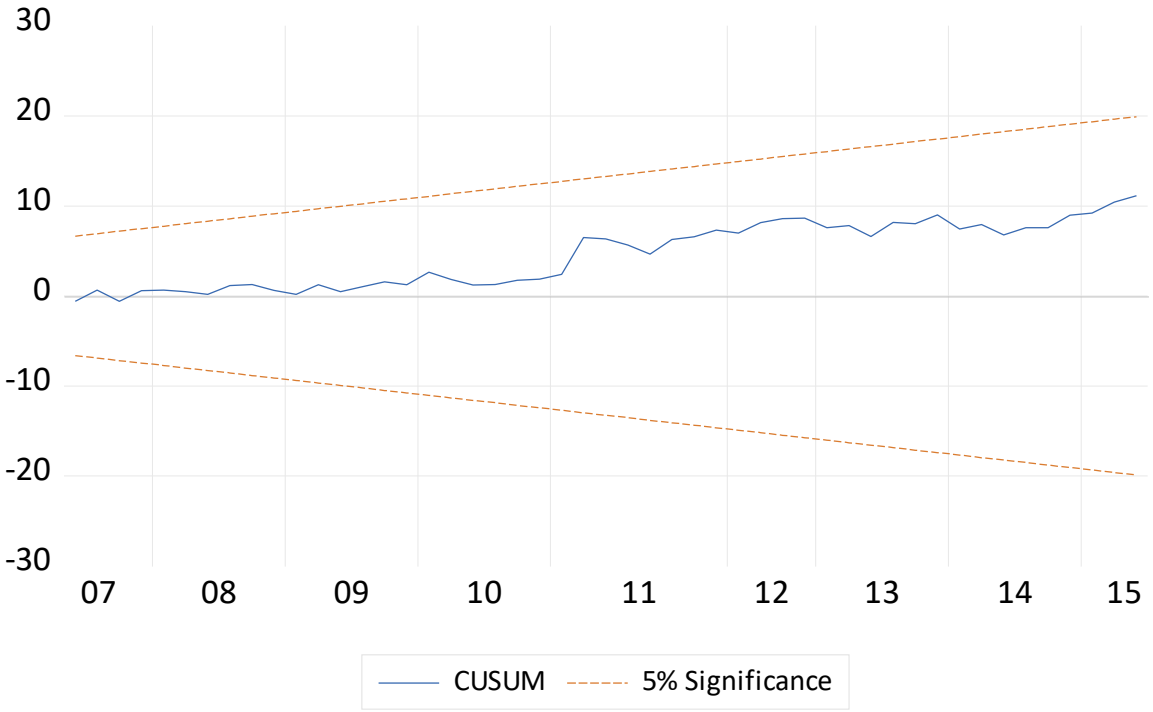
Estimated coefficients on the first line, standard errors in parenthesis (); and t-statistics in brackets [].
The results are computed separately for each equation using the appropriate residuals
**** p<0.01, ** p<0.05, * p<0.1 {Emphasis are placed on *** p<0.01, ** p<0.05}*

Appendix 3 - Figure A 1.1 ***(Cusum Test firm level analysis Retail Industry)***

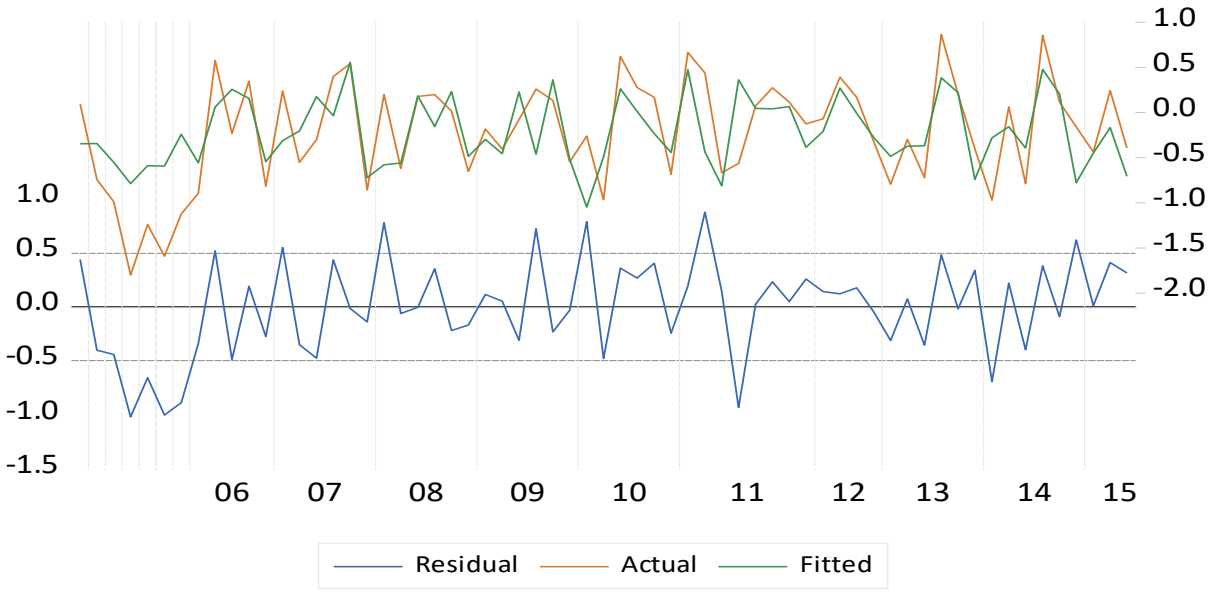


Appendix 4 - Figure A 1.2 - ***Residual Test (Firm level analysis (Retail Industry)***

Appendix 5 – Figure A 1.3 ***Cusum Test Market Level Analysis (Retail Industry)***



Appendix 6 - Figure A 1.4 ***Residual Test Market Level Analysis (Retail Industry)***



Appendix 7 - Table B 1.1 *(VECM Firm level aspects in Mining)*

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.308367	0.182546	-1.689254	0.0979*
C(2)	-0.712023	0.129759	-5.487261	0.0000***
C(3)	-0.778732	0.081060	-9.606816	0.0000***
C(4)	-1.715190	1.589863	-1.078829	0.2863
C(5)	0.373975	1.182288	0.316314	0.7532
C(6)	0.186230	0.233432	0.797791	0.4291
C(7)	0.126677	0.221447	0.572039	0.5701
C(8)	-0.080856	0.093768	-0.862297	0.3930
C(9)	-0.067173	0.078714	-0.853382	0.3979
C(10)	-0.074831	0.330233	-0.226599	0.8217
C(11)	0.064159	0.262422	0.244489	0.8079
C(12)	0.031171	0.568841	0.054798	0.9565
C(13)	0.419692	0.555342	0.755736	0.4537
C(14)	0.060774	0.093547	0.649657	0.5191
R-squared	0.925465	Mean dependent var		0.021095
Adjusted R-squared	0.904400	S.D. dependent var		2.233105
S.E. of regression	0.690458	Akaike info criterion		2.298041
Sum squared residual	21.92969	Schwarz criterion		2.786721
Log likelihood	-54.94122	Hannan-Quinn criter.		2.489190
F-statistic	43.93515	Durbin-Watson stat		2.033045
Prob(F-statistic)	0.000000			

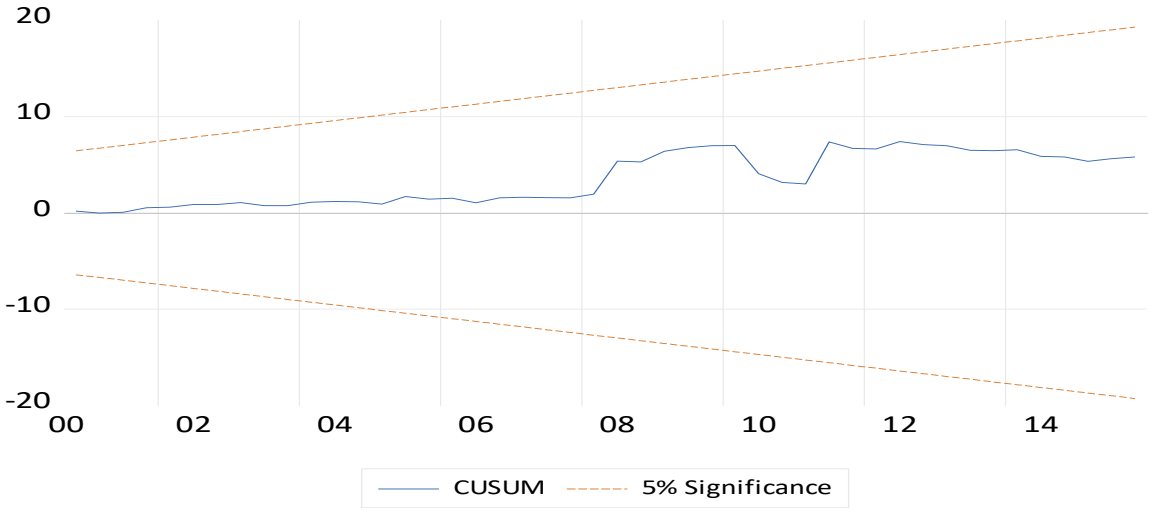
Estimated coefficients on the first line, standard errors in parenthesis (); and t-statistics in brackets [].
The results are computed separately for each equation using the appropriate residuals
**** p<0.01, ** p<0.05, * p<0.1 {Emphasis are placed on *** p<0.01, ** p<0.05}*

Appendix 8 - Table B 1.2 (*VECM Market level aspects Mining)*

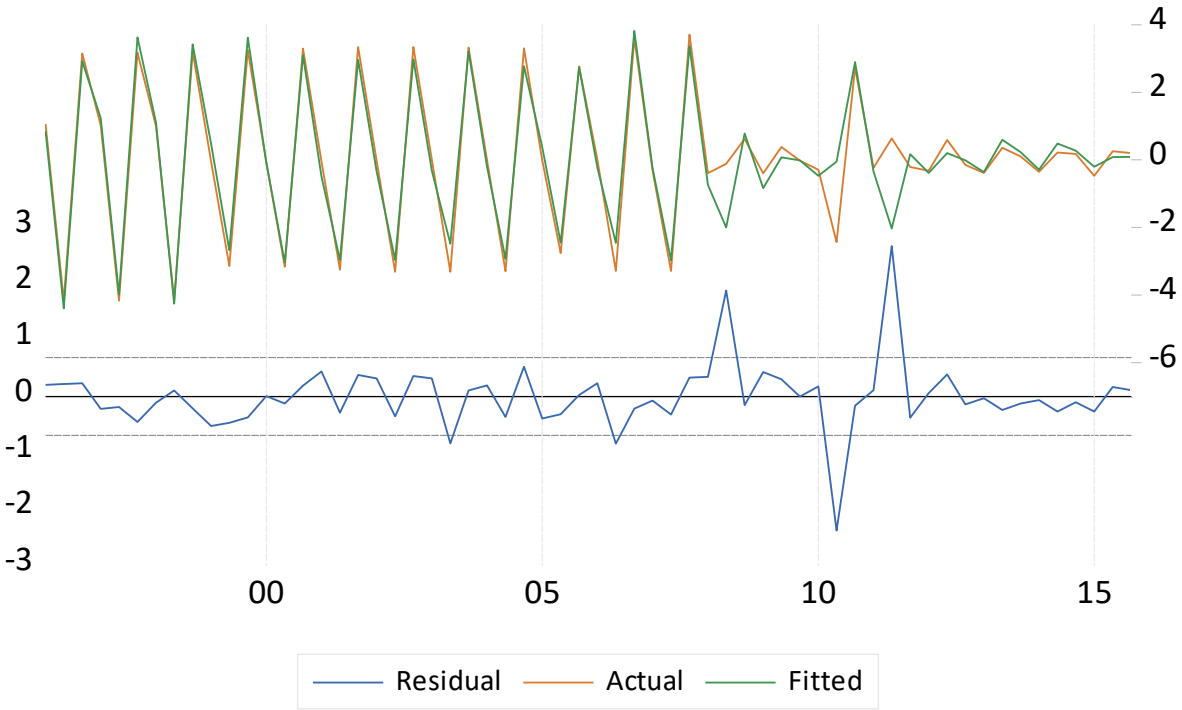
	Coefficient	**Std. Error**	**t-Statistic**	**Prob.**
C(1)	0.026221	0.014229	1.842840	0.0687
C(2)	-0.757161	0.104254	-7.262678	0.0000***
C(3)	-0.305378	0.101084	-3.021031	0.0033***
C(4)	-0.045649	0.055543	-0.821867	0.4134
C(5)	-0.036101	0.052019	-0.693984	0.4895
C(6)	0.144964	0.099111	1.462640	0.1471
C(7)	0.176495	0.097729	1.805963	0.0743
C(8)	-2.560985	0.531519	-4.818240	0.0000***
C(9)	-1.358962	0.527373	-2.576850	0.0116**
C(10)	0.221313	0.095299	2.322303	0.0225
C(11)	-0.079648	0.091391	-0.871511	0.3858
C(12)	-0.109016	0.212084	-0.514023	0.6085
C(13)	-0.070086	0.213636	-0.328065	0.7436
C(14)	0.004999	0.046526	0.107440	0.9147
R-squared	0.588080	Mean dependent var		-0.001054
Adjusted R-squared	0.527229	S.D. dependent var		0.682511
S.E. of regression	0.469283	Akaike info criterion		1.451653
Sum squared resid	19.37995	Schwarz criterion		1.811944
Log likelihood	-60.03431	Hannan-Quinn criter.		1.597547
F-statistic	9.664145	Durbin-Watson stat		2.041991
Prob(F-statistic)	0.000000			

Estimated coefficients on the first line, standard errors in parenthesis (); and t-statistics in brackets [].
The results are computed separately for each equation using the appropriate residuals
**** p<0.01, ** p<0.05, * p<0.1 {Emphasis are placed on *** p<0.01, ** p<0.05}*

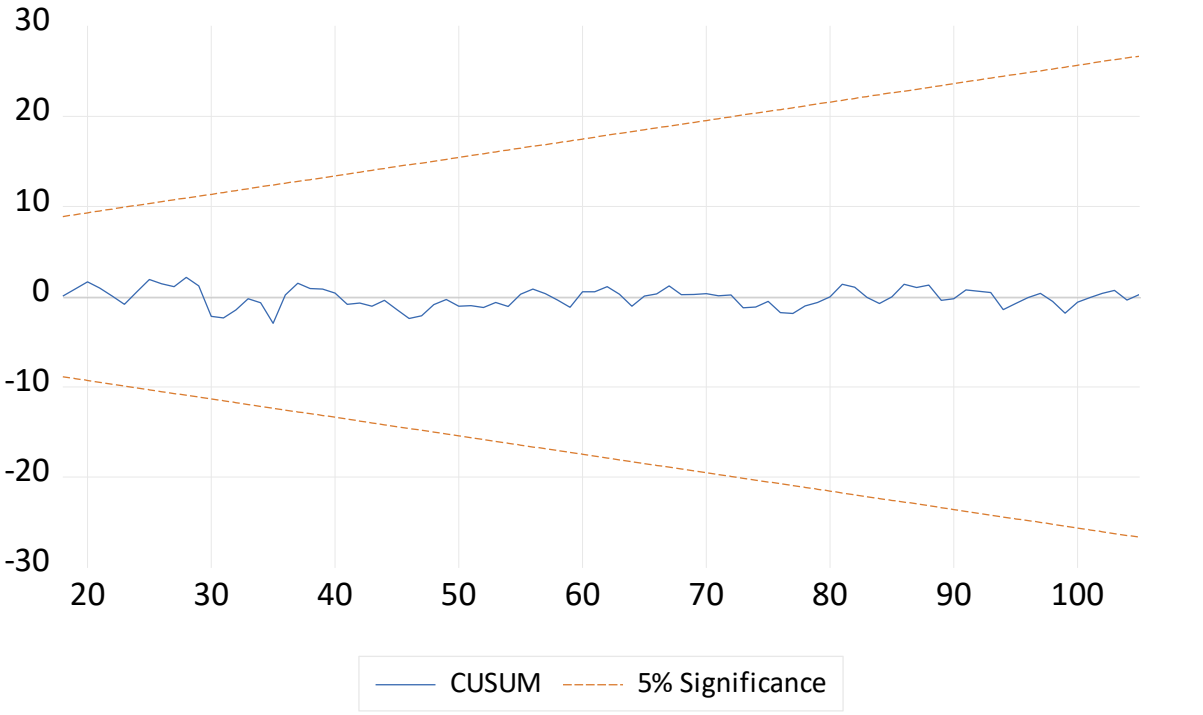
Appendix 9 Figure B1.1 (*Cusum Test results Firm level analysis)*



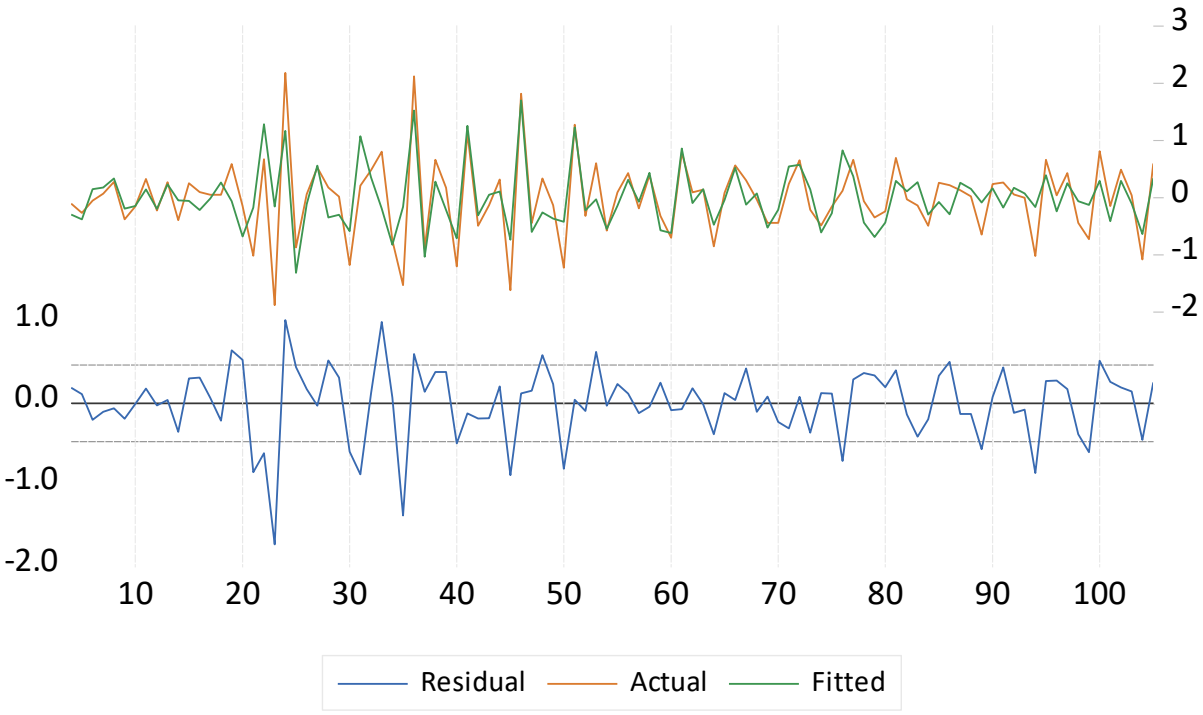
Appendix 10 - Figure B 1.2 1 (*Residual Test results Firm level analysis)*



Appendix 11 - Figure B 1.3 1 *(Cusum Test results Market level analysis , Mining Industry)*



Appendix 12 - Figure B 1.4 (*Residual Test results Market level analysis)*



Appendix 13 Table C 1.1 1 (*VECM Technology Firm level aspects)*

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.439691	0.783779	0.560988	0.5821
C(2)	-0.190514	0.536679	-0.354987	0.7270
C(3)	-0.634863	0.186453	-3.404947	0.0034**
C(4)	0.045516	0.029315	1.552658	0.1389
C(5)	0.025585	0.021344	1.198667	0.2471
C(6)	-0.035231	0.033268	-1.058981	0.3044
C(7)	0.048066	0.028005	1.716361	0.1043
C(8)	-0.288404	0.709078	-0.406732	0.6893
C(9)	-0.080460	0.157631	-0.510435	0.6163
C(10)	0.236452	0.144612	1.635082	0.1204
C(11)	0.231799	0.119744	1.935788	0.0697
C(12)	-0.043607	0.110106	-0.396047	0.6970
C(13)	-0.066188	0.108604	-0.609448	0.5503
C(14)	0.004062	0.006292	0.645579	0.5272
R-squared	0.973160	Mean dependent var		0.015448
Adjusted R-squared	0.952635	S.D. dependent var		0.141546
S.E. of regression	0.030805	Akaike info criterion		-3.819809
Sum squared resid	0.016132	Schwarz criterion		-3.172202
Log likelihood	73.20704	Hannan-Quinn criter.		-3.608705
F-statistic	47.41391	Durbin-Watson stat		2.284017
Prob(F-statistic)	0.000000			

Estimated coefficients on the first line, standard errors in parenthesis (); and t-statistics in brackets [].
The results are computed separately for each equation using the appropriate residuals
**** p<0.01, ** p<0.05, * p<0.1 {Emphasis are placed on *** p<0.01, ** p<0.05}*

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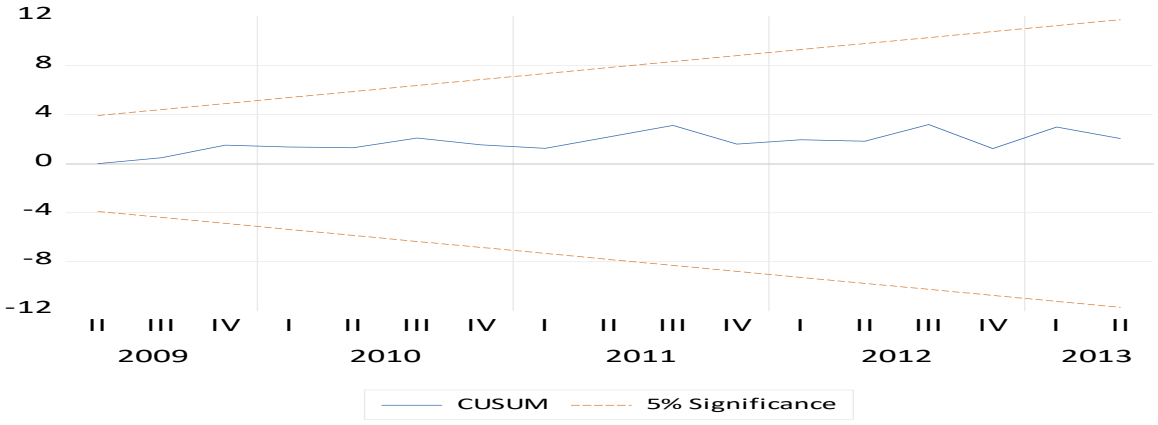
Appendix 14 -Table C 1.2 (*Market Level VECM Technology Industry)*

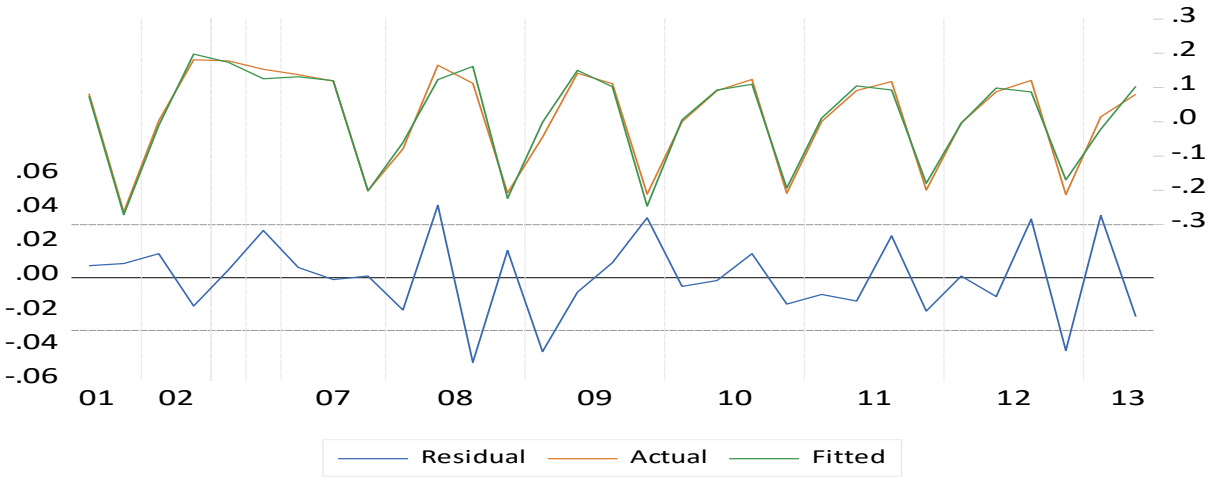
	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.141806	0.107123	-1.323768	0.1927
C(2)	-0.764051	0.178728	-4.274939	0.0001***
C(3)	-0.111360	0.173611	-0.641432	0.5247
C(4)	-0.031896	0.062079	-0.513789	0.6101
C(5)	-0.034229	0.051484	-0.664844	0.5098
C(6)	0.223177	0.127705	1.747603	0.0878
C(7)	0.233399	0.134777	1.731743	0.0907
C(8)	-0.194016	0.182689	-1.062002	0.2943
C(9)	-0.113738	0.180726	-0.629341	0.5325
C(10)	-0.498509	0.387435	-1.286690	0.2052
C(11)	-0.510179	0.347024	-1.470156	0.1490
C(12)	0.213705	0.376901	0.567006	0.5737
C(13)	-0.060702	0.276258	-0.219729	0.8271
C(14)	-0.195470	0.105203	-1.858031	0.0702*
R-squared	0.573878	Mean dependent var		-0.043274
Adjusted R-squared	0.441984	S.D. dependent var		0.575327
S.E. of regression	0.429772	Akaike info criterion		1.361196
Sum squared resid	7.757580	Schwarz criterion		1.867534
Log likelihood	-24.11348	Hannan-Quinn criter.		1.557502
F-statistic	4.351034	Durbin-Watson stat		1.944472
Prob(F-statistic)	0.000135			

Estimated coefficients on the first line, standard errors in parenthesis (); and t-statistics in brackets [].
The results are computed separately for each equation using the appropriate residuals
**** p<0.01, ** p<0.05, * p<0.1 {Emphasis are placed on *** p<0.01, ** p<0.05}*

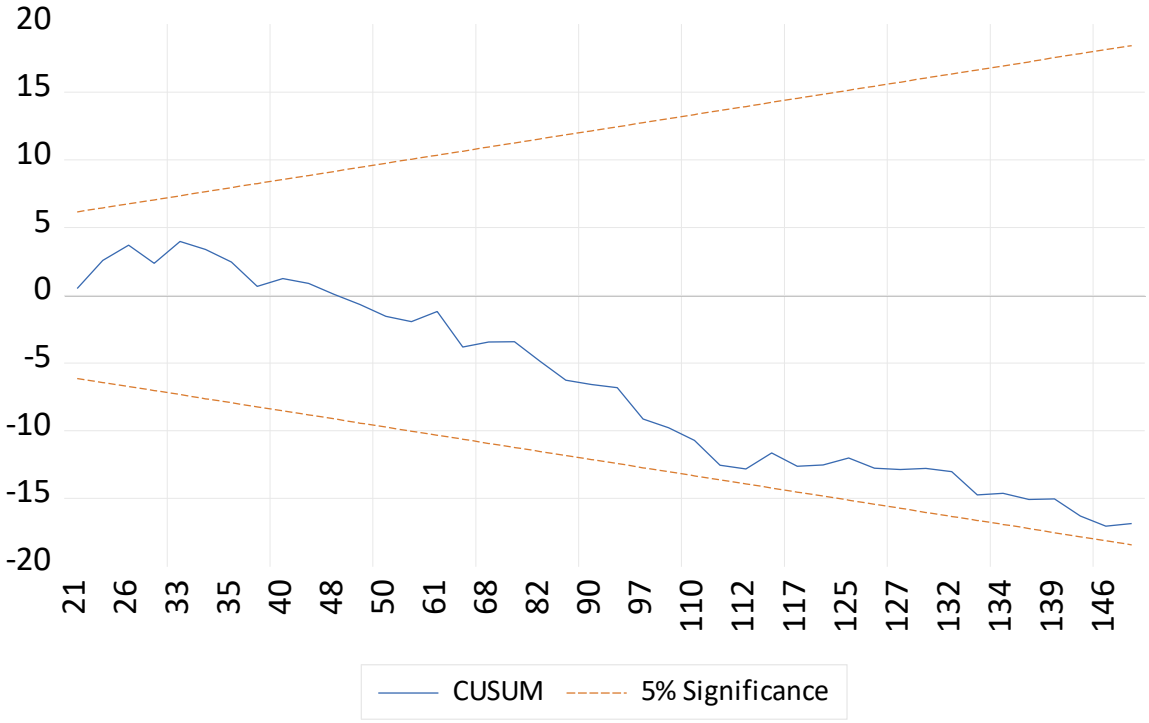
Appendix 15 -Figure C 1.1 (*Cusum Test results Firm level analysis, Technology Industry)*



Appendix 16 -Figure C 1.2 (*Residual Test results Firm level analysis, Technology Industry)*



Appendix 17 -Figure C 1.3 *(Cusum Test results Market level analysis, Technology Industry)*



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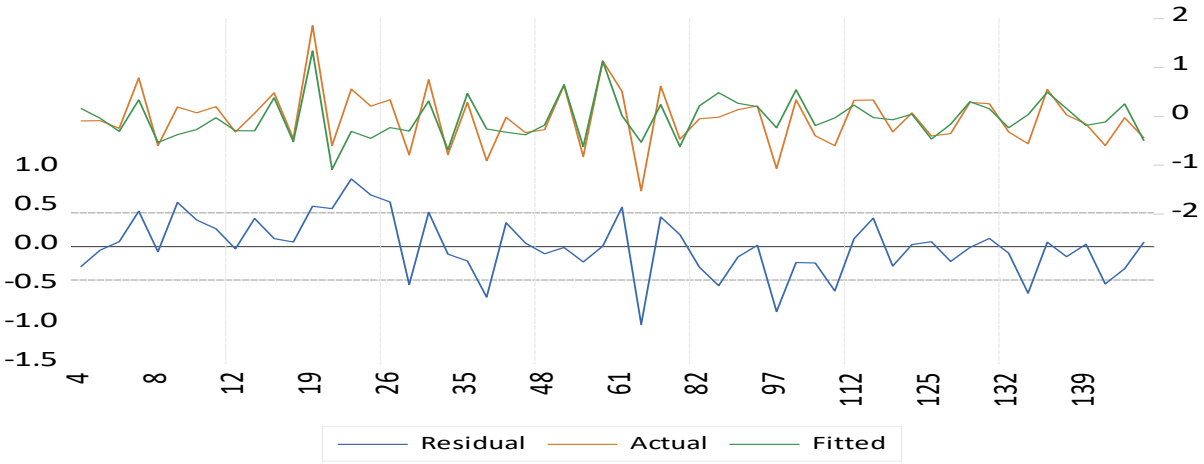
Appendix 18 - Figure C 1.4 Residual *Test results Market level analysis (Technology Industry)*



Appendix 19 - Table D 1.1 (*Firm level aspects in Financials)*

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.184952	0.145209	-1.273698	0.2084
C(2)	-0.360632	0.154422	-2.335362	0.0234
C(3)	-0.300000	0.151778	-1.976565	0.0534
C(4)	-0.006945	0.050180	-0.138398	0.8905
C(5)	0.044851	0.052630	0.852195	0.3980
C(6)	-0.047829	0.022284	-2.146332	0.0365
C(7)	-0.046458	0.023553	-1.972450	0.0539
C(8)	-0.529952	0.322064	-1.645487	0.1059
C(9)	-0.086860	0.262470	-0.330935	0.7420
C(10)	-0.358809	0.213730	-1.678799	0.0992
C(11)	-0.019359	0.234330	-0.082616	0.9345
C(12)	-0.122824	0.153789	-0.798655	0.4281
C(13)	0.013183	0.164091	0.080337	0.9363
C(14)	0.016419	0.022633	0.725450	0.4714
R-squared	0.444421	Mean dependent var		0.018004
Adjusted R-squared	0.305527	S.D. dependent var		0.215740
S.E. of regression	0.179787	Akaike info criterion		-0.408259
Sum squared resid	1.680811	Schwarz criterion		0.056213
Log likelihood	27.47255	Hannan-Quinn criter.		-0.224724
F-statistic	3.199702	Durbin-Watson stat		2.172335
Prob(F-statistic)	0.001400			

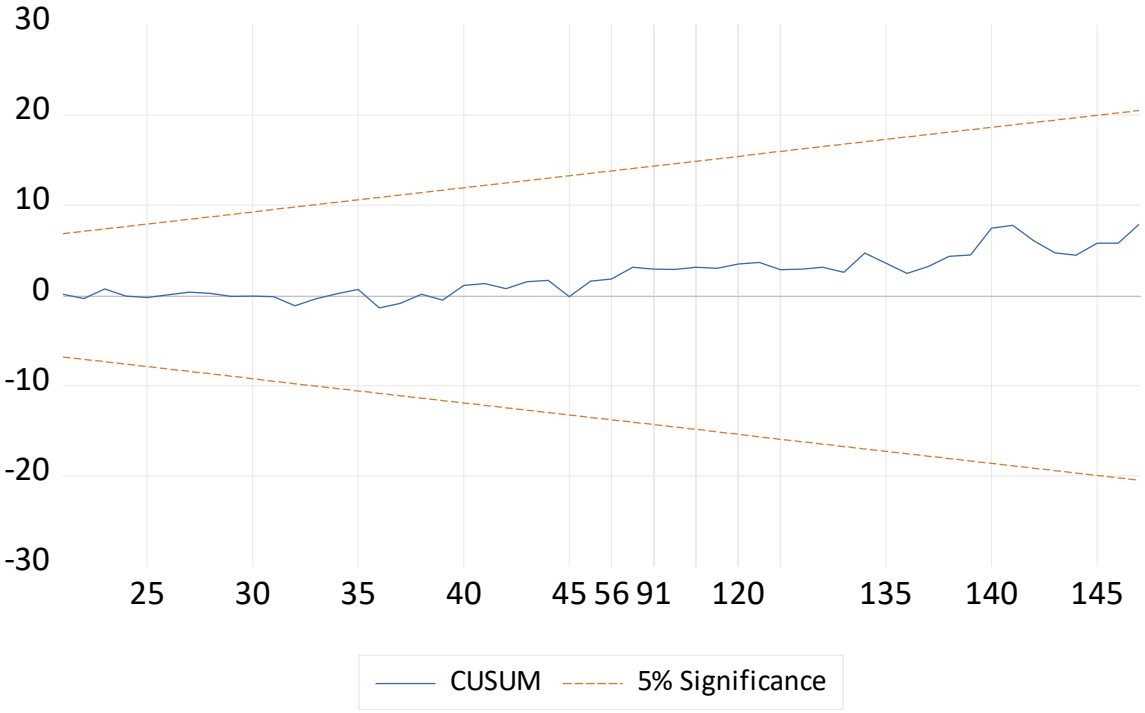
Estimated coefficients on the first line, standard errors in parenthesis (); and t-statistics in brackets [].
The results are computed separately for each equation using the appropriate residuals
**** p<0.01, ** p<0.05, * p<0.1 {Emphasis are placed on *** p<0.01, ** p<0.05}*

Appendix 20 -Table D 1.2 *(VECM Market Level Financials Industry)*

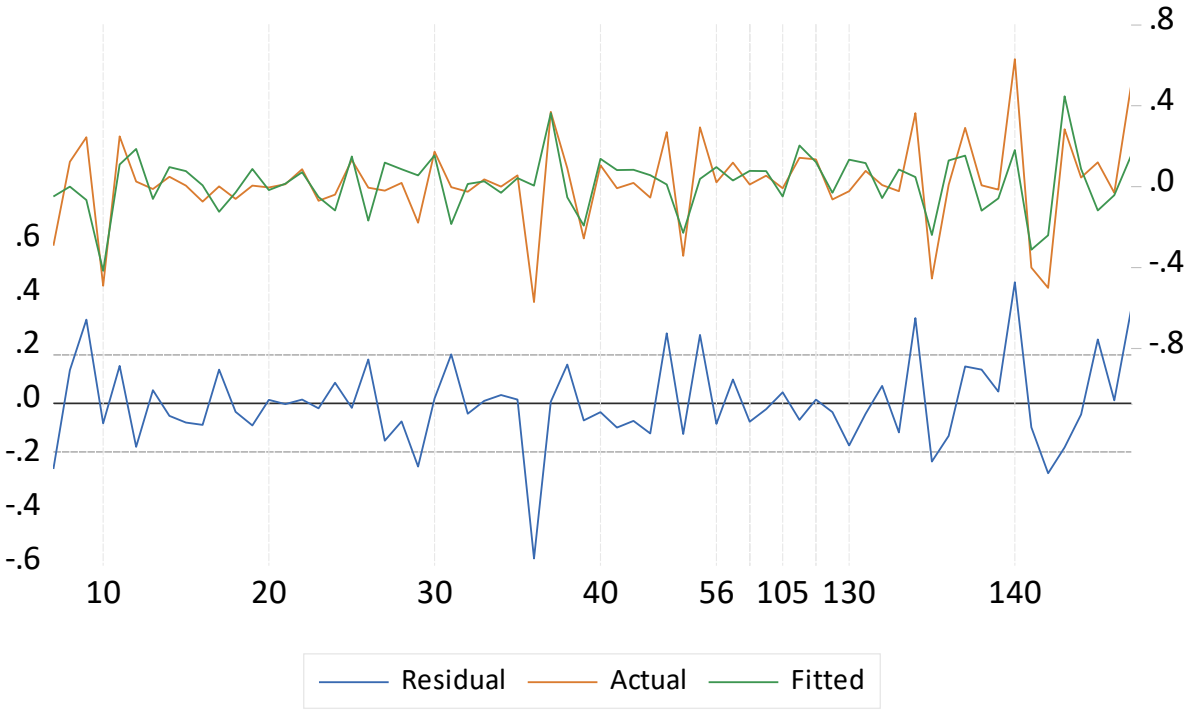
	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.137317	0.060951	-2.252884	0.0264**
C(2)	-0.401133	0.107297	-3.738524	0.0003***
C(3)	-0.133537	0.098981	-1.349117	0.1803
C(4)	2.087122	1.296662	1.609612	0.1106
C(5)	-0.622391	1.230181	-0.505935	0.6140
C(6)	0.088442	0.140956	0.627441	0.5318
C(7)	0.098413	0.119661	0.822428	0.4128
C(8)	1.429137	1.242027	1.150649	0.2526
C(9)	-0.200634	1.226557	-0.163575	0.8704
C(10)	0.104909	0.195597	0.536351	0.5929
C(11)	-0.060155	0.193226	-0.311319	0.7562
C(12)	-0.789023	0.864082	-0.913134	0.3633
C(13)	-1.428827	0.841592	-1.697767	0.0926
C(14)	0.007702	0.058186	0.132373	0.8950
R-squared	0.309013	Mean dependent var		0.032305
Adjusted R-squared	0.220946	S.D. dependent var		0.431465
S.E. of regression	0.380828	Akaike info criterion		1.019825
Sum squared resid	14.79307	Schwarz criterion		1.352155
Log likelihood	-45.14985	Hannan-Quinn criter.		1.154732
F-statistic	3.508844	Durbin-Watson stat		2.080624

Estimated coefficients on the first line, standard errors in parenthesis (); and t-statistics in brackets [].
The results are computed separately for each equation using the appropriate residuals
**** p<0.01, ** p<0.05, * p<0.1 {Emphasis are placed on *** p<0.01, ** p<0.05}*

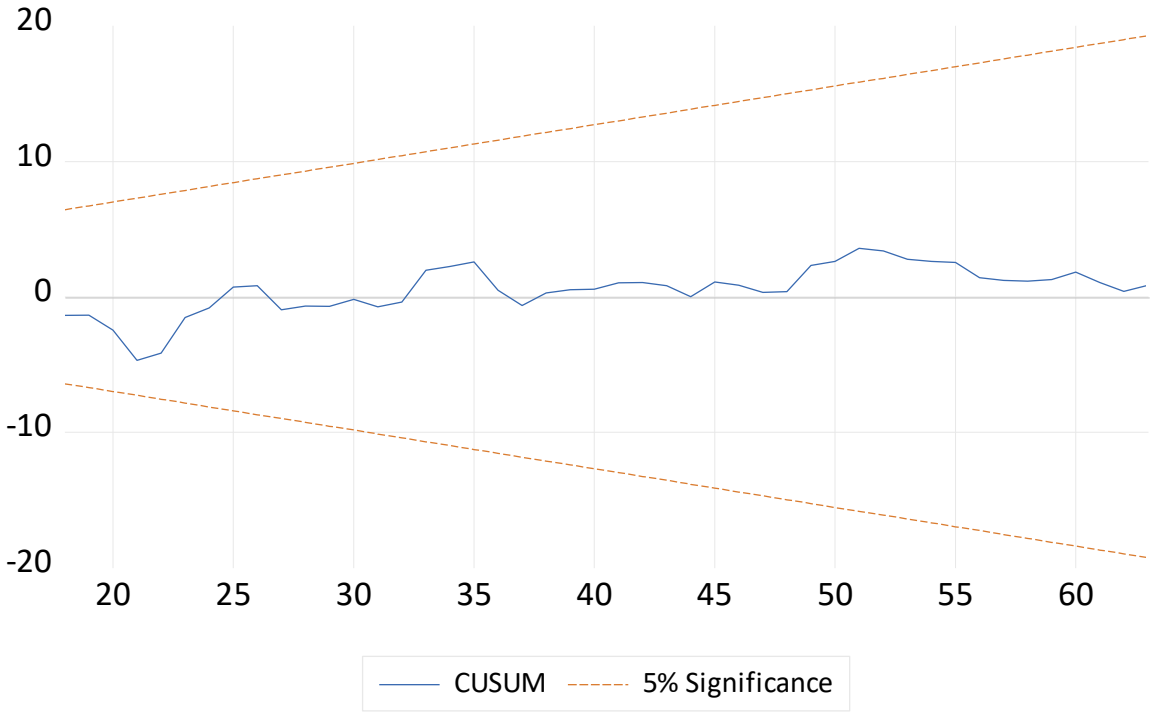
Appendix 21 -Figure D 1.1 (*Cusum Test results Firm level analysis - Technology Industry)*



Appendix 22 - Figure D 1.2 (*Residuals Test results Firm level analysis, Technology Industry)*



Appendix 23 - Figure D 1.3 *(CUSUM Test results Market level analysis, Finance Industry)*



Appendix 24 -Figure D 1.4 *(Residual Test results Market level analysis, Finance Industry)*