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**PRODUCT DEVELOPMENT AND FINANCIAL PERFORMANCE IN THE SOFT
DRINKS INDUSTRY IN UGANDA: CASE OF CROWN BEVERAGES LTD**

BY

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DECLARATION

I Niwomujuni Syson hereby declare that, this research report is my original work and has never been presented to any other institution or university for any award of academic qualification and all the information obtained from other sources has been fully acknowledged.

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Date 23/12/2014

APPROVAL

This dissertation has been carried out by Niwomujuni Syson at Crown Beverages Ltd under the supervision of Dr Regis Zombeire (Principal Supervisor) and Mr. Tadeo Mbabazi for the partial fulfillment of the requirements for the award of a Masters Degree of Business Administration of Kyambogo University.

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DEDICATION

Special dedication to my family Mr. Nicholas Mujuni and my children Darren and Clara for all the support and patience they accorded to me to enable me complete this research report. Above all to the Almighty God whose guidance I sought while carrying out the research.

ACKNOWLEDGMENT

I would like to express my sincere gratitude to the almighty God for his abundant grace and blessings that have enabled me to finish this research work successfully. This work would not have come to its completion without God's assistance and help from other people.

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ABSTRACT

The study was designed to examine the influence of product development on the financial performance in soft drinks industry using a case study of Crown Beverages. The study was guided by the three objectives that is, to examine the influence of product design on financial performance of Crown Beverage Limited, to examine the influence of product quality on financial performance of Crown Beverage Limited and to assess the influence of product lines on financial performance of Crown Beverage Limited.

A cross-sectional research survey design was used for the study since data was collected as single point in time and this enabled the researcher to collect detailed and in-depth data from respondents. The researcher used questionnaire and interview guide to collect data from the respondents and the sample size of 134 respondents was selected.

The findings of the study indicates that there is a strong positive linear relationship between product design, product quality and product lines and financial performance ($r = .994$). Product design, product quality and product lines account for 98.7% variance of financial performance. These findings were subjected to an Anova test and found significant ($F = 3454.299$, $p < .05$). In addition the coefficients of each product development indicators show that product design, product quality and product lines influences financial performance ($p < .05$). Product quality positively affects financial performance ($t = 3.330$) followed by product lines ($t = 3.105$) and lastly product design ($t = 2.647$).

The study recommends that product development process should involve all staff in soft drink companies and the focus should be on product construction, packaging, branding, product positioning and usage testing should be an integral component of product development in the soft drink industries sector. In short, improving product development can lead to good financial performance.

ACRONYMS

CSF: Critical Success Factors

FP: Financial Performance

PD: Product Development

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CHAPTER ONE

INTRODUCTION

1.0 Introduction

This study examined the influence of product development on the financial performance in soft drinks industry using a case study of Crown Beverages. This chapter covers the background to the study, the statement of the problem, objectives of the study, research questions, scope of the study, significance and ends with definition of key terms.

1.1 Background to the study

Historically, product development started in the post-World War II era (Cooper, Scott, and Elko, 2004). Americans were coming off wartime shortages and were in the mood to buy the many goods that manufacturers produced. Engineers, who were more product-oriented than consumer oriented, designed new products that might or might not find places in consumers' hearts and minds (Crawford, 2007). However, competition escalated and consumers became more skeptical and selective about the types of products they purchased. Marketers found it increasingly difficult to rely on persuasive sales techniques to move products.

The rapid pace of change that engulfed businesses toward the end of the twentieth century put an even greater burden on companies to build adaptive capabilities into their organizations (Poolton, Jenny, and Barclay, 2004). Global competition means there are more competitors capable of world-class performance. Finally, companies have embraced the view that new product development now requires a convergence of technology, marketing, product design, engineering, and manufacturing capabilities (Stone, 2005). Companies have now recognized product

development as powerful strategic tool that firms can use to improve their financial performance. However, speed, efficiency, and quality in product development are the challenges that new product development faces in today's intense competitive environment.

Theoretically, resource based model and systems theory were the guiding theories of the study. According to Kent (2010), resource based model focuses on the organisational resources such as assets, products, technology, capabilities, organisational processes, knowledge, skills of employees, needed for successful financial performance which are controlled by the firm that enables the firm to conceive of and implement strategies that improve its financial position. The theory indicates that an activity uses resources to transform input to output under the direction of goals and constraints (O'Donnell and Duffy, 2002). Input refers to the initial state of knowledge while output is the final state of the performed activity. However, the gap in this theory is that it does not indicate how the components of product development such as product design, product quality and product line influence financial performance in terms of cash flows, sales volume and profitability. Therefore, the study aimed at bridging this gap by linking attributes of product development with attributes of financial performance.

The second theory was the systems theory approach. In its broadest conception, a "system" may be described as a complex of interacting components together with the relationships among them that permit the identification of a boundary-maintaining entity or process (Kaufman, 2005).

The theory was adopted because it explains how the existence of any fault in a system can affect the functioning of the whole system. This theory illustrates the need for well functioning systems if efficiency is to be maximized (Midgley, 2003). Ludwig Von Bertalanffy developed the

Systems theory in the 1940's and based his thinking on an interdisciplinary approach which attempts to fit together different aspects of society. His theory specifically dealt with the complex nature in systems, and proposed a framework which one can use to describe any group of objects that work together to produce some result (Prasad and Harker, 2007). Although the theory did not indicate how product development affects financial performance, but viewed in analogous terms, this theory is useful in explaining how product development affects the financial performance. The study analyzed and linked the different aspects of product development such as product design, product quality and product line and how these should interlink to create good and sound financial performance of an organisation.

Conceptually, product development is a broad field of endeavor dealing with the design, creation, and marketing of new products (Ulrich, Karl and Eppinger, 2004). Sometimes referred to as new product development (NPD), the discipline is focused on developing systematic methods for guiding all the processes involved in getting a new product to market (Husig and Kohn, 2003). A product is a set of benefits offered for exchange and can be tangible (that is, something physical which can be can touched) or intangible (like a service, experience, or belief). In beverages industries typically see new product development as the first stage in generating and commercializing new product within the overall strategic process of product life cycle management used to maintain or grow their market share (Zimmerman, 2006).

According to Hoggarth and Wilemon (2008), 55% of manufacturing firms in Europe see new product design and development as one of their most important sources of competitive advantage in many years to come. In UK businesses where product development is integral to operations

84%, believe that they have increased their competitiveness through new product development and 79% say that product design has been important for their competitiveness in the global market (Grundiche, 2004). This has led to pro-active product development policies in some countries such as Finland and South Korea that have enabled companies such as Nokia and Samsung become global brands (Ullman, 2009). Nokia has re-invented itself with a design-focus that has made it the worlds' biggest supplier of mobile phones with a 40% market share, while Samsung has benefited from product development programs and currently designs a broad range of high quality consumer and business products.

While it is good for firms to design new products for competitive advantage, there is also a need to measure new product development successes (Haslem, 2009). The process of new product development is successful if its products not only fulfill the needs and the requirements of customers, but also generates profits to its shareholders, and creates value to its stakeholders at large (Suleiman, 2000). In other words, the two main characteristics of a product development processes are historically its quality and profitability, where quality represents how well the product satisfies the customer needs, and profitability represents how much profit it can generate with limitation of budget, and schedule. Ricardo and Wade (2001) support the above argument and add that measurements for the success of product development should be drawn from three perspectives of: consumer-based (i.e. customer loyalty and market share); financial (i.e. costs, revenues and expenses); and technical or process-based success (i.e. design and product quality). The failure to appreciate those critical measurements has given rise to several fallacies that undermine the planning, execution, and evaluation of product development (Koen, 2004). Cooper and Edgett (2008), assert that product development (PD) is, for every profit driven

company, an important business process to secure future growth and sustained success in the marketplace. Unfortunately, while the academic literature has made numerous contributions to the understanding of how PD should work, less attention has been paid to the question of why organizations so often fail to execute their PD processes as desired so as to register the planned financial targets (Repenning, 2001).

In Uganda, over the years Crown Beverage has managed to introduce new products such as Mirinda Fruity, Mirinda Orange, Mirinda Pineapple, Mirinda Apple and Mirinda Lemon. Despite the considerable effort to develop new products, Crown Beverage seems not to have registered the desired financial targets in terms of profitability, sales volume and cash flows. Product-development managers are always struggling to bring in new products on time and on budget (Crown Beverage Strategic Plan, 2009-2012). They never have enough resources to get the job done, and their bosses demand predictable schedules and deliverables in terms of profits. So the managers push their teams to be more parsimonious, to write more-detailed plans, and to minimize schedule variations and waste. But that approach, which may work well in some organization seems to be hurting product-development efforts and financial performance levels of the Crown Beverage and this is what the study sought to verify in order to enhance product development efforts and financial performance.

1.2 Statement of research problem

Product Development plays a critical role in stimulating the financial performance of a company and thus enables the company to ensure steady future growth potential (Haslem, 2009). However, many organizations that have introduced new products see little return on their

investment in terms of performance improvement because managers generally remain unaware of the tremendous opportunities for improvement that yet exist (Short, 2009).

Crown Beverages Ltd introduced a wide range of products such as Mirinda Apple, Mirinda Pineapple, Mirinda Lemon and Mountain Dew in a period of 4 years since 2009 to 2012 (Crown Beverages Report, 2012 March). However, the management seems to be paying inadequate attention to its overall business strategy and financial performance of the various new products developed as the company has failed to attain the desired financial performance targets over the years. Crown Beverages product performance plan for 2009 to 2012 indicate that the company registered unfavourable financial performance variance of 20% of its planned targets in 2009/2010, 16% in 2010/2011 and worst of all 25% in 2011/2012 of its planned targets (Crown Beverages Report, 2012). Therefore, one wonders why Crown Beverages has not benefited much in the new products and why the development process has gone wrong despite considerable rigorous development process. This is what the study sought to verify.

1.3 General objective of the study

The main objective of the study was to examine whether there is a relationship between product development and financial performance of Beverage Industry in Uganda, using a case study of Crown Beverages Limited. The plant was chosen for its proximity and relevance to the research problem being investigated.

1.4 Specific objectives of the study

- i. To examine the influence of product design on financial performance of Crown Beverage Limited.
- ii. To examine the influence of product quality on financial performance of Crown Beverage Limited.
- iii. To assess the influence of product lines on financial performance of Crown Beverage Limited.

1.5 Research Questions

- i. What is the influence of product design on financial performance of Crown Beverage Limited?
- ii. What is the influence of product quality on financial performance of Crown Beverage Limited?
- iii. What is the influence of product lines on financial performance of Crown Beverage Limited?

1.6 Scope of the study

1.6.1 Content scope

The study was centered on product development and financial performance of Crown Beverages. Product development is the independent variable and financial performance is the dependent variable. Product development was examined by looking at product design, product quality and product lines. While financial performance was measured by looking at profitability, sales volume and cash flows in soft drinks industry.

1.6.2 Geographical scope

Geographically, the research covered Crown Beverages Ltd located at Nakawa Industrial park. The study was confined to the departmental heads and staff in Finance and accounting, Quality Assurance & Food Safety and Operations departments of Crown Beverages Ltd, marketing and sales and research and development. The plant was chosen for its proximity and relevance to the research problem being investigated.

1.6.3 Time scope

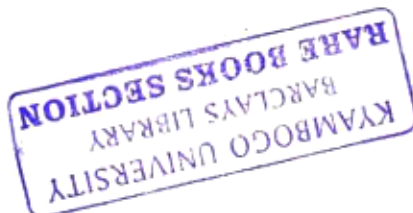
The study covered a period of four years running from 2010 to 2013. This period was chosen because this is a period most of innovations in product development were more pronounced and their influence on the financial performance of Crown Beverages Ltd are questionable.

1.7 Significance of the study

The study will benefit the following: -

- i. Managers and other decision makers in Beverage industry in identifying the best methods for each stage of the product development process, from Idea Generation through Feature Development, Product Development and Product Testing and determine how well the new products introduced perform in the market place.
- ii. The study will also assist financial managers, research and development and operational managers to determine the impact of product development towards the profitability of their organizations.

- iii. The findings of the study will help staff in product design and quality control sections in beverage industry to identify the loopholes that are in product development and how to go about them.
- iv. The study will also help future researchers and academicians in gaining insight on product development and also to understand the criteria which must be followed in designing product which can enable the beverage industry to create customer loyalty, boost sales volumes and to improve on their profitability levels.



1.8 Justification for the study

The justification for this study stems from the fact that although companies have now recognized product development process as powerful strategic tool that firms can use to improve on their financial performance. However, little empirical research has been conducted to investigate the why companies have not benefited much in the new products and why the development process has gone wrong despite considerable rigorous development process.

The study will examine the influence of product development process on financial performance. As such, the study will provide information on key decision variables that will be used to inform the management to stimulate the financial performance of the soft drink company.

1.9 Definition of key terms

Product development The term product development is often used without a proper definition. In an overall perspective, product development may be self-explanatory i.e. the development of new products. However, product development is ambiguous in the sense of what is included in

the process and what is not included. Ulrich and Eppinger (2004), define, product development as the set of activities beginning with the perception of a market opportunity and ending in the production, sale, and delivery of a product.

Financial performance financial performance measures whether the strategy, implementation and execution are contributing to bottom-line improvement (Heggesta, 2007). Financial objectives are related to customer loyalty, sales volume and profitability measures such as return on capital, and revenue growth. Internal Rate of Return is used to measure financial aspect because it can describe the role of product development investment in profit of product

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this chapter the related literature about product development and financial performance was reviewed. The purpose of this chapter was to complement the research study with what other researchers, academicians and writers have found out about how product development in terms of product quality, product design and product lines influence financial performance. This chapter starts with theoretical review, conceptual review and lastly reviews the literature basing on the study objectives.

2.2 Theoretical Review of Product Development and Financial Performance

Several theories have been employed to explain the concept of product development which can be applied in Crown Beverages to stimulate financial performance. This study was guided by two theories. The most outstanding is the resource based model. This theory was adopted for this study because it creates a link between product development and financial performance. This is because product development process involves the use of resources and if they are not utilized properly this can cripples efforts to register favourable financial performance of the organization.

According to Kent (2010), resource based model focuses on the organisational resources such as assets, products, technology, capabilities, organisational processes, knowledge, skills of employees, needed for successful financial performance which are controlled by the firm that enables the firm to conceive of and implement strategies that improve its financial position. The theory indicates that an activity uses resources to transform input to output under the direction of

goals and constraints (O'Donnell and Duffy, 2002). Input refers to the initial state of knowledge while output is the final state of the performed activity. Resources is not just the people involved in the activity but also other resources like computer tools, materials, techniques and information sources. Goals are specific elements of knowledge that direct the change in the state of the activity from the initial input to the final output state. However, the gap in this theory is that it does not indicate how the components of product development such as product design, product quality and product line influence financial performance in terms of customer loyalty, sales volume and profitability. Therefore, the study was intended to bridge this gap by linking attributes of product development with attributes of financial performance. It should therefore be noted that if Crown Beverages Limited introduces new product after thorough customer survey, it can register good financial performance.

The second theory to guide the study was the systems theory approach. In its broadest conception, a "system" may be described as a complex of interacting components together with the relationships among them that permit the identification of a boundary-maintaining entity or process (Kaufman, 2005). System theory is the transdisciplinary study of the abstract organization of phenomena, independent of their substance, type, or spatial or temporal scale of existence. It investigates both the principles common to all complex entities, and the (usually mathematical) models which can be used to describe them (Littlejohn, 2001). A system can be said to consist of four things. The first is objects – the parts, elements, or variables within the system. These may be physical or abstract or both, depending on the nature of the system. Second, a system consists of attributes – the qualities or properties of the system and its objects (Haslem, 2009). Third, a system has internal relationships among its objects. Fourth, systems

exist in an environment. A system, then, is a set of things that affect one another within an environment and form a larger pattern that is different from any of the parts

The theory was adopted because it explains how the existence of any fault in a system can affect the functioning of the whole system. This theory illustrates the need for well functioning systems if efficiency is to be maximized (Midgley, 2003). Ludwig Von Bertalanffy developed the Systems theory in the 1940's and based his thinking on an interdisciplinary approach which attempts to fit together different aspects of society. His theory specifically dealt with the complex nature in systems, society, and science, and proposed a framework which one can use to investigate and/or describe any group of objects that work together to produce some result (Prasad and Harker, 2007). Although the theory did not indicate how product development affects financial performance, but viewed in analogous terms, this theory is useful in explaining how product development affects financial performance.

The current study analyzes and links the different aspects of product development such as product design, product quality and product line and how these should work to create good and sound financial performance of an organisation. This in turn helps to establish the key vulnerable points that affect financial performance.

2.3 Conceptual framework

The major variables of this study are product development (independent variable) and financial performance (dependent variable) Figure 1. Product development is denoted by (PD) while Financial Performance is symbolized by (FP). The focus of this study was on Ugandan beverage Industry which in recent years has been characterized by many innovative products in the forms

of design, quality and lines. Thus, the researcher operationalized product development in terms of product quality, product design and product lines. It should be emphasized at this juncture that there are other criteria or moderating variables that may be used to measure product development. These moderating variables include; research and development, product life cycle, changes in customer needs and preference and the competition in the market place. Since the focus is on the beverage industry, the researcher limited herself on product development and financial performance.

Financial Performance in this study is measured in terms of financial profitability, sales volume and cash flow. The link between product development (PD) and financial Performance (FP) is illustrated in the diagram below:

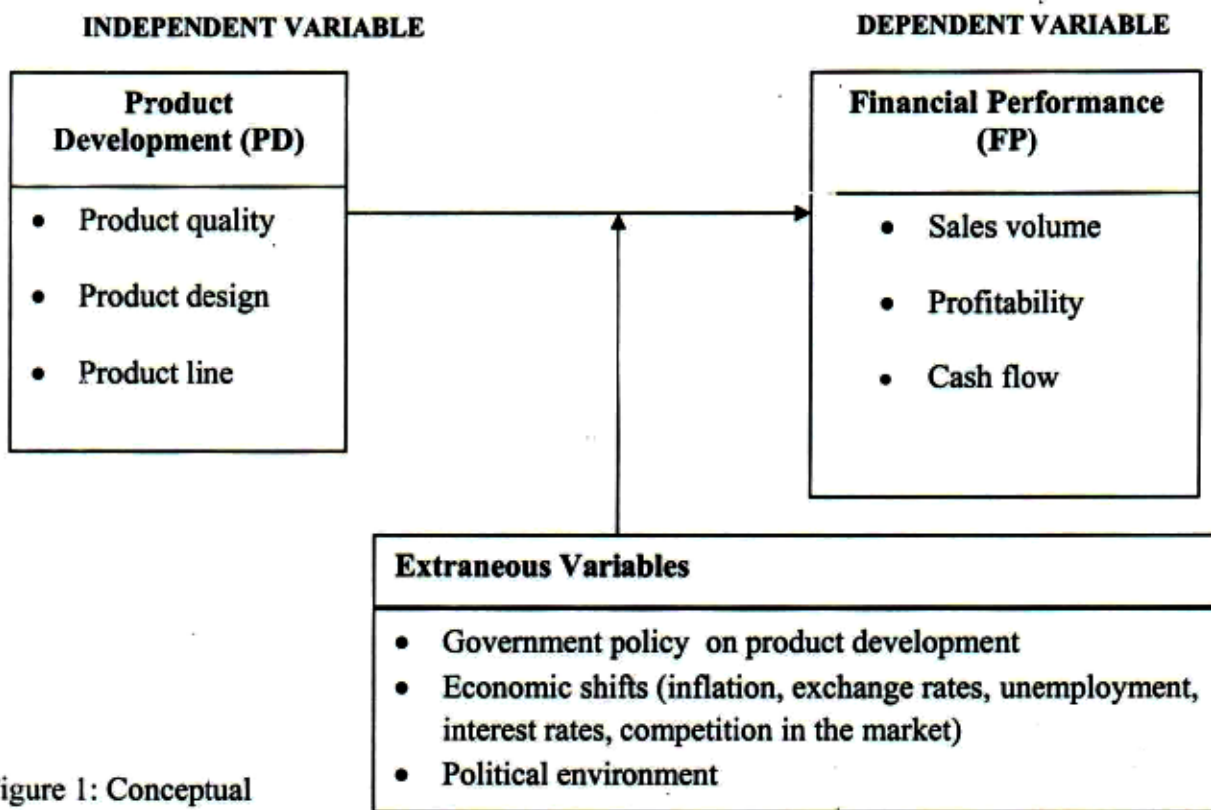


Figure 1: Conceptual framework

Source: Self constructed using Gebremedhin (2008) ideas

2.4 Product design and financial performance

Successful new products in the service industry can be more difficult to measure than manufacturing products but may use the same measurement categories (Nelly and Wheelock, 2007). Quality may be analyzed as a separate measure but it is common to assume that products meeting specification are quality products and meet the needs of the customer. Product specifications are typically created by marketing and used by the development team to determine the features of the product being offered (Ulrich and Eppinger, 2004). Product design usually includes the features of a product and its target market and cost. Product design has been defined as the process that links creativity and innovation. It does this by shaping ideas to become practical and attractive propositions for users or customers (Prasad and Harker, 2007). Innovation in this case is the successful exploitation of ideas and requires the use of design to develop new products, service or processes. This interdependency is why design is now increasingly seen as a vital part of innovation along with business and technological expertise.

Today, there is a growing belief that good product design is good business (Watson, 2010). Product design is a powerful strategic tool that firms can use to gain a sustainable competitive advantage, to create corporate distinctiveness in an otherwise product- and image-surfeited marketplace, to give personality to a new product so that it can stand out from the crowd, and to reinvigorate interest in existing products (Rath, 2004). Consider, for example, Crown is rolling out its new Vented End beverage cans for two of Canada's top selling brands: Coors Light and Molson Canadian. The product of an exclusive partnership between Crown and Molson Coors Canada, it features a vented end to allow for a smoother pour, enhanced experience and a unique opening feature (Neill, 2011). The end's unique design includes a distinctive red tab and a

button-shape depression mark to the right of the main opening. To use, consumers simply open the can as usual, turn the red tab so that it is aligned over the button, and then press down to activate the second opening (Kent, 2010). No extra tools are required to open the end. The vented end not only enhances the appeal of the package but also helps build brand identity by more closely connecting consumers with their beverage. Neill (2011) says that consumers have had an extremely positive reaction to the Vented End and have noted that the additional opening, with its corresponding smoother pour, is both easy and fun. The new product design will increasingly make Crown to see the value of leveraging packaging to distinguish products, attract consumers and drive sales, profits and create customer loyalty.

Product design decisions can have a significant impact on the financial and operation performance of manufacturing companies (Molyneux, 2003). Therefore good analysis of the financial impact of design decisions is required if the profitability of the business is to be maximised. The product design process can be viewed as a chain of decisions which links decisions about the concept to decisions about the detail (Brouke, 2009). The idea of decision chains can be extended to include the design and operation of the 'downstream' business processes which manufacture and support the product. These chains of decisions are not independent but are interrelated in a complex manner (Cooper and Edgett, 2008). To deal with the interdependencies requires a modeling approach which represents all the chains of decisions, to a level of detail not normally considered in the analysis of product design. The operational, control and financial elements of a manufacturing business constitute a dynamic system (Etuk, 2003). These elements interact with each other and with external elements (i.e. customers and suppliers). Analyzing the chain of decisions for such an environment requires the application of

simulation techniques, not just to any one area of interest, but to the whole business i.e. an enterprise simulation. To investigate the capability and viability of enterprise simulation an experimental 'Whole Business Simulation' system has been developed (Goffin and Mitchell, 2005). This system combines specialist simulation elements and standard operational applications software packages, to create a model that incorporates all the key elements of a manufacturing business, including its customers and suppliers (Rath, 2004). By means of a series of experiments, the performance of this system was compared with a range of existing analysis tools (i.e. DFX, capacity calculation, shop floor simulator, and business planner driven by a shop floor simulator).

The design and packing of the product during the product development stages usually determine whether the product will yield the desired profits or not (Watson, 2010). Product must be designed to meet customer satisfaction and to enable the organization to register the desired profits (Heggestad, 2007). For a firm to compete effectively in the dynamic and competitive business environment and achieve set goals in terms of profitability, it must continuously develop products and product lines to satisfy the constantly changing desires and needs of customers (Grundiche, 2004). These Organizational adjustments in response to new customer preferences even make it necessary to modify existing products, introduce new ones or eliminate products that are unsuccessful.

However, despite the wide recognition of the importance of product design, the authors' views largely lag behind the practice as they fail to address why product development process fail and why companies do not benefit from such interventions in terms of profitability. As Gemser and

Leenders (2001) point out, "Research on industrial design in general, and on the relationship between product design and company financial performance in particular, is extremely light (Roy and Potter, 2003; Ulrich and Pearson, 2008). At best, the few studies which have been conducted in this area identify possible contributions of product design and/or offer anecdotal evidence on the positive effect of product design on company's financial performance. Hertenstein, Platt and Veryzer (2005) also state that few studies have attempted to quantify the contribution of good product design to improved company's financial performance, leaving managers with the intuitive senses that good product design is profitable, based primarily on anecdotal evidence. This paper intended to offer useful complements to prior studies in the field by overcoming these shortcomings.

2.5 Product quality and financial performance

Over the past two decades the internal factors like product quality, culture, management style and administrative skills are getting a lot of importance towards financial performance of organizations (Koen, 2004). However, there is controversy over such impact on business performance. In a number of studies researchers praise openly total quality management, others have identified significant costs and implementation obstacles (McGrath, 2004). In fact both, against and far arguments provide support for their positions. Addressing Pakistan's first international convention on quality control, Crosby (1995) suggested that developing countries can only increase their trade activities by focusing on improving the quality of their products. Developing countries can learn the experiences of quality improvement initiatives of industrialized nations (Crosby, 1995).

Grundiche (2004), says that in developing countries, to investigate issues related to successful implementation of total quality management programs, suggests that the use of Critical Success Factors(CSFs) total quality management implementation can support the identification of reasons for unsuccessful total quality management implementation efforts and may point out certain critical quality improvement areas that can further improve the chances of successful product quality implementation and subsequently help in improving business financial performance of the firm (Iris et al (2006); Najeh and Zaitri (2007);Sharma (2006)). This section of this study was designed to examine product quality in beverage industry of Uganda and to empirically investigate the relationship between product quality and financial performance.

Yanelle (2005), stated that product quality is very critical element for growth potential and profitability of the firm. This is because the product quality is the cornerstone of the firm's marketing mix which stimulates company's sales revenue. Therefore, for an organization to register the desired financial targets, it should ensure that the designed products meet the customer requirements. This is because customers' needs are constantly changing (Prasad and Harker, 2007). Their incomes, lifestyles, level of education, sophistication and technology are dynamic. Therefore, improvement in product quality during product development should be continuous process, and the products offered to the market should be constantly under review and frequent change in order to enhance their quality and financial performance.

2.6 Product lines and financial performance

Having a large product portfolio can elevate a company financial distress as risk is spread (Nelly and Wheelock, 2007). The statistics show that only one in every six companies which develop

and introduce new products have been successful. However, what the author failed to note is that product development, despite all the talk about it being one of the most 'profitable' customer strategies of the decade, still has room for failure. The most important aspect of product development problems is its excellent ability to achieve customer retention and loyalty but its failure to do so (Laudon & Laudon, 2004). This is indirectly responsible for product development collapse. What actually is product development failure and why does it occur? Generally one of the reasons this happens is because most organizations that actually employ product development strategies, experience a lot of confusion about its attributes and what it really is and thus end up not attaining the desired financial performance standards (Etuk, 2003). Therefore, to register the desired end and to ensure that product development efforts are a success to the company, there is a need to undertake customer survey to determine customer needs and creation of customer's database for constant communication to customers this in turn can enable the company to boost its financial position levels.

For most firms, successful new products are engines of growth (Pollack, Stuart and Haka, 2004). Several frameworks, including the product-life cycle and the growth-share matrix, postulate the need for new products that generate future profitability and prevent the obsolescence of the firm's product line (Cooper 2008). Indeed, Watson (2010), conclude from a Fortune poll that innovative companies achieve the highest shareholder returns (Jonash and Sommerlatte 1999). At the same time, new-product failure rate is high - ranging from 33% to over 60% - and has not improved in the last decades (Repenning, 2001). Moreover, even commercially successful new products may not financially benefit the firm because of high development and launch costs and fast imitation by competitors (e.g. Tirtiroglon and Daniel, 2000).

For example, Crown Beverage Packaging North America, is debuting a new 10oz beverage can that offers specialty beverage brands a stylish alternative to traditional drink packaging (Neill, 2011). The sleek new can is the perfect choice for brands that are seeking to hit a different retail price point in certain markets as well as differentiate wellness and portion-controlled drinks such as low-calorie sodas by choosing a slimmer, eye-catching format.

The new can has been developed in part to meet the growing popularity among consumers for specialty beverages that are not typically packaged in traditional 12oz cans (Revell, 2009). The new addition marks the first time that a 10oz beverage can has been produced in the sleeker 58mm diameter line, providing increased flexibility for brands and this will enable to boost the financial performance of Crown Beverage Packaging North America by 10%. Neill (2011) further says that while beers and carbonated soft drinks are typically packaged in 12oz cans, certain markets and consumers tend to enjoy their favorite brands and/or specialty beverages such as health drinks and iced coffee in smaller volumes (Kent, 2010). The new can meets that need while also enabling brands to stand out on store shelves with a fresh, original look. Therefore, Crown's expansion of its product line reflects its commitment to help its customers respond to consumer demands and thus create customer loyalty, increased sales volume and profitability. Beyond specialty drinks, the new can size is an opportunity for other beverage brands to grow their market share.

In business, value creation is typically measured by profitability and long term growth (Ulrich, Karl and Eppinger, 2004). In order to achieve these goals, a company must establish a continuous process for developing and deliver a steady stream of products based on its business

model, which offers unique and differentiated benefits to a chosen set of customers (Ullman, 2009). The objective of PD portfolio needs to be defined and the meaning of attainment for the overall goals of the organization must be clearly communicated (Zimmerman, 2006). The first step in the product strategy is to examine all the current stakeholders. Wall (2005), propose a broad perspective, in contrast to the Balanced Scorecard, on stakeholders encompassing employees, suppliers, regulators, alliance partners, and intermediaries. For example, all parties that can have a substantial impact on the performance and success of PD process. In this research, product strategy was viewed as a pattern of decisions and actions performed today to ensure future success (Wood 2001).

2.7 Conclusion

From the above literature reviewed, it is evident that most scholars like Cooper (2008); Wood (2001); Kent, (2010); Tirtiroglon and Daniel, (2000), among others, have tried to measure the performance of product development in terms of success/failure measures. However, these measures do not work in the environment in which Crown Beverages operate since it develops new products to increase its market share and maximize profits. There was thus a need to focus more on the financial objectives that are related to sales volume, cash flows and profitability measures as well as revenue growth in order to fill the knowledge gap.

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter is comprised of methodology used to collect data. Methodology is a detailed plan and methods of systematically and scientifically obtaining data for the research project. Therefore, the methodology that was used covered, research design, study population, sample size and sample selection techniques, sources of data, data collection methods, data collection instruments, validity and reliability, data analysis and interpretation, procedure and the limitations of the study.

3.1 Research Design

This study used a cross-sectional survey design to collect data from the respondents at a single point in time. It is the least cost method compared to other research designs such as longitudinal (Neuman, 2003). The researcher also used a case study since it is a good method for obtaining true and a comprehensive picture of individuals and for its applicability to real life situation. Amin (2005) states that case studies can enable the researcher to have a variety of issues to be examined. The researcher used triangulation of both qualitative and quantitative research methods to collect, present and interpret data. Meridith et al as cited in Amin (2005) define triangulation as a process of using multiple data collection methods, data collection strategies and or data sources. Qualitative method assisted the researcher get in-depth explanations in textual format while quantitative method assisted the research acquire the numerical data needed for descriptive and inferential analysis.

3.2 Study Population

Mugenda and Mugenda (2003) state that study population refers to an entire group of individuals, events, or objects having a common observable characteristics. The study population included departmental heads selected from finance and accounting, operations and production, marketing and sales and research and development and lower level employees selected from the aforementioned departments.

3.3 Sample Size and Selection

3.3.1 Sample size

A total of 134 respondents were selected from the total of 149 Crown Beverage Limited staff using the Krejcie and Morgan (1970) table sampling guidelines.

Table 3.1: Target group and Number of Respondents

Category	Population	Sample size
Departmental heads	4	4
Staff in production and operations	45	40
Staff in finance and accounting	25	24
Staff in marketing and sales	60	52
Staff in Research and Development	15	14
TOTAL	149	134

3.3.2 Sampling techniques

Departmental heads were selected using purposive sampling techniques because the respondents are few, knowledgeable about the problem under investigation and hence they are expected to

provide rich information and in-depth analysis on cases pertaining to the study. According to Amin (2005), purposive sampling is where a researcher uses his or her judgement or common sense regarding the participant from whom information is collected. Further lower level employees were selected using stratified sampling and simple random sampling methods. This is because there are several departments which the researcher focused on for example production and operations, finance and accounting, marketing and sales and research and development. Each department formed a strata from which simple random was applied. The researcher employed these techniques because they gave employees from each department to have the same chance to be included in the study. Further they enabled the researcher to make the sample selection without any bias.

3.4 Data Collection Methods

According to Sekaran (2003), these are integral part of research design. The different types of data collection methods include questionnaires, interviews and documentary review were used.

3.5 Data Collection Instruments.

3.5.1 Questionnaire form

A questionnaire is a carefully designed instrument for collecting data in accordance with the specifications of the research questions (Amin, 2005). The researcher used the questionnaire method to gather data from the lower level employees of Crown Beverages Limited. Questionnaires were used because they are straightforward and that information obtained from them are easier to be computed. Further the researcher believed that by using questionnaires it would give lower employees from the selected departments a convenient time to fill them

without any pressure. The researcher also adopted and modified questions from researchers who have studied product development and financial performance such as Nwokah, Ugoji and Ofoegbu (2009) and used the five point Likert Scale for data collection. The measures ranged from Strongly Agree, through Agree, Undecided, Strongly Disagree to Disagree. The questionnaires were designed in such a way that reflected the objectives of the study.

3.5.2 Documentary check list

Important documents from Crown Beverages Limited containing information related to product development and financial performance were studied and screened according to content. These documents included statement of financial position, statement of cash flows and sales budgets. The documents were obtained from research and development, operations and production and finance and accounting sections of Crown Beverages Limited.

3.5.3 Interview guide

The researcher also used interview guide to collect the required data for the study. The researcher based her interview discussion on the study objectives. Various questions relating product design, product quality and product lines were posed to the aforementioned departmental heads as a means of determining how such affect financial performance of Crown Beverages Limited. This instrument was used because departmental heads have rich information about the subject under investigation and they can agree to be interviewed than filling questionnaires. This instrument was used because it is the quickest method of collecting data and questions can be repeated clearly for the respondents to understand them. Also the researcher used this tool because data collected using such a tool is reliable and accurate. Therefore it enabled the

researcher to scrutinize the answers given in the questionnaire and also to enable the researcher to obtain further information about the problem under investigation.

3.6 Validity and Reliability

Several methods were used during the process of data collection to ensure quality data for the research. Personal prejudices and biases were avoided, systematic and accurate recording of data obtained was made, listening carefully, establishment of trust and rapport with the interviewee was employed to ensure validity and reliability.

Amin (2005) defines validity to be the ability to produce findings that are in agreement with the conceptual values. Validity of an instrument therefore means that the instrument is able to measure what it is intended to measure. Validity therefore has to do with how accurately the data obtained in the study represents the variables in the study. For the researcher to consider those items relevant and valid, the ratings from the experts/supervisor was computed using;

$$\text{Content Validity Index} = \frac{\text{No of items rated as relevant}}{\text{All items in questionnaire}}$$

The content validity index (CVI) was computed as follows

Raters	Relevant	Not relevant	Total
1	37	5	42
2	36	6	42
Total	73	11	84

$$\text{CVI} = 73/84 = 0.87$$

Given that the CVI was above .70, the questionnaire was considered suitable for collecting data (Amin, 2005).

Reliability is a measure of the degree to which a research instrument yields consistent data results or data after a repeated (Mugenda & Mugenda, 2003). This refers to how consistent the research instrument is. It also refers to the stability and dependability of the instrument and the degree to which the instrument measures what it is intended to measure. Amin (2005) says that the instrument is reliable when it produces the same results when it is used repeatedly hence ensuring dependability and precision. To ensure reliability, the researcher used Cronbach alpha approach to compute the reliability of the instruments.

Product development and financial performance	Cronbach Alpha Value
Product design and financial performance	.7321
Product quality and financial performance	.7181
Product lines and financial performance	.7907

The results in all items had high reliabilities with alphas above 0.7 and thus considered highly reliable in eliciting the data that was required for this study (Amin, 2005).

3.7 Measurement of variables

The variables of the study were measured on a five point Likert type scale (1- strongly disagree, 2-Disagree, 3-Not sure, 4- Agree and 5-Strongly agree. The choice of this measurement was that each point on the scale carries a numerical score which was used to measure the respondents' attitude and it is the most frequent used summated scale in the study of social attitude. Product development was measured by looking at product quality, product design and product lines and financial performance was measured by looking at profitability, sales volume and customer

loyalty. According to Mugenda (1999) and Amin (2005), the Likert scale is able to measure perception, attitudes, values and behaviors of individuals towards a given phenomenon.

3.8 Procedure of data collection

The study was conducted in a planned way in which the researcher first obtained a letter from the School of Management and Entrepreneurship of Kyambogo University which was presented to the management of Crown Beverages Limited and the management accepted her to carry out the study in the organisation. The researcher also got consent from the staff and was allowed to solicit data from them. In this case therefore, the researcher first issued out questionnaires to all staff in the aforementioned departments and after ten working days, the filled questionnaires were collected. In the process of collecting the questionnaires, the researcher asked the departmental heads various questions relating to the problem under investigation. After data collection from the field, the data was edited and checked for consistencies, then after entered in the computer system using SPSS, where it was analyzed and the final copy of the output was presented in the Microsoft word document.

3.9 Data Analysis and Presentation

Qualitative and quantitative data collected were analyzed, interpreted, arranged and tabulated. **Quantitative data** was analyzed using regression analysis to yield the desired statistical output and measures of relationships (correlation coefficients). Results were presented in form of frequency tables which were interpreted accordingly. Analysis of **qualitative data** was done through description of events and occurrences as gathered from the interviewees. Judgment was

made on the basis of the highest percentages or otherwise depending on the facts on the ground (Amin, 2005).

3.10 Limitations of the Study

While carrying out the research, the researcher encountered various problems and these were; Sufficient literature on study variables was not easy to obtain. There were cases where there was outright refusal to avail information or demand for material compensation for data provided. The researcher overcame this by getting advice from the experienced supervisors on how and where to locate relevant literature.

The behaviors of some employees were unpredictable. Some staff members concealed information by not filling in the questionnaires and others did not associate well with the researcher thereby not taking the study as a serious issue which in turn hindered the collection of the required data for the study. Therefore, to overcome this, the researcher assured the respondents that the information given was to be treated with maximum confidentiality and was for academic purposes only.

CHAPTER FOUR

ANALYSIS, PRESENTATION AND INTERPRETATION OF RESULTS

4.0 Introduction

This chapter comprises of presentation, analysis and interpretation of findings of the study. The purpose of the study was to examine the influence of product development on financial performance in soft drinks industry using a case study of Crown Beverages. In establishing this, questionnaires, interview and documentary review were used and the responses obtained therein were interpreted, presented in tabular form and analyzed in line with the objectives of the study. However demographic data about the respondents was presented as well.

4.1 Demographic Characteristics of Respondents

To collect demographic data about the respondents, the study concentrated on sex, age, level of education, departments in which respondents fall and the time spent serving Crown Beverages.

The findings gathered were presented in the following tables: -

Table 4.1: Sex of the Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Male	77	57.5	57.5	57.5
Female	57	42.5	42.5	100.0
Total	134	100.0	100.0	

Source: Field data, 2013

As shown in table 4.1 above, 57.5% of the respondents were male and 42.5% were female respondents. The implication of this finding is that there were more male respondents who

participated in the study than their female counterparts. This may be due to the fact that male respondents were more interested in the topic under investigation or the population of male compared to female in the company is high. Although male respondents dominated the study, the view of both sexes relating to how product design, product quality and product line influence financial performance of Crown Beverage Limited were obtained and presented.

Table 4.2: Age Distribution of the Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid <25	40	29.9	29.9	29.9
25-35	56	41.8	41.8	71.6
35-45	27	20.1	20.1	91.8
45+	11	8.2	8.2	100.0
Total	134	100.0	100.0	

Source: Field data, 2013

The results in table 4.2 shows that most of the respondents who participated in the study were between the age group between 25-35 years with a percentage score of 41.8%. This was followed by the respondents below 25 years with a score of 29.9%, 20.1% were between 35-45 years and the remainder (8.2%) were 45 years and above. The implication of this finding is that most of the employees in Crown Beverage Limited are young and talented people able to serve the company smartly to meet its performance goals and targets.

Table 4.3: Level of Education of the Respondents

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Masters	9	6.7	6.7	6.7
Post graduate diploma	27	20.1	20.1	26.9
Bachelors	67	50.0	50.0	76.9
Diploma	31	23.1	23.1	100.0
Total	134	100.0	100.0	

Source: Field data, 2013

The findings in table 4.3 above reflect that 50% of respondents were bachelor's degree holders, 23.1% were holding ordinary diplomas, 20.1% had post graduate diplomas and 6.7% had master's degrees. From this analysis therefore, it should be noted that the study was dominated generally by staff who have considerable education background and thus were well conversant with how product design, product quality and product line affects the financial performance of Crown Beverage Limited.

The study sought to find out the departments in which respondents fall and the findings gathered are shown as follows:

Table 4.4: Departments in which Respondents fall

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Production and Operations	41	30.6	30.6	30.6
Finance and Accounting	25	18.7	18.7	49.3
Marketing and Sales	53	39.6	39.6	88.8
Research and Development	15	11.2	11.2	100.0
Total	134	100.0	100.0	

Source: Field data, 2013

Table 4.4 above shows that 39.6% of the respondents who formed part of the study were from the marketing and sales department. This is because there are more staff in the marketing and sales function of the Crown Beverage Limited and the problem under investigation was more centered on this department. Further it is reflected that 30.6% of the respondents were from the production and operations. This is because these are the staff responsible for product development and thus the issue under investigation was more touching in their area of proficiency. Further 18.7% were from the finance section and the remainder (11.2%) were from the research and development.

The study also found it useful, to examine the time spent serving Crown Beverages Limited and the results collected are shown in the table below: -

Table 4.5: Time spent serving Crown Beverages Limited

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1-3	43	32.1	32.1	32.1
4-6	39	29.1	29.1	61.2
7-10	16	11.9	11.9	73.1
11-13	31	23.1	23.1	96.3
14+	5	3.7	3.7	100.0
Total	134	100.0	100.0	

Source: Field data, 2013

From the table above, 32.1% of the respondents had worked with Crown Beverage Limited for a period of 1-3 years, 29.1% had worked with Crown Beverage Limited between 4-6 years, 23.1% had worked with Crown Beverage Limited between 11-13 years and 3.7% of the respondents had worked for over 14 years. This creates a good judgment that employees in one way or another are aware of the product development process and its impact on the financial performance of

4.2. Findings about product design

The study focused on product design in Crown Beverage Limited and various test statements were posed to the respondents and the findings generated are presented in the following tables: -

Table 4.6 Descriptive Statistics

	N	Min	Max	Mean	Std. D
I am aware of the steps involved in product design in Crown Beverages Ltd	134	1	5	4.04	.917
When the product is designed it has to meet customer needs	134	1	5	3.87	.953
Our innovativeness and creativity has enabled Crown beverages to design competitive products in the market	134	1	5	3.99	.813
I am given a chance to air out my view about the product design during product development process	134	1	5	4.10	.900
My task in product design is the reason why Crown Beverages exist	134	1	5	4.18	.713
The way we design our products compared to others in the market place is outstanding	134	1	5	4.08	.885
Our company generates more sales revenue because of the way we design our products	134	1	5	4.03	.775
The company value my involvement in product design and planning towards achieving customer needs	134	1	5	4.01	.926
Continuous improvement of products is considered to be the major factor affecting product design in Crown Beverages	134	1	5	4.03	1.163
Valid N (listwise)	134				

Source: Field data, 2013

Table 4.6 shows that respondents seem to agree that they are aware of the steps involved in product design in Crown Beverages Limited (mean =4.04). On the other hand the standard deviation of .917 indicate some respondents lacked the idea of the steps involved in product design in Crown Beverages Limited. In an interview held with the head of Production and Operations, the findings were;

We always let the staff know the new products we have and the steps that have been followed to bring the product to the market. This is a straightforward way of looking at the process that starts with idea generation, moves to development of individual features and then to full product development and finally into product testing. Of course, this is one example of how the process can be viewed and not a rigid framework. There has to be considerable fluidity in the system to accommodate feedback, skipping of stages, use of new methods and perhaps introduction of new stages. The reason why we managers do that is to ensure that the staff can explain clearly to the customers the main characteristics of the product so that we get to know whether it meet the customer needs and preferences.

From the foregoing therefore, it should be argued that there is high level of awareness about the steps involved in product design in Crown Beverages Limited.

Furthermore, the study indicates that respondents were in agreement that the designed products of Crown Beverages Limited meet customer needs (Mean = 3.87; St D=.953). A standard deviation reveals a significant variation in the opinions which could also relate to not clearly understand whether Crown Beverages Limited meet customer needs. From the interview held with one manager in the marketing function of Crown Beverages Limited, it emerged;

We generally conduct market survey to evaluate the performance of your products in the market. So far Crown Beverages has not received any customer complaints about our offering and this is a clear proof that the products we have developed meet customer needs and wants.

Basing on the above findings it should be argued that the designed products of Crown Beverages Limited meet customer needs. However, there was no statistics to prove whether the product performance of Crown Beverages meet customer needs.

In addition to the above, study indicated that majority of the respondents were in agreement that innovativeness and creativity of Crown Beverages in product design has resulted into competitive products in the market (Mean = 3.99; St D=.813). The standard suggests variations in response by the various respondents. The findings from the interview held with the line manager in marketing and sales revealed;

To remain in business, the basic approach is to harness creativity in some form for the development of new ideas. While there is much to recommend for the more qualitative approaches, one of the drawbacks is the lack of quantitative validity to ideas at this stage. We have found that the Smart Incentives approach can provide both creativity and validation in the same step. Respondents to a survey compete with each other to produce ideas thus introducing creativity into the process. The generated ideas are then evaluated by a peer group to provide the required market validation. This approach can be useful for generating ideas on both whole products and individual features.

From the foregoing therefore, it should be argued that the innovativeness and creativity of Crown Beverages in product design has resulted into competitive products in the market.

The findings also show that staff are given chance to air out their views during product development process with a mean value of 4.10 which appears to be close to the maximum rank of 5. Although, the corresponding standard deviation (.900) indicates variations in responses, majority of the respondents understood clearly the question and their views were well presented.

From the interview, one head of operations states,

We collect ideas from all people more especially staff from the operation, research and development and marketing and sales and their views are screened and the best ideas are taken into consideration during product development.

From the foregoing therefore, it should be argued that staff are given chance to air out their view during product development process.



Connected to the above, respondents seem to agree that their task in product development is the reason why Crown Beverages Limited exists (Mean = 4.18; St D= .713). The implication of this finding is that respondents were certain about their contribution towards product design. From the interview held with production and operations manager, it emerged;

Since ideas are collected from many people on how to develop and introduce new products in the market, all their contribution are is appreciated but we cannot say that the existence of Crown Beverages is solely due to a particular person's contribution. This is collective responsibility that is the reason for our existence in the market.

It should therefore, be noted that the existence of Crown Beverages, although depends on people's ideas, it is more collective responsibility than being centered on a particular person.

The usefulness of product design was further tested in a question which sought to find out from the respondents' view whether product design is outstanding compared to others companies in soft drinks and the respondents agreed that Crown Beverages has a distinct and outstanding product design (Mean = 4.08; St D= .885). In an interview with the research and development, it emerged;

We take time to study the market by looking at what competitors have and what we have and we design strategies of how to improve our products so that they

look unique in the eyes of customers. Our product packaging and labeling is quite different from other products and this gives us a competitive edge over others in the business.

From the above view it should be clearly stated that Crown Beverages has a distinct and outstanding product design.

Furthermore, the study indicated that the respondents were with a view that Crown Beverages generates more sales revenue because of the way it designs its products (mean = 4.03; St D= .775). The implication of this finding is that product design has a direct bearing on sales volume and thus financial performance. However, a standard deviation suggests varied responses regarding to whether Crown Beverages generates more sales revenue because of the way it design its products. The results from the interview, it emerged;

The distinct qualities we put when we are designing our products stimulates customer desires to buy our products and the company has been able to improve on its sales volume although we have not been able to meet the desired sales volume targets we want.

From the above view it should be reasoned that when the product has been designed properly it can motivate customers to buy the product and thus stimulate sales revenue for the company.

The findings also show that respondents accepted that Crown Beverages values staff involvement in product design and planning in meeting customer needs (Mean = 4.01). The implication of this finding is that staff participation in planning and designing is given a great deal in the company since they interact with the customers and they also form part of the customers of the company. However, the standard deviation of .926 reflects significant differences in responses on whether the company values staff involvement in product design and

planning towards achieving customer needs. From the interview held with the manager in the marketing and sales it was stated;

There is no way Crown Beverages can be successful in product design if it does not involve people in the planning process and design of the product. Staff in most case know what people want and thus by incorporating their ideas play a great part towards successful product development.

From the foregoing therefore, it should be argued that the company values staff involvement in product design and planning.

The results of the study indicate that respondents agreed that continuous improvement of products is considered to be the major factor affecting product design in Crown Beverages (Mean = 4.03). However, the standard deviation of 1.163 provided by the same respondents suggests that respondents possessed varied understanding on whether continuous improvement in product design is considered to be the major factor influencing product design in Crown Beverages Limited. From the interview it emerged;

Product development (PD) is, for every technology driven company, an important business process to secure future growth and sustained success in the marketplace. In today's changing business environment characterized by technological advances, intensified global competition, as well as changing customers and needs, the need for a successful PD is greater than ever. PD is a process and like any other management process, it can be improved to achieve better results.

From the above view it should be inferred that continuous improvement in product design should be given a great preference since it influences product development in Crown Beverages Limited

4.3 Findings about Product Quality

The study focused on Product Quality and various questions were presented to the respondents who were requested to indicate their level of agreement. The findings are presented in the next table:

Descriptive Statistics					
	N	Min	Max	Mean	St. D
The quality products we produce is the reason why we have remained competitive in the market place	134	1	5	4.08	.705
We have quality control measures in place to ensure that standards are not violated	134	1	5	4.17	.781
We regularly measure quality performance with quality standards as means of providing quality assurance	134	1	5	4.07	1.059
Because of our quality assurance, our product quality is outstanding compared to others in the market place	134	1	5	4.02	1.007
The survival rate of Crown Beverages is based on product quality	134	1	5	4.11	.722
Continuous improvement of product is considered to be the major benefits quality products to customers	134	1	5	3.94	1.032
To ensure high product quality the emphasis is generally put on total quality management implementation during product development.	134	1	5	4.04	.937
There is no product development efforts can be fruitful in Crown Beverage if quality is not emphasized in all stages	134	1	5	3.83	.930
Our ability to conform to quality controls is the reason why our sales volume are increasing	134	1	5	4.18	.883
Valid N (listwise)	134				

Source: Field data, 2013

Results in table 4.7 about product quality show a variation in respondents' views on test statement with some being in agreement while others disagreeing and others not sure. For example, the respondents concurred that the quality products Crown Beverages produce is the reason why it has remained competitive in the market place (mean =4.08). On the other hand the

The survival of any organization depends on how much sales the business organization can generate. Today it has become a prerequisite for organizations to promote their products or service to customers as one way of boosting their sales volume which can be translated into good financial performance.

From the foregoing therefore, it should be argued that sales volume is the indicator of good financial performance.

Table 4.9 shows a mean value of 2.12 implying that respondents rejected the view that Crown Beverages always meets its sales volume targets of its products. Further the standard deviation of 1.104 shows differences in responses generated for the test statement. From the interview with one manager in Marketing and Sales of Crown Beverages, states;

Although product development is intended to boost the sales volume of a company, Crown Beverages has consistently failed to maximize its sale volume. Failure to attain the desired sales volume is attributed to inefficiencies in the promotional activities such as advertising, personal selling and sales promotion and this has greatly crippled the need to attain the pre-set performance standards.

It should therefore be reasoned that Crown Beverages generally failed to meet its sales volume targets of its products.

The findings of the study indicate that respondents were in agreement that sales volume will continuously increases as Crown Beverages continues to develop new products. This is revealed by a mean value of 3.72. The implication of this finding is that as the company continues to be creative and innovative in its endeavors in its product development strategies, it can maximize sales volume. However, a standard deviation of 1.120 suggests differences in respondents' views. It should therefore be inferred that improvement in product design, product quality and product lines can result into improved sales volume for the organization.

corresponding standard deviation of 1.059 suggests that respondents had a significant variation in responses on whether Crown Beverage Limited regularly measures quality performance with quality standards. However, this could also be construed to imply that respondents might not have clearly understood quality performance standards used in this context. The results from an interview held with the Head of Operations hestates;

Quality assurance, quality control and quality management move together and there is no way these three components can be separated if the organization is to deliver perfect quality products. Quality control leads to quality assurance and assurance leads to total quality management.

Basing on the above view it should be argued that there is regular measure of quality performance with quality standards as means of providing quality assurance.

The results of the study further indicate that the respondents were with a view that because of quality assurance in Crown Beverages, the product quality is outstanding compared to rival products in the market (Mean = 4.02). However, even then the respondents seem to have different responses regarding quality assurance as revealed by a standard deviation of 1.007. The findings from the interview with the research and development officer were;

Crown Beverages works to guarantee and systematically improvement in product quality to make the product with zero defects. It was noted that one of the priorities of Crown Beverages is to deliver value for money to its customers and that innovativeness and creativity is the central theme at Crown Beverages. However it was noted that frequent changes in customer needs possess a formidable challenge to the company. That although the company can continuously improve the quality of its product, products of perfect quality with zero defects are hard to maintain in real world.

It should therefore be inferred that although perfect quality with zero defects is hard to maintain in real world, Crown Beverages Limited strives to ensure that it offers the best for its customers.

Furthermore, the study indicated that respondents were in agreement that the survival rate of Crown Beverages is based on product quality (Mean = 4.11; St D=0.722). A standard deviation reveals a significant variation in the opinions which could also relate to not clearly understanding whether the survival rate of Crown Beverages is based on product quality. The implication of this finding is that people want quality products and if Crown Beverage is able to deliver what customers believe is quality, then it can stay in the business for long time. The results from the interview it emerged;

The most important thing about product quality is that it enables the company to perform better than those companies which do not focus on offering quality products. That today it is inevitable to operate without putting strong emphasis on product quality in the business operations if the business is to prosper and thrive in the competitive climate.

With this assertion therefore it should be concluded that strong emphasis on quality improvement plays a bigger role towards the financial performance and without it the company's performance can deteriorate.

In addition to the above, majority of the respondents were in agreement that continuous improvement in product quality is considered to be the major benefit to customers (Mean = 3.94; St D=1.032). The standard deviation suggests variations in responses by various respondents. In an interview with the head of operations, she states;

The principles of quality management are applied in all aspects at every stage during product development. It is a companywide approach to quality management with improvements being undertaken on a continuous basis by everyone to ensure that customers get what they want and this is the reason why the Crown Beverages is becoming strong day after day despite some challenges related to financial performance deviations from the targets set.

From the foregoing therefore, continuous improvement of product quality is considered to be the major benefits to customers.

The study show that respondents seem to agree that product quality depends on quality management implementation during product development (Mean = 4.04). Further there were variations in responses to this test statement as revealed by the standard deviation of .937. The results from the interview held with one manager in research and development it emerged;

Product quality is a philosophy of quality management that links policy and operational practice. Identifying the need for quality products in the competitive market place is just the first step. Secondly in covers the setting of appropriate goals and the mobilization of the whole organization towards achieving them. He further indicates that product quality covers; full commitment of everyone in the organization and coverage of every aspect of all processes and continuously meeting of customers' requirements.

In short, it should be reasoned that to ensure high product quality, the emphasis should be put on total quality management implementation during product development.

The results of the study reflect that respondents seem to agree that there are no product development efforts that can be fruitful if quality is not emphasized at all stages as reflected by the mean value of 3.83 which is above the average of 3 and tending towards 4. However, a significant standard deviation of .930 suggests varied responses on the same test statement. The results from the interview held with the head of Operations were;

Total quality management is a concept which necessitates full participation of all individuals at each stage in the production process. This process demands employee participation in everything which adds value on to the company's products/services.

From the above view it should be stated that to a great extent product development efforts can be fruitful in Crown Beverages if quality is emphasized in all stages.

In addition to the above, majority of the respondents were in agreement that conforming to quality controls improves sales volume (Mean = 4.18; St D=.883). The standard deviation suggests variations in responses by the various respondents. The implication of this finding is that meeting quality controls positively stimulates sales volume. From the foregoing therefore, it should be argued that if the company is able to adhere to the pre-determined quality standards and controls can be in position to boost its sales volumes.

4.4 Findings about product line

This sub section focuses on product line and various questions were presented to the respondents who were requested to indicate their level of agreement. Results are presented in the following table as follows:

Descriptive Statistics					
	N	Min	Max	Mean	St. D
We have a portfolio of products that meet customer needs	134	1	5	4.07	.762
The company's product lines have help us to compete favourably	134	1	5	3.94	.987
The more we introduce new products the more we boost our sales volume	134	1	5	4.07	.842
Our product lines offers customers a chance to select products which suits their needs	134	1	5	4.07	1.091
Having a large product portfolio has elevated Crown Beverages from financial distress as risk is spread	134	1	5	3.81	1.086
Crown's expansion of its product line reflects its commitment to meet consumer demands	134	1	5	3.89	.971
There is no way Crown Beverages can meet its profitability targets without expanding its product lines	134	1	5	3.82	1.068
We always introduce new products after we have consulted customers, supplier and shareholders	134	1	5	4.05	.968
Valid N (listwise)	134				

Source: Field data, 2013

Table 4.8 show a mean value of 4.07 indicating that respondents agreed that Crown Beverages has a portfolio of products that meet customer needs. However, a standard deviation of .762 show there were varied responses from the participants of the study. The findings from the interview held with the manager in production and operations indicates;

Over the years, Crown Beverage has managed to introduce new products such as Mirinda Fruity, Mirinda Orange, Mirinda Pineapple, Mirinda Apple and Mirinda Lemon as means of creating variety in consumer's choice. This is because customers' needs are constantly changing. Their incomes, lifestyles, level of education, sophistication and technology are dynamic. Therefore, their marketing policies have been dynamic and the products offered to the market have come constantly under review and frequent changes.

From the foregoing therefore, it should be accepted that Crown Beverages has tried to introduce various products to the market purposely to meet customer choices.

The findings of the study reflect that respondents are in agreement that the company's product lines have helped Crown Beverages to compete favourably as indicated by a mean value of 3.94. Conversely, the standard deviation value of .987 shows variations in responses implying that participants failed to understand the test statement. However, the results from the interview held with one line manager in Research and development were;

In soft drinks industry there is a stiff completion, despite the considerable effort to develop new products, Crown Beverages seem not to have registered the desired financial targets in terms of profitability, sales volume and customer loyalty. Product-development managers are always struggling to bring in new products on time and on budget. So the managers push their teams to be more parsimonious, to write more-detailed plans, and to minimize schedule variations and waste.

From the foregoing therefore, it should be argued that the company's product lines have helped somehow Crown Beverages to compete favourably.

Further, the respondents agreed that the more Crown Beverages introduces new products, the more it boosts its sales volume (mean value =4.07). Conversely, a standard deviation of .842reflects significant differences in responses as to whether new products boost sales volume.

In an interview held with the middle manager in marketing and sales, it emerged;

As Crown Beverages continues to develop new products, this creates curiosity in the customer's minds and thus the company expects sales volume growth potential over the years and this will elevate the company from financial distress which it is facing.

It should therefore be stated that the more Crown Beverages introduces new products, it is more likely that this will boost its sales volume. However, this is yet to be proved by the performance of new products introduced.

The findings show that respondents agreed that the product lines of Crown Beverages offer customers a chance to select products which suit their needs(Mean = 4.07; St D=1.091). The standard deviation suggests variations in responses by the various respondents. The implication of this finding is that customers are in position to select the type of product that suits their needs. It was further highlighted that the success stories of Crown Beverages are centered on the variety of products it offers and this in turn will help the company to create repeat sales.

Further the results show that respondents were with a view that having a large product portfolio has elevated Crown Beverages Limited from financial distress as risk is spread in different products (mean = 3.81). Consequently, a greater standard deviation of 1.086 raises concerns regarding to whether having a large product portfolio can elevate Crown Beverages Limited from financial distress. The findings from an interview held with the head of Operations were;

The more a company has a wide product range, the more it can lessen its financial variability and thus can mitigate occurrence of financial distress in business. Products which are hereinafter called 'cash cows' can help the business to be successful despite having products which are 'problem children.

It should therefore be argued that having a large product portfolio can elevate Crown Beverages Limited from financial distress as risk is reduced.

The results show a mean value of 3.89 indicating that respondents agreed that Crown's expansion of its product line reflects its commitment to meet consumer demands. The implication of this finding is that as the company continues to introduce new products to its customers, this shows the company's assurance to meet diversified needs of customers as far as soft drinks are concerned. On the other hand a standard deviation of .971 signifies variation in responses on test statement. However, this could also be construed to imply that respondents might not have clear understanding of the reasons of having wide product range to suit customer needs. From the above view it should be argued that Crown's expansion of its product line reflects its commitment to meet consumer demands.

The study shows that respondents agreed that there is no way Crown Beverages can meet its profitability targets without expanding its product lines(mean =3.82). However, a standard deviation of 1.068 reflectsdifferences in opinions in as far as to whether Crown Beveragescan meet its profitability targets without expanding its product line. The results from the interview one manager from the marketing and sales were;

How do you expect to make profit if you do not have products to meet customer needs? Profitability depends generally on the product range. If Crown Beverages was having one or two products, it would have been swallowed up by strong competitors and to make

matters worse we wouldn't have celebrated our 10th birth day in the business. Therefore to keep our image in the business and show the world that we are able to meet customer needs we shall keep on developing new products so that we remind customers about our existence in the business.

From the above view it should be reasoned that to a great extent expanding the product line can help the company to register the desired profits.

The analysis of results reveals a mean of 4.05, implying that the respondents were in agreement that Crown Beverages always introduces new products after it has consulted customers, supplier and shareholders. This is supported by Crown Beverage Marketing Report (2012), that the company generally carries out market surveys to find out whether the products developed will meet customer needs. A case in point is when the company introduced Mountain Due for years back. However, a standard deviation of .968 reveals a significant variation in the opinions which could also relate to not clearly understand whether consultations are made to customers, supplier and shareholders relating to introduction of new products. The findings from the interview held with the head research and development were;

We always conduct market survey before we introduce new products in the market to ascertain whether the new product will match with customer needs and thus this helps the organization to meet its financial objectives. In the process of conducting market surveys, we consult the concerned parties such as customers, suppliers and shareholders.

Basing on the above view it should be argued that consultations are made before the introduction of new products in the market.

4.5 Findings about Financial Performance

The study focused on financial performance and various questions were presented to the respondents who were requested to indicate their level of agreement. The findings are presented as follows:

Descriptive Statistics					
	N	Min	Max	Mean	St.D
Our high sales volume is an indicator of good financial performance	134	1	5	3.89	.955
We always meet sales volume targets for our products	134	1	5	2.12	1.104
Sales volume will continuously increase as we continue to develop new products	134	1	5	3.72	1.120
Increase in profit levels is due to new products introduced in the market	134	1	5	3.86	1.020
Increase in profit levels in Crown beverages is an indicator of good financial performance	134	1	5	4.11	.838
Repeat sales reflect high customer retention rates and loyalty to Crown Beverages	134	1	5	4.10	.949
Customer loyalty is the reason why Crown Beverages has remained competitive in the market place	134	1	5	3.78	1.001
High customer retention and loyalty indicates that Crown beverages is performing well	134	1	5	3.99	.934
Valid N (listwise)	134				

Source: Field data, 2013

The results in table 4.9 indicate that respondents agreed with the view that high sales volume is the indicator of good financial performance. This is revealed by a mean of 3.89. Additionally, a standard deviation of .955 suggests a significant variation in the responses. From the interview with the marketing officer were;

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Valid N (listwise)	134				

Source: Field data, 2013

The results in table 4.9 indicate that respondents agreed with the view that high sales volume is the indicator of good financial performance. This is revealed by a mean of 3.89. Additionally, a standard deviation of .955 suggests a significant variation in the responses. From the interview with the marketing officer were;

The survival of any organization depends on how much sales the business organization can generate. Today it has become a prerequisite for organizations to promote their products or service to customers as one way of boosting their sales volume which can be translated into good financial performance.

From the foregoing therefore, it should be argued that sales volume is the indicator of good financial performance.

Table 4.9 shows a mean value of 2.12 implying that respondents rejected the view that Crown Beverages always meets its sales volume targets of its products. Further the standard deviation of 1.104 shows differences in responses generated for the test statement. From the interview with one manager in Marketing and Sales of Crown Beverages, states;

Although product development is intended to boost the sales volume of a company, Crown Beverages has consistently failed to maximize its sale volume. Failure to attain the desired sales volume is attributed to inefficiencies in the promotional activities such as advertising, personal selling and sales promotion and this has greatly crippled the need to attain the pre-set performance standards.

It should therefore be reasoned that Crown Beverages generally failed to meet its sales volume targets of its products.

The findings of the study indicate that respondents were in agreement that sales volume will continuously increases as Crown Beverages continues to develop new products. This is revealed by a mean value of 3.72. The implication of this finding is that as the company continues to be creative and innovative in its endeavors in its product development strategies, it can maximize sales volume. However, a standard deviation of 1.120 suggests differences in respondents' views. It should therefore be inferred that improvement in product design, product quality and product lines can result into improved sales volume for the organization.

Table 4.9 reveal that respondents seem to agree that increase in profit levels is due to new products introduced in the market and this is shown by a mean value of 3.86. Nevertheless, a standard deviation of 1.020, suggests differences in responses on whether increase in profit levels is due to new products introduced in the market. From the interview with the head of finance and accounting it emerged;

Crown Beverages believes that by introducing new products in the market leads to more profits as more sales can be generated. When the company introduced new products such as Mirinda Fruity, Mirinda Orange, Mirinda Pineapple, Mirinda Apple and Mirinda Lemon, profit levels improved by 10% although this was below the company's target of 30%. Although Crown Beverages failed to meet the desired profit levels, its profits improved.

From the foregoing therefore, it should be reasoned that increase in profit levels is to some extent due to the introduction of new products in the market.

Furthermore, the study indicates that respondents are of the view that increase in profit level in Crown Beverages is an indicator of good financial performance (Mean = 4.11; St D=.838). Even then the respondents seem to have differences in their responses regarding profit levels and financial performance as revealed by a standard deviation. The implication of this finding is that financial performance of an organization is determined by the profit levels. If the profit levels are low, this means that the company is performing poorly. However, it should be inferred that although profit levels may be increasing, the financial performance may not be good due to factors such as poor management of resource, inefficient allocation of resources and the like.

It is further reflected in table 4.9 that majority of the respondents accepted that repeat sales reflect high customer retention rates and loyalty to Crown beverages (Mean = 4.10; StD = .949). However, the standard deviation suggests that respondents possessed varied understanding on whether repeat sales reflect high customer retention rates and loyalty to Crown Beverages. The results generated from the interview with the marketing officer were;

Product development plays a big part in reinforcing customer loyalty and brand loyalty of the firm's offerings. That when customers become loyal to an organization's offering this does not only create repeat consumption but also increase the sale volume of an organization.

Therefore, this assertion implies that there is a significant relationship between the two variables.

The study shows that respondents agreed that customer loyalty is the reason why Crown Beverages has remained competitive in the market place as reflected by the mean value of 3.78. Conversely, a standard deviation of 1.001, indicates differences in responses. The findings from the interview with the operations officer it emerged;

To remain powerful in the market requires one to build customer loyalty. Building customer loyalty offers long term benefits to businesses that chose to build it. The reason for this is because it allows companies to interact with their customers on a whole new level.

It can therefore be accepted that to remain competitive in the market place requires a company to build customer loyalty.

Table 4.9 indicates that respondents agreed that high customer retention and loyalty shows that Crown Beverages is performing well. This is shown by a mean value of 3.99. Nevertheless, a standard deviation of .934, shows differences on test statement from respondents' point of view.

From the interview with the accounting officer it emerged;

The customer loyalty and retention is an indicator of good performance, however, performing well is very broad and requires all indicators such as profitability, sales volume to be in the same line. Having only many customers which take long to settle their indebtedness or who turn into bad debts is useless to the company. Crown Beverages has a large customer base but it has over the years failed to register the desired performance targets.

From the above view it should be reasoned that having a large customer base to some extent may not be an indicator of good financial performance.

4.6 The relationship between product development and financial performance

In testing the relationship between product development and financial performance, the researcher first ascertained the sales volume, profitability and cash flows as follows:

Table: 4.10 Sales volumes

Sales Budget of Crown Beverages Ltd from 2008/2009 to 2011/012 in Million Shillings

YEAR	TARGETS	ACTUAL	VARIANCE	VARIANCE PERCENTAGE
2008/2009	946.81	934.95	(11.86)	(1.25)
2009/2010	1100.00	979.11	(120.89)	(10.99)
2010/2011	1111.40	1075.15	(36.25)	(3.26)
2011/2012	1258.70	1212.47	(46.23)	(3.67)

Source: Sales Volume of Crown Beverages Ltd,

Over the years, Crown Beverages has introduced many products such as Pepsi-Cola, the flagship brand, Mountain Dew, Mirinda (Fruity, Orange, Pineapple and the recently launched Mirinda Green Apple), 7UP and Evervess. These are available in 300ml returnable glass bottle, 500ml, 1 litre and 2 litre recyclable plastic bottles. The company also bottles mineral water under the Peak brand. In summary, the level of sales volume in Crown Beverages Ltd, has not been in line with what is expected. This means that what is estimated is not what is actually got thus giving varying figures. A case in point was given from the sales made in 2011/2012 against what was targeted. Thus the organization registered adverse sales variance of 46.23 million shillings. This is attributed to improper implementation of promotional techniques such as advertising, sales promotion and public relations.

It should be noted that the soft drinks industry did not escape the disfigurements of the 2011 economic turmoil (Operations Plan of Crown Beverages 2012). As the economy looks to be picking up, the effects of the volatile economic times are still felt as soda producers, distributors and retailers say sales have declined. The dropped volumes were more visible in the financial year 2011/2012 (Research and Development Plan of Crown Beverage, 2012). This was attributed to effects of high inflation, which characterised much of the second half of the year 2012. Conversely the results from the interview with the operations officer were;

"Feedback, in terms of our sales volume, has dropped. Inflation and the general slowdown in Uganda's economic growth are responsible for the decline. We are not registering high growth like we did last year," However, the company's sales have largely been boosted by promotions. CBL has undertaken most rewarding, captivating

reward promotions over the last five years. These include Chamuka (2009), ChamukaKeys (2009), Motozela (2010), Mirindarific (2011), Moto Moto (2012).

Table: 4.11 Profitability

Profitability of Crown Beverages Ltd from 2008/2009 to 2011/012 in Billion Shillings

YEAR	TARGETS	ACTUAL	VARIANCE	VARIANCE PERCENTAGE
2008/2009	146.81	131.01	(15.8)	(10.77)
2009/2010	201.00	178.10	(22.9)	(11.39)
2010/2011	413.10	389.20	(23.9)	(5.78)
2011/2012	532.20	446.32	(85.88)	(16.14)

Source: Profitability of Crown Beverages Ltd,

As shown in table 4.11, it is seen that over the years Crown Beverages has failed to meet its profitability targets. This implies that it is uneasy for most businesses to mark two decades of positive growth in a competitive market in any line of business. Any company that does so and remains sound and profitable deserves much credit. Crown Beverage Limited (CBL) is a company that recently celebrated 20 years of success in Uganda. Despite the improved growth over the years, the company faces some challenges including the high cost of production, high power tariffs, unreliable water supply, poor infrastructure in some parts of the country, a lot of red tape in procurement process and the many, high taxes charged by government among others. Even as the struggle for the soda market rages on, companies are expanding their scope, venturing into non-alcoholic drinks including mineral water. Whereas both CBL and CBC have

mineral water production lines, the latter recently took a notch higher moving into juice production –Minute Maid.

However, the struggle for soft drink companies to move into other areas like mineral water and juice production is likely to be stifled as such production lines seem to be already saturated. For instance, today, there are over 22 mineral water companies and several fruit juice producers. However, marketing officer in his statements were;

There is still a big opportunity of profiting from the untapped potential in the beverage market. "This is a growing sector and the markets are evolving. As they evolve, we too need to evolve. The water category is growing over time due to the emerging strong middle class.

Table: 4.12Cash Flows

Cash Flows of Crown Beverages Ltd from 2008/2009 to 2011/012 in Billion Shillings

Year	Product development	Cash generated	Percentage change
2009	Mountain Dew, Mirinda Fruity, Orange and Evervess	126,010.112	7.94
2010	Pineapple and Mirinda Green Apple,	136,019.101	5.14
2011	500ml, 1 litre and 2 litre recyclable plastic bottles	143,011.091	4.26
2012	mineral water under the Peak brand	149,098.192	3.98

Source: Field data, 2013

The finding in table 4.12 show that over the years there has been a reduction in percentage change in cash flows generated from the sale of products. According to Crown Beverage Records (2012), a 500ml which has been selling at 1800/= has been reduced to 1500/=. The price of one litrenow cost 2,500/= up from 3,000/=.The entry of new players particularly Riham has seen change in market share. Riham which is low priced soft drink has since taken some portions of market share and is projected to have 10 to 12 per cent share by close of this year.

The regression analysis was used to determine the relationship between product development and financial performance. Findings are presented in the following table.

Table 4.1: Regression Analysis of product development and financial performance

Dependent variable:		
Financial Performance		
R	.994	
r ²	.988	
Adjusted r ²	.987	
ANOVA		
Fisher's Ratio (F)	Sig. (p)	
3454.299	.000	
Coefficient		
	T	Sig.
Product Design	2.647	.009
Product Quality	3.330	.001
Product Lines	3.105	.002

Source: Field data, 2013

From table 4.13, the study shows a strong positive linear relationship between product design, product quality and product lines and financial performance ($r = .994$). Product design, product quality and product lines account for 98.7% variance of financial performance.

These findings were subjected to an Anova test and found significant ($F = 3454.299, p < .05$).

Thus, this implies that; product design, product quality and product lines positively affect financial performance. Thus, this implies that;

- i. There is a positive relationship between product design and financial performance of Crown Beverages.
- ii. There is a positive relationship between product quality and financial performance of Crown Beverages.
- iii. There is a positive relationship between product lines and financial performance of Crown Beverages.

In addition the coefficients of each product development indicators show that product design, product quality and product lines significantly affect financial performance ($p < .05$). Product quality positively affects financial performance ($t = 3.330$) followed by product lines ($t = 3.105$) and lastly product design ($t = 2.647$).

CHAPTER FIVE

DISCUSSION, SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

This chapter presents the discussion of findings, summary of findings, conclusions and recommendations. It is divided into four sections. The first section presents the discussion of findings, the second section covers the summary of findings according to the objectives. The third section presents conclusions and fourth section presents recommendations.

5.1 Discussion of findings

The first objective was to examine the influence of product design on financial performance of Crown Beverage Limited. The findings of the study were that: -

The findings of the study indicated that respondents agreed that they are aware of the steps involved in product design in Crown Beverages Limited. It was further discovered that the steps involved starts with idea generation, moves to development of individual features and then to full product development and finally into product testing. Of course, this is one example of how the process can be viewed and not a rigid framework. There has to be considerable fluidity in the system to accommodate feedback, skipping of stages, use of new methods and perhaps introduction of new stages (Watson, 2010). The reason why managers do that is to ensure that the staff can explain clearly to the customers the main characteristics of the product so that company get to know whether it meet the customer needs and preferences. From the foregoing therefore, it should be argued that there high level of awareness about the steps involved in product design in Crown Beverages Limited.

The results further show that respondents were in agreement that the designed products of Crown Beverages Limited meet customer needs. It was further noted that Crown Beverages generally conduct market survey to evaluate the performance of its products in the market. This is what Grundiche (2004) explained that when designing product the emphasis should be placed on meeting customer needs. Basing on the above findings it should be argued that the designed products of Crown Beverages Limited meet customer needs. However, there was no statistics to prove whether the product performance of Crown Beverages meet customer needs.

Majority of the respondents agreed that the innovativeness and creativity of Crown Beverages in product design has resulted into competitive products in the market. This is in agreement with Heggstad (2007) that to improve on financial performance and to survive volatile environmental shifts in business, the basic approach is to harness creativity in some form for the development of new ideas. From the foregoing therefore, it should be argued that that the innovativeness and creativity of Crown Beverages in product design has resulted into competitive products in the market.

It was discovered that respondents agreed that staff are given chance to air out their view during product development process. Contrary to this respondents were not sure whether their task in product development is the reason why Crown Beverages Limited exists. However, it was concurred that the company value staff involvement in product design and planning towards achieving customer needs. According to Etuk (2003), there is a need to gather views and ideas from people when designing new products. From the foregoing therefore, it should be argued that staff are given chance to air out their view during product development process. It should

further be noted that since ideas are collected from many people on how to develop and introduce new products in the market, all their contributed is appreciated but we cannot say that the existence of Crown Beverages is solely due to a particular person's contribution. This is collective responsibility that is the reason for our existence in the market.

The results show that respondents agreed that Crown Beverages has a distinct and outstanding product design. Further it was also noted that that Crown Beverages generates more sales revenue because of the way it designs its products. This is in line with Cooper and Edgett (2008), that to generate more sales, the company must create something special in the eyes of customers during product development. The design must be distinctive to create an edge in the market place. The implication of this finding is that product design has a direct bearing on sales volume and thus financial performance. The distinct qualities put when it is designing its products stimulates customer desires to buy its products and the company has been able to improve its sales volume although the company has not been able to meet the desired sales volume targets. Therefore when the product is designed properly it can motivate customers to buy the product and thus stimulate sales revenue for the company.

Majority of the respondents concurred that continuous improvement in product design is considered to be the major factor affecting product design in Crown Beverages Limited. This view was supported by Brouke (2009) that product development is, for every technology driven company, an important business process to secure future growth and sustained success in the marketplace. In today's changing business environment characterized by technological advances, intensified global competition, as well as changing customers' needs, the need for a successful PD is greater than ever. PD is a process and like any other management process, it can be

improved to achieve better results. From the above view it should be inferred that continuous improvement in product design should be given a great preference since it influences product development in Crown Beverages Limited.

The second objective was to examine the influence of product quality on financial performance of Crown Beverage Limited. The findings of the study were that: -

Quality products Crown Beverages produces is the reason why it has remained competitive in the market place. Additionally, majority of the respondents agreed that the survival rate of Crown Beverages is based on product quality. Also it was reflected that the respondents were with a view that the ability to conform to quality controls is the reason why sales volume of Crown Beverages are increasing. The implication of this finding is that meeting quality controls positively stimulates sales volume. This is in line with Grundiche (2004), that the most important thing about product quality is that it enables the company to perform better than those companies which do not focus on offering quality products. Sharma (2006) adds that today it is inevitable to operate without putting strong emphasis on product in the business operations if the business is to prosper and thrive in the competitive climate. With this assertion therefore it should be concluded that strong emphasis on quality improvement plays a bigger role towards the financial performance and without it the company's performance can deteriorate.

The respondents stated that the quality control measures in Crown Beverages ensures that standards are not violated. Further it was also highlighted that in Crown Beverages, there is regular measure of quality performance with quality standards as means of providing quality

assurance. Additionally, the findings of the study indicated that majority of the respondents stated that because of quality assurance in Crown Beverages, the product quality is outstanding compared to rival products in the market. This is in line with Najeh and Zaitri (2007) that quality assurance, quality control and quality management move together and there is no way these three components can be separated if the organization is to deliver perfect quality products. Quality control leads to quality assurance and assurance leads to total quality management. However it was noted that frequent changes in customer needs possess a formidable challenge to the company. That although the company can continuously improve the quality of its product, guarantying products of perfect quality with zero defects is hard to maintain in real world.

The respondents agreed that continuous improvement of product quality is considered to be the major benefits to customers. Furthermore, results show that respondents concurred that to ensure high product quality, the emphasis is generally put on total quality management implementation during product development. Additionally, it was indicated that there is no product development efforts can be fruitful if Crown Beverages fails to emphasize quality in all product development stages. This is in line with McGrath (2004) that product quality is a philosophy of quality management that links policy and operational practice. Identifying the need for quality products in the competitive market place is just the first step. Setting of appropriate goals and the mobilization of the whole organization towards achieving them. Koen (2004), further indicates product quality covers; full commitment of everyone in the organization and coverage of every aspect of all processes and continuously meeting customers' requirements. In short, it should be reasoned that to ensure high product quality, the emphasis should be put on total quality management implementation during product development. Yanelle (2005), adds that total quality

management is a concept which necessitates full participation of all individuals at each stage in the production process. This process demands for employee participation in everything which adds value on to the company's products/services.

The third objective was to assess the influence of product lines on financial performance of Crown Beverage Limited. The findings of the study were that: -

The respondents stated that Crown Beverages has a portfolio of products that meet customer needs. It was found out that over the years Crown Beverage has managed to introduce new products such as Mirinda Fruity, Mirinda Orange, Mirinda Pineapple, Mirinda Apple and Mirinda Lemon as means of creating variety in consumer's choice. This is because customers' needs are constantly changing (Crown Beverages, 2012). Their incomes, lifestyles, level of education, sophistication and technology are dynamic and not static. Therefore, their marketing policies have been dynamic, and the products offered to the market have come constantly under review and frequent changes. From the foregoing therefore, it should be accepted that Crown Beverages has tried to introduce various products to market purposely to meet customer choices.

The respondents were in agreement that the company's product lines have helped Crown Beverages to compete favourably. Further it was indicated that respondents were with a view that having a large product portfolio has elevated Crown Beverages Limited from financial distress as risk is spread. This is in agreement with Laudon & Laudon (2004) that the more a company has a wide product range chances are that it can reduce its financial variability and thus can mitigate occurrence of financial distress in the business. Although results show that some

respondents disagreed with the view, it should therefore be argued that having a large product portfolio can elevate Crown Beverages Limited from financial distress as risk is reduced.

The respondents agreed that the more Crown Beverages introduces new products, the more it boosts its sales volume. Further it was discovered that the respondents agreed that the product lines of Crown Beverages offer customers a chance to select products which suit their needs. This is in line with Cooper (2008) that customers are in position to select the type of the product that suits their needs. Therefore as Crown Beverages continues to develop new products, this creates curiosity in the customer minds and this can help the company to maximize its sales volume potentials every years.

The respondents agreed that Crown's expansion of its product line reflects its commitment to meet consumer demands. The implication of this finding is that as the company continues to introduce new products to its customers, this shows the company's assurance to meet diversified needs of customers as far as soft drinks are concerned. From the above view it should be argued that Crown's expansion of its product line reflects its commitment to meet consumer demands.

The respondents were in agreement that Crown Beverages always introduces new products after it has consulted customers, suppliers and shareholders. This is in agreement with Repenning (2001) successful product development depends on wide consultation with all stakeholders. Watson (2010), that concludes that before one introduces new products in the market, a market study has to be carried out to ascertain whether the new product will be liked by the customers and thus enable the organization to meet its financial objectives. Basing on the above view it

should be argued that consultations are made before the introduction of new products in the market.

5.2 Summary of the major Findings

The finding indicated that there is a positive relationship between product design and financial performance. It was highlighted that improving the product design attracts customers' attention, create customer loyalty, high customer retention rates and this leads to good financial performance.

It was discovered that there is a strong positive correlation between product quality and financial performance. Quality control leads to quality assurance and assurance leads to total quality management and can be translated into good financial performance since quality is an element customers are looking for in a product.

The study highlighted that there is a strong positive correlation between product lines and financial performance. That the more a company introduces new products in the market the more chances it is likely to perform well and vice versa

5.3 Study conclusions

Product quality, product design and product lines are the core element upon which the other marketing elements rest. Thus, a soft drink company whose quality of product is poor or perceived by customers as unsatisfying may fail to register the desired sales volume, profits and cash flows. Similarly, products that do not relate or meet the real needs of customers cannot

generate revenue for the company. Returns on investment and market share can be negatively impacted by poor and shoddy products. The profitability and sales volumes of such big soft drinks companies such as Crown Beverages depends largely on the quality of their products. The study further revealed that product lines, product design and product quality were positively correlated with profitability, sales volume and customer loyalty which are the main components of financial performance.

5.4 Recommendations

Based on the findings, discussion and conclusions, it is recommended in this study that;

Crown Beverages should always analyze its environment through research in order to identify new market opportunities to develop appropriate products to meet the changing needs of customers.

The operational staff involved in product development should ensure that the quality of products designed meet the expectation of customers in the local and international markets since product quality is a strong and significant factor in the firms' marketing strategy and performance.

The staff in research development in soft drink industries should continuously carry out market surveys especially during idea generation so that more innovative products could be introduced in the market place for improved corporate performance.

Managers in soft drink industries should also organize regular and continuous training for marketing and R&D personnel so as to update their professional skill and knowledge on product development.

Product development process should involve all staff in soft drink companies and the focus should be on product construction, packaging, branding, product positioning and usage testing should be an integral component of product development in the soft drink industries sector.

Effective information management and communication should be applied in the daily operations of the soft drink industries as it can provide management and staff with data and understanding critical to successful product development.

The accountants and finance administrators in soft drink industry should strive to improve financial performance and firm value by marketing actions such as new product introductions and promotional incentives. The current study investigated the short-term and long-term influence of such marketing actions on financial metrics, including top-line, bottom-line and stock market performance.

5.5 Suggestions

Soft drinks companies are experiencing financial distress due to poor decisions made by the managers especially in their planning stages of product development effort, idea generation, product improvement and product testing. Therefore, the study suggests a thorough investigation on all product development stages to enable companies register the desired financial targets.

REFERENCES

- Bakunda G. (2001), *An Introduction to Business Strategy*, First Edition, Makerere University Press.
- Brouke Smith (2009) *Developing Products in Half the Time*, 2nd Edition, John Wiley and Sons, New York.
- Cooper R.G., Edgett, S.J.(2008), Maximizing productivity in product innovation, *Industrial Marketing Management*, Vol.17 (1988), No 2, pp. 237-248
- Etuk K (2003). *Marketing Strategy*, 2nd Ed., Chicago, Houghton Miffling Co. p. 384.
- Goffin Preston and Mitchell G.(2005) *Developing products in half the time*, Van Nostrand Reinhold, New York
- GrundicheKhurana (2004). Towards Holistic "Front Ends" in New Product Development, *Journal of Product Innovation Management* 15 (1): 57–75.
- HaslemTobday (2009). Product complexity, innovation and industrial organization, *Research Policy* 26(6): 689-710.
- HeggestaPoskela (2007). The Role of Process Formalisation in the early Phases of the Innovation Process, 12th Int. Prod. Development Conf. Copenhagen
- Hoggarth, Kim, J. and Wilemon, D. (2008), Sources and assessment of complexity in NPD projects. *R&D Management*, 33 (1), pp. 16-30.
- Husig and Kohn (2003), Factors influencing the Front End of the Innovation Process: A comprehensive Review of Selected empirical NPD and explorative FFE Studies ,Brusell, Juni 2003, p.14.
- Kaufman Webster (2005). *Understanding and managing risk attitude*. Hants, England: Gower Publishing Ltd.

- Koen, Peter A. (2004), The Fuzzy Front End for Incremental, Platform, and Breakthrough Products, PDMA Handbook of New Product Development, 2nd Ed.: 81–91
- Kotler P (1994). Marketing Management: Anal., Plann. Implementation and Control. 10th Ed., Englewood Cliff, N. York, Prentice-Hall Inc. p.434.
- McGrath, M. E. (2004). Next generation product development : How to increase productivity, cut costs, and reduce cycle times. New York: McGraw-Hill.
- Molyneux (2003). Marketing Principles. Stanton WJ. Fundamentals of Marketing.
- Nelly and Wheelock (2007). Product development decisions: A review of the literature, Management Science 47(1): 1-21.
- Pollack. K, Stuart .M and Haka (2004), The Review of Financial Management Principles, Second Edition, Stanley Thane Great Britain
- Prasad Gordon and Harker Chris (2007). The Path to Developing Successful New Products. MIT Sloan Management Review Press.
- Revell Norton (2009). The Balanced Scorecard measures that drive performance. Harvard Business Review No. January-February.
- Repenning Kahn (2001). The social psychology of organizations. New York: John-Wiley & Sons.
- Short R. (2009). The financial times guide to strategy - How to create and deliver a winning strategy Trans-Atlantic Publications.
- Tirtiroglon and Daniel (2000). Carbone, Critical Success Factors in the Front-End of High Technology Industry New Product Development, Doctoral Dissertation, University of Alabama in Huntsville.

Ulrich, Karl T. and Eppinger, Steven D (2004) *Product Design and Development*, 3rd Edition,

McGraw-Hill, New York, 2004

Ullman, David G. (2009) *The Mechanical Design Process*, McGraw-Hill, 4th edition

Wall Goedhart (2005). *Measuring and managing the value of companies*. New Jersey: John Wiley & Sons.

Wood Frank (2001), *Business Accounting*, Pitman Publishers London

Yannele WT (2005). *Marketing: Theory, Principles and Practice*, London, Macmillan Books Ltd.

p. 92.

Zimmerman Thompson (2006). *Marketing Management*, 4th Ed., London, Heinemann Books

Ltd. New York, McGraw-Hill Inc. pp: 123

O'Donnell and Duffy, 2002.

APPENDICES

APPENDIX A

QUESTIONNAIRE FOR LOWER LEVEL STAFF OF CROWN BEVERAGES

**TOPIC: PRODUCT DEVELOPMENT AND FINANCIAL PERFORMANCE IN
CROWN BEVERAGES LIMITED**

Dear respondents,

The purpose of this questionnaire is to get your views on the above mentioned research topic. The information will be used for academic purposes only and will be treated with highest degree of confidentiality. Please feel free and answer all questions to the best of your knowledge and ability as honestly as possible. There is no correct or wrong answer. What is important is your view about the subject. I thank you in advance for accepting providing me with necessary answers. Please do not write your name on the questionnaire.

Thank you.

Instructions: Fill or tick where appropriate.

SECTION A: BACKGROUND INFORMATION

Please circle the appropriate response for questions 1 to 6.

1. Sex of Respondent

- a) Male b) Female

2. What is your age Category?

- a) Below 25 b) 25-35 c) 35-45 d) 45+

3. Department

- (a) Finance and accounting, (b) Quality Assurance and Operations (c) Research and development (d) marketing and sales

4. Title.....

5. Level of Education

- a) Masters b) Postgraduate Diploma c) Degree d) Diploma e) Advanced Level
 f) Ordinary Level g) Other Specify.....

6. Length of Service (in years)

- a) 1-3 years b) 4-6years c) 7-10years d) 11-13 e) 14+.years.

SECTION B:

Please indicate the extent to which you agree with each of the statement by ticking the appropriate choice on **Product development and financial performance in Crown Beverages Ltd**

A. Product design					1	2	3	4	5
Strongly Agree (5)	Agree (4)	Undecided (3)	Disagree (2)	Strongly Disagree (1)					
1.	I am aware of the steps involved in product design in Crown Beverages Ltd								
2.	When the product is designed it has to meet customer needs								
3.	Our innovativeness and creativity has enabled Crown beverages to design competitive products in the market								
4.	I am given a chance to air out my view about the product design during product development process								
5.	My task in product design is the reason why Crown Beverages exist								
6.	The way we design our products compared to others in the market place is outstanding								
7.	Our company generates more sales revenue because of the way we design our products								
8.	The company value my involvement in product design and								

	planning towards achieving customer needs						
9	Continuous improvement of products is considered to be the major factor affecting product design in Crown Beverages						
10	Indicate other factors that affect product design in Crown Beverages Ltd						
B. Product Quality							
Strongly Agree (5)	Agree (4)	Undecided (3)	Disagree (2)	Strongly Disagree (1)			
				1	2	3	4 5
11	The quality products we produce is the reason why we have remained competitive in the market place						
12	We have quality control measures in place to ensure that standards are not violated						
13.	We regularly measure quality performance with quality standards as means of providing quality assurance						
14	Because of our quality assurance, our product quality is outstanding compared to others in the market place						
15	The survival rate of Crown Beverages is based on product quality						
16	Continuous improvement of product is considered to be the major benefits quality products to customers						
17	To ensure high product quality the emphasis is generally put on total quality management implementation during product development.						
18	There is no product development efforts can be fruitful in Crown Beverage if quality is not emphasized in all stages						
19	Our ability to conform to quality controls is the reason why our sales volume are increasing						
20	How do customers perceive your product quality? And what benefits do customers get from Crown beverages						

C. Product lines							
Strongly Agree (5)	Agree (4)	Undecided (3)	Disagree (2)	Strongly Disagree (1)			
			1	2	3	4	5
21	We have a portfolio of products that meet customer needs						
22	The company's product lines have help us to compete favourably						
23	The more we introduce new products the more we boost our sales volume						
24	Our product lines offers customers a chance to select products which suits their needs						
25	Having a large product portfolio has elevated Crown Beverages from financial distress as risk is spread						
26	Crown's expansion of its product line reflects its commitment to meet consumer demands						
27	There is no way Crown Beverages can meet its profitability targets without expanding its product lines						
28	We always introduce new products after we have consulted customers, supplier and shareholders						
D. Financial Performance							
Strongly Agree (1)	Agree (2)	Undecided (3)	Disagree (4)	Strongly Disagree (5)			
			1	2	3	4	5
29	Our high sales volume is an indicator of good financial performance						
30	We always meet sales volume targets for our products						
31	Sales volume will continuously increase as we continue to						

	develop new products					
32.	Increase in profit levels is due to new products introduced in the market					
33	Increase in profit levels in Crown beverages is an indicator of good financial performance					
34	Repeat sales reflect high customer retention rates and loyalty to Crown Beverages					
35	Customer loyalty is the reason why Crown Beverages has remained competitive in the market place					
36	High customer retention and loyalty indicates that Crown beverages is performing well					

End
Thank you for your cooperation

APPENDIX B

INTERVIEW GUIDE

1. Are you aware of the steps followed in product design during product development process?
2. If yes, what are the main steps followed to design a product that meet customer needs?
3. Do you think the designed products enable Crown Beverages to register the desired financial performance targets? If yes, how? And if no, please support your view
4. How do you rate the quality of products you produce at Crown Beverages?
5. Does the quality meet customer needs and organization needs?
6. If no, what do you think has to be done to improve on product quality so as to register the desired performance targets?
7. Are you aware of the product portfolio of Crown Beverages?
8. Does product lines have any bearing on the financial performance of Crown Beverages?
9. What suggestion would you put for Crown Beverages Ltd to improve on its financial performance?

End

Thank you for your cooperation

APPENDIX C

R.V. KREJCIE AND D. W. MORGAN (1970) SAMPLE SIZE ESTIMATION TABLE

<i>N</i> *	<i>S</i> [†]	<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	346
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	354
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	191	1200	291	6000	361
45	40	170	118	400	196	1300	297	7000	364
50	44	180	123	420	201	1400	302	8000	367
55	48	190	127	440	205	1500	306	9000	368
60	52	200	132	460	210	1600	310	10000	370
65	56	210	136	480	214	1700	313	15000	375
70	59	220	140	500	217	1800	317	20000	377
75	63	230	144	550	226	1900	320	30000	379
80	66	240	148	600	234	2000	322	40000	380
85	70	250	152	650	242	2200	327	50000	381
90	73	260	155	700	248	2400	331	75000	382
95	76	270	159	750	254	2600	335	1000000	384

*N is the population

†S is the sample size