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Analysis of Competition in The Cement Industry Using Porters Five Forces (2005-2015)

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Abstract— *the purposes of this research are twofold: 1) To explore the influence of industry forces in the implementation of strategies in the Zambian cement industry and 2) to assess the relationship between competitive strategies and performance of firms in the Zambian Cement Industry. However, Since the entry of a new cement manufacturing company on the Zambian market, there has been no comparative study undertaken in the industry especially one that focuses on Performance and the intensity of the competition resulting thereof. Therefore, this study analyzed the responses to Porters five forces, of the three major companies that make up the cement industry in Zambia, the effect of competition on financial performance that will be measured by ratio analysis, activity, productivity and market share size.*
The study employed descriptive survey design on a population of 3 cement companies and their clients or retailers. The study used secondary data sources in collecting information; internet, periodic reports and brochures for a period of ten years before the data was analyzed using Microsoft excel to produce graphs. The study concluded that all tree firms had responded differently to the five industry forces with varying results, that resulted in to a new market share map the results of the study also showed varied performance results from the other ratios.

Keywords: *Cement industry, Competitive strategies, industry forces, Porters five forces and Ratio analysis*

1.0 INTRODUCTION

1.1 Research Background

This chapter looked at the background of the study, An Analysis of competition in the cement Industry using Porter's five forces for the period 2005-2015.It has become necessary to conduct such a research because most studies in this field had only focused on profit as the only means for comparison of performance neglecting other important indicators. That did not help any person wishing to invest in the sector because it starved them of the much-needed information and if they were still willing to invest, they would have no choice but carried on with the huge costs of feasibility studies that could had been eased otherwise. Globally, the use of Porter's Five Forces model involved a continuous process of environmental scanning and monitoring as well as obtaining competitive intelligence on present and potential rival businesses. That was why many prospecting companies used scenario planning to anticipated and responded to volatile and disruptive environmental changes. Strategic management identified the general environment and the competitive environment. As a result, the researcher chose Porter's five forces in order to critically assess all the areas of business, started with the threats, and looked at the supply chain and the market, as well as the opportunities that awaited the players in the sector. I believed, Porter's five forces were a complete or wholesome assessment of the

market for whatever reason one may wanted to bring forth, be it investment, or merely just Knowledge. In this research, the researcher stated the problem at hand and laid out the objectives of the study that would sharpen the direction of the research.

1.2Background of the study

The cement industry played a major role in meeting any country's needs for housing and infrastructure. Cement, the glue that holds concrete together, is a key ingredient of economic development. Concrete becomes our offices, factories, homes, schools, hospitals and roads, as well as our underground water and drainage pipes, bricks and blocks, and the mortar that bonds them together. None of those things could be built without cement. There is currently no other material that could replace cement or concrete in terms of effectiveness, price and performance for most purposes. In view of these, and the fact that the construction industry in Zambia had for 4 consecutive years surpassed the mining industry in terms of growth, grown at an average rate of 15% (Zambia Development Agency Bulletin No.2, 2015), there had been massive investments in the cement industry in Zambia that had seen three new factories being built in the last 5years bringing the total number to 6. The Zambian cement industry and all the other manufacturing industries were characterized by change and volatility, yet businesses needed to make investment decisions that equipped them to serve consumers and maintain profitability through attaining and sustaining competitive advantage. A firm is said to have a competitive advantage when it is implementing a value creating strategy not simultaneously being implementing by any current or potential competitors (Barney, 1991). One thing that is certain, consumer values, needs and behaviours will continue to evolve.

With the change of regime in 1991 from a one-party state to a multi-party state, the Zambian government embarked on a path to liberalize its economy. In 1992, the government implemented policies and enacted laws that would provide for a free market economy, as opposed to the pre – 1991 controlled establishment of the previous regime killed the various state monopolies and brought in other companies that competed for market share. Undeniably, a free market economy brought about competition and competition is a process of economic rivalry between market players to attract consumers. The market players could be multinational companies, domestic firms, wholesalers, selling both goods and services. Such a competitive situation could also be affected by market contestability, where competition not only came from existing players, but also from new players that could enter and contest the market or from new products that could be introduced in existing markets (CCPC, 2012). Most companies adopted a more dynamic strategy related to the existing resources in order to defend themselves against industry structures and increased their market share and performance. Before creative business strategies, however, environment factors came into consideration of establishing strategies. One sector that had seen a very high level of competition in Zambia is the cement manufacturing sector.

1.3 Porter's five forces

In order to more deeply understand and explain the Zambian cement industry structure and all that had been going on in this sector in the last 10 years (2005 -2015), and how that had affected firm performance, I turned to the well-known Five Forces Model developed by Michael Porter. This study, therefore, aimed to apply Porter's five forces in the analysis of the Cement Industry. It would seek to identify the competitive strategies implemented by firms and how the application of those strategies affected performance and also explained the issues in the sector as stated above.

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1.4 Statement of the Problem

The Zambia Cement Industry had seen a rapid increase in competition. The challenges of competition were both global and local. The 2014 financial records for the leading firm, listed on the Lusaka Stock Exchange showed that the company enjoyed a 27% increase in earnings before interest and tax EBIT to ZMK 687m and a 25% increase in Profits after tax to ZMW 424m from the previous financial year. The entry, on the market, of a new player with larger capacity threated to erode the profitability of the current players in the market. The transition from monopoly to oligopoly had exerted a lot of pressure on the cement companies; to survive and sustain their profitability; those companies had to embark on strategies that might have given them competitive advantage. The firms had to seek new ways of acquiring, retaining and increasing business. A free market economy is based on supply and demand factors and the government had little or no intervention. In a free market economy, competition is the force that ensures that only those enterprises that responded to market dynamics were able to capture market share and ultimately survive. Therefore, the researcher would assess the general response of all the firms to the growing competition in the Zambian cement industry – assessing how the industry forces impacted on profitability and growth while at the same time assess how the strategic responded according to Porter's theory, had been used in order to continue in business. Considering the issues that had been happening in the cement manufacturing sector as stated above, the collusion allegations, the power deficits, the alleged unlevelled capital playing field occasioned by some form of backward integration by one major player, it then became imperative to understand all those from an economic point of view and as the research would had it, from Porter's five forces.

1.5Research Purpose

The purposes of this research were twofold:(1) To explore the influence of industry forces in the implementation of strategies in the Zambian cement industry and (2) to assess the relationship between competitive strategies and performance of firms in the Zambian Cement Industry.

1.6 Research Questions

The following research questions guided this research.

1. What level of influence did the threat of new entrants had on performance of Cement industry in Zambia?
2. What extent of bargaining power did suppliers had relative to performance of Cement industry in Zambia?
3. What was the influence of substitute products on performance of Cement industry in Zambia?
4. What extent of bargaining power did buyers had relative to performance of Cement industry in Zambia?
5. What was the effect of rivalry between firms on performance of Cement industry in Zambia?
6. What had been the business and financial Performance of the Cement industry in the (FY 2005 – FY2015) considering its profitability, liquidity, asset management, financial leverage and equity analysis?

1.7 Hypotheses

Hypotheses predict relationships between variables. According to Creswell (2005) they can be categorized into the null hypotheses and alternative hypotheses. The null hypothesis predicts that no relationship exists between variables, and the alternative hypothesis is a true statement if the results of statistical analyses are used to reject the null hypothesis.

Based on the research questions, the following null hypotheses guided this study:

H01: Threat of new entrants did not have significant influence on performance of Cement industry in Zambia.
H02: Bargaining power of supplier did not affect performance of Cement industry in Zambia.
H03: Substitute products did not have significant influence on performance of Cement industry in Zambia.
H04: Bargaining power of buyers did not affect performance of Cement industry in Zambia.

H05: Rivalry between firms did not have significant effects on performance of Cement industry in Zambia.

1.8 Scope of the Study

The Cement industry in Zambia is complex and diversified, consisting of firms from the multinational to many small local firms. In this regard, the study would focus the four cement producing companies in Zambia Vis; Lafarge Holdings, Zambezi Portland Cement and Dangote and would limit itself to the Lusaka and the Copperbelt as the major markets for formalized cement industry. Due to lack of sufficient sector specific basic literature in the cement industry in Zambia, it was hard to determine the level of competitiveness. The study would thus, through literature review, analyze the competition by adapting the dimensions of Porters five forces. The dimensions of competition were, the analysis of new entrants in the business, the bargaining power of suppliers, the threat of product substitutes, the bargaining power of buyers and the competitive rivalry within the industry itself.

1.9 Significance of the Study

Even though the study did not seek to build theory on competition, the findings would be useful to cement industries as a basis for the formulation of competitive strategies in order to ensure continued survival and profitability. The results would also provide information to the regulators of any anti-competitive practices.

1.10 Definition of terms

According to Porter (1983) the definitions for the key terms are given below Cost leadership strategy: that focuses on pushing its costs down. This strategy called "the low-cost strategy". Differentiating strategy: is a strategy of lunching differentiated products which the company provides to its customers distinctive features products that satisfies their needs as the have a willingness to pay more for these products. Focus strategy: It is a strategy of focusing on a particular segment in the market. This will be achieved through introducing products that are suitable for a particular group of customers and satisfies their needs.

1.11 Review of Porter's Five Forces Model

In that seminal work on strategic management, Michael E. Porter (1980, 1985) provided a powerful instrument for thoroughly analyzing environmental forces and market structures in an industry. Porter's five forces model provided a flexible framework for describing and assessing competitive pressures in an industry and industry attractiveness. Based on this analysis, a company could develop a competitive strategy for gaining and sustaining competitive advantages over rival firms and thereby generating above-average return on investments.
According to Porter (1985), the five factors that act together to determine the nature of competition within an industry were; Competitive Rivalry, Threat of Entry, Threat of Substitutes, Bargaining Power of Buyers and bargaining Power of Suppliers (Porter, 1985). The intensity of these forces determines the average expected level of profitability (McGanan, 1997). The industry forces approach assumed that firms within an industry possessed identical or similar resources. As a result, a firm's success depended on how to react to market signals and accurately predicted the evolution of the industry structure (Kim & Oh, 2004).

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2.1 THEORETICAL REVIEW

2.1 Bargaining power of suppliers

According to Porter (1980), power of suppliers refers to the ability of suppliers to influence cost, availability and quality of input materials to firms within the industry. The strength of the supplier mainly depends on what they have to offer to the purchaser (Porter, 1998). Mistikoglu & Oral (2005) show that "according to Porter's five forces model, suppliers have control over competition in the industry through their bargaining power". Lynch (2006) argues that suppliers are absolutely necessary for every organization that supports the Organization's final production by raw materials or services. According to Porter (1985), suppliers may be powerful under the following conditions:

- There are very few suppliers of a particular product
- There are no substitutes
- Switching to another (competitive) product is very costly
- The product is extremely important to the buyer, they cannot do without it
- The supplying industry has a higher profitability than the buying industry

2.2Bargaining power of buyers

Wheelen & Hunger (2008) argue that "buyers affect an industry through their ability to force down prices, bargain for higher quality or more services, and play competitors against each other". The bargaining power of customers determines how much customers can impose pressure on volumes and margins. The power of each of the industry's buyer groups depends on the characteristics of its market situation and on the relative importance of its purchases from the industry compared with its overall business (McCray, 1985 cited in de Villiers, 2012). According to Porter (1980; 2000) both buyers are powerful under the following conditions:

They are concentrated and buy in large volumes.

The buyer's purchases are a sizable percentage of the selling industry's total sales.

The supplying industry is comprised of large numbers of relatively small sellers.

The item being purchased is sufficiently standardized among sellers that not only can buyers find alternative sellers but also, they can switch suppliers at virtually zero cost.

The buyers pose a threat of integrating backward to make the industry's product.

The sellers pose little threat of forward integration into the product market of buyers.

The products are unimportant to the quality of the customer's product or service.

It is economically feasible for buyers to follow the practice of purchasing the input from several suppliers rather that one.

2.3 Threat of Substitute Products Substitutes refer to products and services from another industry that can satisfy the same needs as products of the focal industry. Microeconomics teaches that the more substitutes a product has, the more the demand for the product becomes more elastic. Elastic demand means increased consumer price sensitivity which equates to less certainty of profits.

Conditions that increase the threat of substitutes are:

An attractive price of substitutes: The price of substitutes acts as a ceiling to the price of the subject product. An attractive price of a substitute inhibits an industry from reaching its profit potential. Increased quality of substitutes: If the quality of a substitute is high, there is increased pressure to increase the quality of the subject product.

Low switching costs to consumers: Switching costs to consumers can come in the form of monetary costs. Monetary costs effectively increase the price of the substitute products whereas lifestyle costs are more subjective and difficult to identify. In any case, the easier and less costly it is to switch to a substitute, the higher the threat of that substitute.

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2.4 The threat of new entrants

A major force shaping competition within an industry is the threat of new entrants. The threat of new entrants is a function of both barriers to entry and the reaction from existing competitors. Threat of New Entrants - The easier it is for new companies to enter the industry, the more cutthroat competition there will be.

Economies of scale. Economies of scale act as barrier to entry by requiring the entrant to come on large scale, risking strong reaction from existing competitors, or alternatively to come in on a small scale accepting a cost disadvantage Product differentiation creates a barrier to entry by forcing entrants to incur expenditure to overcome existing customer loyalties. The capital costs of getting established in an industry can be so large as to discourage all but the largest companies. Cost advantages independent of scale. Switching costs refer to the one-time costs that buyers of the industry's outputs incur if they switch from one company's products to another's. To overcome the switching cost barrier, new entrants may have to offer buyers a bigger price cut or extra quality or service. A new entrant may have to persuade the distribution channels to accept its product by providing extra incentives which reduce profits. Governmental and legal barriers. Government agencies can limit or even bar entry by requiring licenses and permits. National governments commonly use tariffs and trade restrictions (antidumping rules, local content requirements, and quotas) to raise entry barriers for foreign firms.

2.5 Competitive Rivalry

Thompson & Strickland (1996) argue that "the strongest of the five competitive forces is usually the jockeying for position and buyer favor that goes on among rival firms. Competitive Rivalry describes the intensity of competition between existing firms in an industry.

2.6 Theories of Competitive Advantage

The theory of competitive advantage suggests that the only important concept at national level is national productivity (Constantin, 2004). Competitive advantage rests on the notion that labor is ubiquitous and natural resources are not necessary for a good economy (Mugwe, 2012). The Market-Based View (MBV) of strategy argues that industry factors and external market orientation are the primary determinants of firm performance (Bain 1968). Opposed to the MBV is the Resource-Based View (RBV) that argues that the firm's internal environment is the driver for competitive advantage.

2.7 Competitive Advantage

Lynch (1999) describes competitive advantage as the ability gained through attributes and resources to perform at a higher level than others in the same industry. According to Jones (2007:12), competitive advantage is "the ability of one company to outperform another because its managers are able to create more value from the resources at their proposal." The Concept of competitive advantage was formulated by Michael Porter (1985).

2.8. Cost Leadership Strategy

Under Cost Leadership, a firm sets out to be the low-cost producer in its industry. The organization aims to drive costs down for all production elements from the sourcing of materials, to labor costs. To achieve cost leadership a business will usually need large scale production so that they can benefit from "economies of scale". Firms that succeed in cost leadership often have the following internal strengths: Access to the capital required making a significant investment in production assets; this investment represents a barrier to entry that many firms may not overcome.

2.9 Differentiation Strategy

According to Porter (1985), in a differentiation strategy, a firm seeks to be unique in its industry

along some dimensions that are widely valued by buyers. With a differentiation strategy the business develops product or service features which are different from competitors and appeal to customers including functionality, customer support and product quality.

2.10 Focus (Niche) Strategy

A focus strategy concentrates on a narrow segment and attempts to achieve either a cost advantage or differentiation within that segment. Porter argued that competitive advantage through a focus strategy is gained either by cost-leadership in that segment, or, differentiation by meeting the needs of the target segment more effectively

2.11 Stuck in the Middle

Porter argued that a firm must make a conscious choice about the competitive advantage it seeks to develop. If a firm engages in each generic segment but fails to achieve in any of them it is 'stuck in the middle'. For Porter, "being `all things to all people' is a recipe for strategic mediocrity and below-average performance" (1985, p. 12).

2.12 Other Strategies for Key Advantages

Alliances

Competitive advantages can also be gained by businesses that seek strategic alliances with other businesses in related industries or within the same industry.

CHAPTER THREE

THEORETICAL AND CONCEPTUAL FRAMEWORK

3.0 Introduction

From the previous review of literature and the variables proposed, the conceptual framework was established as explained in figure 4.1 below. In theory, when firms had the advantage over the industry forces, those advantages could indicate the competency in brand image, human resource, and IT strategies. As a result, those competitive resource strategies would increase performance behaviorally and financially.

3.1 Theoretical Framework

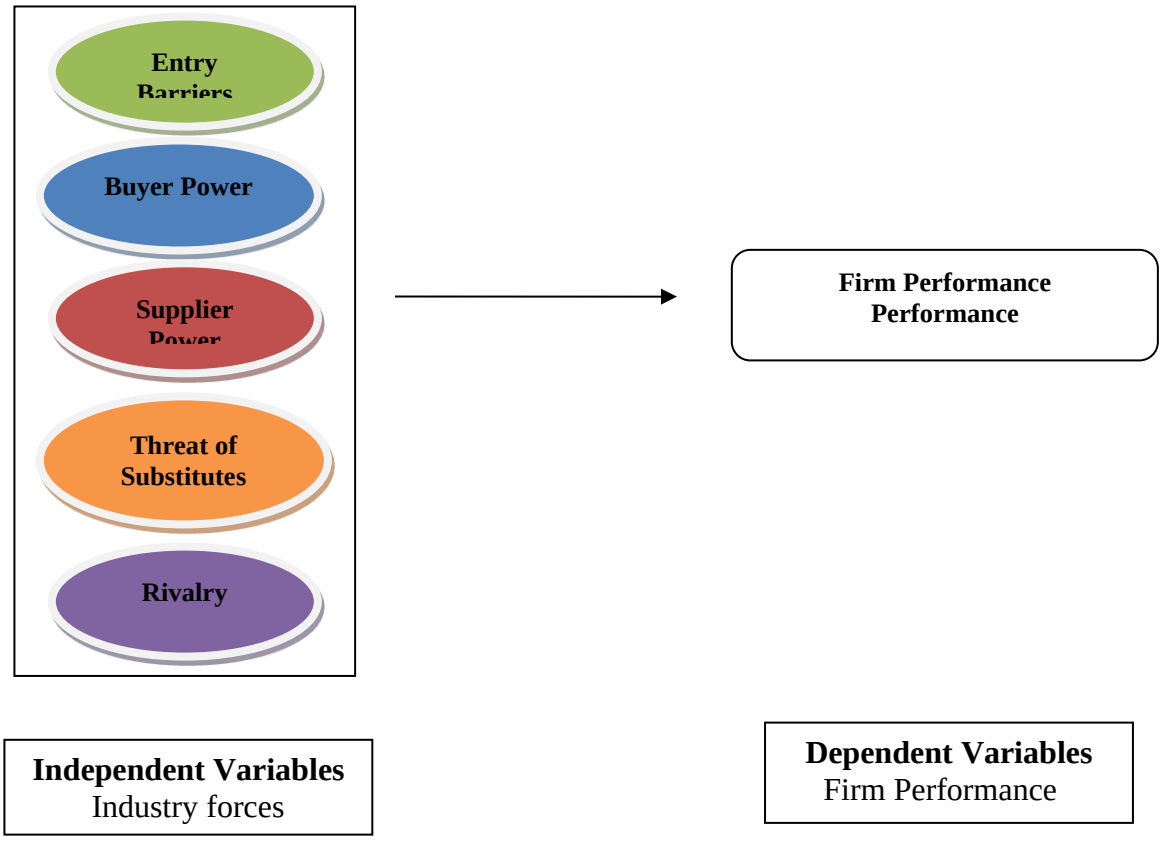
Various theories and perspectives have been advanced that attempt to explain competitive advantage. Gaining and sustaining competitive advantage was the overarching objective of firms' strategy. One of the big cornerstones of industry and competitive analysis involved carefully studying the industry's competitive process to discover the main sources of competitive pressure and how strong they are (Ohmae, 1983). Alam, Azim and Islam (2010) explain that the first fundamental determinant of a firm's profitability is industry attractiveness. In his seminal work on Strategic Management, Porter (1980, 1985) provides a powerful instrument for thoroughly analysing environmental forces and market structures in an industry. Porter's Five Forces model provides a flexible framework for describing and assessing competitive pressures in an industry and industry attractiveness and thus will be used as a tool in assessing the two dimensions by application in the Zambian Market, which has seen fierce competition and a price war. Porter's Five Forces Framework is one of the strategic models used to assess the attractiveness of the industry (be it service or manufacturing). This model is defined by the five key forces which are; Rivalry among the existing firms, Threat of new entrants, Threat of substitutes, bargaining power of suppliers and bargaining power of customers. Based on this analysis, a company can

develop a competitive strategy for gaining and sustaining competitive advantages over rival firms and thereby generating above average return on investment (Porter, 1980). Porter (1980) contends that every firm competing in an industry has a strategy. In order to survive, firms have to make choices: selection of goals, choice of products and/or services to offer, the design and configuration of policies determining how the firm positions itself to compete in product markets – competitive strategy, choice of an appropriate level of scope and diversity; and the design of organization structure, administrative systems and policies used to define and coordinate work.

3.2 Conceptual framework

In figure 3.1, this researcher conceptualized that industry attractiveness is a fundamental determinant of competitive advantage. A firm's profitability is influenced by its relative size compared to its industry rivals, suppliers and customers (Porter, 1985). Consequently, the industry forces in which a firm operates requires that the firm adapts to these requirements in order to survive in the long run. Firms should seek to screen against and exploit the competitive forces in order to obtain and keep high profitability (Porter, 1980). Firms create competitive advantage/Performance by discovering new and better ways to compete in an industry. The dependent variable in this study was competitive advantage while the independent variables were barriers to entry, intensity of rivalry, bargaining power of buyers, bargaining power of suppliers, substitute products and government policies. This independent variable was studied and research presented on the degree to which it affected performance/competitive advantage.

Figure 3.1 Conceptual Framework



Source: Porter's (1980)

Competitive advantage grows out of the way firms perform discrete activities – conceiving new ways to conduct activities, employing new procedures, new technologies, or different inputs. To achieve and sustain CA, firms must compete effectively to outperform their competitors in this dynamic environment, this can be achieved by identifying appropriate ways of creating and adding value for their customers as competition exerts pressure on firms to be proactive and to formulate successful strategies that facilitate proactive responses to foreseen and actual changes in the environment (Ngetich, 2010).

3.3 Analysis of Data

To analyze data collected from the employees through the questionnaire, the statistical package for social scientists was used to regress the five forces against performance. A comparative analysis was then made using porters five forces theory in order to assess the intensity of the competition. The results are then shown using tables and graphs generated by excel. The findings are presented thematically in graphs and charts. Further, secondary data collected supports the findings. The model that guided the study was: $y=\beta 0+\beta ixi+\varepsilon$ Where y=dependent variable $\beta 0$=Constant i=1, 2,3,4,5 are the research objectives (each of Porters five forces). Hence Performance=$\beta 0+\beta 1\times$ (objective) $+\varepsilon$ the output of each objective accepted or rejected the null hypothesis. To test the hypotheses; H01: Threat of new entrants does not have significant influence on performance of Cement industry in Zambia.

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

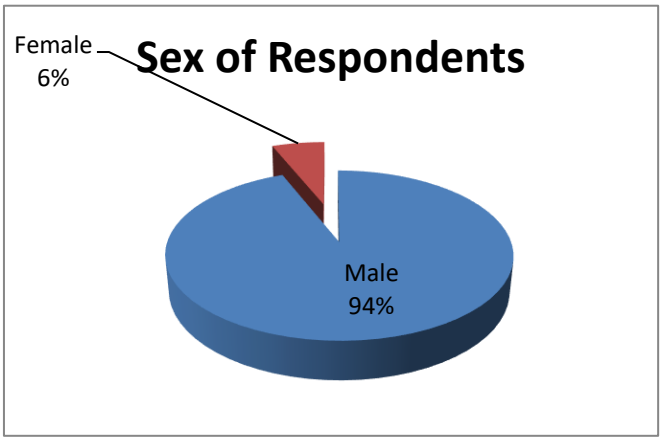
4.0 Introduction

The chapter provides the findings in graphical form and then provides analysis of the same graphical results.

4.1 Demography

4.1.1 Gender and Age of Respondents

Of the 66 respondents who participated in the study, 94% (62) were male, and 6% (4) were female. This shows a great disparity on gender portraying cement in Zambia as a male dominated field as shown in figure 4.1



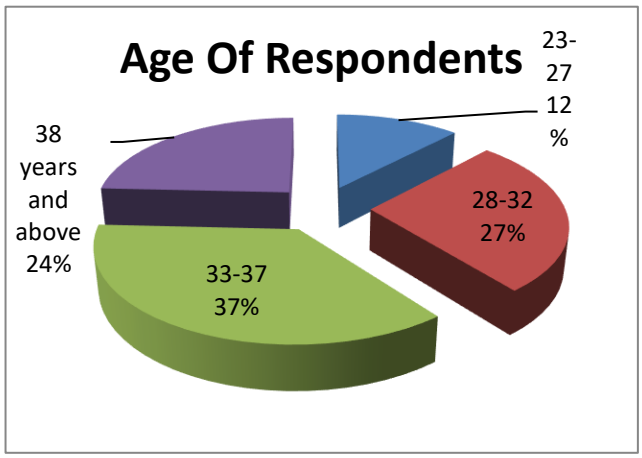
Source: Researcher's computation using excel

In terms of age, majority of the respondents 36.4% (24) were aged 33-37 years, followed by those aged 28-32 years at 27.3% (18), 38 years and above at 24.2% (16) and 23-27 years as the least age bracket at 12.1% (8). This shows more than half (63.7%) of those in management positions were above 28 years old while 36.3% were below 28 years old. Based on this, the older one becomes, the more likely he ascends to management position.

The comparison of age based on gender shows 75% (3) of the females were 23-27 years while the remaining 25% (1) were 28-32 years. For male respondents, those aged 33-37 years were 38.7% (24) of the respondents followed by 28-32 years at

27.4% (17) and 38 years and above at 25.8% (16). This comparison of age based on gender shows female respondents were at the entry level of management; three quota (75%) aged 23-27 years and none was more than 32 years old. Age of male respondents spread across all the age brackets from youngest (23-27 years) to highest (38 and above years). This portrays male dominance at management level of the cement industry at all age levels as further summarized in the following cross tabulation (Table 4.3). The disparity is based on the health and cement environment factor as explained further later in this chapter.

Fig 4.2 Age of respondents



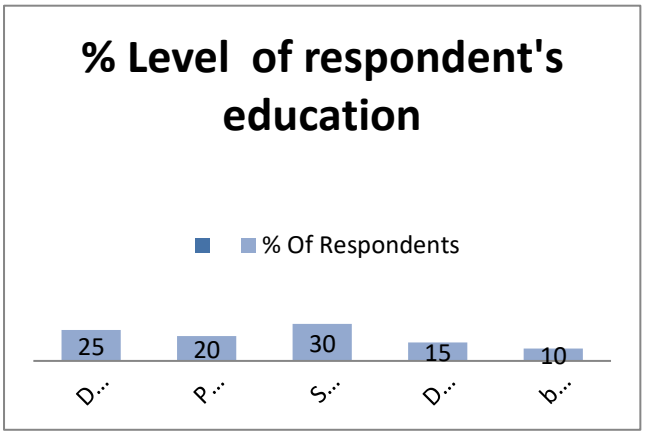
Source: Researcher's computation using excel

Fig 4.3 Comparison of age and gender

		Age				
		23-27 years	28-32 years	33-37 years	38 years and above	Total
Female	Count	3	1	0	0	4
	% within Gender	75.0%	25.0%	0.0%	0.0%	100.0%
Male	Count	5	17	24	16	62
	% within Gender	8.1%	27.4%	38.7%	25.8%	100.0%
Total	Count	8	18	24	16	66
	% within Gender	12.1%	27.3%	36.4%	24.2%	100.0%

On the length of service in the industry, the minimum period one had worked was 1.5 years; the maximum was 15 years with a mean of 4 years, median of 3 years, mode of 2 years and SD of 2.71 years. Further comparison of the length of service in the industry based on gender shows, men had worked for longer period than women with a mean of 3, compared to mean of 2. However, the SD of women respondents was high (4) compared to men respondents (2.65) due to disparity of a women who had worked for more than 10 years. This shows majority of employees at management positions have been in those position for less than 4 years hence at the entry level of management position. Despite the gender difference, men at entry level had worked for lesser years compared to women based on the SD comparison.

Fig 4.4 Level of education of respondents



Source: Researcher's Computation Using SPSS

30% of the respondents had just obtained a secondary school level certificate and these represented those that were on the shop floor or production department. 25% had degrees either at bachelors or masters' level, all senior management staff at all the companies had degrees. 20 % had professional training while 15 % and 10 had Diplomas and Basic education respectively. All those who had just basic education were working in the production department.

4.5 Ratio Analysis – Average values for 2005 – 2010 and 2011 – 2015

The performance of the production plants of Lafarge at Chilanga site, during the period 2005-2010 and 2011-2015, was remarkable as it surpassed its rated production capacity. Capacity utilization during these periods were 94.97% and 112.10% respectively.

During the 2011-2015, the sales revenue of Lafarge declined to 19.31% as compared to the 2005-2010 that stood at 35.9%, despite the surge in sales volume that rose from 21.81% in 2005-2010 to 28.805% in 2011-2015. This is because the cement industry suffered an over-supply situation due to new capacities coming on stream consequently putting pressure on prices.

4.6 Ratio Analysis – Average values for 2005 – 2010 and 2011 – 2015

The sales revenue of the company for the periods 2011-2015, was very depressing as compared to its previous periods i.e. 2005-2010. During the periods 2011-2015 the company generated sales revenue of K 7,956 million, 50.69% less than the 2005-2010 periods. Despite the sales volume growth, the reduced selling prices contributed to this decrease in revenue.

The sales volume of Zambezi Portland during the periods 2005-2010 decreased by 2.10 % owing to the reduction in operations resulting from a court holder where the shareholders had litigated on the ownership of the company. At that time, Lafarge was poised to make profits especially before Dangote cement came onboard, but it was rehabilitation and increasing the Chilanga plant in anticipation of the Dangote challenge. So, most of the investment was in increasing capacity. This was more of a speculative downtown than an actual competition induced reduction, because, Dangote had not offloaded its first batch of products on the market of increased selling prices and sales volumes down.

4.7 PROFITABILITY RATIOS

	Lafarge		Zambezi Portland (ZP)	
	2005-2010	**2011-2015**	**2005-2010**	**2011-2015**
Gross profit margin	36.91 %	49.81 %	31.65 %	29.35 %
PBIT margin	45.94 %	49.13 %	34.31 %	28.38 %
Net profit margin	31.86 %	30.40 %	25.27 %	20.34 %

Source: Researcher's Computation Using SPSS

4.7.1 Gross Profit Margins

During the 2005-2010, the gross profit (GP) margin of Zambezi Portland was 31.65% i.e. for each Kwacha of sales the company made a GP of 31.65 ngwee. The GP margin has declined in 2011 - 2015. Looking at sales and cost of sales in depth it is revealed that the major factor which resulted this decline was the fall in per unit selling prices since in the last half of 2011- 2015 period, Dangote Cement had established its distribution channels countrywide, forcing the price of cement down. As per the general economic trend, energy and fuel prices were steadily rising in both international and local markets. Also, the rising inflation was a threat to cost of production. The fall in GP margin in the 2011 – 2015 periods could have been much higher but due to the company's decision of using gas for heating the kiln it was prevented. As almost on average the energy expenses of which it comprises over 55.00% of the cost of sales, the in-time decision of replacing coal with gas helped the company to save its profit margins by going further The GP margin for Lafarge during 2011 - 2015 period was 49.81% which was a direct result of increased selling prices and sales volume attributed to the first, and second quarter of the year only when at this time, Zambezi Portland was scaling down

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operations due to the litigation it was facing. At this time, Lafarge was dominating the industry in the shadow of the Dangote cement company commissioning. However, the fuel & power expenses made up 65% of the cost of sales. In the 2005-2010 periods, the GP margin was 36.91% which can also be depicted by growth in sales volume and favorable selling prices.

Comparing the GP margin of Lafarge with ZP for the 2011 - 2015 periods, LAFARGE still had a healthy GP margin i.e. 49.81% compared with 29.35%. While studying the cost of sales of Zambezi Portland, the difference can be explained in terms of high proportion of fuel and power expenses comprising 65% of the cost of sales. Due to a better alternative solution of energy, Lafarge was able to secure a better GP margin than its industry competitor.

4.7.2 Net Profit Margins

The net profit (NP) margins of Lafarge have shown a decline over the last two years but compared with the net profit of ZP, it is still a healthy margin. During the 2011 - 2015 Period, although the company made lesser GP margin because of lower selling prices, yet the NP was not affected with the same percentage. This is because during 2011 – 2015 period the company's other operating income increased by 42.93% compared with 2005-2010 period with Barclays Bank Limited being the major contributor in dividend income i.e. K 420 million. Another factor contributing to this was the good control over its expenses by Lafarge during the 2005-2010 periods, the NP margin of Lafarge was 30.40% i.e. for each kwacha of sales the company's NP was 30.40 ngwee. While the GP margin in 2005-2010 Period was the highest of all the Periods under study it was expected that its NP margin will also differ with the same percentage. But during 2005-2010 period the company made provisions for deferred taxation of K 1,027 million, which eroded its NP margin. The reason of 121.34% high deferred tax in 2005-2010 period as compared to 2000 – 2005 period (outside scope) was the Chilanga site expansion project of the company inaugurated in the last half of 2005 -2010.

The NP margin for the 2005 - 2010 was 31.86% which is not much less than its GP margin i.e. 36.91%. This was the result of the fair value gain, included in other operating income, of K 527 million.

4.7.3 Return-on-investment ratios

	Lafarge		ZP	
	2005-2010	2011-2015	2005-2010	2011-2015
Basic earning power	13.46%	11.39%	4.26%	13.81%
Return-on-assets	9.34%	7.05%	3.14%	9.90%
ROCE	16.21%	13.82%	4.97%	18.34%
ROE	18.05%	12.55%	4.78%	27.23%

Source: Researcher's computation (2019)

4.7.4 Return-on-assets

The return-on-assets (ROA) is the ratio of net income to total assets. For ZP in 2005-2010 periods, the ROA of the company was 3.14% i.e. for every Kwacha invested in assets the company earned 3.14 ngwee. This ROA is 55.46% less than that of LAFARGE for 2005-2010 periods. The main reason was the company revalued both its long-term and short-term investments resulting cumulative revaluation surplus of K 14,986 million.

As already during 2014, the profits margins were lower because of the fall in selling prices. This revaluation of assets resulted in decreased ROA. Had the revaluation not been done the ROA would have been 4.4%.

The ROA for Lafarge for the 2011 - 2015 periods were 7.05% which was lower compared with that of 2005-2010 periods i.e. 9.34%. During 2005-2010 periods as the Chilanga plant was under rehabilitation, more investment was required in capital work-in-progress and the company was not getting any return as the plant had not become

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operating; plus, a revaluation surplus of K 8,985 million arising on investments resulted in lower ROA. Otherwise, as the earnings during the 2005-2010 periods were the highest of the two years under study, the ROA would have been higher as well. **4.7.3 Return-on-equity**

The return-on-equity (ROE) is the ratio of the net income shareholders receive to their equity in the stock. The ROE for 2011 - 2015 periods was 4.78% which is very less as compared to 12.55% of 2005-2010 periods. The main reasons are lower profits margins because of lower selling prices; increased revaluation surplus on investments plus the right issue made during the year increased the equity. Similarly, the ROE of 2011 - 2015 period was affected by the revaluation in investments and the provision for deferred taxation hence resulting 12.55% ROE for Lafarge. The ROE for 2005-2010 periods was good between all two periods stemming from higher NP margin. ZP enjoyed a very high ROE compared with LAFARGE. As in 2011 - 2015 period the ROE of ZP was 27.23% which is very high as compared to 4.78% ROE of 2005-2010 period This is because of a huge revaluation surplus of K 22,868 million standing in the equity of ZP in the year.

4.8 Activity ratios

	Lafarge		ZP	
	2005-2010	2011-2015	2005-2010	2011-2015
Inventory turnover	11 days	21 days	25 days	28 days
Debtor's turnover	5 days	3 days	8 days	14 days
Operating cycle	16 days	24 days	33 days	42 days
Total assets turnover ratio	0.29	0.23	0.12	0.49
Fixed assets turnover ratio	0.48	0.41	0.27	0.62

67

Source: Researcher's computation using excel

For Lafarge, the inventory turnover days have increased between last 2 years which is probably because of the increase in demand and the company following high level stock policies. However, the debtor's turnover days had reduced which is the opposite for ZP where it increased by 95%. This depicts lenient credit policies exercised by the Lafarge to boast its sales. Compared the operating cycle of Lafarge with ZP, we come to know that Lafarge has a healthier operating cycle and for 2011 - 2015 period its average inventory was converted into cash in 24 days. The total assets turnover ratio shows the productivity of the assets. During the 2005-2010 period, the total assets turnover ratio was 0.12 i.e. for every Kwacha invested in assets, the company generated 12 ngwee of sales. The productivity of Lafarge's assets has decreased over the years. This is because of the upward revaluation of assets and the company not getting returns from its new expansion as the plant had not been operating.

4.9 Liquidity ratios

	Lafarge		Zambezi Portland	
	2005-2010	2011-2015	2005-2010	2011-2015
Current ratio	1.37 : 1	1.65 : 1	2.60 : 1	0.85 : 1
Quick ratio	1.34 : 1	1.61 : 1	2.56 : 1	0.74 : 1

Source: Researcher's computation using excel (2019)

4.9.1 Current Ratio

The current ratio indicates the firm's ability to meet or cover its current liabilities using its current assets. The current ratio of Lafarge for the 2011 - 2015 period was 1.65:1 the company has K1.65 current assets to meet its 1 kwacha of current liabilities. The current ratio for ZP had declined from a very healthy 2.6;1 to 0.85 :1 in 2014 showing signs of difficulty in meeting current debt obligations. The current ratio of Lafarge had been continuously increasing during the two year under study. This is due to the increased fair value of short-term investments during the 2005-2010 periods and 2011 - 2015 periods. Other factors contributing to this

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increase are more stores, spares and loose tools and improved cash and bank balances. Moreover, the ideal current ratio is 2:1; Lafarge enjoys a much healthier ratio which depicts its strong position in terms of liquidity although it fell below the ideal ratio.

4.9.2 Quick Ratio

The quick ratio of Lafarge had also been on the rise since the 2005-2010 periods also the quick ratio is not much different from its corresponding current ratio which revealed that Lafarge had less investment tied up in inventory – the least liquid asset, which was a good sign. Since the ideal quick ratio is 1:1, the quick ratios of Lafarge were going far above this. Measures should be taken to optimize the investment in working capital so as to avoid any opportunity losses. The current ratio and the quick ratio of Lafarge, when compared with the ideal figures and with those of ZP, were very strong and there were very rare chances of company not meeting its obligations when they became due.

4.10 FINANCIAL LEVERAGE RATIOS

	LAFARGE			ZP
	2005-2010	2011-2015	2005-2010	2011-2015
Debt-to-equity ratio	37.67%	31.89%	24.03%	51.53%
Interest coverage ratio	7.98 times	8.67 times	4.71 times	4.12 times

Source: Researcher's computation using Excel

The interest coverage ratio tells us how the firm can cover or meet the interest payments associated with debts. The interest coverage ratio of LAGAFRGE for the 2011-2015 period was 8.67 times which meant that PBIT of LAGAFRGE during that year was 8.67 times of its interest charges.

4.10.1 Debt-to-equity Ratio

Debt-to-equity ratio, also known as gearing, tells us how the firm finances its operations with debt relative to the book value of its shareholders' equity. Debt-to-equity ratio of LAFARGE had decreased over the last 2 years which is a good sign. Although the debt has increased over that period but the equity had also improved by exception. The increased in equity was because of the exercised fair value of the investments during 2005-2010 period and 2011 - 2015 period and the right issue made during 2011 - 2015 period.

Presently the company was low geared and its risk of solvency was also very low whereas ZP was highly geared with debt-to-equity ratio of 51.53%. It showed that ZP finances its operations more from debt as compared to LAFARGE.

4.10.2 Interest Coverage Ratio

Comparing that with the financial leverage of ZP it was still a healthy ratio. ZP interest cover was reducing during that that period.

VALUATION RATIOS

	LAFARGE		ZP	
	2005-2010	2011-2015	2005-2010	2011-2015
Market value per share (K)	80.40	107.95	91.28	100.71
Dividend per share (K)	1.50	1.50	1.50	1.25
Earnings per share (K)	9.12	13.12	6.43	9.67
Price earning ratio	8.82	8.23	14.20	10.41
Dividend yield	1.87%	1.39%	1.64%	1.24%

Source: Researcher's computation using Excel

The Average market value per share of LAFARGE was highest during the period 2011 – 2015 periods. Increasing from 80.40 that were because during 2011 - 2015 periods the company made higher profits. EPS of 2005-2010 periods rose remarkably stemming from improved profitability and higher realized prices. The company has maintained its cash dividend per share of K 1.50 during all the two years even the company was carrying out its expansion project which involved huge expenditures. On the other hand, ZP declared a smaller dividend of K 1.25 per share for the 2011 - 2015 periods. The Average price earnings ratios of 2005-2010 periods and 2011 - 2015 periods have a nominal difference as the market value per share

and EPS increased by almost the same percentage for Lafarge, the dividend yield of LAFARGE had reduced during the period with the market value per share of the company. Since, growth investors are concerned with capturing capital gains; dividend yield ratio is meaningless to them. However, it is a matter of historical record that dividend-paying stocks had performed better than non-paying-dividend stocks over the long term. The dividend yield for ZP had declined over the years. That made the ZP shares unattractive to shareholders.

4.11 Porters five Forces

4.11.1 Threat of New Entrants on Performance of Cement Industry in Zambia

This was the first research question of the study and the analysis tested the hypothesis 'H01: Threat of new entrants does not have significant influence on performance of Cement industry in Zambia'. Threat of new entrants on Porter's five forces of industrial competition discussed in this research were: economies of scale determines market share of a firm; market share is determined by the time of entry or the duration that one has been operating; the cost of entry determines the profit of a firm; the economy of scale determines the profit of a firm; and the technology required for operation can prevent a firm from operation. Using a five-scale measure in all the five items, there was consensus on 'agree' among the respondents (median = 4; mode = 4).

All the items were negatively skewed indicating 'agreed' and 'strongly agreed' as the highly selected scale. The skewness and summation of 'agreed' and 'strongly agreed' were: Economies of scale determine profit at 87.9%, skewness of -1.428; Operation technology required can prevent a firm from operation at 84.4%, skewness of -1.461; Cost of entry determines the profit of a firm at 81.8%, skewness of -1.291; Economies of scale determine market share at 86.2%, skewness of -1.031; and time entry/duration of operation at 77.2%, skewness of -.627. Only time of entry/duration of operation was moderately skewed (-.627 <1). Table 4.7 presents these findings. Further to the cumulative percentage and skewness, the comparison of threat of new entrants by mean shows economies of scale determine profit had the highest M= 4.23, SD = .837; followed by operation technology required can prevent a firm from operation at M= 4.06, SD =.875; cost of entry determines the profit of a firm M=3.98, SD=.953; economies of scale determine market share M=3.98, SD=.712; and duration of operation at M=3.95, SD =.812. Though the variance of SD was not sequential as mean, the mean had similarity with skewness which supports, the respondents 'agreed' on the general perception on threat of new entrants.

Table 4.11.2 General Perception on Threat of New Entrants (%)

	SD	D	N	A	SA	Skewn	Mean	Sdvt
Economies of scale determine market share		6.1	7.6	68.2	18.2	-1.031	3.98	.712
Time entry/duration of operation		6.1	16.7	53.0	24.2	-.627	3.95	.812
Cost of entry determines the profit of a firm	3.0	6.1	9.1	53.0	28.8	-1.291	3.98	.953
Economies of scale determine profit	1.5	3.0	7.6	47.0	40.9	-1.428	4.23	.837
Operation technology required can prevent a firm from operation	3.1	1.6	10.9	53.1	31.3	-1.461	4.06	.875

Source: Researchers computation using, SPSS, 2019

SD (Strongly Disagree), D (Disagree), N (neutral), A (Agree), SA (Strongly Agree) and Sdvt (standard Deviation)

4.11.2 Threat of New Entrants Influence on Performance

In order to determine the level of influence threat of new entrances have on performance of the Cement industry in Zambia, multiple regression was conducted. With performance as independent variable and threat of entrants as dependent

variable, multiple regressions show how new entrants affects and predicts performance of Cement firms. All the five variables on threat of new entrants were tested based on relationship and projection; how each affects the dependent variables depicting the nature of the relationship, direction, and strength of independent variable on dependent variable. The output of the regression is also discussed and equation presented after the model. The model summary below shows how the threat of entrants influences and predicts performance based on the regression outputs. The predictor variable (independent variable) is threat of entrants and dependent variables as firm performance.

Table 4.11.3 model summary of new entrants' influence on Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.596[a]	.355	.345	.53988	.355	35.281	1	64	.000
a. Predictors: (Constant), Threat_of_entrants									

Source: Researchers computation, 2019

As depicted in model summary, the model fits the data which means the strength of the correlation between threat of entrants and performance is r=.596 and coefficient of determination as R-square (r2) = .355 with Sig F Change p=.0005 of 35.281. Based on the model, 35.5% of performance outcome can be explained based on threat of new entrants in the cement industry in Zambia. Therefore, the model summary explains the strength of the relationship (r=.596) and prediction of 35.3% firm performance while the remaining 64.7% of performance are caused by other variables.

Table 4.11.3 Coefficients on New Entrants Influence on Performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.083	.525		2.064	.043
	Threat_of_entrants	.765	.129	.596	5.940	.000
a. Dependent Variable: performance						

Source: Researcher's computation, 2019

In the regression coefficients model 1, the analysis shows that the threat of entrants statistically predicts value of performance (Beta = .596, t (65) = 5.940, p=.0005< .005). The beta weight gauges the importance of explanatory variable across the model and is positive on the threat of new entrants Beta of .596 and statistically significant at p<.05. This means, one unit of increase in threat of new entrants increases the unit of performance by .765 with or without the influence of another variable. The output equations are; the general form of the regression model that was used was of the form: $Y=\beta 0+\beta ixi+\varepsilon$ $\beta 0$ = Constant; βi = Threat of entrants and ε= Error term.

Hence form the coefficient table, threat of entrant significantly affects performance of Cement in Zambia with the equation Y= 1.083 + .596X + .129 This rejects the null hypothesis H01: threat of new entrance does not have significant influence on performance of Cement industry in Zambia and accepts the alternate hypothesis, H11: threat of new entrance has significant influence on performance of Cement industry in Zambia

4.11.4 Suppliers Bargaining Power on Performance of Cement Industry in Zambia

This was the second research question and tested the hypothesis 'H02: Bargaining power of a supplier did not affect performance of the Cement industry in Zambia'. The suppliers' bargaining power in Porter's model was measured on a five Likert scale using the following variables: products

are readily available from many suppliers at the different market place; there are few large suppliers in the industry who dominated the market share of Cement industry; suppliers provided items that accounted for a sizeable fraction of the industry products; there were few suppliers who made large profit in the Cement industry in Zambia; lastly, it was easy for industry members to make profit by getting substitutes products. All the variables were highly negatively skewed indicating the respondents either agreed or strongly agreed with suppliers bargaining power. Cumulative of 'agree' and 'strongly agree' are: the presence of few large suppliers who dominate market (89.4%, skewness of -1.023); few suppliers who make large profit (87.8%, skewness of -1.632); ease of profit making by members through substitute products (87.7%, skewness of -1.399); products are readily available from many suppliers (86.4%, skewness of -1.684) and suppliers provide items that account for industry products (78.5%, skewness of -1.184). Table 4.16 shows the distribution of response based on five Likert scale. 86. The mean comparison of the same variables showed that the presence of few large suppliers who dominated the market had the highest mean, M=4.30, Sdvt =.744 followed by ease of profit making by members on substitute products with mean of 4.20, Sdvt = .827. Few suppliers who made large profit followed with M=4.15, Sdvt=.864; suppliers provide items that accounted for industry products at M=4.06, Sdvt=.892 and lastly, products were readily available from many suppliers with mean of 3.98 and Sdvt of .794. The comparison of the mean and skewness had minimal order as outlined in table 4.11.4

Table 4.11.4 Suppliers Bargaining Power in (percentage)

	SD	D	N	A	SA	Skew	Mean	Sdvt
	Percentage							
Products are readily available from many suppliers	3.0	1.5	9.1	66.7	19.7	-1.684	3.98	.794
Few large suppliers who dominate market		3.0	7.6	45.5	43.9	-1.023	4.30	.744
Suppliers provide items that account for industry products	3.1		18.5	46.2	32.3	-1.184	4.06	.892
Few suppliers make large profit	3.0	1.5	7.6	53.0	34.8	-1.632	4.15	.864
Ease of profit making by members on substitute products.	1.5	3.1	7.7	49.2	38.5	-1.399	4.20	.827

Source: Researcher's computation using SPSS
SD (Strongly Disagree), D (Disagree), N (neutral), A (Agree), SA (Strongly Agree) and Sdvt (standard Deviation).

4.11.5 Influence of Suppliers Bargaining Power on Performance of Cement industry

In order to determine the level of influence that suppliers bargaining power have on performance of the Cement industry in Zambia, multiple regressions were conducted since the measure of performance was in scale ranking. With performance as independent variable and suppliers bargaining power as dependent variable, multiple regressions show how a supplier bargaining power affects and predicts performance of Cement firms. All the five variables on suppliers bargaining power were tested based on relationship and projection; how each affects the dependent variables depicting the nature of the relationship, direction, and strength of independent variable on dependent variable. The output of the regression is also discussed and the equation presented after the model. The Model summary shows how suppliers bargaining power influences and predicts performance based on the regression output. The predictor variable (independent variables) is suppliers bargaining power and dependent variables as performance.

Table 4.11.5: Model Summary on suppliers Bargaining Power on Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.348[a]	.121	.107	.63043	.121	8.810	1	64	.004
a. Predictors: (Constant), Power_of_supplier									

Source: Researchers computation using SPSS

The model fits the data as depicted in model summary, which means the strength of the correlation between the power of supplier and performance is r=.348 and coefficient of determination as R-square (r2) = .121 with Sig F Change p=.004 of 8.810. Based on the model, only 12.1% of performance of Cement firms can be explained based on power of supplier in the Cement industry in Zambia. Therefore, the model summary explains the strength of the relationship (r=.348) and prediction of 12.1% of firm performance based on power of supplier. The other 87.9% of performance are attributed to other factors other than bargaining power of suppliers.

Table 4.11.6: ANOVA on Suppliers Bargaining Power on Performance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.502	1	3.502	8.810	.004[b]
	Residual	25.436	64	.397		
	Total	28.938	65			
a. Dependent Variable: performance						
b. Predictors: (Constant), Power_of_supplier						

Source: Researcher's Computation Using SPSS

The ANOVA shows whether or not the regression model explains a statistically significant proportion of variance. From the ANOVA table, it shows the regression model is better in predicting the outcome variable than the mean outcome (p= .004< p=.05). From model 1, (F=8.810, df=1, 64 p= .004 <.05). Further, the residual outcome of mean square is smaller than the regression. This shows the regression model constructed is better in predicting the outcome variable on how power of supplier affect performance than predicting the outcome using mean equation.

Table 4.11.6: Coefficients on Suppliers Bargaining Power on Performance

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.359	0.617		3.821	0
	Power_of_supplier	0.439	0.148	0.348	2.968	0.004
a. Dependent Variable: performance						

Source: Researcher's computation using SPSS

In the regression coefficients model 1, the analysis shows suppliers power statistically predicted value of performance (Beta = .348, t (65) = 2.968, p=.004< .005). The beta weight gauged the importance of explanatory variable across the model and is positive on the power of supplier, Beta of .348 and statistically significant at p<.05. This means, one unit of increase in power of supplier increased the unit of performance by .439 with or without the influence of another variable.

Table 4.11.7: Excluded Variables on Suppliers Bargaining Power on Performance

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics
1	Length of operation	-.033[b]	-.280	.781	-.035	.999
a. Dependent Variable: performance						
b. Predictors in the Model: (Constant), Power_of_supplier						

Source: Researcher's Computation Using SPSS

Further the model summary of the adjusted r2 predicted the exclusion of the variable from the equation as shown in the excluded variable table that followed. Further to the high significance level (p=.781 >.05), the level of tolerance of collinearity was high depicting high chances of multicollinearity. However, the person correlation did not depict the multicollinearity hence needed for further research on that. The general form of the

regression model used was: Y=β0+βixi+εβ0 = Constant; βi = suppliers bargaining power and ε= Error term. Thus, from the coefficient table, suppliers bargaining power significantly affect performance of Cement in Zambia with the equation= 2.359+ .348X + .148Thus rejected the null hypothesis H02: Bargaining power of supplier did not affect performance of Cement industry in Zambia and accepted the alternate hypothesis, H12: Bargaining power of supplier affected performance of the Cement industry in Zambia.

4.11.8 Threat of Substitution on Performance of Cement Industry in Zambia

The third research question was to evaluate the influence of substitute products on performance of the Cement industry in Zambia and the hypothesis of study was 'H03: Substitute products do not have significant influence on performance of Cement industry in Zambia'. Key questions presenting the variables on threat of substitute products were; substitute products are readily availability in the Cement industry hence reducing profits, substitute products keep changing hence determine market share, substitute products are attractively priced and therefore increase competition which affects profit, substitute products cost affects the profit of industry players in the market and lastly, industries can switch purchases to substitute products. In determining the influence of substitute products on performance, this research question cover the general frequency of the five variables outlining threat of substitute products on the type of business, the ownership, duration of being in the industry and model fitting outlining the influence. Being correlation and projection presentations and discussions, most of the items are in tables. Ranking of the response based on mean response of the Likert scale shows high ranking of more than 4 stipulating 'agreed'. The items were substitute products are attractively priced hence increase competition (M=4.14) similar to cost of substitute products changed affects profit (M=4.14). Others were changing of substitute products determine the market share (M=4.05); industries can switch purchase to substitute products (M=4.02); and availability of substitute products reduce profit (M=3.74). The degree of standard deviation varied from one variable to another from .634 to 1.1 as indicated in table 5.8. Generally, 'strongly agreed' and 'agreed' were the most selected rage (mode and median = 4) in each variable based on the five Likert scale. Also, all the variables were negatively skewed. The summation of 'agree' and 'strongly agree' together with skewness of the findings in a descending order are: cost of substitute products affect profit of industry player in the market (89.2%, skewness of -.531), price of substitute products are attractive hence increase competition which affect profit (84.8%, skewness of -1.523), substitute products keep changing hence determine market share (83.3%, skewness of -1.14), industry can switch to purchase substitute products/services (78.13%, skewness of -0.531) and the least cumulative, substitute products are readily available hence reducing profit (74.2%, skewness of -1.195).The first two items with higher summation relate to the price/cost of the substitute product followed by the sustainability of the substitute products and lastly the availability of the substitute products. This shows price and cost of the substitute products as key item in product substitution. The findings are in table 4.11.8 that follows.

Table 4.11.8: Frequency of Substitute Products

	SD	D	N	A	SA	Skew	Mean	Sdvt
Availability of substitute products hence reduce profit	7.6	6.1	12.1	53.0	21.2	-1.195	3.74	1.100
Changing of substitute products hence determine market share.	1.5	3.0	12.1	56.1	27.3	-1.14	4.05	.812
Substitute products are attractively priced; increase competition.	3.0	4.5	7.6	45.5	39.4	-1.523	4.14	.959
Cost of substitute products changes affecting profit.		1.5	9.2	63.1	26.2	-0.531	4.14	.634
Industries can switch purchase to substitute products	3.1	4.7	14.1	43.8	34.4	-1.146	4.02	.984

Source: Researcher's Computation Using SPSS

SD (Strongly Disagree), D (Disagree), N (neutral), A (Agree), SA (Strongly Agree) and Sdvt (standard Deviation)

Table 4.11.9: Model Summary on Substitution Influence of Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.301[a]	.090	.076	.64133	.090	6.355	1	64	.014
a. Predictors: (Constant), Power_of_substitution									

Source: Researcher's Computation Using SPSS

As depicted in the model summary, the model fits the data which means the strength of the correlation between threat of substitution and performance is r=.301 and coefficient of determination as r2 = .090 with Sig F Change p=.014 of 6.355. Based on the model, only 9% of performance of Cement firms can be explained based on threat of substitution in the Cement industry in Zambia. Therefore, the model summary explains the strength of the relationship (r=.301) and prediction of 9%% firm performance based on threat of substitution. The remaining 91% factors that affect performance are caused by other variables.

Table 4.11.10: ANOVA on Substitution Influence of Performance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.614	1	2.614	6.355	.014[b]
	Residual	26.324	64	.411		
	Total	28.938	65			
a. Dependent Variable: performance						
b. Predictors: (Constant), Power_of_substitution						

Source: Researcher's Computation Using SPSS

The ANOVA table shows whether or not the regression model explains a statistically significant proportion of variance. From the above table, it shows the regression model is better in predicting the outcome variable than the mean outcome (p= .014< p=.05). From model 1, (F=6.355, df=1,64 p= .014 <.05). Further, the residual outcome of mean square is smaller than the regression. This shows the regression model constructed is better in predicting the outcome variable on how threat of substitution affect performance than predicting the outcome using mean equation.

Table 4.11.11: Coefficient on Substitution Influence of Performance

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.958	.490		6.036	.000		
	Power_of_substitution	.303	.120	.301	2.521	.014	1.000	1.000
a. Dependent Variable: performance								

Source: Researcher's Computation Using SPSS

In the regression coefficients model 1, the analysis shows that the threat of substitution statistically predicts value of performance (Beta = .301, t (65) = 2.521, p=.014< .005). The beta weight gauges the importance of explanatory variable across the model and is positive on the threat of substitution, Beta of .301and statistically significant at p<.05. This means, one unit of increase in threat of substitution increases the unit of performance by .303 with or without the influence of another variable.

Table 4.11.12: Excluded Variables on Substitution Influence of Performance

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	Length of operation	-.051[b]	-.427	.671	-.054	.992	1.008	.992
a. Dependent Variable: performance								
b. Predictors in the Model: (Constant), Power_of_substitution								

Source: Researcher's Computation Using SPSS

Further the model summary of the adjusted r2 predicts the exclusion of duration of operation from the equation as shows in the excluded variable table that follows. Further to the high significance level (p=.671 >.05), the level of tolerance of collinearity is high depicting high chances of multicollinearity. However, the lower strength of the person correlation depicts lower chances of multicollinearity. The equation for the model is presented as: The general form of the regression model used was: $Y=\beta 0+\beta ixi+\varepsilon$

$\beta 0$ = Constant; βi = Threat of Substitution and ε= Error term. Hence form the coefficient table, threat of substitution significantly affects performance of Cement industry in Zambia with the equation Y= 2.958+ 0.301X + .120 Hence the null hypothesis is rejected H03: Substitute products do not have significant influence on performance of the Cement industry in Zambia and accepts the alternate hypothesis, H13: Substitute products have significant influence on performance of the Cement industry in Zambia.

4.11.13 Bargaining Power of Buyers on Performance of Cement Industry in Zambia

The fourth research question was to evaluate the influence of bargaining power of buyers on performance of Cement industry in Zambia. The hypothesis of study was 'H04: bargaining power of buyers does not have significant influence on performance of Cement industry in Zambia'. Key questions were; buyers determine the quality of products sold in the market hence affecting market share, buyers are well informed about sellers' products, prices and costs hence prefers certain products to others, buyer's discretion when purchasing the products affects the marker share, the quality of products sold in the market determine the profit margin of the firm and the knowledge level of the buyers determine the profit margin of the firm.

The findings will be presented in tables of correlation and projection presentations and discussions.

Generally, 'strongly agreed' and 'agreed' were the most selected rage of each variable based on the five Likert scale. Also, all the variables were negatively skewed with mean of >.395. The summation of 'agree' and 'strongly agree' together with skewness of the findings in descending order based on mean are: the quality of products sold in the market determine the profit margin of the firm (M=4.26, 89.4%, skewness of -1.367); the knowledge level of the buyers determine the profit margin of the firm (M= 4.23, 89.4%, skewness of -1.367); buyers determine the quality of products sold in the market hence affecting market share (M= 4.15, 89.4%, skewness of -1.389); buyers discretion when purchasing the products affects the marker share (M=3.98, 78.8%, skewness of -1.013); and buyers are well informed about sellers' products prices and costs and thus prefers certain products to others (M=3.95, 78.8%, skewness of -1.391). Based on the mean comparison, the first two items relate with quality of products and the knowledge level of the buyers which determines the profit margin of the firm. The other three items are based on the buyers' decision making that controls the market share and price. This shows key variables on buyers' power is based on profit margin of the firm. The findings are in table 4.11.14 that follows.

Table 4.11.14: Buyers Bargaining Power Perception.

	SD	D	N	A	SA	Mean	Sdvt	Skewn
Buyers quantity of products	1.5	1.5	7.6	59.1	30.3	4.15	0.749	-1.389
Informed buyers	6.1	1.5	13.6	48.5	30.3	3.95	1.029	-1.391
Buyers discretion	1.5	7.6	12.1	48.5	30.3	3.98	0.936	-1.013
Quantity of product sold	1.5		9.1	50.0	39.4	4.26	0.751	-1.367
Buyers knowledge level	3.0	1.5	10.6	39.4	45.5	4.23	0.925	-1.558

Source: Researcher's computation using SPSS

SD (Strongly Disagree), D (Disagree), N (neutral), A (Agree), SA (Strongly Agree) and Sdvt (standard Deviation)

4.11.15 Bargaining Power of Buyers Influence on Performance

In order to determine the level of influence bargaining power of buyers have on performance of the Cement industry in Zambia, multiple regression was used to test the hypothesis. The variables measure of performance was in scale ranking. The independent variable was performance and the bargaining power of buyers was the dependent variable, multiple regressions show how bargaining power of buyers affects and predicts performance of Cement firms. All the variables on bargaining power of buyers were tested based on relationship and projection; how each affects the dependent variables depicting the nature of the relationship, direction, and strength of independent variable on dependent variable. The output of the regression is also discussed and equation presented after the model. The model summary below shows how the bargaining power of buyers influences and predicts performance based on the regression output. The predictor variable (independent variable) as bargaining power of buyers, dependent variables as performance.

Table 4.11.15: Model Summary on Bargaining Power of Buyers on Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.375[a]	.140	.127	.62345	.140	10.448	1	64	.002
a. Predictors: (Constant), Power_of_buyer									

Source: Researcher's computation using SPSS

As depicted in the model summary, the model (model 1) fits the data which means the strength of the correlation between bargaining power of buyers and performance is r=.375 and coefficient of determination as R-square (r2) = .140 with Sig F Change p=.002 of 10.448. Based on the model, only 14% of performance of Cement firms can be explained based on bargaining power of buyers in the Cement industry in Zambia. Therefore, the model summary explains the strength of the relationship (r=.375) and prediction of 14.0% of firm performance based on bargaining power of buyers. The remaining 86% of performance is attributed to other factors.

Table 4.11.16: ANOVA on Bargaining Power of Buyers on Performance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4.061	1	4.061	10.448	.002[b]
	Residual	24.876	64	.389		
	Total	28.938	65			
a. Dependent Variable: performance						
b. Predictors: (Constant), Power_of_buyer						

Source: Researcher's Computation Using SPSS

The ANOVA shows whether or not the regression model explains a statistically significant proportion of variance. From the ANOVA table, the regression model is better in predicting the outcome variable than the mean outcome (p= .002< p=.05). From model 1, (F=10.448, df=1. 64 p= .002 <.05). Further, the residual outcome of mean square is smaller than the regression. This shows the regression model constructed is better in predicting the outcome variable on how bargaining power of buyers affect performance than predicting the outcome using mean equation.

Table 4.11.17: Coefficients on Bargaining Power of Buyers Influence on Performance

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.434	.545		4.470	.000		
	Power_of_buyer	.423	.131	.375	3.232	.002	1.000	1.000
a. Dependent Variable: performance								

Source: Researcher's computation using SPSS

In the regression coefficients model 1, the analysis shows bargaining power of buyers statistically

predict the value of performance (Beta = .375, t (65) = 3.232, p=.002 < .05). The beta weight gauges the importance of explanatory variable across the model and is positive on the bargaining power of buyers, Beta of .375 and statistically significant at p<.05.

This means, one unit of increase in bargaining power of buyers increases the unit of performance by 0.423 with or without the influence of another variable.

Table 4.11.18: Excluded Variables

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	Length of operation	-.013[b]	-.114	.910	-.014	.999	1.001	.999
a. Dependent Variable: performance								
b. Predictors in the Model: (Constant), Power_of_buyer								

Source: Researcher's Computation Using SPSS

Further the model summary of the adjusted r2 predicts the exclusion of the duration of operation variable from the equation as shows in the excluded variable table that follows. Further to the high significance level (p=.910>.05), the level of tolerance of collinearity is high depicting high chances of multicollinearity. However, the lower strength of the person correlation depicts lower chances of multicollinearity. The general form of the regression model used was: Y=β0+βixi+εβ0 = Constant; βi = Buyers Bargaining Power and ε= Error term. Hence from the coefficient table, buyers bargaining power significantly affect performance of Cement industry in Zambia with the equation= 2.434 + 0.375X + .131This rejects the null hypothesis H04: Bargaining power of buyers does not affect performance of Cement industry in Zambia and accepts the alternate hypothesis, H14: Bargaining power of buyers affects performance of Cement industry in Zambia.

4.11.19 Competitive Rivalry on Performance of Cement Industry in Zambia

The last research question was to evaluate the influence of competitive rivalry on performance of the Cement industry in Zambia and tests the hypothesis 'H05: Rivalry between firms does not have significant effects on performance of Cement industry in Zambia'. Key factors were: many competitors in the market affects market share negatively; industrial competitors are involved in quality which determines product differentiation in the market and hence a positive effect on profit; there are a number of customers who only buy from a specific firm therefore increases the firms' profit; the number of competitors in the market affects the profit margin of firms; and quality of products determine the profit margin of firms. Regression analysis outlining the influence of competitive rivalry on performance of the Cement Industry in Zambia is also presented with a clear conclusion on the hypothesis. The findings are presented in tables being correlation and projection presentations and discussions. Generally, cumulative of 'strongly agreed' and 'agreed' were the highest responses based on the five Likert scale. This was also supported by the negatively skewed mean of>.4.0 and skewness of > -.80. The presentation of the variables in descending order based on the mean, summation of 'agree' and 'strongly agree' and skewedness of the findings: quality of products determine the profit margin of firms (M=4.29, 93.9%, skewness of -1.763); there are a number of customers who only buy from a specific firm therefore increases the firm profit (M=4.24, 87.9%, skewness of -.889); the number of competitors in the market affects the profit margin of firms (M=4.17, 86.4%, skewness of -1.256); many competitors in the market affects market share negatively (M=4.05, 86.4%, skewness of -1.639); and industrial competitors are involved in quality which determines product differentiation in the market and hence a positive effect on profit (M=4.02, 83.3%, skewness of -.846).Unlike the other five forces of competition, competitive rivalry had a mean of >4.0 in all the variables and cumulative percentage of >85%. This shows

competitive rivalry is highly skewed on all the variables. The findings are in table 4.11.19

Table 4.11.19: Competitive Rivalry Perception.

	SD	D	N	A	SA	Mean	Sdvt	Skewn
Many competitors	4.5	3.0	6.1	56.1	30.3	4.05	.952	-1.639
Involvement of industry competitors	6.1	6.1	10.6	59.1	24.2	4.02	.774	-.846
Specific customers		3.0	9.1	48.5	39.4	4.24	.745	-.889
No. of competitors in the market	1.5	1.5	10.6	51.5	34.8	4.17	.796	-1.256
Quality of products	1.5	3.0	1.5	53.0	40.9	4.29	.780	-1.763

Source: Researcher's computation using Excel

SD (Strongly Disagree), D (Disagree), N (neutral), A (Agree), SA (Strongly Agree) and Sdvt (standard Deviation)

Variable on dependent variable. The output of the regression is also discussed and equation presented after the model. The model summary shows how competitive rivalry influences and predicts performance based on the regression output. The predictor variable (independent variable) as competitive rivalry, and dependent variable as performance.

Table 4.11.20: Model Summary on Competitive Rivalry on Performance.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.414[a]	.171	.158	.61210	.171	13.237	1	64	.001
a. Predictors: (Constant), competitive_rivalry									

Source: Researcher's Computation Using SPSS

As depicted in the model summary, the model fits the data, which means the strength of the correlation between competitive rivalry and performance is r=.414 and coefficient of determination as r2 = .171 with Sig F Change p=.001 of 13.237. Based on the model, 17.1% of performance of Cement firms can be explained based on competitive rivalry in the Cement industry in Zambia. Therefore, the model summary explains the strength of the relationship (r=.414) and prediction of firm performance 17.1% based on competitive rivalry while the remaining 82.9% of performance are caused by other variables.

Table 4.11.21: ANOVA on Competitive Rivalry on Performance.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4.959	1	4.959	13.237	.001[b]
	Residual	23.978	64	.375		
	Total	28.938	65			
a. Dependent Variable: performance						
b. Predictors: (Constant), competitive_rivalry						

Source: Researcher's computation using SPSS

The ANOVA shows whether or not the regression model explains a statistically significant proportion of variance. From the above table, it shows that the regression model is better in predicting the outcome variable than the mean outcome (p= .0005 < p=.005). Model 1 shows, (F=13.237, df=1, 64 p= .001 <.05). Further, the residual outcome of mean square is smaller than the regression. These results show the regression model constructed is better in predicting the outcome variable on how competitive rivalry affect performance than predicting the outcome using mean equation.

Table 4.11.22: Coefficients on Competitive Rivalry on Performance.

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.754	.670		2.618	.011		
	competitive_rivalry	.584	.160	.414	3.638	.001	1.000	1.000
a. Dependent Variable: performance								

Source: Researcher's computation using SPSS

In the regression coefficients model 1, the analysis shows competitive rivalry statistically predict the value of performance (Beta = .414, t (65) = 3.638, p=.001 < .05). The beta weight gauges the importance of explanatory variable across the model and is positive on the competitive rivalry, Beta of .414 for model 1 and statistically significant

at p<.05. This means, one unit of increase in competitive rivalry increases the unit of performance by .584 without the influence of another variable.

Table 4.11.23: Excluded Variable on Competitive Rivalry on Performance.

Model		Beta In	T	Sig.	Partial Correlation	Collinearity Statistics		
						Tolerance	VIF	Minimum Tolerance
1	Length of operation	.087[b]	.739	.463	.093	.935	1.069	.935
a. Dependent Variable: performance								
b. Predictors in the Model: (Constant), competitive_rivalry								

Source: Researcher's computation using SPSS

Model Beta In, T, Sig. Partial Correlation Collinearity Statistics Tolerance VIF Minimum Tolerance 1 Length of operation .087b .739 .463 .093 .935 1.069 .935 a. Dependent Variable: performance b. Predictors in the Model: (Constant), competitive rivalry. Further the model summary of the adjusted r2 predicts the exclusion of the duration of operation variable from the equation as shows in the excluded variable table that follows.

Further to the high significance level (p=.463>.05), the level of tolerance of collinearity is high depicting high chances of multicollinearity. However, the lower strength of the person correlation depicts lower chances of multicollinearity. The general form of the regression model used was: $Y=\beta 0+\beta ixi+\varepsilon\beta 0$ = Constant; βi = Competitive Rivalry and ε= Error term. Hence from the coefficient table, competitive rivalry significantly affects performance of Cement industry in Zambia with the equation Y= 1.754+ 0.414X +.160

This rejects the null hypothesis H05: Rivalry between firms does not have significant effects on performance of Cement industry in Zambia and accepts the alternate hypothesis, H15: Rivalry between firms have significant effects on performance of the Cement industry in Zambia.

4.11.24 Influence of Five forces on Performance of Cement Industry in Zambia

In order to determine the level of influence all the five forces had on performance of the Cement industry in Zambia, multiple regression was conducted using the step method for independent effect of each variable. With performance as the dependent variable and the threat of entrants, power of suppliers, substitute products, power of buyers, and rivalry between firms as the independent variable, multiple regressions show how the five forces affects and predicts performance of Cement firms; the nature of the relationship, direction, and strength of independent variable on dependent variable. The output of the regression is also discussed and equation presented after the model. As to the below model summary, only model 1 is significant based on Sig. F Change of p=.0005. All other models had Sig. F Change of >.05. The model presentation reveals threat of entrants' (model 1) relationship with performance is r=.596 and the r2 = 35.5%. This means, 35.5% of performance can be explained by threat of entrants and the remaining 64.5% by other factors.

Table 4.11.25: Model Summary on Influence of Five Forces on Performance.

Model Summary[g]									
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.596[a]	.355	.345	.53988	.355	35.281	1	64	.000
2	.598[b]	.357	.337	.54330	.002	.197	1	63	.659
3	.598[c]	.358	.326	.54761	.000	.013	1	62	.910
4	.607[d]	.368	.327	.54752	.011	1.019	1	61	.317
5	.608[e]	.369	.317	.55148	.001	.128	1	60	.722
a. Predictors: (Constant), Threat_of_entrants									
b. Predictors: (Constant), Threat_of_entrants, Power_of_supplier									
c. Predictors: (Constant), Threat_of_entrants, Power_of_supplier, Power_of_substitution									
d. Predictors: (Constant), Threat_of_entrants, Power_of_supplier, Power_of_substitution, Power_of_buyer									
e. Predictors: (Constant), Threat_of_entrants, Power_of_supplier, Power_of_substitution, Power_of_buyer, competitive_rivalry									
g. Dependent Variable: performance									

Based on the ANOVA table, all the five forces regression model are better in predicting the outcome variable than the mean outcome (p= < .05). From model 1 to model 5, the regression model constructed is better in predicting the outcome variable than the mean outcome as the sum residual of each model is small.

Source: Researcher's computation using excel

Table 4.11.26: ANOVA on Influence of Five Forces on Performance.

Based on the coefficient table that follows, the only threat of entrant is statistically significant in all the levels of model; from model 1 a model 5. As more variables are added on the equation, the Unstandardized Coefficients (B) reduces in number, and the error term increased which reduced significance of the equation. This calls for more research on the level of influence between the Porter's five forces variables and form one variable to another.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	10.283	1	10.283	35.281	.000[b]
	Residual	18.654	64	.291		
	Total	28.938	65			
2	Regression	10.342	2	5.171	17.517	.000[c]
	Residual	18.596	63	.295		
	Total	28.938	65			
3	Regression	10.345	3	3.448	11.500	.000[d]
	Residual	18.592	62	.300		
	Total	28.938	65			
4	Regression	10.651	4	2.663	8.882	.000[e]
	Residual	18.287	61	.300		
	Total	28.938	65			
5	Regression	10.690	5	2.138	7.030	.000[f]
	Residual	18.248	60	.304		
	Total	28.938	65			
a. Dependent Variable: performance						
b. Predictors: (Constant), Threat_of_entrants						
c. Predictors: (Constant), Threat_of_entrants, Power_of_supplier						
d. Predictors: (Constant), Threat_of_entrants, Power_of_supplier, Power_of_substitution						
e. Predictors: (Constant), Threat_of_entrants, Power_of_supplier, Power_of_substitution, Power_of_buyer						
f. Predictors: (Constant), Threat_of_entrants, Power_of_supplier, Power_of_substitution, Power_of_buyer, competitive_rivalry						

Source: Researcher's computation using excel

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Table 4.11.27: Coefficients on Influence of Five Forces on Performance.

Dependent Variable: performance with the general form of the regression model used being Y=β0+βixi++βiixii+βiiixiii+βivxiv+βvxv+εβ0 = Constant; βi *to* βv = five Porter variables and ε= Error term. From the dependent equation, there are positive prediction equations. However, the combined equation shows that the effect is not statistically significant hence the need for more step research on the variables.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.083	.525		2.064	.043
	Threat_of_entrants	.765	.129	.596	5.940	.000
2	(Constant)	1.194	.584		2.043	.045
	Threat_of_entrants	.813	.169	.634	4.814	.000
	Power_of_supplier	-.074	.166	-.058	-.444	.659
3	(Constant)	1.191	.590		2.021	.048
	Threat_of_entrants	.810	.172	.631	4.710	.000
	Power_of_supplier	-.086	.200	-.068	-.430	.669
	Power_of_substitution	.016	.145	.016	.114	.910
4	(Constant)	1.045	.607		1.722	.090
	Threat_of_entrants	.777	.175	.605	4.432	.000
	Power_of_supplier	-.119	.203	-.094	-.587	.559
	Power_of_substitution	-.044	.156	-.044	-.281	.780
	Power_of_buyer	.161	.159	.142	1.010	.317
5	(Constant)	.957	.660		1.449	.152
	Threat_of_entrants	.749	.193	.583	3.869	.000
	Power_of_supplier	-.136	.210	-.108	-.648	.519
	Power_of_substitution	-.052	.159	-.051	-.325	.746
	Power_of_buyer	.159	.160	.140	.989	.327
	competitive_rivalry	.075	.211	.053	.357	.722
a. Dependent Variable: performance						

Source: Researcher's Computation Using Excel

CHAPTER FIVE

CONCLUSION AND RECOMENDATIONS

5.1 Introduction

This chapter covered the findings of the influence of Porter's five forces on the performance of the Cement Industry in Zambia in four key sections and the recommendation for improvement and further studies. Presentations are arranged thematically based on the research objective and key findings from both descriptive and inferential statistics.

5.2 Summary of the Study

The general objective of this study was to examine the extent of Porter's five forces effect on the performance of the Cement industry in Zambia. The specific objectives were: To determine the level of influence threat of new entrants have on performance of Cement industry in Zambia; assess the effect of rivalry between firms on performance of Cement industry in Zambia, establish the extent of buyers bargaining power on performance of Cement industry in Zambia; establish the extent of bargaining power suppliers have on performance of the Cement industry in Zambia; and to evaluate the influence of substitute products on performance of Cement industry in Zambia. Using census method, data was collected using questionnaire as the main tool. The target population of the study was all middle and top managers of all Cement industries operating in Zambia. A total of 66 questionnaires were given to the middle and top management of all the 3 Cement firms operating in Zambia. All 66 questionnaires were filled and returned representing 100 % response rate. Collected data was cleaned, coded, keyed in to SPSS and analysed thematically using descriptive and inferential statistics.

On the first research question, threat of new entrants' variables had significant relationship with economies of scale which determine the market share (p=.0005, X2 = 53.108, df (15)), cost of entry determines the profit of a firm (p=.0005, X2= 57.613, df (20)) and the strongest significant with economies of scale determines the profit of the firm (p=.0005, X2= 75.341, df (15)). Cement branches also had significant relationship with: cost of entry determines the profit of a firm at p=.022, X2=11.450, df of (4) and economies of scale determines the profit of a firm at p=.022, X2=11.450, df of (4). Ownership and duration of operation had no significant effect on threat of entrants. Based on regression model, 35.5% of performance can be explained by threat of new entrants and the model (F=35.281, df=1, p<.05 at .0005) fits in predicting the outcome variable at Unstandardized Coefficients (B); constant is 1.083 at t (2.064), p=.043 < .05, while the threat of entrants (B) is .765, at t (5.940), p=.0005 < .05. The study rejects the null hypothesis H01: threat of new entrance does not have significant influence on performance of Cement industry in Zambia. The second research question was whether suppliers bargaining power had a positive relationship with all the type of business that a Cement firm operates. This included: presence of few large suppliers who dominate the Cement market industry in Zambia, p=.006, X2 = 32.432, df (15); suppliers provide items that accounts for sizeable fraction of the industry products, p=.0005, X2 = 88.607, df (15); few suppliers make large profit in the Cement industry, p=.0005, X2 = 84.150, df (20); and the easy for industry members to make profit by getting substitutes products, p=.048, X2 = 31.557, df (20).On the regression model, 12.1% of performance can be explained on suppliers' bargaining power, and the model is better in predicting the outcome variable (F=8.810, df=1, p<.05 at .004). The Unstandardized Coefficients (B); constant is 2.359 at t (3.821), p=.0005 < .05, while the suppliers bargaining power (B) is .439, at t (2.968), p=.004 < .05. Hence the result rejects the null hypothesis H02: Bargaining power of supplier does not affect performance of Cement industry in Zambia.

On the third research question that addresses the substitute products, there was a relationship with the ability of substitute products to keep changing hence determine market share (p=.006, X2 = 32.432, df (15); ability of industries to switch purchase to substitute products/services (P=.045, X2 = 31.557, df (20); and substitute products are also attractively priced (p=.0005, X2 = 88.607, df (15) were significant. This shows when the prices of substitute products are attractively priced; it increases competition of the main products and affects profit. On regression, only 9.0% of performance can be explained based on threat of substitution. The model fits the prediction of the outcome variable (F=6.355, df=1, p<.05 at .014) and the Unstandardized Coefficients (B) constant is 2.958 at t (6.036), p=.0005 < .05, while the threat of substitution (B) is .303, at t (2.521), p=.014 < .05. The project rejects the null hypothesis H03: Substitute products do not have a significant influence on performance of Cement industry in Zambia.

The fourth research question was on the bargaining power of buyers. The study revealed that quality of products sold in the market determine the profit margin of the firm (M=4.26); the knowledge level of the buyers determines the profit margin of the firm (M= 4.23); buyers determine the quality of products sold in the market (M= 4.15); buyers discretion when purchasing the products affects the marker share (M=3.98); and buyers are well informed about sellers' products prices and (M=3.95). Type of business had minimal relationship with bargaining power of buyers while ownership statistically determine the quality of products sold in the market hence affecting market share (p=.038, X2 = 22.001, df (12)). On regression, only 14.0% of performance can be explained based on the bargaining power of buyers. The model fits the prediction of the outcome variable (F=10.448, df=1, p<.05 at .002) and the Unstandardized Coefficients (B) constant is 2.434 at t (4.470), p=.0005 < .05, while the threat of substitution (B) is .423, at t (3.232), p=.002 < .05. The project rejects the null hypothesis H04: Bargaining power of buyers does not affect performance of Cement industry in Zambia. Lastly, was the competitive rivalry: On the regression model, only 17.1% of performance can be explained based on the competitive rivalry? The model is better in predicting the outcome variable (F=13.237, df=1, p<.05 at .001) and the unstandardized coefficients (B) constant is 1.754 at t (2.618), p=.011 < .05, while the competitive rivalry (B) is .584, at t (3.638), p=.001 < .05. Hence the study rejects the null hypothesis H05: Rivalry between firms does not have significant effects on performance of Cement industry in Zambia.

5.3 Conclusions

Generally, factors relating to threat of new entrants affect Cement performance in Zambia. These factors are: economies of scale determine profit, operation technology required can prevent a firm from operation, cost of entry determines the profit of a firm, economies of scale determine market share, and duration of operation affects firm performance. The study found out a positive relationship between type of business; Limestone Mining, Cement processing, Cement distribution, Cement waste management, and Cement import with: economies of scale determines the market share, cost of entry determines the profit of a firm, operation technology required can prevent a firm from operation, and economies of scale determines the profit of the firm. This led to the conclusion that new entrant affects performance of Cement industries regardless of the type of business that they are involved in. Similarly, the study concludes, Economies of scale determines the cost of entry, the profit of a firm and the type of business to be involved in. Also, ownership and duration of operation has no significant effect on any of the factors relating to threat of entrants. Finally, the study concludes threat of new entrance have

significant influence on performance of Cement industry in Zambia.

The study found, all the factors relating to suppliers bargaining power influences performance of Cement industry. These factors are: Cement firms have presence of few large suppliers who dominate the market, industry members easily make profit on substitute products, there are few suppliers who make large profit, suppliers provide items that account for industry products and products are readily available from many suppliers. Further, these factors affect performance of all types of business positively hence concludes, suppliers bargaining power affects all types of business in the Cement related industry; Lime mining, waste management, Cement processing and transportation. There are few suppliers who make large profit, suppliers provide items that account for industry products and products are readily available from many suppliers. On the duration of operation, the study concludes that the number of years that a firm has been operating or the size of the market share does not affect suppliers' bargaining power hence duration of operation has no effect on performance of Cement industry in Zambia as shown by the ratio analysis of Lafarge Cement. From the regression model results, the research concludes that the bargaining power of supplier affects performance of Cement industry in Zambia and can predict an increase of performance by .439 on every increase of substitute product.

The study found out that the factors that affect Cement performance under the threat of substitution are: substitute products are attractively priced hence increase competition, cost of substitute products changes affects profit of a firm, changing of substitute products determine market share, industries can switch purchase to substitute products, and availability of substitute products reduce profit of a Cement firm. The ability of substitute products to keep changing hence determine market share, ability of industries to switch purchase to substitute products/services, and substitute products are also attractively priced. Also, the findings showed the price of substitute products are attractively a price which increases competition of the main products and affects profit of Limestone Mining, Cement processing, Cement distribution, Cement waste management, and Cement import firms. Lastly, performance and threat of substitution have positive linear relationship which concludes, threat of substitution has significant influence on performance of Cement industry in Zambia; an increase in threat of substitute increases performance by 0.303.

As to the study findings, factors on bargaining power of buyers that affect performance are quality of products sold in the market determine the profit margin of the firm, the knowledge level of the buyers determine the profit margin of the firm, buyers determine the quality of products sold in the market, buyers' discretion when purchasing the products affects the marker share and buyers are well informed about sellers' products prices. Lastly, the study found out that performance and buyers' bargaining power have a positive linear relationship which concludes that buyers bargaining power affects performance of Cement industry in Zambia by 0.423 at every increase.

On competitive rivalry, factors that affect performance of the Cement industry in Zambia are quality of products determine the profit margin of firms, the number of competitors in the market affects the profit margin of firms, many competitors in the market affects market share negatively, and industrial competitors are involved in quality which determines product differentiation in the market and hence a positive effect on profit. On duration of operation, the study concludes it negatively affect quality of products which determine the profit margin of firms; the longer a firm operates in Zambia, the higher the chances of reduction in quality. Lastly, the study found that performance and rivalry between firms have a positive linear relationship which concludes that rivalry between firms has a significant effect on performance of

Cement industry in Zambia; an increase of 0.584 for every increase in rivalry between firms.

5.4 Recommendations

With the positive relationship between the type of business with: economies of scale determine the market share, cost of entry determines the profit of a firm, operation technology required can prevent a firm from operation, and economies of scale determines the profit of the firm. This research recommends investors and Cement firms operating in Zambia to increase their investment in scale of production and technology.

Regardless of the type of business that a Cement firm is involved in, there is presence of few large suppliers who dominate the market, industry members easily make profit on substitute products, there are few suppliers who make large profit, suppliers provide items that account for industry products and products are readily available from many suppliers. This research recommends that the government should effectively develop Cement investment policy and implement it as to guard against monopoly of Cement industry by few suppliers.

Based on the results, when substitute products are attractively priced, it increases competition of the main products and affects profit of Limestone Mining, Cement processing, Cement distribution, Cement waste management, and Cement import firms. This is applicable to all the Cement firms regardless of the business type they are involved into hence the research recommends different businesses to produce quality product based on the market needs.

As to the study findings, factors on bargaining power of buyers that affect performance of the Cement industry in Zambia are quality of products sold in the market determine the profit margin of the firm, in order to protect the buyers and sellers, the study recommends the government of Zambia to develop a policy that creates even enrolment for buyers and suppliers.

According to the study, Cement manufacturing firms are greatly affected by: many competitors in the market affects market share negatively, number of competitors in the market affects the profit margin of the firms, business where there are a number of customers who only buy from a specific firm therefore increases the firm profit and the quality of products determine the profit margin of firms. This study recommends that the number of Cement firms in the field of Cement manufacturing to be regulated to ensure profitability of the firms and reduction of monopoly of the firms.

5.5 Suggestions for Further Research

This study focused on the influence of Porter's five forces on performance of the Cement industry in Zambia. This research recommends further study on how Porter's five forces affects Cement performance based on government regulations and peace in Zambia. These variables were not included in the study but arose during data collection. This study intended to capture performance based on income status of Cement firms which was poorly answered and dropped from analysis (except for a few ratios) hence the research recommends similar studies to be based on financial performance inclusive of government revenues and books of account. Also, future studies should concentrate on specific types of business such as Cement import for in-depth results that can inform specific in-depth policy changes or development.

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