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Understanding barriers to entry into the vertically integrated oil industry and applying economic theories of entry into this industry

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of

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ABSTRACT

Barriers to entry are one of the critical forces that provide incumbent firms with competitive advantage over new entrants and contribute to an oligopoly market structure. The aim of this research was to determine barriers to entry into the vertically integrated oil industry and identify economic theories of entry into the market and apply them to the South African vertically integrated oil industry.

A mixed method design was adopted to conduct this research. A 5-point Likert scale questionnaire with statement of barriers to entry obtained from literature was sent out to middle and senior managers of vertically integrated oil firms and non-refining oil wholesalers. Semi-structured interviews of middle and senior managers in the oil industry; regulatory body and industry associations were conducted to gain insights in the industry challenges and those challenges facing small firms. Emerging themes from interview results were analysed on the backdrop of research propositions. Similarly, quantitative results obtained from the survey were analysed based on the hypotheses and contrasted with qualitative results.

The findings indicated that there are significant barriers to entry in the oil industry and affect both vertically integrated (refining and marketing) oil firms and non-refining oil wholesalers. However, non-refining oil wholesalers were impacted more negatively by the barriers to entry due to high capital requirements, lack of access to infrastructure, lack of access to capital and regulatory pricing model (RAS). Results also showed that oil firms put different emphasis of importance to different barriers of entry.

KEYWORDS

Barriers to entry, capital requirements, vertically integrated oil firms / refining and marketing oil firms, non-refining oil wholesalers

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DECLARATION

I declare that this research project is my own work. It is submitted in partial fulfilment of the requirements for the degree of Master of Business Administration at the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree in any other University. I further declare that I have obtained the necessary authorisation and consent to carry out this research.

Name: Lwazi Lunga Sihlobo

Signature: _____

Date: 07 November 2016

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SAPIA	South African Petroleum Industry Association
IDC	Industrial Development Corporation
GDP	Gross Domestic Product
DoE	Department of Energy
SBM	Single Buoy Mooring
NERSA	National Energy Regulator of South Africa
OECD	Organisation for Economic Co-operation and Development
NEF	National Empowerment Fund

CHAPTER 1 : INTRODUCTION TO RESEARCH PROBLEM

1.1 Purpose of the study

The purpose of this research is to determine barriers to entry into the vertically integrated oil industry and determine economic theories of entry into the market and apply them to the South African vertically integrated oil industry.

1.2 Research Problem

Transformation in the oil industry is still a topical issue as it is still dominated by few multinationals (SAPIA, 2016). Recognising the need for transformation, the oil industry was the first industry to sign a charter (SAPIA, 2016). The South African Petroleum and Liquid fuels charter focused on 25% ownership of the previously disadvantaged South Africans in the Petroleum and Liquid Fuels industry (SAPIA, 2016). SAPIA argues that all its privately owned members have concluded the agreements in varying arrangements (SAPIA, 2016). Despite this agreement signed in 2000 with a target date of 2010 for full implementation, it has not borne a new integrated oil firm.

South Africa has six oil refineries with 95% of its crude oil requirements imported as indicated in Table 1 (SAPIA, 2013). From exploration to retailing, the oil industry is heavily regulated. The high capital costs of the acquisition of exploration rights, extraction licences, refining and retailing licences makes the barriers to entry high.

Denominated in US dollars, the price of crude oil is globally set by the demand and supply free market mechanism, exposing the industry to severe market risk (currency exchange risk and price risk). Locally, the Rand denominated retail fuel price is set by the Department of Energy (DoE) considering international spot prices, the rand/dollar exchange rate, cost of production and taxes (SAPIA, 2016). This leaves oil companies with little room for margin control as costs are mostly fixed and supply and demand prices are set. It can be observed from Appendix 10 above, the price that varies monthly is the basic fuel price (BFP) and all other costs change annually. Diesel margins in Appendix 11 are guidelines only and not regulated prices as per the DoE.

The oil industry structure has not transformed from an oligopoly market structure. There are 7 oil majors namely, Shell, Total, BP, Sasol, Chevron/Caltex, PetroSA and

Engen (SAPIA, 2016). This research seeks to understand the challenges that face new entrants and perpetuate the current industry structure.

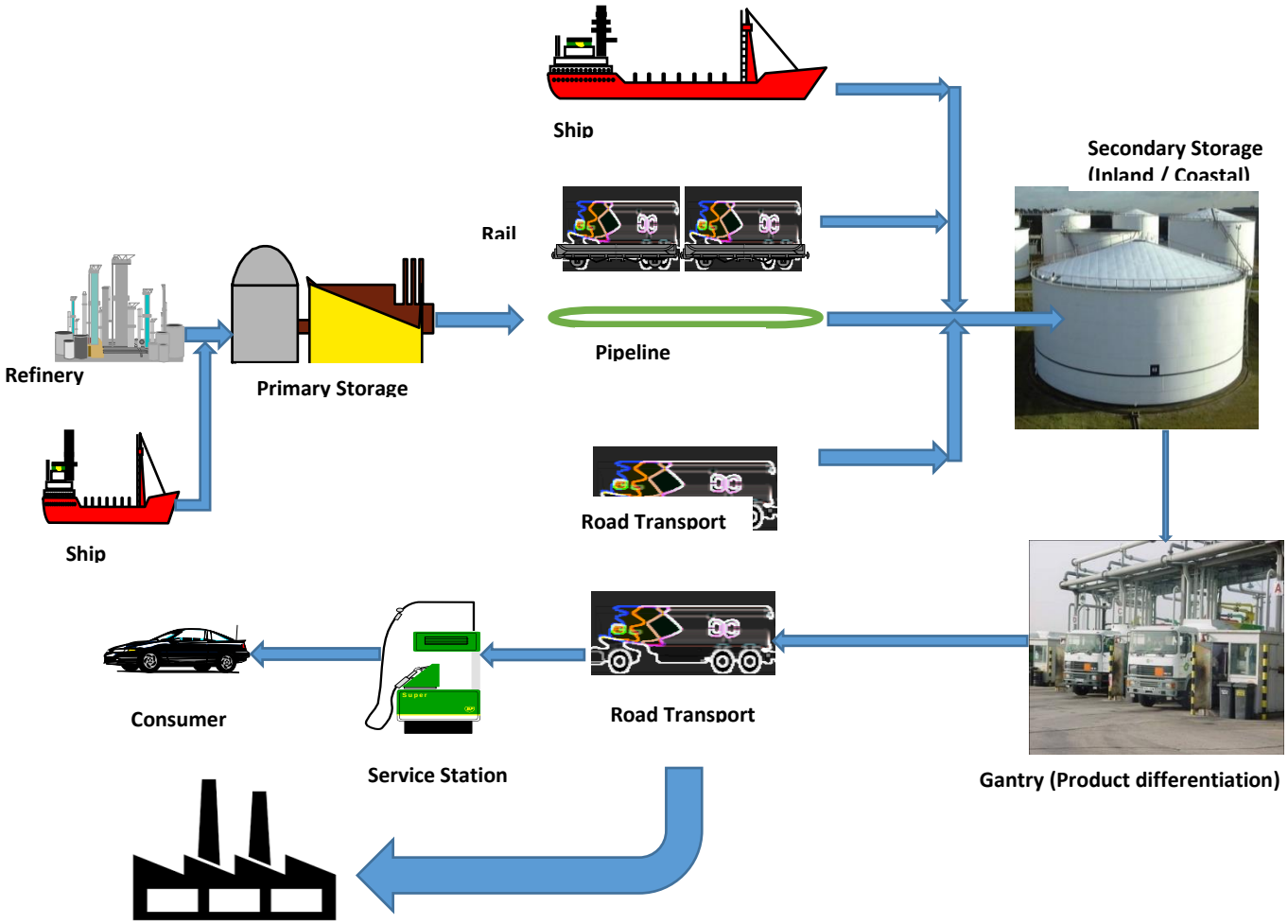
1.3 Analysis of the Oil Industry

The oil industry value chain comprises of upstream (finding and producing hydrocarbons); downstream (refining hydrocarbons and producing saleable products) and retail (selling the refined petroleum products) as outlined below in Figure 1. The scope of this research is downstream segment including retail. Vertically integrated oil majors have access to the whole value chain either through full ownership, strategic alliances or joint ventures. South Africa is a short market with refining capacity less that the demand of fuel required to meet the energy needs of the country. The short is met through imports of refined products from the international market received via a Single Buoy Mooring (SBM) in the Durban Port. This is the only import facility responsible for receiving both crude oil and refined products resulting in a constraint at the port. The SBM is managed by Sapref on behalf of the industry. Crude is refined through the coastal refineries Sapref and Engen refinery and another crude is transported via the pipeline owned and operated by Transnet which is a state-owned entity to Natref refinery in the inland region. Other oil refineries are in Cape Town, Mossel bay and Secunda as shown in Appendix 9.

The distribution channel of fuel products is extensive as shown in Appendix 9. Most oil refineries are based in the coastal region due to proximity to the crude oil import infrastructure. Over 60% of the product is used in the inland region, it is transported via pipeline, road and rail. Pipeline is the preferred mode of transportation due to its lower costs. Transnet a state-owned company owns and operates the pipeline, this is an attempt by the government to break vertical integration and open access to other oil firms to utilise the pipeline. Fuel is transported to about 200 depots, 4600 retail sites (both company owned and dealer owned) and 100 000 direct customers mainly farmers (SAPIA, 2013). It is industry practice that oil major companies buy fuel from each other. There are approximately 1900 wholesale licences issued by the DoE and less than 10% wholesalers are actively operating which is an indication of the tough operating environment that exists.

Figure 1 is an illustration of a typical supply chain of the oil industry, as can be seen below, it is complex and capital intensive.

Figure 1: Vertical Integration



Source: Author's own

As shown above in Figure 1, the distribution channel and related infrastructure for an oil company is extensive, before the final product reaches a customer.

Table 1 indicates the refining capacity of South African oil refineries and their feedstock. It is noted that some refineries are joint ventures/partners.

Table 1: Refining Capacity in South Africa

Refinery name	Crude throughput	Ownership	Feedstock
Chevref	100,000 barrels per day	Chevron	Crude
Enref	125,000 barrels per day	Engen	Crude
Natref	92,000 barrels per day	Sasol/Total South Africa	Crude
Sapref	180,000 barrels per day	BP/Shell	Crude
Sasol Secunda	150,000 barrels per day	Sasol Secunda	Coal and Gas
PetroSA	45,000 barrels per day	PetroSA	Gas

Source: (SAPIA, 2013)

As illustrated in Table 1, there is heavy reliant on crude oil as feedstock to the refining process.

The oil industry is a heavily regulated industry both in price and its operations. Regulations in this industry include the Petroleum Products Acts, 1977 (ACT NO. 20 of 1997); Petroleum Pipelines Act, 2003; Petroleum Pipelines Levies Act, 2004; Regulations for import and export of crude oil, petroleum products, and blending components. These regulations are formulated and their implementation resides within the Department of Energy (DoE) and National Energy Regulator of South Africa (NERSA). There are various other regulations that reside within the department of environment and other government departments. The oil industry interacts more frequently with the department of energy, hence below is a brief overview of what some of these legislations are trying to achieve.

According to the Department of Energy (2016); the Petroleum Products Act of 1977 sets out specifications and standards for petroleum products that are sold in South Africa for consumption for the protection of consumers and other stakeholders involved. It sets out specifications for petrol and diesel products. The Petroleum Products Act amongst other objectives seeks to ensure safe, economic and environmentally friendly manner to transport; loading and storage of petroleum products; facilitate investment in petroleum pipeline industry; promote the development of competitive markets for petroleum products; promote access to affordable petroleum

products. The Petroleum Pipelines Levies Act aims to provide imposition of levies by the Petroleum Pipelines Regulatory Authority for meeting administrative and other costs incurred by the Authority and its functions.

Petroleum products are price regulated, full regulation for petrol and quasi-regulation for diesel. The underlying principles of determining Basic Fuels Price are market-related costs of importing fuel from international market that meet South Africa fuel quality and quantity (Department of Energy, 2016b). This ensures our local refineries produce product at competitive prices and compete on a global scale. Therefore, local prices are influenced by the price of crude oil, supply, and demand of refined products and the rand/dollar exchange rate. The domestic influence on prices of fuel are inland transport costs; wholesale margin; retail profit margin; equalization fund; fuel tax; custom and excise costs; road accident fund; slate; demand side management of on ULP 95; IP tracer dye and petroleum pipelines levy. Appendix 10 shows regulated prices for petrol as determined by the department of energy for 2016.

1.4 Evolution of the SA oil industry

There were a few non-refining fuel wholesalers supplying petrol and diesel until recently when several wholesalers were registered with the department of energy (SAPIA, 2013). The government showed their intentions clear of transforming the industry when they amended the Petroleum Products Acts and introduced legislation that encourages participation of previously disadvantaged individuals into the oil industry, it remains to be seen whether they have succeeded. The recent entrance by Puma Energy through an acquisition of Brent Oil an independent fuel wholesaler is posing an interesting challenge with the oil majors who have had access to the downstream fuel and related infrastructure (Nkhonjera, 2015). Puma Energy is a major player in the oil industry with operations globally and parts of African continent. Sasol Energy used to be the supplier of fuel to other oil companies until recently when it entered the retail market through forward integration. The market share of each oil company could not be verified due to regulatory framework the industry operates in.

1.5 Research Rationale

The oil industry market structure has hardly changed from about the 1950's - 1960's since the first refinery was built in South Africa. The major oil companies that were at the inception of the energy boom in this country are still dominating even today with very few new entrants. The motivation for this research is to understand the drivers that

shape the oil industry market structure, whether new entrants can enter and participate fully in the whole value chain.

To understand the drivers of current oil industry structure one needs to know why firms enter new markets, retaliation behaviours by incumbent firms to new entrants and barriers to entry. Firms enter into new markets in search of faster growth in those markets of interest and/or to gain more sales volume in order to achieve competitiveness either by cost advantage or releasing additional resources in pursuit of a push / service strategy (Fernandes, Gouveia, & Pinho, 2014). Fernandes et al. (2014) argued that advantages of entering new markets for multinational companies (MNC) include economies of scale, product differentiation, cost advantages, and brand reputation.

Some studies have shown that firms do not enter into new markets for short-term direct profit seeking, but for indirect long-term term motives such as extending their current product lines or using their current competencies (Kim, Min, & Chaiy, 2015). Kim et al. (2015) also suggest that established firms enter the new market due to a direct competitor or prospective entry into new markets. Reasons for entry into new markets for established firms vary from entry benefits achieved by using existing resources; introducing new products that will diversify their product portfolio; to learn new technologies or obtain technological spill-overs and to gain legitimacy as part of their corporate social responsibility (Kim et al., 2015).

Geroski (1995) argued that size and age of the firms are correlated to the survival of new entrants. Small firms have a small likelihood of survival than large firms (Geroski, 1995). This holds true in certain stages of the industry life cycle (Agarwal & Audretsch, 2001). The likelihood of failure for small firms is greater in the formative stages of the industry life cycle and not in the mature stage (Agarwal & Audretsch, 2001).

Porter (2008) identified high barriers to entry as the competitive advantage of incumbent firms over the new entrants. Alise & Senfelde (2015) argued that institutions are “humanly devised constraints that shape human interactions” act as barriers to entry. Institutions are defined as “formal and informal constraints that affect investment in physical and human capital” (Alise & Senfelde, 2015). The question is how regulatory framework structure in the South African oil industry has impacted the current oil industry market structure and continues to do so?

Karakaya & Parayitam (2013) study was conducted in the e-commerce industry where they conducted a survey research by examining barriers to market entry and their relationship to market performance. Karakaya & Parayitam (2013) was a follow up study on the initial study by (Karakaya, 2002) who tested the order of importance of barriers to entry in industrial markets. This research will extend on their study by conducting a mixed method approach through interviews and survey research in the oil industry in South Africa. The research will benefit policy-makers and managers in understanding barriers to entry they are facing in their industry and what models entry can be applied to mitigate against these barriers.

1.6 Research aim

The aim of this research is to determine barriers to entry into the vertically integrated oil industry and identify economic theories of entry into the market and apply them to the South African vertically integrated oil industry.

1.7 Research Objectives

The objective is to understand the drivers that have resulted in the current market structure of the South African oil industry and what can be done to change the current market structure.

To understand the primary objective, the primary objective is broken down into secondary objectives:

- Identify conditions of entry into new markets
- Determine barriers to entry into a vertically integrated oil industry
- Determine proactive and reactive strategies that are employed by current incumbents to create barriers of entry
- Provide framework of economic theories of entry into the oil industry in South Africa.

CHAPTER 2 : LITERATURE REVIEW

2.1 Entry Conditions into New Markets

Entry conditions matter more than current conditions to firms and they have long lasting impacts on the survival of firms (Geroski, Mata, & Portugal, 2010). Geroski et al. (2010) argued that this has fundamental implications for managers and policy makers on the founding principles of the firm. Policy makers need to understand what support they must give to young firms at inception to ensure they survive (Geroski et al., 2010). There is empirical evidence that large firms have higher probabilities of success due to their access to funds whilst smaller firms are cash constrained (Geroski et al., 2010). This results in small firms finding it difficult to survive during temporary financial difficulties due to their limited access to funds. Large firms have diversified their risk more than smaller firms and do not rely on one market (Geroski et al., 2010). Larger firms benefit from better management capabilities which lead to lower costs (Geroski et al., 2010).

The macroeconomic conditions in which firms enter the market affects the probability of survival of firms in one way or the other (Geroski et al., 2010). Kouznetsov & Jones (2009) study showed that economic, political, socio-cultural, technological, legal conditions have a major impact on the entry strategies of firms into the market. Favourable technological conditions encourage new entrants into those markets (Kouznetsov & Jones, 2009). During tough macroeconomic conditions, established firms face challenges and competitive pressure from new firms and may exit the market (Geroski et al., 2010). Geroski et al. (2010) argued that unfavourable economic conditions lead to firms that are cash strapped to exit as they cannot secure funds required for survival. This is even though they would prefer to remain. Geroski et al. (2010) further argued that small firms are more exposed to cash constraints than large firms as they have not built legitimacy in financial markets. Recent studies have shown that new firms suffer the most in recession periods (Geroski et al., 2010). Kouznetsov & Jones (2009) argued that legal and political conditions instability pose a significant risk but do not prevent firms from entering using a wholly owned subsidiary, Joint Ventures or representative office. Where there is political instability firms may choose to enter using low-resource commitment modes. Kouznetsov & Jones (2009) argued that economic conditions are the only important factor that determines the decision to enter the market and choice of foreign direct investment entry mode.

Estrin & Prevezer (2010) argued that where property rights and contract enforcement are poor, lead to a lower rate of entry by new firms. They found that China has weak property rights and contract law enforcement; however, entrepreneurs and foreign firms feel that their property rights are protected by the government. This is not the case in Russia where they have strong property rights and contract enforcement law, but the effectiveness of the legal system and perceived corruption is a deterrent to entry (Estrin & Prevezer, 2010). Estrin & Prevezer (2010) investigated the impact of institutions on the new firm entry in emerging markets in Brazil, Russia, India and China (BRIC) countries. They examined interactions among both formal and informal institutions and their impact on new firm entry. Institutions can provide positive and/or negative entry conditions for new firms (Estrin & Prevezer, 2010). Their study of institutions focussed on labour regulation, access to finance and infrastructure and property rights. There was a varying impact of institutions in different BRIC countries although there were also similarities. According to Estrin & Prevezer (2010), labour regulation was a significant constraint in Brazil and India and negatively affects net entry. In China, the government turns a blind eye in the flouting of labour regulations creating a competitive labour environment (Estrin & Prevezer, 2010). Labour regulations are relatively low in Russia making it less onerous for employers (Estrin & Prevezer, 2010).

The firm's survival is related to the industry structure where the entry occurs (Geroski et al., 2010). Competitive markets force inefficient firms out of business as they exert strong discipline in driving efficient operations. According to Porter (2008), new entrants bring additional capacity and put pressure on prices, costs and investment in their desire to gain market share. Firms diversifying from other markets can use their established resources and cash flows to stir up the competition (Porter, 2008). Geroski et al. (2010) argued that where the market power lies with few firms, inefficiencies arise and firms who are inefficient may survive. Incumbents of highly concentrated firms will earn higher profits and will defend their profitability including retaliating against new entrants (Geroski et al., 2010). New entrants find it difficult to survive in a highly concentrated environment in the first early years. Once they survived they become part of the established firms and also reap the rewards of a concentrated market (Geroski et al., 2010).

Factors that influence firm's success are firm's resources both tangible and intangible. Firms that develop firm-specific assets that cannot be imitated easily by competitors are likely to survive and compete successfully (Geroski et al., 2010). Human capital is a form of asset / resource that is difficult to imitate than physical capital. (Geroski et al.,

2010) proved that larger firms in the year of founding survive longer and their increase in size improves their survival rate. Human capital proved to improve firm's survival, however, any subsequent increase in human capital did not improve survival rates. The highly concentrated market had a negative impact on survival for small firms, however for large firms negative effect disappears immediately after the entry (Geroski et al., 2010). The founding conditions are important to firm's survival; however, they are not permanent they decline as time progresses. According to Klepper (2002), there are two types of firms type 1 and type 2. Type 1 firms are the firms that have prior experience in related industry or with founders who have the experience whilst type 2 firms are inexperienced firms in that industry (Klepper, 2002). Klepper (2002) further argued that Type 1 firms engage in more R&D activities and earn higher margins than other firms. When the price is high enough both type 1 and type 2 firms enter the market. As the price begins to fall due to more firms in the market, only type 1 firms can enter profitably. The price continues to fall and type 2 firms exit resulting in an oligopolistic market structure (Klepper, 2002). Klepper (2002) concluded that previous experience and early entry provides an advantage through R&D. This indicates that technological change influences the market structure of the industry.

Kim et al. (2015) argued that there are four types of market entry behaviours. Some firms enter the industry when they expect high profits based on firms internal and external conditions. These firms will not venture into new markets unless it makes financial sense in terms of return on investment (ROI) (Kim et al., 2015). Other firms are similar to the previous in terms of expecting high profits, but it differs as it places focus on competitor's firm's entry behaviours. These firms will not pursue first-mover opportunities, but rather react to competitor's market behaviours. The third type is mainly established firms who are looking for overall corporate benefits instead of only direct profits. They are driven mainly by their own assessment of market conditions. The last type of firm entry enters new markets to keep up with the pace of competition so that they are not made irrelevant by competitors. Kim et al. (2015) argued understanding the reasons for entry of competitors helps the organisation build appropriate strategies in exploiting new markets and provide insights into competitors behaviours for future market entry. Kim et al. (2015) argued that firm's success or failure in new markets should be assessed based on their motivations to enter those markets.

K.-J. Wang & Lestari (2013) argued market entry performance in the emerging markets found that business network, new product development and marketing management

contribute directly or indirectly to market entry success. Business networks were defined as government relationships, inter-organisational networks and R&D relationship; new product development was defined as R&D capability and product and process innovation; and marketing management was defined as distribution channel, marketing promotion, branding and information management (K.-J. Wang & Lestari, 2013). K.-J. Wang & Lestari (2013) argued that marketing management was the only firm competence that directly influences market entry success. The other two firm competencies contribute indirectly as they are the pre-requisite of market entry process.

2.2 Barriers to entry into new markets

Barriers to entry definition have been a contentious matter by different economists (Carlton, 2004). Carlton (2004) attributed the confusion to the “structure-conduct-performance literature” which he argued it has no underpinning theory and second confusion due to lack of clarity about consequences of “barriers to entry”. Carlton (2004) found the Bain (1956) definition of barriers to entry satisfactory though it has its short-comings. Bain (1956) considered external factors in industry structure and identified scale economies, large capital requirements, product differentiation and cost advantage as barriers to entry. Bain (1956) identified these structural barriers to entry economies of scale; technological advantages; absolute cost advantages. Stigler (1968) defined entry barriers as a cost advantage that established organisations benefit from compared to entrants. Established organisations can raise the prices above their costs and earn profits. According to Carlton (2004); Bain (1956) fails to link his barriers to entry with high prices and Stigler’s definition is supported by Carlton (2004). The causal relationship claimed by Bain (1956) that barriers to entry is associated with the number of firms which in turn determines their competitive advantage, in turn, controls firms rate of return is too simplistic in Carlton's (2004) view. There are other factors like vigour of competition that determine profitability. Carlton (2004) argument with Stigler’s definition is why are they called an entry barrier and not cost differential? Porter had defined similar barriers to entry as identified by (Bain, 1956). Porter (2008) argued that entrants threat of entry into the market depends on the height of barriers to entry and the retaliation of existing incumbents expected by entrants. Porter (2008) described barriers to entry as advantages that incumbents have relative to new entrants.

Karakaya & Parayitam (2013) described barriers to entry as "the advantage of established sellers in an industry over the potential entrant sellers, their advantage

being reflected in the extent to which established sellers can persistently raise their prices above a competitive level without attracting new firms to enter the industry" (p. 26). This definition by Karakaya & Parayitam (2013) summarises the barriers to entry definition and is a summary of definitions from (Bain, 1956; Porter 1985 & 2008). Another excellent definition to keep in mind about barriers to entry is by Besanko, Dranove, & Shanely (2000) which defines them as "those factors that allow the incumbent firms to earn positive economic profits, while making it unprofitable for new-comers to enter the industry" (p. 330).

The literature identifies six major barriers to entry as being cost advantages of incumbent firms; capital requirements; product differentiation advantages of incumbent firms; access to distribution channels; customer switching costs; and government regulations (Karakaya & Stahl, 1989; Porter, 1985). Other barriers to entry that were examined by Karakaya & Kerin (2007) are the incumbent structural advantage, incumbent market strength and financial investment of both established firms and new entrants. According to Porter (2008), there are seven major sources of barriers to entry, these are “supply-side economies of scale; demand-side benefits of scale; customer switching costs; capital requirements; incumbency advantages independent of size; unequal access to distribution channels and restrictive government policy” (p. 81). Porter’s (2008) barriers to entry are both structural and strategic barriers to entry.

According to Lutz, Kemp, & Dijkstra (2010), structural barriers are barriers that arise from market structure features. This definition is based on the premise that competition is important to the operation of industries and any attempt to limit competition may result in inefficient allocation of resources in the industry (Lutz et al., 2010). Karakaya & Parayitam (2013) argued that established firms increase barriers to entry to minimise the number of competitors and enjoy excess long-term industry profits. Analysis of the most prevalent entry barriers is discussed below. Shepherd (1979) differentiated barrier as exogenous and/or endogenous. Exogenous barriers are barriers that are characteristic of the industry conditions that are not under firms control whilst endogenous barriers are those barriers that are established by incumbent firms to deter entry (Shepherd, 1979). Other literature refers to these barriers structural (exogenous) and strategic (endogenous) barriers.

2.2.1 Strategic barriers

Strategic barriers to entry unlike structural barriers that take industry as the unit of analysis; takes the firm as the unit of analysis are based on the individual firm’s

resources to create a competitive advantage (Lutz et al., 2010). According to Lutz et al. (2010), structural barriers have a strategic component to them. Tang & Chang (2001) disagreed with Stigler (1968) argument that if firms have equal access to resources required to enter the market, they should not be treated as entry barriers. Their argument was based on the premise that it is unlikely that multinational firms will have the same access to funds and R&D as Small and Medium enterprises of local firms. Secondly, they argued that Stigler (1968) based his argument on structural barriers and did not consider strategic barriers. The empirical study conducted by Tang & Chang (2001) found that advertising, filling product niches, dominating distribution channels and hidden profits were strategic barriers that were commonly used by incumbent firms to deter entry.

Niu, Dong, & Chen (2012) conducted market entry barriers in China found similarities and differences in barriers to entry compared to other studies done in western countries. Although barriers found in China were consistent with ones found in other countries their degree of importance was different. This is due to differences in market dynamics found in different countries. Niu et al. (2012) results showed the top 5 barriers to entry out of 22 barriers considered significant by the Chinese executives were advertising effects, possession of channel members, seller concentration, the number of competitors and brand awareness. Three of these barriers (i.e. advertising effects, possession of channel members and brand awareness) are strategic barriers in nature.

Established firms benefit from brand reputation and command respect of buyers who use them. New entrants are facing a challenge of hesitant buyers from adopting their products and are sometimes forced to reduce their prices to attract customers until they have sufficient customer base (Porter, 2008). According to Karakaya (2002), brand identification makes customers prefer a certain type of brand despite a premium price they pay. Some brands are associated with better quality or more reliability due to their association with incumbent firms. This is in line with a study conducted by Niu et al. (2012) in China where brand awareness was in the top 5 important barriers to entry. Karakaya (2002) further stated that industrial markets are more inclined to stick with known brands due to the risks and costs involved in buying industrial products. Customer switching costs is another strategic barrier that incumbent firms use to retain their customers. These switching costs range from the training of employees, disposal of current equipment used and psychological risks of changing to a new supplier (Karakaya, 2002). However, in the Chinese market customer switching costs were not

considered an important barrier to entry (Niu et al., 2012). Niu et al. (2012) argued that this is due to the intellectual property rights not rigorously enforced in China. This is a case where institutional environment impacts on a strategic barrier.

Another strategic barrier that incumbent firms use is advertising (Organisation for Economic Co-operation and Development, 2006). According to OECD (2006), advertising can work both ways, it can promote competition by making information available to customers for them to make an informed buying decision. However, too much advertising can deter entry as it makes it mandatory for entrants to advertise their products in order to attract buyers (Organisation for Economic Co-operation and Development, 2006). On the contrary, Scott Morton (2000) argued that there was no evidence on the US Pharmaceutical Industry that brand advertising was the barrier to entry. This argument is in line with the study conducted by Lutz et al. (2010) that found advertising to be minor entry problem for new entrants.

Pehrsson (2009) argued that late entrants face extensive barriers to entry and choose a wider product scope/market and will choose product differentiation than incumbents. Incumbents or early entrants create customer loyalties due to entrenching their brand loyalty (Pehrsson, 2009). Dilek & Top (2012) argued that there are conditions when incumbent firms do not want to raise strategic barriers to entry, but encourage new entry by reducing them. Incumbent firms reduce entry barriers when their sales and profits will increase as a result of new entrants. Dilek & Top (2012) argued that this occurs in two-sided markets, where both buyers and sellers benefit when there are more sellers or buyers. Two-sided markets contain three players, sellers, buyers and platforms (Dilek & Top, 2012).

Firm resources are essential in building an organisation's competitive advantage (Karakaya & Parayitam, 2013). Resources are both tangible (e.g. capital requirements) and/or intangible resources (management experience). Niu et al. (2012) found that management experience in the Chinese market to be an important barrier to entry compared to industrialised markets. Karakaya & Parayitam (2013) stated that business environment is affected by a lack of resources, this affects market entrant's perception of the business environment as unfavourable. This implies that the firm does not have the competence to operate in this environment which is a major barrier to entry (Karakaya & Parayitam, 2013). Karakaya & Parayitam (2013) argued that resources are fundamental in developing competence and sustaining competitive advantage to

prevent market entry of new firms. This argument has its roots in the resource-based view theory.

One of the strategic decisions firms make is the organisational design of their firms, whether to vertically integrate or separate their marketing channels in a non-cooperative market. Matsui (2013) conducted a study that showed if external factors "that characterise fixed costs, product substitutability, and a demand function fall into a specific region, marketing channel integration dominates the separation strategy when one of two firms is the incumbent while the other is a potential entrant" (p. 865). Matsui (2013) argued that incumbent firms can deter entry of new entrants and monopolise the market through the upfront vertical integration of their marketing channel. In the recent past, vertical integration has lost support in many organisation, with organisation choosing to outsource due to perceived cost reductions since it offers flexibility to choose cost-effective supplier (Ding & Mahbubani, 2013). Conversely, other literature views vertical integration as offering organisation product differentiation and price premium. Ding & Mahbubani (2013) conducted a study to determine the link between the extent of vertical integration and price premium. Price premium contributes to the firm's competitive edge and its profitability (Ding & Mahbubani, 2013). Integrated firms have better control on their product quality, distribution channels and can respond quicker to changes in the market demand (Ding & Mahbubani, 2013). Ding & Mahbubani (2013), results reflected a positive relationship between vertical integration and price premium mediated by customer brand perception. This suggests that vertically integrated firms can act as entry barriers to new entrants.

X. Zhao & Shi (2011) argued against vertical integration in favour of decentralised supply chains. X. Zhao & Shi (2011) accession was that decentralised supply chains outperform integrated supply chains under strong competition where there is a high degree of product substitutability between the two supply chains. This argument is in line with Anderson & Bao (2010) accession that decentralised arrangement is preferred when there is intense competition provided market shares are similar as measured by the coefficient of variation. Where there are a large number of suppliers vertical integration is preferred (X. Zhao & Shi, 2011). When suppliers have the market power they will benefit from a push contract or wholesale price where they take no demand risk, however, when the buyers have the market power they should try to use a consignment contract where they own the products when they sell them and earn revenue (X. Zhao & Shi, 2011).

2.2.2 Structural barriers

Exogenous (structural) barriers are barriers that are characteristic of the industry conditions that are not under firms control whilst endogenous barriers are those barriers that are set-up by incumbent firms to deter entry (Shepherd, 1979), high capital costs to purchase fixed costs in order to compete deter new entrants (Porter, 2008). The capital requirements are necessary to extend customer credit, build inventories and fund start-up losses. However, Porter (2008) argued that if industry returns are attractive new entrants can raise capital either via equity or in financial markets. Karakaya & Parayitam (2013) agreed that high asset requirements for firms make the market inaccessible for new entrants allowing established firms to dominate market share and earn higher profits. When a firm has financial resources, capital requirements are not a barrier (Karakaya & Parayitam, 2013).

Karakaya & Parayitam (2013) study was conducted in the e-commerce industry where they interviewed industry executive's perception of barriers to industry using selected barriers to entry from literature. Their results revealed that high capital requirements and high business environment barriers provide a competitive advantage for incumbent firms. However, there was no correlation between capital requirements and firm competence, but unfavourable business environment barrier has a negative impact on firm competence.

Incumbency advantages may not be related to size, but vary from cost or quality advantages, proprietary technology, preferential access to best raw material sources, geographical locations, established brand loyalty and human capital that allows them to produce efficiently (Porter, 2008). Supply-side economies of scale arise due to established firms ability to produce larger volumes and benefit from lower costs per unit (Porter, 2008). In turn, they can offer lower prices to customers making it unprofitable for firms who do not have this advantage. New entrants must either enter the market on a large scale by dislodging existing competitors or accept a cost disadvantage (Porter, 2008). Unequal access to distribution channels makes new entrants find it difficult to break into the distribution channels built by established firms, they either have to bypass them or build their own (Porter, 2008).

Institutions are rules of the game in a society that define human interaction (North, 2003). According to Chang & Wu (2014, p. 1104) institutional barriers “are the hindrances in the institutional environment that prevent market selection mechanism from functioning properly”. Ferguson & Formai (2013) conducted research on

institution-driven comparative advantage and organisational choice. The "aim of their paper was to investigate the effect of judicial quality on comparative advantage across industries that vary in their contract intensity and their propensity to vertically integrate with their input suppliers" (Ferguson & Formai, 2013, p. 193). They argued that contract intense goods are manufacturing processes that are highly specialised and have specific inputs. Ferguson & Formai (2013) identified a gap in the existing literature on how the organisation form may limit exposure to institutional environment limitations. Ferguson & Formai (2013) was testing vertical integration was used to mitigate weak institutions for contract intense goods. Ferguson & Formai (2013) found that contract-intense goods that have a high propensity to vertically integrate are less sensitive to judicial quality as they can alleviate the hold-up problem through vertical integration. Practical research has shown that strong contract enforcement institutions boost trade levels. Rates of survival for exporting firms are improved by strong institutions (Araujo, Mion, & Ornelas, 2016). Exporting firms will either start an office in the local country of interest or they will partner with distributors in that country. Araujo et al. (2016) argued that strong institutions in the local country will make contractual defaults difficult and thus result in exporting firms having confidence in their partnerships with local distributors. Their study compared a firm exporting to two identical countries that have strong institutions. Araujo et al. (2016) found that exporting firms will begin with higher volumes and stay for longer periods in countries with stronger institutions, this is because strong institutions limit opportunistic behaviour that may be experienced from their partners.

Previous research has found that the judicial quality of a country's institutions has an impact on country's economic performance. According to Ferguson & Formai (2013), legal, financial and other types of institutions play a key role in the manufacturing process and provide the country with a relative advantage in contract-intensive industries. New entrants are impacted negatively by institutional barriers as they increase fixed costs of conducting business (Chang & Wu, 2014). They called these barriers as institutional buffering as the one-time cost of entry, these costs are persistent over time determining the survival of new entrants; hence they are considered fixed costs. Demanding regulatory compliance can demand a significant amount of time from firms management resources, thus becoming a fixed cost (Chang & Wu, 2014).

Chang & Wu (2014) argued that the institutional barriers make new entrants more efficient as means to counter institutional environment they find themselves in to

survive. Their study found that new entrants rely on technical efficiency to survive, whilst incumbent firms rely on their institutional networks to survive. Institutional changes exposes inefficient incumbent firms who depended on institutions for protection and allow more efficient firms to enter the market successfully (Chang & Wu, 2014). Porter (2008) argued that government policy can increase or decrease entry barriers of new entrants. This is done through regulations like licensing requirements, patenting rules, environmental and safety regulations. The government needs to take a proactive approach based on the objectives they want to achieve, either to open or protect the industry. Carlton (2004) argued that the challenge of using barriers to entry in anti-trust and regulatory proceedings is the imprecise definition of entry barriers. Barriers to entry have long run impacts and anti-trust and regulations are concerned with now and the short run impacts (Carlton, 2004). Carlton (2004) suggested that rather than focussing on the existence of barriers to entry as per a particular definition, an analyst should look into how the industry will look like in future.

According to Alise & Senfelde (2015), institutional economics emphasised the critical roles institutions play in economic development. Alise & Senfelde (2015) argued that institutions are the cause of economic growth, whilst innovation, economies of scale, education and capital accumulation represent growth itself and are not the cause. Without functioning institutions both public and private, economic growth is constrained (Alise & Senfelde, 2015). They argued that the key to institutions is the costliness of transactions. “Transaction costs consist of the costs of measurement, costs of protecting rights and costs of enforcing rights of enforcing agreements” (Alise & Senfelde, 2015). Therefore, by reducing transactions costs, you stimulate economic activity. Economic institutions provide an enabling environment for investment in human and physical capital (Alise & Senfelde, 2015). Alise & Senfelde (2015) argued that to encourage investment, political institutions should ensure political stability. Political institutions are the “form of government and the extent of constraints on politicians” (Alise & Senfelde, 2015). Political institutions interact with economic institutions and determine economic growth and distribution of resources (Alise & Senfelde, 2015).

2.3 Strategies employed by incumbent firms to deter entry

According to Corones (2014), strategic entry deterrence is any action performed by incumbent firms to discourage entry of new firms in competing in the market. Incumbent firms can use predatory pricing to create a predatory pricing environment;

strategic building of excess capacity over and above future anticipated demand (Corones, 2014). H. Wang, Gurnani, & Erkoc (2015) argued that capacity is a critical asset to a firm when it decides to enter a new market and is key competitive tool. Firms use their capacity to deter potential new entrants in several ways. Corones (2014) argued that incumbent firms invest in a capacity beyond the current and future needs. He further argued that incumbent firms use long-term contracting to secure scarce assets or inputs to deter entry. Some strategies like technological leadership and research and development derived by incumbent firms are in the course doing business but lead entry deterrence (Corones, 2014). Firms use pricing and their brand status as one of the strategies to prevent entry of new firms (H. Wang et al., 2015). According to H. Wang et al. (2015) study, they argued that the new entrant was better off as a follower and set its prices in response to incumbent's prices. The incumbent used limit pricing to set prices lower and make it unattractive for the entrants to enter the market whilst the incumbent remains profitable (H. Wang et al., 2015).

Similarly, Matsui (2013) conducted a study to investigate transfer pricing as an entry deterrence strategy. His study was based on transfer pricing based on absorption costing and direct costing for duopolistic firms in an inter-firm rivalry. Matsui (2013) argued that if incumbent firm adopted absorption costing, a new entrant can enter the market using the absorption costing and the two firms will share the market leading to less profits for the incumbent firm. To avoid this unfavourable situation, the incumbent firm will undertake direct costing and earn less profits in the short run, but the entrant will not earn sufficient revenue to justify entry into the market. This will leave the incumbent firm to monopolise the market and boost its profits (Matsui, 2013). In a market where price is regulated by the regulator, the regulator applies direct costing to approve prices and thus leading to a monopoly (Matsui, 2013). In addition to pricing strategy, incumbent firms use their branding strategy. According to H. Wang et al. (2015), the incumbent firm can invest in its brand, successfully increase the price and deter entry. H. Wang et al. (2015) concluded that the incumbent use pricing and branding strategy to deter, block or accommodate entry. The decision to deter entry will be driven by the incumbent's profitability in the long run.

Chen (2011) argued that whilst incumbents outsource some parts of their intermediate goods to reduce costs, incumbent firms also use the outsourcing strategy to deter entry. Incumbent firms outsource intermediate goods to the potential entrant , even though it may be costlier than internal production (Chen, 2011). This deters the entrant from entering the final good manufacturing (Chen, 2011). In their study Chen (2011)

analysed the model where the incumbent can produce both intermediate and final good, whilst the entrant can only produce the intermediate good. However, once the entrant paid the sunk costs of entry into the market, they can be equally efficient in producing the final good as the incumbent (Chen, 2011). Chen (2011) argued that this strategy acts in two ways, first the outsourcing acts as entry deterring capacity for the incumbent. The incumbent has a first mover advantage and can set the price, with this understanding the entrant will be at a disadvantage acting as a follower after entry. He further stated that this makes it unattractive to enter the final good market for the entrant. Secondly, “outsourcing facilitates tacit collusion” this is as a result that the final good market is monopolised with deterrence of entry and the entrant firm avoided entry costs (Chen, 2011). Both incumbent and entrant benefit from the outsourcing transaction as it is more than offsetting its costs (Chen, 2011).

Johansson & Elg (2002) argued that relationships between incumbent firms can act as a barrier whether it was intended or not by the actors, the outcome is the same. They argued that to developing access to and building relationships is critical to any firm entering and/or defending its position to the market. They emphasised collaboration between competitors as opposed to competition as per Porter’s model. According to Johansson & Elg (2002), networks are built because no firm is self-sufficient, they depend on one another to secure resources that are scarce and external to itself. The key characteristic of this exchange relationships is that they are built over time and can be viewed as strategic investment process (Johansson & Elg, 2002). They argued that relations can be horizontally and vertically directed. “Horizontally directed relations is the cooperation with the existing competitors and can create entry barrier by reducing substitutability and increasing the bargaining power of the focal firm on the home market” and “vertically directed relations is increased cooperation with existing business partners and can create entry barriers by strengthening home market” (Johansson & Elg, 2002; p. 5). Relations between firms need to create value for the customer to be effective.

There is a common phenomenon in an oligopoly structure where relationship agreements between competing firms exist. According to Kitamura, Miyaoka, & Sato (2016), these relationships are designed to reduce operating costs and increase joint firms profits in vertical relationships. Kitamura et al. (2016) argued that even though these relationships do not have exclusionary clause deter entry for new entrants. However, Kitamura et al. (2016) research focussed on vertical relationships, where an upstream organisation makes relationship-specific investments with a downstream

organisation. These two firms are not necessarily competing in the final goods market. These relationship results in specificity in vertical relationships resulting in high switching costs when the relationship changes to a different trading partner (Kitamura et al., 2016).

There is very limited literature on how joint ventures deter entry. S. Zhao (1999) argued that joint ventures (JV) purposes are "for sharing risks, penetrating new markets and transferring know-how or technology". S. Zhao (1999) research paper focussed on the strategic aspects of joint ventures as a deterrence strategy for new entrants. The incumbent firms of JVs are competitors pre-JV and post-JV (S. Zhao, 1999). They share the whole costs and profits and bring parent firm's complementary resources like technologies, management, capital, labours and market (S. Zhao, 1999). His main findings were JVs are good strategies used by incumbent firms to deter future entry and their advantages are twofold. Firstly, they have credibility since once JVs are set up, they will operate whether entry occurs or not and secondly since incumbents share profit and costs, the shared investment is determined upfront and free-rider problem does not exist (S. Zhao, 1999).

Karaer & Erhun (2015) argued that incumbent firms use quality as an entry deterrent. Quality is defined "product attribute that increases end-user satisfaction and hence willingness to buy, such as reliability, service or variety" (Karaer & Erhun, 2015). Quality is a key strategic tool used by firms in competing for market share (Karaer & Erhun, 2015). The incumbent will commit high investment costs to improve quality and thus scaring off the entrant (Karaer & Erhun, 2015).

2.4 Models of entry into new markets

There is always uncertainty on which mode of entry the firm should use to enter into new markets (Fernandes et al., 2014). Industry structure influences mode of entry (Elango & Sambharya, 2004). Entry into new markets can be done using a subsidiary / own company (OC); joint venture (JV); direct exporting (DE) and local distributor (LD) (Fernandes et al., 2014). The decision to choose one of the options depends on the companies risk appetite and market uncertainty magnitude (Fernandes et al., 2014). According to Efrat & Shoham (2013), entry modes are critical for international business expansion especially for new and young business or Born globals that lack organisational experience and financial capital. Previous studies have addressed environmental conditions and firms internal capabilities as key determinants of entry modes (Efrat & Shoham, 2013). The aim of their research was to understand young

firm's strategic interaction with the external/country conditions on the level of firm commitment as indicated by the entry mode. Efrat & Shoham (2013) argued that young firms which are Prospectors in their strategic orientation will explore and exploit opportunities in international markets and will not view external environments as a threat. Their mode of entry choice is a high level of commitment when entering stable markets (Efrat & Shoham, 2013). Also, where there is market potential, firms enter the market using high commitment entry modes to ensure they closer to the customers to capture expected large sales volumes.

Fernandes et al. (2014) study discovered that choice of entry mode depends on the magnitude of foreign market uncertainty. Multinational companies will invest in low commitment entry mode like direct export when uncertainty is high and will invest in an own company or joint venture if uncertainty is low. Direct exporting overcomes some of the entry barriers that exist in a vertically integrated industry structure. However, Fernandes et al. (2014) argued that trade barriers and logistics factors are some of the disadvantages with this entry model. DE does not capture the whole profit margins and has limited control (Fernandes et al., 2014). The main advantages according to Fernandes et al. (2014) are low investment level and a possibility to postpone major investment decisions, it allows firms to internationalise without major investments and little risk. Fabling & Sanderson (2013) argued that firms that enter markets through exporting tend to be larger, more productive and more capital intensive. Fabling & Sanderson (2013) and Fernandes et al. (2014) seemed to agree that the timing of the investment differs. Fabling & Sanderson (2013) argued that big exporters will make large capital investments before market expansion whilst new exporters will increase labour resources first and capital investments after entry.

According to Meyer, Estrin, & Bhaumik (2009) institutions play a major role in the firm's entry strategy into the market. They further state that the firms need for local resources affect entry strategies in different institutional contexts. Institutions impact whether the investor enters the market either through acquisitions; greenfield and/or Joint Venture. Elango & Sambharya (2004) defines acquisitions as buying an existing firm does not create new capacity, a joint venture is a partnership between two or more firms and greenfield is a firm setting up new operations and creating new capacity. Firms that seek higher profit returns and more control choose to enter in a joint venture agreement with a local firm (Fernandes et al., 2014). JV agreements give access to local knowledge, but their disadvantage is the ability to enter into a win-win relationship is limited (Fernandes et al., 2014).

Different firms will enter new markets in different approaches depending on the cost, risk and speed of entry (Lee & Lieberman, 2010). The choice of the type of entry is an important determinant of the success or failure of the firm. According to Lee & Lieberman (2010), firms enter markets either through internal development or acquisition of firms. The resource-based view of the firm suggests that the firm will use internal development strategy to align the resource base of its firm and the resource requirements of the market or new firm (Lee & Lieberman, 2010). Despite predictions that a firm is likely to use internal development to enter markets that complement its resource base and use acquisition in markets that are far from its resource, there is no empirical evidence to support this theory (Lee & Lieberman, 2010). Lee & Lieberman (2010) attributed this lack of evidence to researcher's failure to differentiate between entries inside vs. outside the firm's primary business domain.

According to Lee & Lieberman (2010) argued that the firm is likely to track potential acquisition opportunities and will acquire when the opportunity in its primary business domain presents itself. The firm will pursue expansion opportunities outside its primary domain into new enterprises using acquisition. Hence, the choice of entry goes beyond internal development and acquisitions but follows a logic of inside and outside the firm's primary business domain (Lee & Lieberman, 2010). Many researchers have suggested that the firm's mode of entry will be influenced by the products relatedness of its firm and the firm's new products (Lee & Lieberman, 2010).

They argued that the firm's relatedness decrease entry costs when a firm pursues internal development strategy as it reduces barriers to entry (Lee & Lieberman, 2010). However, acquisition strategy does not reduce entry costs as the price of the firm is determined by the market (Lee & Lieberman, 2010). Lee & Lieberman (2010) argued that the entry mode will be determined by whether the new market is inside or outside the firm's primary business domain. According to Lee & Lieberman (2010), there are advantages and disadvantages between the two entry modes, internal development and acquisition strategies. The two strategies differ in cost, risk, and speed of entry (Lee & Lieberman, 2010). Fernandes et al. (2014) argued that direct ownership not only requires a high level of investment but also requires a higher level of commitment. Their study was consistent with Karim & Mitchell's (2000) study that firms use acquiring strategy to reinforce and close in their current skillsets. Acquisitions are used by firms expansion within their primary business domain (Lee & Lieberman, 2010). Lee & Lieberman (2010) study did not investigate entry choice for firms diversifying, internal and vertical entry.

Cost of entry: Acquisition is likely to be more expensive compared to internal development as they require significant premium payments (Lee & Lieberman, 2010). The additional costs of integrating the acquired firm into the existing firm, acquisition are likely to be done by firms with financial muscle (Lee & Lieberman, 2010). (Elango & Sambharya, 2004) argued acquisition in a highly concentrated industry is less attractive due to a scarce supply of good firms to acquire and the possible risks / costs of post-integration of the acquired firm. These risks outweigh the benefits brought by acquisition strategy. They advise firms to pursue greenfield strategy in a growing market as it allows the firm to start small and expand later as demand increases. However, new entrants avoid greenfield entry and opt for acquisition and/or joint ventures as they offer a quicker route to profitability (Elango & Sambharya, 2004). However, Lee & Lieberman (2010) also noted that internal development is also expensive for a firm that is weak in research and development (R&D) if the firm has already a strong R&D base internal development is likely to be a preferred strategy.

Risk of entry: Lee & Lieberman (2010) argued that acquisition has a higher risk profile compared to internal development. Acquisition involves a huge lump sum to pay for the acquired asset and most acquisitions fail to deliver the expected value (Lee & Lieberman, 2010). Risks associated with internal development is competitive retaliation (Lee & Lieberman, 2010). Meyer, Estrin, & Bhaumik (2009) argued that the stronger the institutions of the country, the firms will enter the market using acquisitions and/or greenfield as opposed to joint ventures. According to Elango & Sambharya (2004), other variables that firms assess and determine their mode of entry are entry barriers, nature of demand and degree of rivalry. Elango & Sambharya (2004) argued that the entrant will choose acquisition / joint venture strategy as opposed to greenfield strategy as a mode of entry in a highly concentrated market to avoid a risk of retaliation from incumbent firms as they protect the profitability of the industry. This mode of entry is promising to incumbent firms as it will not impact on the competition dynamics and profitability of the industry.

Speed of entry: Hawk, Pacheco-de-Almeida, & Yeung (2013) argued that market entry is time-consuming especially in capital intensive industries. This is true in the petroleum sector where investments in refining, storage and distribution channels are pre-requisite. Due to the gap between deciding to enter the market and completing the entry, the speed of entry is critical in evaluating entry (Hawk et al., 2013). Acquisition offers the necessary speed to gain market share quicker and realise additional revenue much sooner compared to internal development (Lee & Lieberman, 2010). Hawk et al.

(2013) focussed their study on determining the intrinsic speed capabilities on market entry decision resulting in firm performance better than competitors. They argued that market entry is a daunting task and requires choosing a site, setting up production facilities, souring inputs, logistics network and gaining consumer understanding. Hawk et al. (2013) concluded that intrinsic speed capabilities enable the firms to implement the investment fast, below average costs of competitors and gain competitive advantage. It can be deduced from this study by Hawks et al. (2013), that internal firm's capability can influence which mode of entry to use when entering new markets. However, where intangible local resources are needed by the foreign entrant, it will use joint venture as a mode of entry over acquisition (Meyer et al., 2009). According to Meyer et al. (2009), multinational enterprises entering emerging economies will choose JV entry.

2.5 Conclusion of Literature Review

Literature review shows various scholars have defined barriers to entry into new markets in various ways. This definition by Karakaya & Parayitam (2013) described barriers to entry as “the advantage of established sellers in an industry over the potential entrant sellers, their advantage being reflected in the extent to which established sellers can persistently raise their prices above a competitive level without attracting new firms to enter the industry” summarises the barriers to entry definition and is a summary of definitions from Bain (1956); Porter (1985 & 2008) (p.26).

Shepherd (1979) differentiated barriers to entry as exogenous (structural) and/or endogenous (strategic), this has helped to shape how barriers to entry are examined and which areas to focus on to have the greatest impact. Porter (2008) identified seven major sources of barriers to entry, these are “supply-side economies of scale; demand-side benefits of scale; customer switching costs; capital requirements; incumbency advantages independent of size; unequal access to distribution channels and restrictive government policy” (p. 81). Porter’s (2008) barriers to entry are both structural and strategic barriers to entry.

Established incumbents use strategic barriers to deter entry of new entrants. According to Corones (2014), strategic entry deterrence is any action performed by incumbent firms to discourage entry of new firms in competing in the market. However, according to Porter (2008) if industry returns are attractive new entrants can raise capital either via equity or in financial markets to enter new markets. There is always uncertainty on which mode of entry the firm should use to enter into new markets (Fernandes et al.,

2014). As per Elango & Sambharya (2004), industry structure influences mode of entry. This research will extend understanding of barriers to entry models of entry that are appropriate in the South African oil industry.

CHAPTER 3 : RESEARCH PROPOSITIONS & HYPOTHESIS

After extensive review of existing literature, barriers to entry into new into new markets are prevalent and pose a significant challenge to overcome for new entrants. Despite the challenges to entry, new entrants find various ways to enter new markets. The aim of this research is to determine barriers to entry into the vertically integrated oil industry and identify economic theories of entry into the market and apply them to the South African vertically integrated oil industry. A mixed research method was used; the open-ended questions were asked and research survey sent to respondents to get insights into the current oil market structure and apply models of entry into this markets.

The following hypotheses were tested. Karakaya & Parayitam (2013) proposed a set of hypothesis in their study of the relationship among barriers to market entry. Their study focussed on market entry into eCommerce. The contribution of this research is to test these hypotheses in the oil industry and to compare the differences in the magnitude of importance of barriers.

Research Hypothesis One

Is there a significant difference in the impact of barriers to entry between refining and marketing oil firms; and the non-refining oil wholesalers?

The null hypothesis for Question one states that there is no significant difference in the impact of barriers to entry between the refining and marketing oil firms; and the non-refining oil wholesalers.

The alternative hypothesis states that there is a significant difference in the impact of barriers to entry between refining and marketing oil firms and non-refining wholesalers.

Research Hypothesis Two

Is to assess whether barriers to entry are perceived equally important by established oil firms and non-refining oil wholesalers.

The null hypothesis for Question two states that there is no difference in the importance of barriers to entry between the refining and marketing oil firms; and the non-refining wholesalers.

The alternative hypothesis states that there is a difference in the importance of barriers to entry between the refining and marketing oil firms; and the non-refining oil wholesalers.

The research sought to answer the following propositions:

Research Proposition One

There are barriers to entry into the vertically integrated oil industry and make entry conditions difficult for new entrants.

Research Proposition Two

Established incumbent firms deter entry into the oil market by using structural and strategic barriers to entry.

Research Proposition Three

Entry strategies exist to enter the oil industry that will overcome the barriers to entry.

CHAPTER 4 : RESEARCH METHODOLOGY

4.1 Introduction to Research Methodology

The aim of the research was to determine the barriers to entry into the vertically integrated oil industry and how these barriers can be overcome and apply economic theories of entry into the market and apply them in the vertically integrated oil industry in South Africa. The method selected allowed the researcher to gain insights on the structural and strategic barriers to entry in this industry. It also allowed the researcher to understand which barriers are more significant and their extent of significance. The following sections expand on the research methodology and design.

4.2 Research Philosophy

Saunders & Lewis (2012) define research philosophy as the growth of knowledge and landscape of knowledge relative to the research. There are four main components of research philosophy, namely positivism, realism, interpretivism and pragmatism (Saunders & Lewis, 2012). The research philosophy for this research is pragmatism which is based on research questions and objectives (Saunders & Lewis, 2012). The research approach used is deduction as opposed to induction. Deduction involves “testing of theoretical propositions by using a research strategy specifically designed for the purpose of its testing” (Saunders & Lewis, 2012 p. 108)

4.3 Research design

According to Saunders & Lewis (2012), there are three different types of research designs namely: exploratory; descriptive and explanatory research.

- Exploratory research seeks to gain new insights from a new area that is not well known by the researcher
- Descriptive research is a quantitative study aimed at establishing evidence of phenomena, events or situation. It answers the "what" question.
- Explanatory research expands on the descriptive study by seeking to understand why an event occurred. It aims to identify causal relationships.

Saunders & Lewis (2012) argued that the research designs can be used together to support each other.

4.3.1 Descriptive and Exploratory

The research was performed using a mixed method research design, descriptive and exploratory. According to Saunders & Lewis (2012), descriptive method enlightens the researcher valuable quantitative data, but should not be seen as exclusive of others but rather as the route to an end. Descriptive research is a critical tool and can be used prior to exploratory study (Saunders & Lewis, 2012). Saunders & Lewis (2012) argued that exploratory study obtained further insights behind occurrences as observed in the quantitative data from descriptive study.

Mixed methods research has gained legitimacy, where the strengths of both qualitative and quantitative research are combined to unearth insights (Creswell, 2009). According to Creswell (2013), mixed methods is based on the basis that the researcher is able gain exhaustive facts about the problem that would have not been easily achieved with one method.

The study was conducted using quantitative data to determine the extent of the barriers to entry into the vertically integrated oil industry and qualitative data to gain insights into the barriers to entry and how these can be overcome to allow entry into the oil industry. The quantitative study was used to test objective theories and assessing relationships among variables (Creswell, 2013).

4.4 Data Collection

Data was collected using both qualitative and quantitative methods to provide a complete understanding of the research questions .The qualitative technique was done through semi-structured interviews (see Appendix 1), using prepared questions (Saunders & Lewis, 2012) and from a public seminar held at a Business School that was discussing the barriers to entry of non-refining oil wholesalers. The panel members were 4 executives from the non-refining oil wholesalers. The interview questions were pre-tested with two industry experienced professionals and were found to be too long. The interview guide was reviewed and shortened questions without losing substance. About 70% of interviews were conducted face to face and 30% telephonically where face to face was not possible due to time and distance constraints. Interviews were recorded using a digital audio device and notes were taken by the researcher as a back-up. Audio files were transcribed by a professional transcriber. The panel discussion from the public seminar was transcribed. Participants were requested to sign consent form to participate in the interview and asked their permission to record

the interview. All respondents gave consent and agreed to the recording of the interview. Semi-structured open-ended questions were prepared upfront and used as a guide for the interview process. Probing questions were asked to clarify issues and gain more depth on key concepts. Insights on the type of questions were gained from the above literature review.

Quantitative data was obtained using questionnaires (see Appendix 2) and applying statistical analysis using SPSS to test the hypothesis. Questionnaires were sent out using Typeform tool due to the ease of use and its ability to analyse data and download respondent's data into an excel document. According to Saunders & Lewis (2012), the questionnaire should be designed to ensure it is pleasing to look at and simple to use with no unnecessary questions that have nothing to do with the research question. The questions for the survey were taken from Karakaya (2002) and adapted slightly. The questionnaire questions followed key themes to address the research questions and were in a 5 point Likert scale format with no open-ended questions. They were pretested with a colleague to check for repetitions and questions which were not clear and could be confusing to the respondents. Questionnaires were sent to 70 senior managers and middle managers in the vertically integrated oil industry/refining and marketing; and non-refining oil firms during the first week of September 2016 and follow up email sent a week later. Statistical analysis was applied to the data to test the hypotheses.

Data collection followed exploratory strategy that involved collection and analysis of qualitative data and quantitative data to build a coherent story. According to Creswell (2013), the purpose of this strategy is to use quantitative data and results to help in the analysis and interpretation of qualitative results.

4.4.1 Interview Schedule

The interview schedule was drawn up to identify respondents and to determine time frames when interviews would be conducted. See interview schedule for Appendix 3. However, due to limited time, delays and availability of some of the intended interviewees, not all interviewees were conducted and interviews were completed in August as opposed to July as originally intended.

4.5 Population and sample

4.5.1 Universe

The universe is the group or set of entities of your research interest (Saunders & Lewis, 2012). The universe for this research was identified as the vertically integrated oil firms, non-refining oil wholesalers, associations, government institutions that are directly involved in policy making and enforcement in the oil industry. The universe is the downstream sector which is refining and marketing of liquid fuels in South Africa.

4.5.2 Population

According to Saunders & Lewis (2012), the population is the entire list of cluster members. They further state that these can be organisations, places and not necessarily people or employees. The population of this research study was the seven oil major companies and their representative body, non-refining oil wholesalers and their representative body and regulatory bodies in the oil industry. The research was limited to a good representative of the oil firms as it was not practical to collect data from the entire population (Saunders & Lewis, 2012).

4.5.3 Unit of analysis

The objective of this research was to determine the barriers to entry into the vertically integrated oil industry and determine economic theories of entry and apply them in this industry. Based on this objective the unit of analysis of this research is barriers to entry.

Data was collected through interviews and questionnaire from senior managers in the oil industry involved in strategy design, operations, sales and commercial optimisation. Senior managers were chosen due to their holistic knowledge of the business from all areas of the business. They had the expertise and knowledge of what it takes to enter the oil industry and how to succeed in the short and long run.

4.5.4 Sampling method and size

Saunders & Lewis (2012) define the sampling frame as the entire list of the population of interest. It was important to define the sampling frame where the sample of the research was drawn from as it gives the context of the results. Due to the nature of the research, it was not desirable to get the full list of names in the organisations of interest. The respondents had to meet a criterion of being middle and senior managers involved in strategy design and execution in vertically integrated and non-integrated oil

companies. The oil industry is a concentrated industry with characteristics of an oligopoly market structure that has few large firms dominating the market, therefore it was not difficult to identify the sampling frame. However, due time constraints, limited accessibility to the middle and senior managers in these organisations, confidentiality or unwillingness of some of the managers to participate in the research, not all managers of interest were interviewed.

Saunders & Lewis (2012) suggests two sampling techniques, probability and non-probability sampling. Probability sampling is when you have a complete list of population and each unit sample has an equal chance of being selected whilst non-probability does not require a complete list of the population. Non-probability sampling technique was used which is defined as the sampling technique used when the researcher does not have full access to the population list (Saunders & Lewis, 2012). The non-probability sampling technique used was purposive sampling technique. Saunders & Lewis (2012) argued that purposive sampling technique used to collect qualitative data from a small sample where a researcher's judgement is used to select the sample group based on various reasons. The study used a non-probability purposive sampling technique to ensure sample had diverse views to answer research questions.

The sample size differed from the two data collection techniques used. Saunders & Lewis (2012) suggests that the sample size is dependent on your population whether it is homogeneous or heterogeneous. A sample size of homogeneous population is likely to be about 10 whilst for heterogeneous population, the sample can be between 15 – 25. According to Guest, Bunce, & Johnson (2006) argued that six to twelve sample size for homogeneous sample group is adequate to provide meaningful themes and interpretation. These are guidelines of likely number interviews that need to be conducted and do not negate the need to check for data saturation (Saunders & Lewis, 2012). There is no consensus from various researchers on the sample size for qualitative research (Marshall, Cardon, Poddar, & Fontenot, 2013). Based on these findings the sample size of the research consisted of a homogeneous sample group. A total of nine senior managers were interviewed and data collected four senior managers from a seminar which brings the total number of respondents to thirteen.

The sample size for quantitative data was larger. The survey was sent to 70 middle and senior managers within oil industry within the vertically integrated and non-integrated oil firms including managers from associations representing both firm types and

regulatory bodies. A total of 27 responses were received. The initial response rate after one week was 28%, responses were mainly from the vertically integrated oil integrated oil firms. A follow-up email reminder was sent to all the non-integrated oil firms to complete the survey. The final response rate was 39%, this was deemed sufficient to conduct statistical analysis.

4.6 Data Analysis

4.6.1 Qualitative data analysis

According to Saunders & Lewis (2012), there are two differing approaches to research namely, deduction and induction. Deduction is a research approach that tests existing theoretical approaches based on the research strategy designed specifically for this test. However, induction is a research approach that formulates theory from analysing data that already exists. Based on literature, theories on entry and barriers to entry exist, however, there is limited theory that relates specifically to the oil industry in South Africa. A researcher can analyse qualitative data using content analysis or thematic analysis based on the question the researcher seeks to answer (Vaismoradi, Turunen, & Bondas, 2013). Content analysis is systematic approach of coding and grouping large amounts of information to identify direction and patterns of words used, their prevalence, their connection and structures and dialogue (Vaismoradi et al., 2013). Thematic analysis is different as it identifies, analyses and report themes coming out of the data (Vaismoradi et al., 2013). Thematic analysis was used for this research to identify themes from interviews and link them to research propositions.

Saunders & Lewis (2012) recommended that qualitative data should be analysed as text and be recorded in a word-processed document. The word document was analysed using a computer-aided qualitative analysis software; Atlas.ti version 7.5.15. Prior to the word document being imported to Atlas.ti, it was reviewed for accuracy and checked against the audio recording. Corrections were made to the transcript on the content and spelling. Transcripts were reviewed to ensure anonymity of respondents and their organisations. Documents were uploaded onto Atlas.ti., data coded to identify themes for further analysis from respondents.

4.6.2 Quantitative data analysis

Questionnaires were sent out using a survey tool known as Typeform to all respondents via email. The results were exported from Typeform into an MS Excel spreadsheet. Data was checked for completeness and formatted to ensure ease of use

prior to uploading it onto SPSS version 22. SPSS software was used to analyse respondents results and produce descriptive statistics. The descriptive statistics were used to test research hypotheses. The independent T-test was used to test hypothesis one to compare two independent variables means.

4.6.3 Validity and Reliability

Since two different methods of collecting data were used, to establish credibility of the research findings a process of triangulation was employed (Saunders & Lewis, 2012). According to Golafshani (2003) to test for reliability and validity in a qualitative research which may lead to generalisation of the research findings, use of a triangulation technique is critical. Triangulation is defined as the strategy for improving validity and reliability of the research findings (Golafshani, 2003). Saunders & Lewis (2012) describes Triangulation "as the use of two or more independent sources of data or data collection methods within one study to help ensure that the data are telling what you think they are telling you". Triangulation in this research was achieved by triangulating answers received from interviews with the results obtained from survey and literature (Saunders & Lewis, 2012, p. 122).

Reliability is defined as to the extent to which results are reproducible over time and correct over the entire population under study (Golafshani, 2003). Validity determines whether the research truly measures what it was intended to measure and how correct the research results (Golafshani, 2003).

4.7 Ethical Considerations

According to Saunders & Lewis (2012), research ethics is important in protecting the rights of those who participate in the research process and the researcher should behave appropriately. During this research process, ethical consideration was built into the process of collecting data, storing data, analysis of data and reporting of results using the process illustrated below:

- **Ethical Clearance** – Prior to data collection, the research methodology, semi-structured interview questions, interview schedule and questionnaire for the survey were subjected to a rigorous GIBS ethical clearance by the ethical committee to ensure that there were no intentional or unintentional ethical transgressions with the research methodology, see Ethical Clearance Appendix 4.

- **Respondents Consent** – Interviewees were asked to sign an informed consent letter before the interview was conducted, see appendix 5. Respondents to the survey for quantitative data were asked to give consent prior to participating in a survey, see appendix 6.
- **Confidentiality** – confidentiality of the participants was supported by not identifying the names of the individuals and their companies by using respondents 1, 2, and so forth. Their company names were also not revealed and identified as company A, B, and so forth.
- **Storage of Data** – Audio recordings, transcripts and notes taken during the interview are kept in a safe and secure place.

4.8 Limitations

The research was based on the economic theories of entry and barriers to entry in the vertically integrated and non-integrated oil industry in South Africa and does not purport to suggest its findings are applicable to other industries and countries. Even though the researcher sought to include selected oil industry middle and senior managers, not everyone responded to the questionnaires and interview, hence the results may be skewed towards those organisations who fully participated in the research study.

The number of respondents to the research survey was mostly from the established incumbents, which could skew the results in favour of these participants. The researcher minimised the impact of the bias not only presenting the statistical data combined but by also separating the results of the two groups to compare. The sample size for the study was small, however, due to the nature of the study being a mixed method helped not only to show the descriptive results but also exploratory data. Participation from government institutions was not achieved satisfactorily due to unavailability of relevant personnel and this resulted in insights from policy intentions being missed. According to Saunders & Lewis (2012), non-probability sampling does not represent the population statistically; therefore results cannot be generalised to other population.

CHAPTER 5 : RESULTS

5.1 Introduction to Results

Data was collected and analysed based on research propositions and research hypothesis as described in the research propositions and hypothesis section. The sample description that was obtained is presented below to provide an overview of the respondents that participated in the interview sessions and those who responded to the survey questions that were sent out. As the research is a mixed method, the results that will be presented in a mixed format with both quantitative and qualitative data presented to reinforce or contrast each other.

The initial step of descriptive data analysis was first to obtain basic statistics across the respondents. The data is organised based on level of experience and oil industry type. This information gives an overview of the respondent's context and their point of view. A further analysis of data included calculating the mean, median, standard deviation.

Qualitative results are presented in logical flow from proposition one, followed by proposition two and lastly proposition three. Data analysis was conducted using Atlas.ti and a deductive approach to analysis was used. A code framework which had sets of code and code families were created on Atlas.ti and quotes that fit into the predetermined codes were identified. The code framework was based on the semi-structured interview questions. Codes were grouped into code families and linked to emerging themes.

5.2 Descriptive Statistics

The response rate as shown in Table 2 was 39% from the target samples which is acceptable based on the target population of interest.

Table 2: Survey Respondents Basic Metrics

Description	Results
Questionnaires sent out	70
Number of respondents	27
Response rate	39%

A total number of 27 respondents was achieved with 17 of those who respondent holding senior management positions and 10 holding middle management positions as shown in Figure 2. The respondents profile is biased towards large incumbent firms and senior management.

Figure 2: Respondents Profile

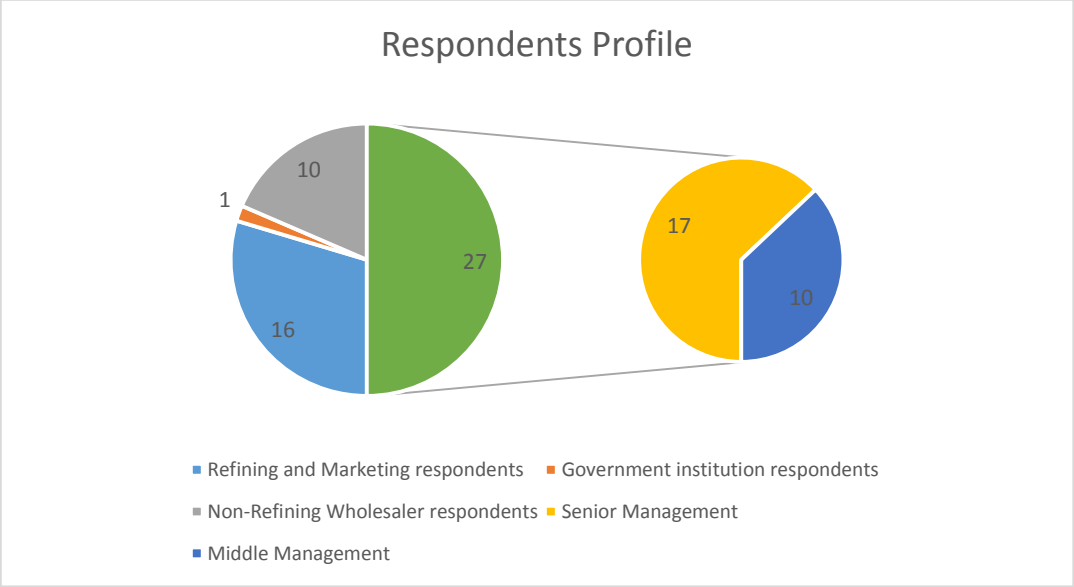


Figure 2 shows a total number of 27 respondents to, 10 of which represent non-refining oil wholesalers, 16 refining and marketing oil firms and 1 government institution.

5.3 Reliability Analysis

The reliability analysis is conducted to establish the reliability and validity of the questionnaire. Cronbach's alpha is the widely used as a measure of reliability and internal consistency (Bonnet & Wright, 2015). Current practice considers Cronbach's

alpha value of <0.65 as unacceptable; Cronbach's alpha value >0.65 as adequate and Cronbach's alpha of 0.85 or more as excellent (Bonnet & Wright, 2015).

Results from the research instrument for five factors/constructs and individual statements are >0.75 which indicates that the measurement instrument is reliable and valid as shown in Table 3.

Table 3: Reliability Analysis per Factor

Factors	**Cronbach's Alpha**	**N of Items**
Factor 1: Financial Requirements or Cost Market Entry	0.839	5
Factor 2: Competitive advantage of incumbent firms as barrier for market entrants	0.894	11
Factor 3: Product Differentiation	0.853	6
Factor 4: Profit Expectations from entering the market	0.751	6
Factor 5: Institutions	0.750	7

Reliability Statistics	
Cronbach's Alpha	N of Items
.935	35

The respondents were asked to respond to interview questions as listed in Appendix 2. Interview contained 5-point Likert scale which ranged from "Not a Barrier" to "Extreme Barrier". Figure 3 below shows the scale used. Results shown in Table 4 are from individual questions used in the survey with the calculated mean and standard deviation.

Figure 3: 5-point Likert Scale

Not a Barrier	**Low Barrier**	**A Barrier**	**High Barrier**	**Extreme Barrier**	**High**
1	2	3	4	5	

Table 4: Descriptive Statistics per Statement

Group Statistics					
	Nature of your organisation	N	Mean	Std. Dev	Std. Error Mean
Capital requirements to enter the markets	Refining and Marketing	16	3.44	1.031	.258
	Non-refining oil wholesalers	10	4.30	1.160	.367
Capital intensity of the market	Refining and Marketing	16	3.88	.806	.202
	Non-refining oil wholesalers	10	3.90	1.197	.379
Access to funds	Refining and Marketing	16	3.13	1.147	.287
	Non-refining oil wholesalers	10	4.00	1.054	.333
Amount of sunk costs involved in entering the market	Refining and Marketing	16	3.19	1.047	.262
	Non-refining oil wholesalers	10	3.70	1.337	.423
R&D Expense involved in entering a market	Refining and Marketing	16	2.13	1.088	.272
	Non-refining oil wholesalers	10	2.80	1.476	.467
Incumbent firms with proprietary product technology	Refining and Marketing	16	2.81	1.515	.379
	Non-refining oil wholesalers	10	3.10	1.287	.407
Trade secrets by incumbent firms or competitors in the market	Refining and Marketing	16	2.94	1.389	.347
	Non-refining oil wholesalers	10	2.80	1.398	.442
Incumbent firms cost advantages due to economies of scale	Refining and Marketing	16	3.81	.911	.228
	Non-refining oil wholesalers	10	4.10	.876	.277
Absolute cost advantages held by incumbents	Refining and Marketing	16	3.25	.856	.214
	Non-refining oil wholesalers	10	3.50	1.269	.401
Incumbent firms with cost advantages due to learning curves	Refining and Marketing	16	3.38	.885	.221
	Non-refining oil wholesalers	10	2.90	1.197	.379
Trade secrets held by incumbent firms or competitors in the market	Refining and Marketing	16	3.19	1.167	.292
	Non-refining oil wholesalers	10	2.80	1.317	.416
Incumbent firms with superior production processes	Refining and Marketing	16	3.19	1.471	.368
	Non-refining oil wholesalers	10	3.00	.943	.298
Relatively easy access to raw materials/products	Refining and Marketing	16	3.63	.885	.221
	Non-refining oil wholesalers	10	3.60	1.174	.371
Incumbent firms possessing strategic raw materials/products	Refining and Marketing	16	3.50	1.211	.303
	Non-refining oil wholesalers	10	3.00	1.491	.471
Vertical integration of incumbent firms	Refining and Marketing	16	3.50	1.095	.274
	Non-refining oil wholesalers	10	3.50	1.269	.401
Collaboration/hosting agreements amongst firms	Refining and Marketing	16	2.94	.929	.232
	Non-refining oil wholesalers	8	3.63	1.506	.532
Brand name/identification advantage held by incumbent firms	Refining and Marketing	16	3.63	1.088	.272
	Non-refining oil wholesalers	10	3.30	.949	.300
Access to distribution channels	Refining and Marketing	16	3.88	.885	.221
	Non-refining oil wholesalers	10	3.60	1.075	.340
Customer loyalty advantage held by incumbent firms	Refining and Marketing	16	3.31	1.302	.326
	Non-refining oil wholesalers	10	2.60	1.265	.400
Heavy advertising by firms already in the market	Refining and Marketing	16	3.13	1.258	.315
	Non-refining oil wholesalers	10	2.30	1.252	.396
Amount of selling expense involved in marketing a product	Refining and Marketing	16	3.19	1.276	.319
	Non-refining oil wholesalers	10	3.00	1.155	.365
Customer's associated costs with switching from one supplier to another	Refining and Marketing	16	2.81	1.109	.277
	Non-refining oil wholesalers	10	2.90	1.370	.433
Expected post-entry reaction / retaliation from firms already in the market	Refining and Marketing	16	2.25	1.000	.250
	Non-refining oil wholesalers	10	2.40	1.430	.452
Magnitude of market share held by incumbent firms	Refining and Marketing	16	2.94	.772	.193
	Non-refining oil wholesalers	10	3.20	1.317	.416

Number of firms in the market	Refining and Marketing	16	3.50	.966	.242
	Non-refining oil wholesalers	10	3.00	1.247	.394
High profit rates earned by incumbent firms	Refining and Marketing	16	2.69	1.195	.299
	Non-refining oil wholesalers	10	2.50	1.434	.453
Low prices charged by incumbent firms	Refining and Marketing	16	2.31	1.138	.285
	Non-refining oil wholesalers	10	2.90	1.197	.379
Cost advantages and profitability uncertainty of the industry	Refining and Marketing	16	2.94	1.237	.309
	Non-refining oil wholesalers	10	3.40	1.350	.427
Regulatory price framework of the industry	Refining and Marketing	16	2.69	1.493	.373
	Non-refining oil wholesalers	10	3.00	1.633	.516
Incumbent firms with government subsidies	Refining and Marketing	16	1.69	1.078	.270
	Non-refining oil wholesalers	10	2.30	1.567	.496
Uncertainty on the implementation date of clean fuels II	Refining and Marketing	16	2.94	1.526	.382
	Non-refining oil wholesalers	10	2.50	1.509	.477
Cost recovery mechanisms by oil industry to implement new fuel specifications	Refining and Marketing	16	3.31	1.621	.405
	Non-refining oil wholesalers	10	2.10	1.449	.458
Broad Based Economic Empowerment requirements for oil industry	Refining and Marketing	15	2.27	1.387	.358
	Non-refining oil wholesalers	10	2.50	1.269	.401
Environmental legislation requirements applicable to oil industry	Refining and Marketing	16	3.13	1.544	.386
	Non-refining oil wholesalers	10	2.90	.876	.277
Licencing requirements to enter and/or expand current operations	Refining and Marketing	16	3.00	1.265	.316
	Non-refining oil wholesalers	10	2.90	1.197	.379

The results in Table 4 shows revealed interesting insights, refining and marketing oil firms understated three main barriers to entry compared to their counter parts, these are capital requirements to enter the industry, access to funds and collaboration or hosting agreements between incumbent firms. Even though they agreed that that first two are barriers to entry they rated them lower, interestingly they disagreed that collaboration or hosting agreements between incumbent firms is a barrier to entry with an average score below 3.

5.4 Factor/Construct Descriptives

Table 5 below shows descriptive statistics per construct across two independent variables analysed using SPSS software.

Table 5: Factor/Construct Descriptives

Group Statistics					
	Nature of your organisation	**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Financial Requirements	Refining and Marketing	16	3.1500	.79833	.19958
	Non-refining oil wholesalers	10	3.7400	.97548	.30847
Competitive Advantage of Incumbent Firms	Refining and Marketing	16	3.2841	.78335	.19584
	Non-refining oil wholesalers	10	3.2627	.91148	.28823
Product Differentiation	Refining and Marketing	16	3.3229	.84868	.21217
	Non-refining oil wholesalers	10	2.9500	.96880	.30636
Profit Expectations	Refining and Marketing	16	2.7708	.65511	.16378
	Non-refining oil wholesalers	10	2.9000	.99753	.31545
Institutions / Regulations	Refining and Marketing	16	2.7336	.91627	.22907
	Non-refining oil wholesalers	10	2.6000	.95902	.30327

Results shown above were obtained from a questionnaire based on the 5 point Likert scale as shown in Figure 3. Mean values below 3 indicate disagreement with the statements contained in the construct while mean values above 3 indicate agreement with the statements contained the construct. Statements contained in the construct are shown in Table 5 above.

The first construct which is Financial Requirements has mean values for both independent variables above three, however non-refining wholesalers mean value was larger than the refining and marketing oil firms mean value.

The second construct, Competitive advantage of incumbent firms has mean values above three for both construct with mean values for both very similar.

The third construct, Product Differentiation has a mean value for refining and marketing oil firms higher than three compared to mean value of non-refining wholesalers which is marginally below three.

The fourth and fifth constructs have mean values below 3 for both independent variables with very little differences in the mean values for both groups.

5.5 Qualitative Sample Description

The original target was to interview 16 participants, but due to time constraints and unavailability of the participants, nine participants were interviewed from the sector and this was enough sample based on the population of the research (Guest et al., 2006). Additional data was collected from six participants who participated in a public business school seminar held at a business school that was discussing key issues around the research topic. The participants were senior management with several years of experience as shown by Table 6 below. The semi-structured interview questions asked are shown in Appendix 1.

Table 6: Summary of Respondents

Type	Position	Method of data collection
Government institution	Senior Manager	Interview
Refining and Marketing	Senior Manager	Interview
Refining and Marketing	Senior Manager	Interview
Refining and Marketing	Senior Manager	Interview
Refining and Marketing	Middle Manager	Interview
Non-Refining Wholesaler	Senior Manager	Interview
Association: Non-Refining Wholesaler	Senior Manager	Interview
Association: Refining and Marketing	Senior Manager	Interview
Non-Refining Wholesaler	Senior Manager	Interview
Non-Refining Wholesaler	Senior Manager	Seminar
Non-Refining Wholesaler	Senior Manager	Seminar
Non-Refining Wholesaler	Senior Manager	Seminar
Non-Refining Wholesaler	Senior Manager	Seminar
Non-Refining Wholesaler	Senior Manager	Seminar
Refining and Marketing	Senior Manager	Seminar

The respondents interviewed as shown in Table 6 were selected equitable from the population of interest and were in senior positions with a holistic view of the oil industry both from a strategic and operations point of view.

Table 7 shows some basic statistics of the interviews duration.

Table 7: Basic Interview Statistics

Description	Results
Number of respondents	16
Number of interviews	9
Number of seminars	1
Refining and Marketing respondents	6
Government institution respondent	1
Non-Refining Wholesaler respondents	6
Total time spent on interviews	7 hours, 36 minutes
Average length of interviews	55 minutes
Longest time of interview	1 hour, 34 minutes
Shortest time of interviews	34 minutes
Seminar duration	1 hour, 24 minutes

Table 7 reflects the time and effort spent in gathering interview data. The duration of the interview is not a reflection of the quality or lack thereof of the insights received. All respondents participated fully in the interview sessions and some were succinct in their response to the questions posed.

5.5.1 Summary of Results by Respondents

Using a deductive approach various codes were determined based on the research questions. Respondent's quotations were assigned to appropriate codes; these codes were grouped into families or themes that emerged out of these quotations.

Table 8 shows the total number of code families and codes that were derived from respondent's answers. After the first analysis of codes, some codes were found to be similar and related, these were merged together.

Table 8: Summary of Themes by Respondents

Respondents	Capital requirements	Competitive advantage	Firm competence	Regulations	Unfavourable business environment
P 1: Respondent 01 & 2	17	15	9	33	25
P 2: Respondent 10	3	3	1	6	5
P 3: Respondent 11	6	4	7	11	7
P 4: Respondent 12	5	4	2	17	11
P 5: Respondent 13	1	5	2	15	13
P 6: Respondent 14	6	8	5	15	14
P 7: Respondent 15	3	4	2	16	12
P 8: Respondent 03	1	5	1	10	10
P 9: Respondent 04	2	4	2	17	10
P10: Respondent 05	4	1	1	19	8
P11: Respondent 06	0	1	0	3	1
P12: Respondent 07	0	2	0	1	2
P13: Respondent 08	3	8	1	5	6
P14: Respondent 09	0	2	2	7	3
TOTALS:	**51**	**66**	**35**	**175**	**127**

Respondent 6 and respondent 7 had the least contribution of codes; these two respondents were giving a brief overview of the oil industry and introducing panel

guests at the seminar. Primary document 1 had the most codes associated with his interview, this was a combined interview with two senior managers and both provided different angles which made the interview rich with insights. Five themes were identified as per the literature review and all codes were grouped under these five themes. Regulations were the theme that was mentioned more than others, followed by unfavourable business environment. This is not unusual considering that the industry is a regulated market.

5.6 Hypothesis Testing

The hypothesis testing was done using the independent samples t-test for hypothesis one to determine if the difference between the independent variables and dependent variables is significant at 95% confidence level (Manoj, 2015).

Levene's test was used to test for homogeneity of variance of the population of both groups whether they have equal variances or unequal variances and whether the difference in means is significant or not (Manoj, 2015).

5.6.1 Research Hypothesis One

The first hypothesis was done using the independent samples t-test to determine if there is difference in the impact of barriers to entry between the refining and marketing oil firms; and the non-refining oil wholesalers.

The null hypothesis for question one states that there is no significant difference in the impact of barriers to entry between the refining and marketing oil firms; and the non-refining oil wholesalers.

The alternative hypothesis states that there is a significant difference in the impact of barriers to entry between refining and marketing oil firms and non-refining oil wholesalers.

Table 9 below shows the overall mean values across all barriers to entry statements between two groups.

Table 9: Descriptive Statistics - Barriers to Entry

Group Statistics					
	Nature of your organisation	**N**	**Mean**	**Std. Deviation**	**Std. Error Mean**
Barriers to entry	1: Refining and Marketing	16	3.0726	.60012	.15003
	2: Non-Refining Oil Wholesalers	10	3.0818	.83994	.26561

The mean values between the refining and marketing oil firms as reflected in the above Table 9 show similar mean results indicating that respondents from both firms felt the barriers to entry in a similar manner.

The independent samples t-test results are shown in Table 10. Levene's test was used to test for homogeneity of variance of the population of both groups whether they have equal variances or unequal variances (Manoj, 2015). The population variance of both groups across all statements of barriers to entry was equal as indicated by the p-value (sig.) of 0.307 which greater than 0.05 as shown in Table 10 below which means there is no violation of the assumption homogeneity of variance and therefore analysis of results will be based on the first row (equal variances assumed).

Table 10: Overall Barriers to Entry: T-Test Results

Independent Samples Test										
		Levene's Test for Equality of Variances		**t-test for Equality of Means**						
									95% Confidence Interval of the Difference	
		F	**Sig.**	**t**	**df**	**Sig. (2-tailed)**	**Mean Difference**	**Std. Error Difference**	**Lower**	**Upper**
Barriers to Entry	Equal variances assumed	1.092	.307	-.033	24	.974	-.00926	.28208	-.59145	.57292
	Equal variances not assumed			-.030	14.758	.976	-.00926	.30506	-.66041	.64188

Results above in Table 10 are for overall barriers to entry, show a p-value (sig.) of 0.974 which is greater than p-value of 0.05 which means "fail to reject the null hypothesis at 95% confidence level".

Results is Table 11 were used for 5 constructs that were grouped from the individual barriers to entry and make up that construct as per literature.

Table 11: Constructs/Factors of Barriers to Entry: Independent Samples T-Test

		t-test for Equality of Means						
		t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Financial Requirements	Equal variances assumed	-1.684	24	.105	-.59000	.35031	-1.31300	.13300
	Equal variances not assumed	-1.606	16.389	.127	-.59000	.36741	-1.36737	.18737
Competitive Advantage of Incumbent Firms	Equal variances assumed	.064	24	.950	.02136	.33608	-.67227	.71500
	Equal variances not assumed	.061	17.048	.952	.02136	.34847	-.71369	.75641
Product Differentiation	Equal variances assumed	1.033	24	.312	.37292	.36103	-.37222	1.11805
	Equal variances not assumed	1.001	17.314	.331	.37292	.37266	-.41224	1.15807
Profit Expectations	Equal variances assumed	-.400	24	.693	-.12917	.32284	-.79547	.53714
	Equal variances not assumed	-.363	13.900	.722	-.12917	.35543	-.89200	.63367
Institutions / Regulations	Equal variances assumed	.355	24	.725	.13363	.37592	-.64222	.90948
	Equal variances not assumed	.352	18.572	.729	.13363	.38006	-.66308	.93035

The five constructs that were measured were financial requirements, advantage of incumbent firms, product differentiation, profit expectations and institutions/regulations. The level of significance as shown in Table 11 by sig. is greater than p-value of 0.05 for all five constructs which means "fail to reject the null hypothesis at 95% confidence level".

Table 12 analyses the differences at a detailed/individual level.

Table 12: Individual Barriers to Entry

Independent Samples Test								
		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Capital requirements to enter the markets	Equal variances assumed	.526	.475	-1.980	24	**.059**	-.863	.436
	Equal variances not assumed			-1.925	17.522	.071	-.863	.448
Capital intensity of the market	Equal variances assumed	2.405	.134	-.064	24	.950	-.025	.392
	Equal variances not assumed			-.058	14.143	.954	-.025	.429
Access to funds	Equal variances assumed	.163	.690	-1.950	24	**.063**	-.875	.449
	Equal variances not assumed			-1.990	20.516	.060	-.875	.440
Amount of sunk costs involved in entering the market	Equal variances assumed	2.415	.133	-1.092	24	.286	-.513	.469
	Equal variances not assumed			-1.030	15.819	.318	-.513	.497
R&D Expense involved in entering a market	Equal variances assumed	1.299	.266	-1.342	24	.192	-.675	.503
	Equal variances not assumed			-1.250	15.106	.230	-.675	.540
Incumbent firms with proprietary product technology	Equal variances assumed	1.584	.220	-.497	24	.623	-.288	.578
	Equal variances not assumed			-.517	21.618	.610	-.288	.556
Trade secrets by incumbent firms or competitors in the market	Equal variances assumed	.011	.919	.245	24	.809	.138	.561
	Equal variances not assumed			.245	19.151	.809	.138	.562
Incumbent firms cost advantages due to economies of scale	Equal variances assumed	.006	.941	-.795	24	.435	-.288	.362
	Equal variances not assumed			-.802	19.840	.432	-.288	.358
Absolute cost advantages held by incumbents	Equal variances assumed	4.112	.054	-.602	24	.553	-.250	.416
	Equal variances not assumed			-.550	14.161	.591	-.250	.455
Incumbent firms with cost advantages due to learning curves	Equal variances assumed	.594	.448	1.163	24	.256	.475	.409
	Equal variances not assumed			1.083	15.139	.296	.475	.439
Trade secrets held by incumbent firms or competitors in the market	Equal variances assumed	.048	.828	.784	24	.440	.388	.494
	Equal variances not assumed			.762	17.483	.456	.388	.508
Incumbent firms with superior production processes	Equal variances assumed	3.571	.071	.358	24	.723	.188	.523
	Equal variances not assumed			.396	23.952	.696	.188	.473
Relatively easy access to raw materials/products	Equal variances assumed	1.792	.193	.062	24	.951	.025	.404
	Equal variances not assumed			.058	15.368	.955	.025	.432

Incumbent firms possessing strategic raw materials/products	Equal variances assumed	.509	.482	.938	24	.358	.500	.533
	Equal variances not assumed			.892	16.293	.385	.500	.560
Vertical integration of incumbent firms	Equal variances assumed	.917	.348	.000	24	1.000	.000	.469
	Equal variances not assumed			.000	17.106	1.000	.000	.486
Collaboration/hosting agreements amongst firms	Equal variances assumed	3.422	.078	-1.387	22	.179	-.688	.496
	Equal variances not assumed			-1.184	9.751	.265	-.688	.581
Brand name/identification advantage held by incumbent firms	Equal variances assumed	.119	.733	.777	24	.445	.325	.418
	Equal variances not assumed			.803	21.257	.431	.325	.405
Access to distribution channels	Equal variances assumed	1.407	.247	.710	24	.484	.275	.387
	Equal variances not assumed			.678	16.468	.507	.275	.406
Customer loyalty advantage held by incumbent firms	Equal variances assumed	.174	.680	1.372	24	.183	.713	.519
	Equal variances not assumed			1.382	19.689	.183	.713	.516
Heavy advertising by firms already in the market	Equal variances assumed	.065	.802	1.630	24	.116	.825	.506
	Equal variances not assumed			1.632	19.333	.119	.825	.506
Amount of selling expense involved in marketing a product	Equal variances assumed	.850	.366	.377	24	.709	.188	.497
	Equal variances not assumed			.387	20.738	.703	.188	.485
Customer's associated costs with switching from one supplier to another	Equal variances assumed	.749	.395	-.179	24	.860	-.088	.489
	Equal variances not assumed			-.170	16.240	.867	-.088	.514
Expected post-entry reaction / retaliation from firms already in the market	Equal variances assumed	2.628	.118	-.315	24	.755	-.150	.476
	Equal variances not assumed			-.290	14.529	.776	-.150	.517
Magnitude of market share held by incumbent firms	Equal variances assumed	4.648	**.041**	-.644	24	.526	-.263	.408
	Equal variances not assumed			-.572	12.925	**.577**	-.263	.459
Number of firms in the market	Equal variances assumed	1.026	.321	1.148	24	.262	.500	.435
	Equal variances not assumed			1.081	15.692	.296	.500	.462
High profit rates earned by incumbent firms	Equal variances assumed	.179	.676	.361	24	.722	.188	.520
	Equal variances not assumed			.345	16.636	.734	.188	.543
Low prices charged by incumbent firms	Equal variances assumed	.011	.916	-1.256	24	.221	-.588	.468
	Equal variances not assumed			-1.240	18.500	.230	-.588	.474
Cost advantages and profitability uncertainty of the industry	Equal variances assumed	.900	.352	-.896	24	.379	-.463	.516
	Equal variances not assumed			-.878	17.953	.392	-.463	.527
Regulatory price framework of the	Equal variances assumed	.199	.660	-.501	24	.621	-.313	.624

industry	Equal variances not assumed			-.490	17.925	.630	-.313	.637
Incumbent firms with government subsidies	Equal variances assumed	1.953	.175	-1.184	24	.248	-.613	.517
	Equal variances not assumed			-1.086	14.360	.295	-.613	.564
Uncertainty on the implementation date of clean fuels II	Equal variances assumed	.163	.690	.714	24	.482	.438	.613
	Equal variances not assumed			.716	19.420	.483	.438	.611
Cost recovery mechanisms by oil industry to implement new fuel specifications	Equal variances assumed	1.065	.312	1.929	24	**.066**	1.213	.628
	Equal variances not assumed			1.982	20.913	.061	1.213	.612
Broad Based Economic Empowerment requirements for oil industry	Equal variances assumed	.293	.594	-.426	23	.674	-.233	.548
	Equal variances not assumed			-.434	20.629	.669	-.233	.538
Environmental legislation requirements applicable to oil industry	Equal variances assumed	12.154	**.002**	.419	24	.679	.225	.537
	Equal variances not assumed			.474	23.874	**.640**	.225	.475
Licencing requirements to enter and/or expand current operations	Equal variances assumed	.018	.893	.200	24	.843	.100	.500
	Equal variances not assumed			.203	20.076	.841	.100	.493

The population variance of both groups across most barriers to entry was equal as indicated by the p-value (sig.) greater than 0.05 as shown in Table 14 which means there is no violation of the assumption homogeneity of variance. However, there were two barriers to entry which violated the homogeneity test and these were market share of incumbent firms and environmental legislation requirements applicable to oil industry. For these two barriers to entry, the p-value sig value that was considered was for “equal variances not assumed”. Detailed analysis of each barrier statement revealed that even though there is no significant difference in the barriers to entry amongst both firms with p-values >0.05 which means “fail to reject the null hypothesis at 95% confidence level”. These were capital requirements to enter the markets; access to funds and cost recovery mechanisms by oil industry to implement new fuel specifications were three barriers to entry that were close to p-value of 0.05.

5.6.2 Research Hypothesis Two

Is to assess whether barriers to entry are perceived equally important by established oil firms and non-refining oil wholesalers.

The null hypothesis for question two states that there is no difference in the importance of barriers to entry between the refining and marketing oil firms; and the non-refining wholesalers.

The alternative hypothesis states that there is a difference in the importance of barriers to entry between the refining and marketing oil firms; and the non-refining oil wholesalers.

Table 13 showed average score of barriers to entry as per both refining and marketing oil firms and non-refining oil wholesalers in order of importance.

Table 13: Barriers to Entry - Order of Importance

Barriers to Entry	Mean	Std Dev
Capital intensity of the market	3,9	0,9
Incumbent firms cost advantages due to economies of scale	3,9	0,9
Capital requirements to enter the markets	3,8	1,1
Access to distribution channels	3,8	0,9
Heavy advertising by firms already in the market	3,8	1,3
Relatively easy access to raw materials/products	3,6	1,0
Access to funds	3,5	1,2
Brand name/identification advantage held by incumbent firms	3,5	1,0
Vertical integration of incumbent firms	3,5	1,1
Amount of sunk costs involved in entering the market	3,3	1,2
Absolute cost advantages held by incumbents	3,3	1,0
Incumbent firms possessing strategic raw materials/products	3,3	1,3
Number of firms in the market	3,3	1,1
Collaboration/hosting agreements amongst firms	3,2	1,2
Incumbent firms with cost advantages due to learning curves	3,1	1,0
Amount of selling expense involved in marketing a product	3,1	1,2
Magnitude of market share held by incumbent firms	3,1	1,0
Cost advantages and profitability uncertainty of the industry	3,1	1,3
Incumbent firms with proprietary product technology	3,0	1,4
Trade secrets held by incumbent firms or competitors in the market	3,0	1,3
Incumbent firms with superior production processes	3,0	1,3
Customer loyalty advantage held by incumbent firms	3,0	1,3
Environmental legislation requirements applicable to oil industry	3,0	1,3
Customer's associated costs with switching from one supplier to another	2,9	1,2
Licencing requirements to enter and/or expand current operations	2,9	1,2
Trade secrets by incumbent firms or competitors in the market	2,9	1,4
Regulatory price framework of the industry	2,8	1,5
Cost recovery mechanisms by oil industry to implement new fuel	2,8	1,6

specifications		
Uncertainty on the implementation date of clean fuels II	2,7	1,5
High profit rates earned by incumbent firms	2,6	1,2
Low prices charged by incumbent firms	2,5	1,2
R&D Expense involved in entering a market	2,4	1,2
Expected post-entry reaction / retaliation from firms already in the market	2,3	1,1
Broad Based Black Economic Empowerment (BBBEE) requirements for oil industry	2,3	1,3
Incumbent firms with government subsidies	1,9	1,3

Table 13 shows top 5 barriers to entry for both refining and marketing oil firms and non-refining oil wholesalers are capital intensity of the market (mean = 3.9); incumbent firms cost advantage due to economies of scale (mean = 3.9); capital requirements to enter market (mean = 3.8); access to distribution channels (mean = 3.8) and heavy advertising by firms already in the market (mean = 3.8).

The bottom 5 barriers are low prices charged by incumbent firms (2.5), R&D expense involved in entering a market (2.4), expected post-entry reaction/retaliation from firms in the market (2.3), BBBEE (2.3), and incumbent firms with government subsidies (1.9).

In appendix 7, barriers to entry that are in the top 5 for refining and marketing oil firms are capital intensity of the market (mean = 3.9); access to distribution channel (mean = 3.9); incumbent firms cost advantages due to economies of scale (mean = 3.8); relatively easy access to raw materials/products (mean = 3.6) and brand name/identification advantage held by incumbent firms (mean = 3.6).

In appendix 8 shows that, there are only two barriers to entry that are common in the top 5 for both firms and these are incumbent firms cost advantages due to economies of scale (mean = 4.1); capital intensity of the market (mean = 3.9). In addition to these two, non-refining oil wholesalers have these three barriers in their top 5 as capital requirements to enter the markets (mean = 4.3); access to funds (mean = 4.0); amount of sunk costs involved in entering the market (mean = 3.7).

Appendix 7 and appendix 8 indicates that firms place different emphasis on different barriers to entry depending on the stage of their life-cycle.

5.7 Research Proposition One: There are barriers to entry into the vertically integrated oil industry and make entry conditions difficult for new entrants.

Research proposition one was exploring the barriers to entry experienced by the new entrants both at a strategic level and structural level. Respondents identified various barriers to entry.

5.7.1 Capital Requirements

The top 5 issues that were highlighted by respondents as major issues for their success in this industry are funding/access to capital, capital intensity, access to infrastructure and refining. This is consistent with quantitative results obtained in Table 13.

5.7.1.1 Access to Capital and/or Funding

There were nine respondents who identified availability of funding as the main challenge in the oil industry for new entrants. They state that local banks were not willing to grant them bank loans to import a ship of fuel as they did not have the balance sheet to support it. Further to this one respondent state that in 10 years of trading in the oil industry they have not been able to buy a full load of vessel/ship that's how difficult things are. To put context on the issue of funding these are the views of some of the respondents:

Respondent_10: *"Funding is a big issue, for instance to make 15 cents you have to spend 12 rand and you can see why people would say they will take their money and put in the stock exchange where the returns are much higher, you can make that money if you have your own cash."*

Respondents highlighted funding challenges they receive from the banks and established firms.

Respondent_05: *"I'm not lending you money in this environment. I'll lend you money if you are below the average regulated price line. But I'm not lending you money if you are above the average regulated price line."*

Respondent_08: *"For new entrants, you will be expected to issue a few million rands fee guarantee just to obtain a truck of diesel from an oil major company, where are you going to get that."*

Not all respondents saw funding as a constraint to them if opportunities exist in the market that they wish to pursue. Even though they recognised funding as an issue they accept that it is more an issue for smaller entrants compared to them. As organisations with financial backing they can identify opportunities, allocate funding to pursue the section of the value chain they find attractive or want to enter, this is not something a small company can do due to its lack of funding. This view is supported by another respondent who highlights the access to capital and how it is a disadvantage to smaller entrants. They put their views as follows:

Respondent_02: *"As a large company so you can put down things, you can go out into the market and hunt down opportunities for you to enter the direct marketing retail side. So, you know what often happens is the new entrants won't be able to do that, you put down big teams of people that go out and explore the opportunities. Company also put down a big fund that we want to enter this marketing retail side, put down a fund of money and get as many opportunities that you can"*

Respondent_04: *"I think access to capital, building a refinery, owning a refinery requires a huge investment and you need access to technology. Multinational entities have an advantage in that space because they can leverage their international status. You look at the clean fuels bill as well, it costs hundreds of millions of dollars just to comply. To the earlier point, if there's no remuneration of some sort as a smaller company if you want a claim in that space it is difficult."*

5.7.1.2 Capital Intensive

Respondents highlighted the capital intensity of the industry as another challenge. Respondents noted that there is a varying degree of capital intensity depending where you are in the value chain. One respondent states that even though the retail side of the value chain is not as capital intensive as up the value chain it is still a sizeable capital for new entrants. Another respondent emphasized the nature of costs in this industry. Below are some of the detailed responses:

Respondent_01: *"Okay if you are not specifically a large company like an oil major a smaller company, it is a capital-intensive industry and that's a reality. Well even for us, it depends on what section of value chain you are looking at. The manufacturing side, the refining side is extremely capital intensive and distribution is slightly less intensive and then the marketing side the least intensive that's why you see all the new entrants play on the marketing side and that's also where opportunities lie. So, if you think of the*

retail site it might be 3 years from your idea until you start something, you know it's a challenge for a new entrant that need to have the cash flow to manage it."

Respondent_12: *"The other thing is, we consider a service station to be a small business in the oil industry. But that's a big business, a good service station can have a turnover of over 15million rand a year. So, in terms of DTI industry, that's considered a large industry but in the oil business we consider them small. But to get into a service station you are looking at 7 million rands. That's a lot of money, I can get into a take-away franchise for half of that. The margins might be even better than the oil industry. The oil industry is a very capital-intensive industry. Unfortunately, we are talking about indigenous companies, they don't have that kind of money."*

Respondent_04: *"This is a capital-intensive sector. You are playing in a dollar denominated industry and you are selling in a local industry."*

5.7.1.3 Access to Infrastructure

Infrastructure was highlighted by most respondents as a major challenge for non-integrated firms. Their views were that lack of infrastructure makes it difficult for them. Infrastructure as mentioned by respondents include terminal storage facilities both at the ports and at the regions where they want to trade, pipeline access for distribution of their products. Respondents acknowledge that the government has made initiatives to address some of these challenges with minimal success.

Respondent_02: *"I think where the biggest difference is our access to infrastructure, import, supply of molecules/products and distribution infrastructure where the existing players have the infrastructure we have that advantage."*

Respondent_14: *"I think one of the challenges obviously is for the smaller players, is access to land for new entrants is to find suitable space in the ports is one of the challenges."*

Respondent_11: *"We must have access to terminals not what oil majors do when there is a price increase they let their trucks go first."*

Respondent_14: *"This is the other challenge, even if I bring in a ship, remember the department of energy (DoE) has embarked on a process where not only the oil majors could import product. Now other players can import. But now I can import, I need access to the pipeline. To do that I need to first get access to storage in the harbour, then get access to where I want to deliver product in Gauteng. So, I think another constraint or barrier, is the fact that you need to get back to back arrangements."*

5.7.2 Competitive advantage

Respondents recognised that incumbent firms have a competitive advantage towards new entrants. Broadly respondents find access to products/supply; access to market; long term agreements/contracts; access to distribution channels as putting them at a competitive disadvantage. These are some of the advantages highlighted by respondents:

5.7.2.1 Access to product / molecules

Access to product at affordable prices is key in this industry. This is a short market where demand exceeds supply of products. Below are detailed responses from respondents highlighting challenges with access to products.

Respondent_15: *"The barrier to entry is supply, the country is short of manufacturing. We need to import components or refined product to meet the demand. One could argue is it financially feasible to import as a small entrant, access to import infrastructure is currently owned by the multinationals. Anyone coming into the industry is how do I get access to supply because it is short, secondly how do I recover my cost, the working capital, 3rd you are at the mercy of the established incumbents."*

Respondent_10: *"The issue around the supply logistics in terms of access to products at the right price to be able to compete, I would be lying if I told you we are doing any value-added services and find out you are competing with your supplier, but we need to have that reliable access to products to be able to sell to our customers."*

Respondent_01: *"The company like an oil major who supplies our fuel have access to those molecules/challenges. If you don't then you are always dependent and in situations where there's disruptions in the industry like strikes you're down, there in the pecking in terms of their priorities."*

Respondent_02: *"I think where the biggest difference is our access to infrastructure, import infrastructure, supply of molecules and distribution infrastructure where the existing players have that infrastructure we have that advantage."*

Other oil wholesalers who have partnerships with oil majors either through BEE partnerships and/or supply agreements find themselves at competitive advantage compared to their peers who do not have such relationships. Access to products is not a challenge for all new entrants, one respondent who have a relationship or linked to the oil major does not experience challenges with regards to access to products as their peers do.

Respondent_03: *"You have relatively smaller entities that are there to market fuel, but they still have to get supply cover from one of the more established players in the market. That is where we have a unique advantage due to our partnership with an oil major. When we get a contract for products, we don't have to ask for quotations to source products. Our partner stands fully behind us. That is a very big advantage relative to other smaller entrants who get an order but they still must come to the established players to source products. A big part of our business is the on road re-fuelling business which we give to our commercial road customers and for this we use our partner's retail network for our customers to fill up. We have established customers in mining, and other government sectors"*

5.7.2.2 Access to the market

Three respondents argue that existence of long term contracts and access to products puts the new entrants at a disadvantage as they deprive them of some lucrative customers. Respondent 02 argued that these long-term contracts are necessary to secure customers for their manufacturing output, whilst respondent 10 sees these contracts as denying smaller entrants access to customers.

Respondent_02: *"Long term agreements, especially the long-term supply agreements which a large producer like an oil major for instance would want to be certain that we sell all our products so we would contract for 5 years, 20 years with large companies and that makes it difficult for new entrants to access those molecules/products."*

Respondent_10: *"Access to the market is a big issue, because you have a small pool of companies controlling a 1 trillion-rand economy, you will find that a mining company has a 5-year contract and that means all other people like new entrants have to find other mining customers or wait until the contract expires. It is quite difficult for a new entry, because when they have done their award that means you have to wait for your turn and that might be in 3 years to come."*

Respondent_08: *"Do away with evergreen agreements to allow new entrants, there are old contracts existing way back it makes it difficult for new entrants to enter the industry."*

Other respondents believe that even if you have passed the hurdle of access to products, acquiring customers remains a significant challenge:

Respondent_12: *"You need a customer. You can have as much product as you want but people won't switch overnight. They must be fed up with an oil major for them to*

switch like that. So, besides that there are agreements whether it's for a year or whatever and they are locked in."

Respondent_02: *"I think it's very important for us is how good is your service to your customers is if you provide good service at competitive pricing, then you are competitive, you know consumers will not flock to your new entrant if you have jacked up and keep having good service and so on. So, we make sure our fuels are high quality and the last aspect is price which is some products you can compete others you don't or some levels in the value chain."*

These two respondents stress the importance of brand equity by established firms, the first respondent highlights that customers are not necessarily attached to a certain brand; however, they buy fuel from known brands and the 2nd respondent agrees with accession.

Respondent_13: "*SA consumers are not necessarily persuaded by brand in fuel, there is not sufficient education about additives. People say I buy because it's on my route, clean, convenient. Even though they do not care about brand, but they choose big brands, they think the quality of fuel is poor from unknown brands. How customers warm up to new entrants is going to be a challenge for them. The development of convenience shops with reputable food-chain and customers are now saying I buy fuel where I can also buy food. The impact of the new players is less on the B2C its more on the commercial. But even the commercial customers prefer suppliers with technical know-how."*

Respondent below conducted an exercise to determine the impact of brand from the customer perspective by changing branding from the retail sites and the impact was immediate.

Respondent_05: "*We can build service stations. We can buy the canopy and put our unknown oil name on the roof of the canopy. We can build the whole service station. But you know what you notice? Notice you will see the same sign you've been seeing for 50 years. If you purchase oil major here and put our unknown name, the volumes will half. You know that? We've done it in small towns in South Africa where there is one service station at the beginning and one at the end, one is oil major. Then they changed to an unfamiliar name, that one goes half the volume and the rest of the volume goes to the oil major. You can actually calculate what the brand is worth."*

5.7.2.3 Pricing Model

Respondents have different views on the regulated pricing model. Some respondents believe the pricing model is fair and rewards the most efficient and other respondents argue that it only serves the interest of the established firms.

Respondent_15: "*The way the pricing model works is on average. Let's look at the secondary storage handling depots. They work the costs for four size depots, 1 million, 10 million, 15 million etc. and they work the costs. And they draw an average, that average is used in the pricing model. If your operating cost are above that average, then you are under-recovering and if your costs are below the average you are over-recovering. One big depot operation might in an urban area cost you 4-5cents a litre and another smaller depot operation in non-urban area costs you 40 cents a litre. And your depot at a non-urban area is entered into a pool of cost recovery with other big depots because it's an average cost recovery model. You are at huge cost disadvantage. There are two economies, one profitable and another unprofitable one. The whole pricing model matter that is based on the RAS model is based on the retail service station in urban areas on a benchmark service station with 2 kilometre round-trip, on 28500 litres drop size with a freedom of delivery. This is very different from a non-urban retail site where you do four to five drops per trip where a trip could be 350 km round-trip depending where you are and the costs are very different.*"

Respndent_11: "*There is a cumbersome regulated frame work, Regulatory Accounting System (RAS) model. We don't think it addresses the right things and I know my colleagues of the oil majors, maybe they are happy with it but I am not happy with it because I need some money out of that margin as a young entrepreneur.*"

Below are the views of respondents who are supportive of the pricing model.

Respondent_12: "*What our new regulated accounting system does, government regulates the industry, not a company so any person who makes an investment does get rewarded only it doesn't come to you alone. So, what the system does, is fair because it rewards the most efficient. What it's going to do is put everyone's cost in the basket and you are rewarded accordingly. The only difference is that it's shared with everyone else. Even if you are a new player, you don't contribute yet towards the asset base you are getting the margin. Because there is a big portion of the margin dependant on the asset base and another that deals with operations and expenses.*"

Respondent_01: "*There's a price build on facility that's pretty well thought through, so*

you should be profitable but I think it limits you in terms of offering something other than what your competitors are offering. It inhibits you."

5.8 Research Proposition Two: Established incumbent firms deter entry into the oil market by using structural and strategic barriers to entry.

Research proposition two sought to determine whether established firms were perceived to deter entry for new entrants.

Respondents had various views to the direct question that was raised as to whether established incumbents were accommodating new entrants. Below are some of the answers from the respondents:

Respondent_01: *"If somebody wants to build a new depot you can't stop them. The question for me is about accommodating people in your existing facility. That's a very difficult question to answer because you first must consider your own environments and depots and whether larger oil company, the owners of these depots have done everything in their ability to accommodate new entrants, we can probably say no but that's a very difficult thing to pinpoint because you make now a risk decision where you say but I'm risk averse so I would rather keep this facility for myself."*

Respondent_10: *"The issue of joint ventures around depots, if you look at depots especially with regards to pipelines the companies are operating as joint ventures. You cannot find that a smaller oil company is part of those ventures. In the last 21 years, I have not heard of anyone saying that I am part of a joint venture companies operating in depots with oil major firms".*

Respondent_02: "*So you can't really block somebody. I don't think you have a choice, in much of the parts of the value chain. The industry and regulation is such that, there's not much that you can do."*

Respondent_13: *"Yes and no. Yes, because they are willing to engage the smaller players whether because they are forced by government. Knowing the sense that they then create the right conditions, whether it's about pricing as long you are not operating within my logistics. As long as you buy product and deliver in non-urban areas. But if you open a service station I will price you at a maximum price allowable."*

Respondent_14: *"They are not doing it by free will, but I think it's again a policy initiative. But I think some of them have launched their own initiatives and then obviously, there are BEE codes that also have got some requirements."*

Other respondents argue that they are accommodated as customers and partners to fulfil BEE requirements.

Respondent_12: *"They are accommodating them as customers. They are not treated as oil companies. I'll tell you what I mean by that, if you are one of the smaller companies and you go to an established firm you will be dealt with by the commercial department. Whereas, an integrated oil company when it comes to hosting agreements, hosting agreements mean you have a terminal for example and can help them so they help you in future. But if you are a smaller company, what can you do for them you can't enter hosting agreements. Smaller companies though would not be able to stay in business if they were not accommodated by the established firms. I mean the margin is regulated, if they wanted to take you out of business they would just charge you a price you cannot afford. They've built infrastructure over years."*

Respondent_04: "*I think it goes beyond just servicing them as customers of ours because remember its actually institutionalized as the triple BEE. Which really influences your license to operate. So, if you are a big company and you operate in the commercial space you have to adhere to BEE. And supporting smaller micro enterprises is just one aspect of BEE. So, under preferential procurement, that's 40 percent of your score. So you have to participate in that space. So how you participate determines your success and your position to pursue and grow your business. They form part of your value chain, so you have to develop them as well as suppliers."*

There are different views whether the oil majors were selling their assets in the non-urban areas to accommodate new entrants. Some respondents believe established firms are selling these assets in no-non-urban areas to give smaller players to enter the industry. However, other respondents have strong views of why established firms have moved out of some of non-urban depots and do not believe that it was because they were accommodating new entrants.

The respondents below who believe that integrated oil companies are disposing of their assets to provide new entrants an opportunity to enter the industry.

Respondent_13: *"It's an opportunity for smaller players because they can acquire those terminals that are left by oil majors. People say those terminals are not necessary good for industry, but for small players they are good enough. Oil major have global standards that are not necessary minimum requirements. These terminals give an entry point for small players, because without logistics infrastructure it is very difficult to enter the industry."*

Respondent_09: *"Our first three-year contract was in 2003, a letter of support from an oil major assured that I get a contract."*

Respondent_03: *"It's driven by the customer or the market because not being accommodating can be seen as being anti-competitive as well, which is not where we are. The customer will put out a tender and we all submit our bids. We've seen examples where someone wins a contract they did not secure product supply arrangements and it all comes down to commercial negotiations with suppliers who have products and the price. Will you deliver it and store it for me? The industry has definitely evolved."*

These respondents are against that notion that oil majors are providing opportunities for new entrants out of free will.

Respondent_05: *"I would give them a straight answer and say you are lying. You walked away from those depots. You walked away from the areas where the actual cost is above what's in the pricing model. If the independent wholesalers hadn't picked it up. You would've had massive shortages around the country."*

Respondent_15: "*What happened is the oil majors understood the margin pressures, they withdrew from the non-urban areas and sold to the independents and independents saw a good opportunity as they are lean, but only to a point. There is no investment in the non-urban areas, the cost of moving product into those areas is a lot higher in the non-urban areas compared urban areas. It might be a tick-box exercise done by the established firms, in reality the numbers speak for themselves. There is no evidence that shows that they are creating sustainable new entrants, they are not."*

The respondent further added that government initiative was not successful.

Respondent_15: *"Government tried to introduce another pipeline and independent storage. The idea of the pipeline was to allow 20% of volume to be used by independent oil companies. Another challenge is who is connected to the pipeline, it is*

oil majors that are connected to the pipeline. Another barrier is tankage available at the major exit supply points are all controlled by oil majors."

Respondent_03: *"Further up the chain, in some cases you will have exclusive rights to use of pipelines by certain companies."*

Government introduced regulations to allow oil companies to access storage facilities in oil companies who are not fully utilising their storage facility's capacity. Respondents highlighted that this regulation has not helped smaller entrants to access storage facilities owned by oil major companies.

Respondent_01: *"You are supposed by law to grant third parties access to uncommitted capacity in your infrastructure, in the depots, the pipelines. It's however very difficult to pinpoint spare capacity in a depot. There's always fuel in there and you always planning to top it up, so talking about spare capacity in a storage facility is a difficult concept. But at least, from a legal side the intent is to make spare capacity available. However, now where I'm coming to thinking about the hosting agreements, you have to be a company that own a depot, you cannot kick somebody else or the way you provide access to your facility for one oil major compared to the other, you have to think carefully what are your justifiable reasons for providing access to one client and not to the other."*

Respondent_13: *"If they see a trend that you have excess capacity, then you are required to provide access to other firms who require to use the excess capacity at prices determined by the regulator."*

Respondent_14: *"Yes, if a facility is built and you not optimally using it, rather than to build another one which becomes a stranded asset. The act says that you the company must make it available to a third-party user, at a tariff approved by the Regulator. So, it's not for free, but currently one of the challenges is that to do it in practice, practically it remains a problem. But it's not successful I think it is important to say there are some practical constraints. In Island View for example to get third party access when a ship comes in the terminal facility storage tank must be empty, because you want to bring in economies of scale a full ship. So, if you have given you half your tank now the ship comes in, you can't offload the whole ship, now you must pay demurrage fees. So basically, one of the allocation mechanism is the rules to get access, they will say you can get access for this week. By the end of this week, I expect my ship to come in then you must be out. So, what now if you wanted to store for three weeks you can't. So, you see there are practical considerations."*

Respondent_15: *"The reality is if you went to the oil company and you say you have supposedly 20% free capacity, I would like to use it, now you talk about the terms & conditions. Let's talk reality, you might have a tariff determined by the regulator. Then you talk about which tank to use, which product to use, is it homogeneous product, how do you access the product? Your waiting time could be 3-4 days depending where you are, there is not sufficient demurrage in the pricing model to allow for these delays. For me it's about the law saying something but it's also about operational reality."*

5.9 Research Proposition Three: Entry strategies exist to enter the oil industry that will overcome the barriers to entry.

Research Proposition three sought to understand whether new entrants despite the challenges and barriers to entry can enter successfully and participate fully throughout the value chain.

Respondents recognise government's introduction of the BEE to transform the industry and see it as a catalyst. Respondents believe that government has played a key role in transformation and this s reflected in their responses below.

5.9.1 Regulation

Respondent_12: *"You need to go back to the year 2000 when we signed the charter. That charter even though it's not legally binding is a gentleman's agreement. The agreement was that all integrated companies must sell 25 percent to BEE shareholders. All the companies have done that, except one which has sold 20 percent. One of the area of focus was management control. In 1994 the oil industry was very different to what it is today. You 'll have seen very few black people in the industry before then.*"

Respondent_03: *"I think there has been some changes through the industry-specific BEE charters. That's indicative of the department of energy putting its intent through that policy. I know that the only one that was fully legislated was the mining charter one but in the fuel sector was quite a big thing."*

This respondent below has specific views on how regulation can be used in an impactful manner as a transformation tool.

Respondent_09: *"There must be another way of getting people into the business. There is a great opportunity created by the BEE new codes, for big companies to get*

the points and procurement points they need to spend on small black owned companies. They have to show actual expenditure on this and the oil majors can create opportunities because they are integrated, they have their own refineries and logistics; depot and retail outlets. They can make sure that their retail sites are supplied by non-refining wholesalers. Complying with the law, they will still get the bottom line, because it is their own product. So, they are still moving their own product at the same time. They own the depots through the country, they can lease or at the least retain wholesalers as an operator of the depot. Government can emend the act to require operators."

Not all respondents think regulation is helping the cause of small entrants. Respondents below highlight their challenges with the current BEE codes.

Respondent_08: *"The alignment of liquid fuels charter to BEE codes of good practice, that is the challenge as mentioned before in terms of the turnover you are seen as a big entity. If the BEE codes are not sorted out this will be a challenge for new smaller entrants.*"

Respondent_10: *"We have the issue around regulation, I think government has done its best and we need to applaud out government in terms of creating regulation for black businesses to operate around the issue and whole lot of things from the department of energy and then making sure that everyone has got their licenses."*

Respondent_14: *"But what I wanted to say is that the objective of the petroleum pipelines acts is to break the vertical integration. But even the department of energy's (DoE) product petroleum act, as it's been amended which the DoE administers, the oil company cannot own the retail station and the wholesale licence. So, they tried to separate the two."*

Respondents from the new entrants believe that the pricing model as it stands is not encouraging entry and negatively impacts small player who are already participating this industry as they are currently under-recovering.

Respondent_15: *"Pricing model is key, Regulatory Accounting System (RAS) at the retail service station is robust, there is line by line on how you are going to be recover your cost and ROI. You don't get the same model as the oil wholesaler. Government tried to make the pricing model sharper and remove the inefficiencies. Thus, it then introduced the RAS system, largely driven by the retail service station end. The idea*

was to ensure you could clearly identify activities on the supply chain, understand the costs, and give the return on investment. What transpired is that only the retail site end was dealt with. That's the only regulation we have that's the price of petrol. Regulation ensured that the market behaves in a certain way. Regulation has not dealt with whole value chain that's the problem."

Respondent_05: *"There's opportunity in storage that's where we see big opportunities at the moment. Because if you look at this over recovery / under recovery pricing issue, what happens from 1994 to now, everybody invests in the over-recovery areas. Nobody is investing in the non-urban areas."*

5.9.2 Model of Entry

Respondents shared their views on how to enter the oil industry in various ways.

Respondent_01: *"What you say there is just two ways of entry. The one is the big bang approach, like taking over one of the existing players, so say someone wants to exit, someone new takes it over and then you'll be an integrated player and you'll have a significant footprint in the market and be a significant player. Maybe there's an opportunity now where one of the existing players is intending selling their assets, but the type of company that can take them over is big company. So, it's one big guy will swap for another big guy. The alternative is creative approach and then you'll have to think 50 years, I think it can be where you start small. You start off with one retail site and then two retail sites and then you build up and then you integrate into distribution and then you know over time and then eventually you become a big player. Along the way you take over a few smaller other guys but I mean that's a long process, I mean 50 years from now someone could be a large player with significant footprint, it's capital intensive. I think maybe there's a third option and that's sort of, where you would find the likes of other non-refining oil wholesaler, who are BEE entities that have these either shareholding by major oil companies or a link to major oil companies or who started off by a major company as a BEE partner and then over time they could evolve into an oil company of its own."*

Respondent_05: *"The problem is guys want to start big now and that's another barrier to entry. It's the psychology behind, how do we start small."*

Respondent_07: *"The opportunity is if you are a small player and your cost base is right and you are very competitive. You can design niche solutions for your customers. You can make a lot of money in this industry, I am speaking from experience, but the*

challenges are tough."

This respondent below has a more direct method of entering the industry:

Respondent_10: *"My proposal is technical and controversial to say that I think the access to infrastructure is quite key in this industry. If we just take the 5 percent of the volumes of all the markets and allocate it to all the non-refining wholesalers at the price that is competitive for them to operate. I am saying five percent in the country and in the government, is trying to get to around 26 percent to 30 percent market, but we need to start somewhere, even if we say 2 percent of the volumes in South Africa."*

5.9.3 Partnerships / Joint Ventures

Respondents agree that to be successful in this industry, new entrants must form partnerships like what established incumbents have done.

Respondent_14: *"We've been telling the new entrants that they should come together and you get 50 customers, he gets 50 and you get 20 and collectively you pull together the money. So, I think it all comes to cost because you must bring in a complete ship for economies of scale. So, I think economies of scale is another barrier. It's the cost, which is linked to economies of scale."*

Respondent 14 added that the importance of having a good strategy and executing that strategy well will contribute towards the success of that firm.

Respondent_14: *"I think it's not just the size, it's the strategy. So, I think in terms of success, you could be small if you have got a good strategy that's also important. Because you could have the resources, but if you've got a bad strategy, so strategy is also important. And I think maybe if you've got partnerships, if there could be partnerships whether with the bigger players or if it's amongst small entrants themselves which is a problem. My view is that the smaller players should work more closely together. I think they so busy fighting each other for market share."*

Respondent_08: *"Cooperation opportunities, within smaller oil companies if there are opportunities to work together on a specific project even though we are competitors but there are bigger projects where we can cooperate, in terms of working together and achieving what we couldn't have as one company."*

Respondent_12: *"The margin you get as a new entrant means you can't expand unless you get into some form of partnership. You need to have good partnerships that will*

allow you to expand without investing on your own. Whatever you get isn't enough to do that. The model people must adopt is to get access to importation infrastructure and pipeline. Because it allows you to import product yourself, then you have access to the full margin. You don't have to share it as it's your product. If you buy from oil major, they will sell it to you based on everything that they have incurred. If it's your product you can control, the margin etc. If you import small volumes, it costs you more but you can't import more if you don't have customers. So, the barriers aren't manufactured. They are structural."

Respondent_13: *"Entry model is where people buy into the wholesale where is rand based as all the dollar based is up the value chain. It does not make it better as oil majors have already priced in their margins."*

5.9.4 Funding Opportunities

Funding is a major problem in this industry as already mentioned, respondents believes state owned financial institutions can play a major role in providing finance for new entrants. Lack of financing by local banks is noted by some respondents and if resolved can present opportunities for entry

Respondent_11: *"Make sure the Industrial Development Corporation (IDC), National Empowerment Fund (NEF) etc. must support the oil wholesalers not just the retail side of the value chain. Commercial banks treat us differently than fuel transport, they look at us and say we cannot make loan available to you."*

Respondent_05: *"I'm not lending you money in this environment. I'll lend you money if you are below the average cost recovery line. But I'm not lending you money if you are above the average cost recovery line."*

Respondent_08: *"Local banking sector participation in providing finance is hardly there, most of our credit is done by international banks. Local banks very few of them that want to participate. The look at this money the value of the deal or transaction, BEE and no balance sheet, no track records their credit department says no. It is easier to find assistance than offshore than local."*

5.10 Conclusion to Results

These results showed key themes that were identified as barriers to entry by both refining and marketing oil firms and non-refining oil wholesalers, these were in line with research propositions. These results were consistent with the results from the quantitative data obtained through survey.

CHAPTER 6 : DISCUSSION OF RESULTS

6.1 Introduction to Discussion of Results

In this chapter, research results are discussed in detail in accordance to research propositions and research hypotheses that were outlined in Chapter 3. The research findings are contrasted with literature review in Chapter 2 that formed the basis of this research. All two research hypotheses and three research propositions were explored in depth through semi-structured interviews and research survey respectively. Results obtained were mostly in line with literature review and this will be discussed in detail under each research hypothesis and research proposition.

Whilst barriers to entry have been studied extensively in the literature, there is the limited study that has focussed in South African context and in the Oil industry. This research sought to understand barriers to entry in the South African Oil industry and to apply theories of entry into this market.

Table 4 are the results obtained from a survey showed that barriers to entry from literature that were examined amongst participants from the refining and marketing oil firms and the non-refining oil wholesalers were prevalent amongst the two types of organisations. The average scores from the survey results ranged from 3.9 which was the capital intensity of the industry and the lowest score was 1.9 which was the incumbent firms with government subsidy. The average scores of three and above showed that respondents agreed to the statement posed, whilst an average score below 3 indicated that respondents disagreed with the statement posed. These results are representative of the South African oil industry as the oil firms are privately owned and received no government funding except for one state-owned oil firm. The industry is capital intensive as discussed by the respondents to the interview questions.

6.2 Discussion of Results to Research Hypothesis One

Is there a significant difference in the impact of barriers to entry between refining and marketing oil firms; and the non-refining oil wholesalers?

Null hypothesis:

H0: *There is no significant difference in the impact of barriers to entry between the refining and marketing oil firms; and the non-refining oil wholesalers.*

Alternate hypothesis:

H1: *There is a significant difference in the impact of barriers to entry between refining and marketing oil firms and non-refining wholesalers.*

The objective was to assess whether barriers to entry impact new entrants differently than established incumbent firms. This relates to Geroski et al. (2010) who stated that there is empirical evidence that large firms have higher probabilities of success due to their access to funds whilst smaller firms are cash constrained. They further stated that large firms have diversified their risk more than smaller firms and do not rely on one market. Understanding the difference in the impact of barriers to entry for both types of the firm will help inform policy makers which resources they need to put in place in support of new entrants. It will also help to arm potential new entrants into the industry to understand which competencies and resources they require to succeed in this industry. This is consistent with Geroski et al. (2010) who argued that policy-makers need to understand what support they must give to young firms at inception to ensure they survive.

Barriers to entry as defined by Karakaya & Parayitam (2013) are "the advantage of established sellers in an industry over the potential entrant sellers, their advantage being reflected in the extent to which established sellers can persistently raise their prices above a competitive level without attracting new firms to enter the industry" (p. 26). This definition is consistent with Porter (2008) definition. Barriers to entry can impact different types of firms differently.

6.2.1 Results

Survey results answering questions from a Likert Scale of 1 – 5 of barriers to entry from literature asked 26 respondents from both refining and marketing oil firms and non-refining oil wholesalers and 1 respondent from regulatory body revealed results as indicated in Table 9 and Table 10. Results in Table 9 for refining and marketing oil firm's respondents / established firms showed a mean value of 3.0726 with a standard deviation of 0.60012 and standard error of 0.15003 which indicate that respondents unanimously agree that barriers to entry exist in the industry. Respondents from non-refining oil wholesaler's results showed a mean value of 3.0818 with a standard deviation of 0.83994 and standard error of 0.26561 which are agree with respondents from established oil firms.

The level of significance was established using the p-value from the t-test conducted. The p-value obtained was a p-value (sig.) of 0.974 which is greater than the p-value of 0.05 at 95% confidence level indicating that there is no significant difference in the impact of barriers to entry between refining and marketing oil firms / established firms; and non-refining wholesalers / smaller oil firms. An additional level of significance was tested amongst five constructs that the barriers to entry were grouped into and across individual barrier statements were also tested and no significant difference of barriers to entry was found with p-sig values >0.05. This is in contrast to literature Porter (2008); Geroski et al. (2013); Tang & Chang (2001) which suggest that established firms benefit from structural and strategic barriers to entry compared to new entrants.

6.2.2 Conclusion to Research Hypothesis One

The impact of barriers to entry in the vertically integrated oil industry is recognised in a similar manner by both refining and marketing oil firms and non-refining oil wholesalers. The difference is that refining and marketing oil firms have the ability to raise the required capital and access to infrastructure that put them at a competitive advantage. As it has been discovered from Table 4 results, there are certain barriers to entry which impact non-refining oil wholesalers to a higher extent compared to refining and marketing oil firms, this was also confirmed by results from table 14 which had the p-sig value close to 0.05 even though it was not enough to show statistical significance. These were capital requirements to enter the markets; access to funds and cost recovery mechanisms by the oil industry to implement new fuel specifications. However, the cost recovery mechanism by the oil industry to implement new fuel specifications was not seen as a barrier to entry by non-refining oil wholesalers and this may be due to them not having refineries who are required to be upgraded to meet new proposed fuel specifications. Therefore, there is no significant difference in the impact of barriers to entry between refining and marketing oil firms; and non-refining wholesalers and therefore fail to reject the null hypothesis at 95% confidence level.

6.3 Discussion of Results to Research Hypothesis Two

Is there a significant difference in the importance amongst the barriers to entry in the vertically integrated oil industry in South Africa?

Null hypothesis:

H0: *There is no difference in the order importance of barriers to entry between the refining and marketing oil firms; and the non-refining wholesalers.*

Alternate hypothesis:

H1: *There is a difference in the order importance of barriers to entry between the refining and marketing oil firms; and the non-refining oil wholesalers.*

The objective of the research hypothesis was to assess whether barriers to entry were perceived equally important by the refining and marketing oil firms and non-refining oil wholesalers. According to Karakaya (2002), executives in industrial markets perceive the importance of barriers differently. The study conducted by Karakaya (2002) identified the highest barriers to entry as "absolute cost advantages, capital requirements to enter the market, incumbents having superior production process, capital intensity of the market and customer loyalty" (p. 382).

Understanding the order of importance of barriers has a profound effect on managers as they prepare to enter new markets and to policy makers who are responsible for promoting small enterprise development.

Karakaya & Parayitam (2013) argued that high capital requirements for firms make the market inaccessible for new entrants allowing established firms to dominate market share and earn higher profits. When a firm has financial resources, capital requirements are not a barrier (Karakaya & Parayitam, 2013).

6.3.1 Results

Results obtained in Table 13 show top 5 barriers to entry are capital intensity of the market (mean = 3.9); incumbent firms cost advantage due to economies of scale (mean = 3.9); capital requirements to enter market (mean = 3.8); access to distribution channels (mean = 3.8) and heavy advertising by firms already in the market (mean = 3.8). Three of the barriers identified support the barriers identified by Karakaya (2002) in his study. However, customer loyalty and superior production processes were not in the top 5 during my study as opposed to his study.

However, appendix 7 shows that barriers to entry that are in the top 5 refining and marketing oil firms are capital intensity of the market (mean = 3.9); access to distribution channel (mean = 3.9); incumbent firms cost advantages due to economies

of scale (mean = 3.8); relatively easy access to raw materials/products (mean = 3.6) and brand name/identification advantage held by incumbent firms (mean = 3.6)

In appendix 8 shows that there are only two barriers to entry that common in the top 5 for both firms and these are incumbent firms cost advantages due to economies of scale (mean = 4.1); the capital intensity of the market (mean = 3.9). In addition to these two, non-refining oil wholesalers have these three barriers in their top 5 as capital requirements to enter the markets (mean = 4.3); access to funds (mean = 4.0); the amount of sunk costs involved in entering the market (mean = 3.7). According to Karakaya & Parayitam (2013) when a firm has financial resources, capital requirements are not a barrier.

6.3.2 Conclusion to Hypothesis Two

Results showed financial / capital requirements affect non-refining oil wholesalers more negatively, compared to refining and marketing oil firms. The difference is not statistically significant; however, the means test and interview respondents confirmed this fact clearly. The results also reflected that institutions are the least barrier to entry in the oil industry. It is concluded that oil firms place varying importance to the different barriers to entry and this will help managers to plan on how to mitigate against the barriers that are more critical to them

6.4 Discussion of Results to Research Proposition One: There are barriers to entry into the vertically integrated oil industry and make entry conditions difficult for new entrants.

Research proposition one aimed to uncover barriers to entry into the vertically integrated oil industry and their impact to new entrants. The research results unearthed findings that are covered in the literature review and these are discussed in detail under the following sub-headings. The barriers to entry that were uncovered during the interviews were grouped into two groups; capital requirements and competitive advantage. Under capital requirements the barriers to entry that were identified access to capital; capital intensive, access to infrastructure. Barriers to entry that fall under competitive advantage were access to product/molecules; access to market and pricing model. According to Shepherd (1979), barriers to entry are structural (exogenous) and strategic (endogenous). The barriers to entry that were identified during interviews were either structural or strategic which is in line with the literature.

6.4.1 Capital Requirements or Financial Requirements

The research findings for capital requirements are discussed under the following sub-heading; access to capital, capital intensive and access to infrastructure. These three sub-headings are linked to the large capital requirements that are needed to succeed in this industry. Table 5 shows capital requirements construct/factor as one of the two barriers to entry that received the highest average score of 3.4 from the survey results. This indicates the cost of entry required to participate in the oil industry and financial requirements that are required for day to day operations. The capital requirements barrier to enter the market statement which is part of the capital requirements construct/factor/category had an average score of 3.8; which is the second highest score achieved and the lowest score of 2.4 in this category was R&D expense required to enter the market. These results are characteristic of a commodity industry where R&D is not the main requirement since the product can be sourced in the market. As per Table 5, non-refining oil wholesalers highlighted financial/capital requirements as the main barrier to entry with an average score of 3.7400 compared to refining and marketing oil firms who had an average score of 3.1500, this is supported by literature and respondents interviewed. When a firm has financial resources, capital requirements are not a barrier (Karakaya & Parayitam, 2013).

6.4.1.1 Access to Capital

Access to funds was identified by both refining and marketing oil firms and non-refining oil wholesalers as a major barrier to entry. As per Table 4, access to funds received an average score of 4.0 from the non-refining oil wholesalers which were the third highest score and was scored 3.1 by refining and marketing oil firms / established incumbents.

Bain (1956) identified large capital requirements as a barrier to entry that is because of industry structure, therefore, classifying it as the structural/external barrier to entry. A significant number of respondents identified access to capital/funding as their main barrier to entry. This lack of access to capital was not only identified by respondents from new entrants but also respondents from established incumbents identified it as the main challenge for new entrants. According to Porter (2008), capital requirements are necessary to extend customer credit, build inventories and fund start-up losses. Respondent_08 stated that *"For new entrants, you will be expected to issue a few million rands fee guarantee just to obtain a truck of diesel from an oil major company, where are you going to get that."* It must be noted that the truck of diesel is required to build inventory so that the new entrant can sell the product to their customers. Another

respondent shared similar views that they have not been able to buy a full load of ship/vessel to build sufficient inventory to start trading as this requires access to capital that they do not have.

Porter (2008) suggested that if industry returns are attractive new entrants can get capital from financial institutions or through equity. As per some respondents; financial markets are not lending money to new entrants as the current pricing model is prohibitive since new entrants are under-recovering due to lack of economies of scale. Economies of scale received an average score of 4.1 by non-refining oil wholesalers sighting it as a high barrier to entry that gives incumbent firms cost advantages. Incumbent firms were also in agreement with this fact as they scored it 3.8 on average. Respondent_05 explained the funding issue in this manner highlighting their challenges *"I'm not lending you money in this environment. I'll lend you money if you are below the average regulated price line. But I'm not lending you money if you are above the average regulated price line."* As per Geroski et al. (2010), small firms are more exposed to cash constraints than large firms as they have not built legitimacy in financial markets to secure funding. As a result, they will exit despite the fact that they would prefer to remain Geroski et al. (2010). This was confirmed by respondents from established incumbents who stated that as big firms they have access to capital to pursue opportunities they believe are profitable whilst smaller entrants do not have that ability. This is also true for smaller entrants who have the backing of established incumbents as their partner as they rely on the established firm to mitigate capital requirements for them.

6.4.1.2 Capital Intensive

There was a strong agreement between refining and marketing oil firms / established incumbents and non-refining oil wholesalers that the industry is capital intensive with an average score of 3.9 from both organisations. Capital intensive nature of the oil industry was confirmed by respondents as the barrier to entry during interviews. Respondents agreed that capital intensity of the industry varies across the value chain and is less capital intensive down the value chain compared to high capital-intensive upstream of the value chain. Respondent_04 supported the accession that the industry is capital intensive by stating that *"This is a capital-intensive sector. You are playing in a dollar denominated industry and you are selling in a local industry."* This is true for the refining of oil and/or importing side refined products. Respondent_01 *noted that "The manufacturing side, the refining side is extremely capital intensive and distribution is slightly less intensive and then the marketing side the least intensive that's why you*

see all of the new entrants really play on the marketing side and that's also where opportunities lie."

This makes it difficult for smaller firms to enter the industry through vertical integration and achieve economies of scale. Other respondents recognise that the retail/marketing side of the value chain even though it is not considered capital intensive still requires a lot of capital to be able to participate in it. This was confirmed by Respondent_12 who agreed that to get a service station a smaller entrant requires on average R7 million and this kind of money is not easily available to indigenous firms. The capital intensity of the industry up the value chain leaves this section of the chain dominated by established firms and smaller firms at a disadvantage. Karakaya & Parayitam (2013) confirmed that high asset requirements for firms make the market inaccessible for new entrants allowing established firms to dominate market share and earn higher profits. They further stated that high capital requirements and high business environment barriers provide a competitive advantage for incumbent firms.

It is evident that irrespective of the section of the value chain that a new entrant wants to enter it is capital intensive and established firms have an inherent advantage. This is in line with Karakaya & Parayitam (2013) who argued that high capital requirements and high business environment barriers provide a competitive advantage for incumbent firms.

6.4.1.3 Access to Infrastructure

Infrastructure provides firms access to distribution channels required to reach their customers. Access to distribution channels was identified as one of the six barriers to entry (Karakaya & Stahl, 1989; Porter, 1985). Respondents identified key infrastructure requirements as import terminals or primary storage, pipeline access to distribute their product to the market, secondary storage terminals and retail site service stations. Respondents highlighted that lack of access to this infrastructure provides established firms with an advantage, this was confirmed by Respondent_02 from an established firm and noted that *"I think where the biggest difference is our access to infrastructure, import, supply of molecules/products and distribution infrastructure where the existing players have the infrastructure we have that advantage."*

This argument is supported by Porter (2008) that unequal access to distribution channels makes it difficult for new entrants to break into the distribution channels built by established firms, they either must bypass them or build their own. It is, however, a challenge to build own distribution channels when funding is a constraint. Tang &

Chang (2001) argued that dominating distribution channels by incumbent firms were a strategic barrier used to deter entry by established firms. This was enforced by some respondents who suggested that established firms do not give them equal access to storage terminals. Respondent_11 stated that *"we must have access to terminals not what oil majors do when there is a price increase they let their trucks go first."*

Matsui (2013) argued that established firms can monopolise the market through vertical integration and create a barrier to entry for smaller entrants. Mahbubani (2013) found that vertical integration provides firms product differentiation and price premium leading to a competitive advantage for vertically integrated firms. Survey results indicated that both refining and marketing oil firms and non-refining oil wholesalers agreed that vertical integration was a barrier to entry for smaller firms with an average score of 3.5 for both firms.

6.4.2 Competitive Advantage

As per Table 5, competitive advantage was highlighted as a barrier to entry by both types of organisations with an average score of 3.2841 for refining and marketing oil firms and 3.2627 for non-refining oil wholesalers. There were two notable differences in the detailed results which are worth mentioning. The first one is the disagreement from incumbent firms that collaboration or hosting agreements between established oil firms is a barrier to entry. This statement received an average score of 2.9; however, non-refining oil wholesalers highlighted this as a barrier to entry with an average score of 3.6. According to Johansson & Elg (2002), they stated that relationships between incumbent firms can act as a barrier whether it was intended or not by the actors, the outcome is the same.

The second point that non-refining oil wholesalers disagreed on was that established firms have a cost advantage due to learning curves as they gave an average score of 2.9 compared to 3.5 score given by incumbent firms. This is a contrast with the resource-based view theory, as per Karakaya & Parayitam (2013) argued that resources are fundamental in developing competence and sustaining competitive advantage to prevent market entry of new firms.

The barriers to entry provide a competitive advantage for established firms. The large capital requirements of this industry are interlinked to the competitive advantage the refining and marketing oil firms have over the non-refining oil wholesalers. The research findings identified three main areas that place new entrants at a disadvantage

as access to products/molecules, access to market and regulatory accounting system (RAS) pricing model.

6.4.2.1 Access to Product/Molecules

Respondents highlighted that the South African oil industry is a short market with the demand for refined products far exceeding the supply produced locally by the oil companies. The shortage puts additional pressure on new entrants or non-refining oil wholesalers who do not have their own manufacturing plants and rely on oil majors for the supply of products. They do not have access to capital to import product on their own. Respondent_15 put their challenge in this manner, *"the barrier to entry is supply, the country is short of manufacturing. We need to import components or refined product to meet the demand. One could argue is it financially feasible to import as a small entrant, access to import infrastructure is currently owned by the multinationals. Anyone coming into the industry is how do I get access to supply because it is short, secondly how do I recover my cost, the working capital, 3rd you are at the mercy of the established incumbents."* As per Table 4, easy access to raw materials or products was highlighted as a barrier to entry by both oil firms with an average score of 3.6, this is one of the few scores that both oil firms agreed 100%.

According to H. Wang et al. (2015) capacity is a critical asset to a firm when it decides to enter a new market and is key competitive tool. Firms use their capacity to deter potential new entrants in several ways. Corones (2014) argued that incumbent firms invest in capacity beyond the current and future needs. There was no evidence of overcapacity of products being used as a barrier to entry in the vertically integrated oil industry, however, under-capacity is the main challenge. Under-capacity may not be by design of established firms; however, it is creating a barrier to entry for small firms.

It was found that access to products at the right price prohibits entry and/or creates unfavourable business conditions for small firms. The situation is exacerbated when small firms compete with the major oil firms who supply them with products. A respondent expressed their challenge, *"The issue around the supply logistics in terms of access to products at the right price to be able to compete, I would be lying if I told you we are doing any value-added services and find out you are competing with your supplier, but we need to have that reliable access to products to be able to sell to our customers."* The pricing environment in the oil industry was not identified by respondents to be either predatory pricing and/or limit pricing as defined by Corones (2014) and H. Wang et al. (2015) respectively. This could be due to the stringent anti-competitive laws that exist in South Africa and regulatory pricing model. However, firms

still compete on price and established firms who have easy access to products are at an advantage of being price competitive.

Respondents noted that other smaller firms have mitigated lack of easy access to products through entering partnerships with major oil firms. This phenomenon is in line with Kitamura, Miyaoka, & Sato (2016) who argued that these relationships are designed to reduce operating costs and increase joint firms profits in vertical relationships. Kitamura et al. (2016) argued that even though these relationships do not have exclusionary clause deter entry for new entrants. Respondents who have entered partnerships with oil majors through BBBEE partnerships or reseller/distributor relationships have exclusionary clause in their agreements. The respondents agreed that smaller firms who are in partnerships with oil major firms are at competitive advantage to their peers.

Tang & Chang (2001) found that advertising, filling product niches, dominating distribution channels and hidden profits were strategic barriers that were commonly used by incumbent firms to deter entry.

Niu et al. (2012) conducted market entry barriers in China found similarities and differences in barriers to entry compared to other studies done in western countries. Although barriers found in China were consistent with ones found in other countries their degree of importance was different. This is due to differences in market dynamics found in different countries. Niu et al. (2012) results showed the top 5 barriers to entry out of 22 barriers considered significant by the Chinese executives were advertising effects, possession of channel members, seller concentration, number of competitors and brand awareness. Three of these barriers (i.e. advertising effects, possession of channel members and brand awareness) are strategic barriers in nature.

Established firms benefit from brand reputation and command respect of buyers who use them. New entrants are facing a challenge of hesitant buyers from adopting their products and are sometimes forced to reduce their prices to attract customers until they have sufficient customer base (Porter, 2008). According to Karakaya (2002), brand identification makes customers prefer a certain type of brand despite a premium price they pay. Certain brands are linked with better quality or more reliability due to their association with incumbent firms. This is in line with study conducted by Niu et al. (2012) in China where brand awareness was in the top 5 important barriers to entry. Karakaya (2002) further stated that industrial markets are more inclined to stick with known brands due to the risks and costs involved in buying industrial products.

Customer switching costs is another strategic barrier that incumbent firms use to retain their customers. These switching costs range from training of employees, disposal of current equipment used and psychological risks of changing to a new supplier (Karakaya, 2002). However, in the Chinese market customer switching costs were not considered an important barrier to entry (Niu et al., 2012). They argued that this is due to the intellectual property rights not rigorously enforced in China. This is a case where institutional environment impacts on a strategic barrier.

Another strategic barrier that incumbent firms use is advertising (Organisation for Economic Co-operation and Development, 2006). According to OECD (2006), advertising can work both ways, it can promote competition by making information available to customers for them to make informed buying decision. However, too much advertising can deter entry as it makes it mandatory for entrants to advertise their products in order to attract buyers (Organisation for Economic Co-operation and Development, 2006). On the contrary, Scott Morton (2000) argued that there was no evidence on the US Pharmaceutical Industry that brand advertising was the barrier to entry. This argument is in line with the study conducted by Lutz et al. (2010) that found advertising to be minor entry problem for new entrants

6.4.2.2 Access to market

Results showed that access to customers or market is a major challenge for new entrants. Access to market tested using product differentiation construct and results from Table 5 showed that refining and marketing oil firms agreed that this was barrier to entry with an average score of 3.3229; however, non-refining oil wholesalers disagreed that product differentiation was a barrier to entry with an average score of 2.9500. Detailed analysis of the statements that make up that factor / construct revealed that non-refining oil wholesalers disagreed strongly with two statements which pulled the average score down. These statements were customer loyalty held by incumbent firms and heavy advertising by firms already in the market. This in contrast with Tang & Chang (2001); Niu et al. (2012); OECD (2006); who found advertising as a strategic barrier. However, Porter (2008) argued that established firms benefit from brand reputation and command respect of buyers who use them.

New entrants are facing a challenge of hesitant buyers from adopting their products and are sometimes forced to reduce their prices to attract customers until they have sufficient customer base (Porter, 2008). This was evident in the respondent's answer that customers are not necessarily brand conscious but are attracted to big brands and

not necessarily to a specific brand. According to Karakaya (2002), brand identification makes customers prefer a certain type of brand despite a premium price they pay. Another respondent confirmed the importance of brand, as they conducted an experiment where the changed branding of a retail site from a known brand to an unknown brand, the sales volume halved on the retail site of the unknown brand and sales volume of the neighbouring known brand retail site increased by the same margin.

Respondent_02 reinforced that competitive pricing, customer service and quality of their product makes them competitive, *"I think it's very important for us is how good is your service to your customers is if you provide good service at competitive pricing, then you are competitive, you know consumers will not flock to your new entrant if you have jacked up and keep having good service and so on. So, we make sure our fuels are high quality and the last aspect is price which is some products you can compete others you don't or some levels in the value chain."* This was also affirmed by Respondent_13 who believes that commercial/industrial customers look to buy fuel from established firms due to their firm's technical know-how, *"the impact of the new players is less on the B2C it's more on the commercial. But even the commercial customers prefer suppliers with technical know-how."* This argument is supported by Karakaya (2002) who stated that industrial markets are more inclined to stick with known brands due to the risks and costs involved in buying industrial products.

Respondents highlighted that established firms use long-term contracts with big commercial customers denying access to customers for smaller firms. Contracts by nature have customer switching costs as oil firms will put storage tanks at customer sites. These switching costs range from training of employees, disposal of current equipment used and psychological risks of changing to a new supplier (Karakaya, 2002). However, not all countries see switching costs as a barrier, according to Niu et al. (2012), Chinese market customer switching costs are not considered an important barrier to entry.

6.4.4.3 Pricing Model

Pricing model was identified as an important factor in the success or failure of the non-refining oil wholesalers. Strong contrasting views between respondents with respondents from established oil firms advocating that the regulatory pricing model is fair and rewards the most efficient player in the market. Those in favour of the regulatory pricing model benefit from it as they have economies of scale and have

absolute cost advantages. This is consistent with Bain (1956) who identified absolute cost advantages as the barrier to entry for new entrants.

Respondents from non-refining oil wholesalers who are against the regulatory pricing framework in its current form argued that they are under-recovering due to the pricing framework favouring firms that have economies of scale. According to Matsui (2013), in a market where price is regulated by the regulator, the regulator applies direct costing to approve prices and thus leading to a monopoly. Matsui (2013) substantiated the claim by saying if incumbent firm adopted absorption costing, a new entrant can enter the market using the absorption costing and the two firms will share the market leading to less profits for the incumbent firm. To avoid this unfavourable situation, the incumbent firm will undertake direct costing and earn less profits in the short run, but the entrant will not earn sufficient revenue to justify entry into the market.

The respondents stated that pricing model is based on an average costing method that puts established firms at an advantage. Table 4 survey results showed that refining and marketing oil firm's respondents disagreed that regulatory price framework is a barrier with an average score of 2.7 compared to non-refining oil wholesalers who agreed that regulatory price framework was a barrier with an average score of 3.0. The regulatory pricing model is highly contested as opposing views from the survey results and interviews were recorded. Respndent_11: *"There is a cumbersome regulated frame work, Regulatory Accounting System (RAS) model. We don't think it addresses the right things and I know my colleagues of the oil majors, maybe they are happy with it but I am not happy with it because I need some money out of that margin as a young entrepreneur." However, this* Respondent_12 argued that the system is fair *"What our new regulated accounting system does, government regulates the industry, not a company so any person who makes an investment does get rewarded only it doesn't come to you alone. So, what the system does, is fair because it rewards the most efficient. What it's going to do, is put everyone's cost in the basket and you are rewarded accordingly. The only difference is that it's shared with everyone else. Even if you are a new player, you don't contribute yet towards the asset base you are getting the margin. Because there is a big portion of the margin dependant on the asset base and another that deals with operations and expenses."*

6.4.3 Conclusion to Research Proposition One

Research proposition one aimed to identify the barriers to entry into the vertically integrated oil industry and make entry difficult for new entrants. Research findings

showed that the key barriers to entry in this industry are large capital requirements and competitive advantage of incumbent firms. The large capital requirements favour established firms as they have existing infrastructure and have access capital to meet the capital-intensive nature of the industry. The non-refining oil wholesalers do not have access to capital from financial institutions as they lack the balance sheet to support it. Given their inability to raise capital, they are unable to build the necessary infrastructure to make them competitive.

The current regulatory accounting system known as RAS model makes it difficult for non-refining oil wholesalers to survive due to its cost structure. The non-refining oil wholesalers operate mostly in non-urban areas and have smaller storage terminals and lack economies of scales and access to market to make them competitive. Thus, they are mostly under-recovering, making them unsustainable. Alise & Senfelde (2015) argued that institutions are the cause of economic growth, whilst innovation, economies of scale, education and capital accumulation represent growth itself and are not causes. The pricing model provided by government institution has not provided an enabling environment for smaller entrants to succeed.

6.5 Discussion of Results to Research Proposition Two

6.5.1 Established incumbent firms deter entry into the oil market by using structural and strategic barriers to entry.

Research proposition two sought to determine whether established firms were perceived to deter entry for new entrants. Research results found that established incumbents are required by legislation to accommodate entry of smaller firms through BEE legislation. Some respondents argued strongly that established firms are not accommodating new entrants by free will and therefore incumbent firms will do the bare minimum just to comply with legislation. Respondents highlighted that existing hosting / supplier agreements between major oil firms deter entry of new entrants even though this may be an unintended consequence. Survey results from non-refining oil wholesalers showed an average score of 3.6 when asked whether collaboration/hosting agreements amongst incumbent firms were a barrier to entry which. This argument is consistent with S. Zhao (1999) who argued that joint ventures (JV) purposes are "for sharing risks, penetrating new markets and transferring know-how or technology" and share the whole costs and profits and bring parent firm's complementary resources like technologies, management, capital, labours and market

(S. Zhao, 1999). However, they are also good strategies used by incumbent firms to deter future entry.

Respondent_10 noted that joint venture / supplier relationships exist mainly between oil major firms and they do not have same opportunities as smaller firms to share terminal storage facilities with major oil firms, *"the issue of joint ventures around depots, if you look at depots especially with regards to pipelines the companies are operating as joint ventures. You cannot find that a smaller oil company is part of those ventures. In the last 21 years, I have not heard of anyone saying that I am part of a joint venture company operating in depots with oil major firms."* According to Johansson & Elg (2002), key characteristic of the exchange relationships is that they are built over time and can be viewed as strategic investment process.

Other respondents stated that established firms are not deterring entry for new entrants as they are selling some of their own assets to new entrants to help them enter the industry. However, this action was disputed by Respondent_05 that disposing of assets was done in areas that were not profitable to the established firms, *"I would give them a straight answer and say you are lying. You walked away from those depots. You walked away from the areas where the actual cost is above what's in the pricing model. If the independent wholesalers hadn't picked it up. You would've had massive shortages around the country."* Research results showed that government implemented initiatives to break structural barriers to entry, these include 3rd party access to unutilised capacity at storage terminals, pipeline access to transport fuel. All respondents agree that these government initiatives have not achieved the desired results. According to Estrin & Prevezer (2010) institutions can provide positive and/or negative entry conditions for new firms. In the South African oil industry, government institutions have not yielded positive results for smaller firms.

6.5.2 Conclusion to Research Proposition Two

Results for research proposition two found that established firms do not deter entry into the oil industry for non-refining oil wholesalers. However, it was found that through their actions like joint ventures, hosting agreements whether intentionally or not make for unfavourable business environment for non-refining oil wholesalers. It was also found that government initiatives have done little to improve the conditions the non-refining oil wholesalers operate in.

6.6 Discussion of Results to Research Proposition Three

6.6.1 Entry strategies exist to enter the oil industry that will overcome the barriers to entry.

Research proposition three aimed to establish whether there are entry strategies to enter the vertically integrated oil industry by smaller oil firms. Research findings show that there are opportunities for entry in the oil industry, however, the enabling environment needs to be in place. The regulation was found to be the key enabler that needs to provide the foundation for entry. This argument is consistent with North (2003) who defines institutions as the rules of the game in society that define human interaction. North (2003) is consistent with Chang & Wu (2014) who stated that institutional barriers "are the hindrances in the institutional environment that prevent market selection mechanism from functioning properly" (p. 1104). Results showed that government played a key role in transforming the oil industry over the past 10 -15 years through the introduction of the fuels charter which sought to encourage entry into the oil industry of previously disadvantaged individuals. According to Respondent_12, he stated that *"You need to go back to the year 2000 when we signed the charter. That charter even though it's not legally binding is a gentleman's agreement. The agreement was that all integrated companies must sell 25 percent to BEE shareholders. All the companies have done that, except one which has sold 20 percent. One of the areas of focus was management control. In 1994 the oil industry was very different to what it is today. You will have seen very few black people in the industry before then.***"** This is consistent with Ferguson & Formai (2013) who argued that legal, financial and other types of institutions play a key role in the manufacturing process and provide the country with a relative advantage in contract-intensive industries.

Respondents of non-refining oil wholesalers suggested that they require special regulations that will mandate refining and marketing oil firms to purchase a portion of their fuel needs from non-refining oil wholesalers and earn points as part of the BEE codes. A similar proposal was for the refining and marketing oil firms to give up 5% of their volumes to non-refining oil wholesalers so that the smaller firms can have a guaranteed market to help them grow.

In some instances, it was found that licensing requirements pose a burden to new entrants as they are complex and time-consuming. This is consistent with Porter (2008) who argued that government policy can increase or decrease entry barriers of new entrants. In this instance, it appears that government licensing requirements are a

hindrance to entry in the oil industry. Demanding regulatory compliance can demand significant amount of time from firms management resources, thus becoming a fixed cost (Chang & Wu, 2014). New entrants have limited resources and they would rather focus them on operational requirements rather than navigating regulatory landscape.

Apart from respondents from established oil firms, it was found that respondents from non-refining oil wholesalers were dissatisfied with current pricing model and argue that it is making entry into the oil industry difficult. Respondents argued that current pricing model (RAS) must be reviewed to ensure that it provides non-refining oil firms with a fair chance that they recover their costs and earn a fair return on investment.

It was highlighted by various respondents that successful entry by new entrants will be a success if it's done through joint ventures. This is supported by S. Zhao (1999) who argued that joint ventures (JV) purposes are "for sharing risks, penetrating new markets and transferring know-how or technology". It was found that the joint venture model is also used by current established oil firms, successfully. As per Elango & Sambhaya (2004), joint ventures offer quicker route to profitability. Research results showed that acquisition of existing firms is a challenge for smaller firms as they do not have the financial backing required. This is consistent with (Elango & Sambharya, 2004) who argued that acquisition in highly concentrated industries are less attractive due to a scarce supply of good firms to acquire and the possible risks / costs of post-integration of the acquired firm.

6.6.2 Conclusion to Research Proposition Three

Results from research proposition three showed that entry into the oil industry is possible, but the pricing model (RAS) must be reviewed to ensure that non-refining oil wholesalers can recover their costs and earn a fair return on investment. It was also indicated that for new entrants to succeed, they must work in partnerships with established incumbents for security of supply. They should also form joint ventures amongst each other to lower operational costs, share expertise and share profits as an entry model.

6.7 Overall Conclusion to Discussion of Results

The research propositions one and three which are; there are barriers to entry into the vertically integrated oil industry and make entry conditions difficult for new entrants and entry strategies exist to enter the oil industry that will overcome the barriers to entry were supported by results. However, there was no evidence to support research

proposition two which states that established incumbent firms deter entry into the oil market by using structural and strategic barriers to entry. The research results failed to reject null hypothesis one and two at 95% confidence due the p-value>0.05.

CHAPTER 7 : CONCLUSION

7.1 Introduction to Conclusion

In this chapter, main findings into the barriers to entry into the vertically integrated oil industry in South Africa are presented. Recommendations for managers and policy makers on how to enable new entrants to successfully enter this industry are discussed. Recommendations for future research are discussed.

7.2 Research Objectives

The primary objective of this research was to determine barriers to entry into the vertically integrated oil industry and identify economic theories of entry into market and apply them to the South African vertically integrated oil industry.

To understand the primary objective, the primary objective was broken down into secondary objectives:

- Identify conditions of entry into new markets
- Determine barriers to entry into a vertically integrated oil industry
- Determine proactive and reactive strategies that are employed by current incumbents to create barriers of entry
- Provide framework of economic theories of entry into the oil industry in South Africa

7.3 Main Findings

The results from the research survey and semi-structured interview respondents were compared with results from other studies in literature and were found to be consistent.

The respondents highlighted financial requirements or cost of market entry as the main barrier that hinders success in the oil industry. According to Porter (2008) high capital costs to purchase fixed costs in order to compete, deter new entrants. Respondents identified four main factors in this category and these were capital requirements, capital intensity of the industry, amount of sunk costs involved in entering the industry and access to funds or lack thereof. New entrants are impacted negatively by the capital requirements compared to established firms. Their disadvantage is lack of access to funds to fund for the sunk costs and working capital requirements needed to compete in this market as the local banking sector is not extending loans to them. According to

Geroski et al. (2010), they argued that small firms are more exposed to cash constraints than large firms as they have not built legitimacy in financial markets. This is consistent with Karakaya & Parayitam (2013) who argued that when a firm has financial resources, capital requirements are not a barrier. Lack of access to capital makes it difficult for non-refining oil wholesalers / small firms to survive. This is supported by Geroski (1995) who argued that size and age of the firms are correlated to the survival of new entrants; small firms have a small likelihood of survival than large firms.

High capital requirements result in competitive advantage enjoyed by established oil incumbents. This is due to incumbent firms cost advantages due to economies of scale, relatively access to products and vertical integration of incumbent firms. These are part of structural barriers to entry as identified by Bain (1956) as economies of scale; technological advantages; absolute cost advantages. Government's initiatives to break vertical integration through the petroleum pipeline act and providing import licences to smaller entrants has not helped non-refining oil wholesalers as they do not have access to capital and infrastructure to benefit from these legislative amendments.

There was no evidence found that established incumbents deter entry for new entrants into the industry. Established incumbents use their tangible and intangible resources to gain advantage. As per Niu et al. (2012) found that management experience in an important barrier to entry. Refining and marketing oil firms are well organised, with an association that represent their industry needs with government. They also have internal expertise that deals with regulatory matters and can lobby government for and against government policies. Established incumbents have developed strategic partnerships and networks amongst themselves over the years. According to Johansson & Elg (2002), networks are built because no firm is self-sufficient, they depend on one another to secure resources that are scarce and external to itself. The general perception amongst non-refining oil wholesalers that established incumbents have not done enough to support smaller oil firms to enter the industry successfully and their relationships which appear to be exclusive to them is deterring entry. The key characteristic of this exchange relationships is that they are built over time and can be viewed as strategic investment process (Johansson & Elg, 2002).

It was found that unless pricing model (RAS) is reviewed and amended, entry into the oil industry for non-refining oil wholesalers will not be successful. The consequence is that government can have dozens of initiatives aimed at assisting small enterprises, but

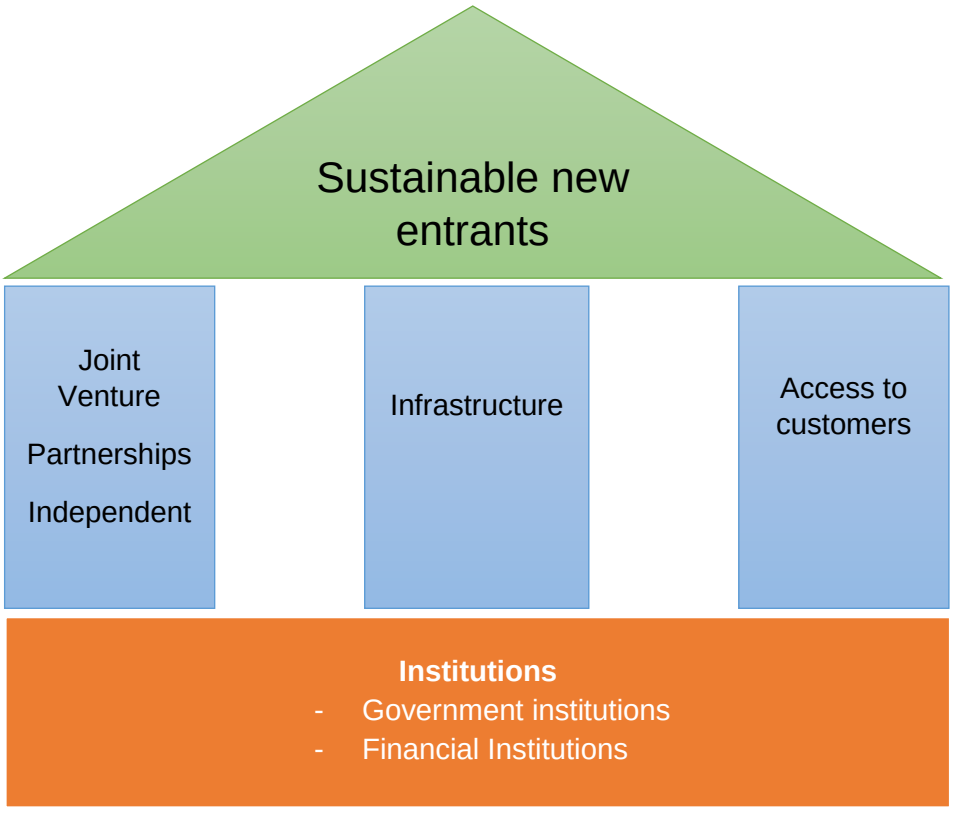
if this fundamental issue is not addressed, those initiatives will be in vain. The findings showed the impact of the pricing model is multi-faceted, new entrants are under-recovering in some areas, as such they are not able to raise capital from financial institutions. Without access to capital, they cannot build infrastructure, nor have sufficient working capital to import product required to run their businesses. Partnerships have shown to work successfully amongst established incumbents, it was suggested that new entrants should adopt joint venture strategies as model of entry into the oil industry.

The key finding from this research is that with high capital requirements and lack of funding, non-refining oil wholesalers have no chance of sustainability in this oil industry and the industry will continue being dominated by a handful of established oil firms.

7.4 Framework for Market Entry

Figure 4 below suggests a framework that can be used to enter the oil industry successfully.

Figure 4: Proposed Framework of Entry



Source: Author's own

The model is based on literature review and results from both interviews and survey results. The model suggests that institutions are the foundations of economic growth. According to Alise & Senfelde (2015), institutional economics emphasised the critical roles institutions play in economic development. They further stated that institutions are the cause of economic growth, whilst innovation, economies of scale, education and capital accumulation represent growth itself and are not causes. Based on the interview and survey results which indicated pricing model as a major barrier for non-refining oil wholesalers, the element of profitability for this group is questionable which goes against what government is trying to achieve to reach transformation agenda.

The pricing model should be reviewed by independent experts taking into consideration all submissions from role players and provide recommendations to DoE for implementation. Once pricing model review is achieved, government should encourage the state-owned financial institutions like IDC, DBSA etc. to provide loan facilities for new entrants. Government and non-refining oil wholesaler's association must lobby private financial institutions to set-up loan facilities for new entrants, the loan facilities will be extended to those new entrants where the business case shows strong potential of success as per financial projections. Non-refining oil wholesaler's association needs to tap into its experienced members for coaching and mentoring inexperienced new entrants. The regulated environment requires one to constantly scan the environment and proactively lobby the regulator to advance the agenda that will benefit them.

It is challenging to succeed in this industry on your, own due to the nature of the industry structure. New entrants should consider working together through forming joint ventures, exchange agreements/partnerships while they are building their own capability. There are proven benefits to joint venture model as firms share the whole costs and profits and bring parent firm’s complementary resources like technologies, management, capital, labours and market (S. Zhao, 1999). When they have gained financial stability, and acquired necessary infrastructure they can expand on their own when necessary.

Access to distribution infrastructure is the backbone of this industry. Money is not made in selling fuel; it is made in the logistics efficiencies throughout the supply chain. Established incumbents must play a key role in supporting new entrants as they have existing infrastructure nationwide. They can ensure they provide equitable access to their facilities to both other established firms and new entrants.

State-owned entities are some of the biggest users of fuels and can be used to support smaller entrants through preferential procurement policies. This allows new entrants to have sustainable income especially in the first few years which are known to be difficult years of any new business.

These initiatives once put together and implemented should contribute towards sustainable new entrants.

7.5 Recommendations for Policy-Makers

Policy-makers play a critical role in creating a conducive and enabling environment for new firms to flourish. Whilst policy formulation is important and necessary, policy makers must ensure they consider intended and unintended consequences of their policies. They must consider practical policy implementation and the outcomes they will achieve. As some of the respondents have noted about third-party access to storage terminals unutilised capacity policy, policy intentions are good but to implement this policy practically remains a challenge.

7.6 Recommendations for Managers

Whilst competition and staying ahead of your competitors, managers must embrace collaboration in areas of common interest and benefit to succeed in this industry. This has been proven to work for established incumbents where they have exchange agreements, hosting agreements and this allows them to use their collective resources whilst focussing their energies in delivering customer value propositions to their customers.

7.7 Limitations to Research

The research was based on the economic theories of entry and barriers to entry in the vertically integrated and non-integrated oil industry in South Africa and does not purport to suggest its findings are applicable to other industries and countries. According to Saunders & Lewis (2012), non-probability sampling does not represent the population statistically and therefore results cannot be generalised. Even though the researcher sought to include selected oil industry middle and senior managers, not everyone responded to the questionnaires and interview, hence the results may be skewed towards those organisations who fully participated in the research study.

The number of respondents to the research survey was mostly from the established incumbents, which could skew the results in favour of these participants. The researcher minimised the impact of the bias by not only presenting the statistical data combined but by also separating the results of the two groups to compare. The sample size for the study was small, however, due to the nature of the study being a mixed method helped not only to show the descriptive results but also exploratory data. Participation from government institutions was not achieved satisfactorily due to unavailability of relevant personnel and this resulted in insights from policy intentions being missed.

7.8 Recommendations for Future Research

The recommendations for future research are based mainly on the sample size that was possible during this study.

- Whilst the results showed no statistically significant difference in the impact of the barriers to entry between the refining and marketing oil firms and non-refining oil wholesalers. The findings were based on the survey results from a small number of respondents from non-refining oil wholesalers compared to respondents from refining and marketing oil firms, this could have tipped the results the results in favour of refining and marketing oil firms. A further quantitative study, which will include an equitable number of respondents from refining and marketing oil firms and non-refining oil wholesalers should be undertaken.
- The exploratory study was unable to get insights from some of the government regulatory bodies and this deprived the study some insights on the policy intentions and interventions that government is undertaking to transform the industry. A further exploratory study can be undertaken to include these respondents with sufficient time to ensure this important topic is explored sufficiently with no time constraints.

7.9 Conclusion

Transformation in the oil industry in South Africa is critical both at policy and implementation level. The oligopoly structure has persisted for long periods and requires both government and industry stakeholders to work together to achieve transformation. Barriers to entry in this industry are mainly structural and unless these

are weakened, any strategies that new entrants implement have little chance of success.

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Appendix 1: Semi-structured interview questions

1. Tell me about your background in the oil industry?
2. What are the barriers to entry in the vertically integrated oil industry?
3. How have these barriers affected your firm's success?
4. How have you overcome these barriers to entry?
5. How does your firm respond to the threat of new entrants in the market?
6. Does government legislation support growth in this oil industry? Elaborate?
7. What are your views in the proposed Euro spec fuels (i.e. cleaner fuels)?
8. Do you believe government has handled the introduction of the new fuel specs well? Please elaborate on your answer.
9. Does the size of the firm of new entrant determine its success? Expand?
10. How can new smaller players participate in the whole industry value chain?

Appendix 2: Survey

For each statement or question, please select the most accurate answer:

Legend: 1 - Not a barrier **2** - Low barrier **3** – Barrier **4** - High barrier **5** - Extremely high barrier

No.	Statement	1	2	3	4	5
1	**Financial Requirement or Cost of Market Entry**					
1.1	Capital requirements to enter the markets					
1.2	Capital intensity of the market					
1.3	Access to funds					
1.4	Amount of sunk costs involved in entering the market					
1.5	R&D Expense involved in entering a market					
2	**Competitive advantage of incumbent firms**					
2.1	Incumbent firms with proprietary product technology					
2.2	Trade secrets by incumbent firms or competitors in the market					
2.3	Incumbent firms cost advantages due to economies of scale					
2.4	Absolute cost advantages held by incumbents					
2.5	Incumbent firms with cost advantages due to learning curves					
2.6	Trade secrets held by incumbent firms or competitors in the market					
2.7	Incumbent firms with superior production processes					
2.8	Relatively easy access to raw materials/products					
2.9	Incumbent firms possessing strategic raw materials/products					

2.10	Vertical integration of incumbent firms					
2.11	Collaboration/hosting agreements amongst firms					
3	**Unfavourable business environment barrier for market entrants**					
3.1	Brand name/identification advantage held by incumbent firms					
3.2	Access to distribution channels					
3.3	Customer loyalty advantage held by incumbent firms					
3.4	Heavy advertising by firms already in the market					
3.5	Amount of selling expense involved in marketing a product					
3.6	Customer's associated costs with switching from one supplier to another					
3.7	Expected post-entry reaction / retaliation from firms already in the market					
3.8	Magnitude of market share held by incumbent firms					
3.9	Number of firms in the market					
3.10	High profit rates earned by incumbent firms					
3.11	Low prices charged by incumbent firms					
3.12	Cost advantages and profitability uncertainty of the industry					
4	**Profit Expectations from entering the market**					
4.1	Expected post-entry reaction / retaliation from firms already in the market					
4.2	Magnitude of market share held by incumbent firms					
4.3	Number of firms in the market					
4.4	High profit rates earned by incumbent firms					

4.5	Low prices charged by incumbent firms					
4.6	Cost advantages and profitability uncertainty of the industry					
5	**Institutions**					
5.1	Regulatory price framework of the industry					
5.2	Incumbent firms with government subsidies					
5.3	Uncertainty on the implementation date of clean fuels II					
5.4	Cost recovery mechanisms by oil industry to implement new fuel specifications					
5.5	Broad Based Economic Empowerment requirements for oil industry					
5.6	Environmental legislation requirements applicable to oil industry					
5.7	Licencing requirements to enter and/or expand current operations					

Legend: 1 - Not a barrier **2** - Low barrier **3** – Barrier **4** - High barrier **5** - Extremely high barrier

Appendix 3: Interview Schedule

No.	Organisation	Position	Planned date of interview
1	Government Institution	Senior Manager	1st week July 2016
2	Government Institution	Senior Manager	1st week July 2016
3	Government Institution	Senior Manager	2nd week July 2016
4	Government Institution	Senior Manager	2nd week July 2016
5	Refining and Marketing Association	Senior Manager	3rd week July 2016
6	Non-refining oil wholesalers	Senior Manager	3rd week July 2016

	Association		
7	Refining and Marketing	Senior Manager	4th week July 2016
8	Refining and Marketing	Senior Manager	4th week July 2016
9	Refining and Marketing	Senior Manager	1st week August 2016
10	Refining and Marketing	Senior Manager	1st week August 2016
11	Refining and Marketing	Senior Manager	2nd week August 2016
12	Refining and Marketing	Senior Manager	2nd week August 2016
13	Refining and Marketing	Senior Manager	3rd week August 2016
14	Refining and Marketing	Senior Manager	3rd week August 2016
15	Refining and Marketing	Senior Manager	4th week August 2016
16	Non-refining oil wholesalers	Senior Manager	4th week August 2016 to 1st week September 2016

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University of Pretoria

Appendix 4: Ethical Clearance

Dear Mr Lwazi Sihlobo

Protocol Number: **Temp2016-01155**

Title: **Economic Theories of Entry into a Vertically Integrated Oil Industry in South Africa**

Please be advised that your application for Ethical Clearance has been APPROVED.

You are therefore allowed to continue collecting your data.

We wish you everything of the best for the rest of the project.

Kind Regards,

Adele Bekker

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Appendix 5: Interview Informed Consent letter

Informed consent letter – Interview

I am a ***University of Pretoria – GIBS MBA*** student conducting research on understanding barriers to entry into the vertically integrated oil industry and applying economic theories of entry into this industry. Our interview is expected to last about an hour, will help us understand how South Africa oil industry landscape and its evolution going forward. Your participation is voluntary and you can withdraw at any time without penalty. All the data will be kept confidential. I you have any concerns; please contact my supervisor or me. Our details are provided below.

Researcher: Lwazi Sihlobo

Email: lsihlobo@gmail.com

Phone: 078 206 3674 / 011 267 7300

Research Supervisor: Mr Mike Holland

Email: mholland@pricemetrics.co.za

Phone: 082 495 1283 / 011 513 4252

Signature of participant: _____

Date: _____

Signature of researcher: _____

Date: _____

Appendix 6: Questionnaire Informed Consent Letter

Consent – Questionnaire

I am a ***University of Pretoria – GIBS MBA*** student conducting research on understanding barriers to entry into the vertically integrated oil industry and applying economic theories of entry into this industry.. I request your valued participation to complete the survey and should take no more than 10 minutes. It will help us understand how South Africa oil industry landscape and its evolution going forward. Your participation is voluntary and you can withdraw at any time without penalty. All the data will be kept confidential. By completing this survey, you indicate that you voluntarily participate in this research. I you have any concerns; please contact my supervisor or me. Our details are provided below.

Researcher: Lwazi Sihlobo

Email: lsihlobo@gmail.com

Phone: 078 206 3674 / 011 267 7300

Research Supervisor: Mr Mike Holland

Email: mholland@pricemetrics.co.za

Phone: 082 495 1283 / 011 513 4252

Signature of participant: _____

Date: _____

Signature of researcher: _____

Date: _____

Appendix 7: Barriers to Entry - Order of Importance (Refining and Marketing)

Barriers to entry	Mean
Capital intensity of the market	3,9
Access to distribution channels	3,9
Incumbent firms cost advantages due to economies of scale	3,8
Relatively easy access to raw materials/products	3,6
Brand name/identification advantage held by incumbent firms	3,6
Vertical integration of incumbent firms	3,5
Incumbent firms possessing strategic raw materials/products	3,5
Number of firms in the market	3,5
Capital requirements to enter the markets	3,4
Incumbent firms with cost advantages due to learning curves	3,4
Absolute cost advantages held by incumbents	3,3
Customer loyalty advantage held by incumbent firms	3,3
Cost recovery mechanisms by oil industry to implement new fuel specifications	3,3
Amount of sunk costs involved in entering the market	3,2
Incumbent firms with superior production processes	3,2
Amount of selling expense involved in marketing a product	3,2
Trade secrets held by incumbent firms or competitors in the market	3,2
Access to funds	3,1
Environmental legislation requirements applicable to oil industry	3,1
Heavy advertising by firms already in the market	3,1
Licencing requirements to enter and/or expand current operations	3,0
Collaboration/hosting agreements amongst firms	2,9
Cost advantages and profitability uncertainty of the industry	2,9
Magnitude of market share held by incumbent firms	2,9
Trade secrets by incumbent firms or competitors in the market	2,9
Uncertainty on the implementation date of clean fuels II	2,9
Incumbent firms with proprietary product technology	2,8
Customer's associated costs with switching from one supplier to another	2,8
Regulatory price framework of the industry	2,7
High profit rates earned by incumbent firms	2,7
Low prices charged by incumbent firms	2,3
Broad Based Economic Empowerment requirements for oil industry	2,3
Expected post-entry reaction / retaliation from firms already in the market	2,3
R&D Expense involved in entering a market	2,1
Incumbent firms with government subsidies	1,7

Appendix 8: Barriers to Entry - Order of Importance (Non-refining Oil Wholesalers)

Barriers to entry	Mean
Capital requirements to enter the markets	4,3
Incumbent firms cost advantages due to economies of scale	4,1
Access to funds	4,0
Capital intensity of the market	3,9
Amount of sunk costs involved in entering the market	3,7
Access to distribution channels	3,6
Relatively easy access to raw materials/products	3,6
Collaboration/hosting agreements amongst firms	3,6
Vertical integration of incumbent firms	3,5
Absolute cost advantages held by incumbents	3,5
Cost advantages and profitability uncertainty of the industry	3,4
Brand name/identification advantage held by incumbent firms	3,3
Magnitude of market share held by incumbent firms	3,2
Incumbent firms with proprietary product technology	3,1
Incumbent firms possessing strategic raw materials/products	3,0
Number of firms in the market	3,0
Incumbent firms with superior production processes	3,0
Amount of selling expense involved in marketing a product	3,0
Regulatory price framework of the industry	3,0
Incumbent firms with cost advantages due to learning curves	2,9
Environmental legislation requirements applicable to oil industry	2,9
Licencing requirements to enter and/or expand current operations	2,9
Customer's associated costs with switching from one supplier to another	2,9
Low prices charged by incumbent firms	2,9
Trade secrets held by incumbent firms or competitors in the market	2,8
Trade secrets by incumbent firms or competitors in the market	2,8
R&D Expense involved in entering a market	2,8
Customer loyalty advantage held by incumbent firms	2,6
Uncertainty on the implementation date of clean fuels II	2,5
High profit rates earned by incumbent firms	2,5
Broad Based Economic Empowerment requirements for oil industry	2,5
Expected post-entry reaction / retaliation from firms already in the market	2,4
Heavy advertising by firms already in the market	2,3
Incumbent firms with government subsidies	2,3
Cost recovery mechanisms by oil industry to implement new fuel specifications	2,1

Appendix 9: Refinery Locations

Source: (SAPIA, 2013)

Appendix 10: Petrol Prices Model

2016 (RSA c/litre)	PETROL LEVIES, TAXES AND MARGINS 95 OCTANE (UNLEADED PETROL)													
2016(RSA c/litre)	BFP	Fuel tax	Customs &excise	Equalization fund levy	Road accident fund	Transport cost	Petroleum Products levy	Whole-sale margin	Secondary Storage	Secondary distribution	Retail margin	Slate levy	Deliv-ery cost	DSML
Jan	550.970	255.000	4.000	0.000	154.00	35.300	0.330	33.200	18.500	13.700	161.700	0.000	0.000	10.00
Feb	556.970	255.000	4.000	0.000	154.00	35.300	0.330	33.200	18.500	13.700	161.700	0.000	0.000	10.00
Mar	487.970	255.000	4.000	0.000	154.00	35.300	0.330	33.200	18.500	13.700	161.700	0.000	0.000	10.00
Apr	540.970	285.000	4.000	0.000	154.00	41.000	0.330	33.200	18.500	13.700	161.700	0.000	0.000	10.00
May	552.970	285.000	4.000	0.000	154.00	41.000	0.330	33.200	18.500	13.700	161.700	0.000	0.000	10.00
Jun	604.970	285.000	4.000	0.000	154.00	41.000	0.330	33.200	18.500	13.700	161.700	0.000	0.000	10.00
Jul	612.970	285.000	4.000	0.000	154.00	41.000	0.330	33.200	18.500	13.700	161.700	0.000	0.000	10.00
Aug	513.970	285.000	4.000	0.000	154.00	41.000	0.330	33.200	18.500	13.700	161.700	0.000	0.000	10.00
Sep	495.970	285.000	4.000	0.000	154.00	41.000	0.330	33.200	18.500	13.700	161.700	0.000	0.000	10.00
Oct														

Source: (Department of Energy, 2016b)

Appendix 11: Diesel Prices Model

2016 (RSA c/litre)	DIESEL (0.05% SULPHUR) LEVIES, TAXES AND MARGINS											
	BFP	Fuel tax	Customs & excise	IP Tracer Dye Levy	Pipeline Levy	Road accident fund	Transport cost	Wholesale margin	Secondary Storage	Secondary Distribution	Slate Levy	
Jan	474.630	240.000	4.000	0.010	0.330	154.00	35.300	64.700	18.500	13.700	0.000	
Feb	412.630	240.000	4.000	0.010	0.330	154.00	35.300	64.700	18.500	13.700	0.000	
Mar	427.630	240.00	4.000	0.010	0.330	154.00	35.300	64.700	18.500	13.700	0.000	
Apr	487.630	270.00	4.000	0.010	0.330	154.00	41.000	64.700	18.500	13.700	0.000	
May	486.630	270.00	4.000	0.010	0.330	154.00	41.000	64.700	18.500	13.700	0.000	
Jun	562.630	270.00	4.000	0.010	0.330	154.00	41.000	64.700	18.500	13.700	0.000	
Jul	604.630	270.00	4.000	0.010	0.330	154.00	41.000	64.700	18.500	13.700	0.000	
Aug	530.630	27.000	4.000	0.010	0.330	154.00	41.000	64.700	18.500	13.700	0.000	
Sep	482.630	27.000	4.000	0.010	0.330	154.00	41.000	64.700	18.500	13.700	0.000	
Oct												
Nov												
Dec												

Source: (Department of Energy, 2016b)