EJABM European Journal of Applied Business and Management

European Journal of Applied Business Management, 2(2), 2016, pp. 18-35. ISSN 2183-5594

Research Paper

Target costing implementation and competition: A case study of breweries industry

Submitted in February 22nd
Accepted in September 28th
Evaluated by a double blind review system

KENNETH ENOCH OKPALA [1]

Structured Abstract

Purpose: Keen competition among producers in the breweries industry had led to the search for production strategy and cost management technique to survive and outwit competitors. The relationship between target costing and competition among firms in Nigerian breweries industry was investigated in this study as a means of addressing the above issue.

Methodology: A case study research design was employed. Six organizations with 1,451 senior staff members. Among them were Chief Accountants, Management Accountants, Marketing / Sales Managers Production Managers, Purchase Manager, Maintenance Engineers and Supervisors in their respective organizations were used as the study's population. Total enumeration was used. 1,242 usable copies of the questionnaire were collected and analyzed representing 86% response rate. Four hypotheses formulated were tested using regression analysis with the aid of SPSS.

Findings: The result of the analysis indicated that there were significant impact among the independent sub-variables and their aggregate on the variables of the dependent as follows: Value engineering on cost of production ($R = .571$, $R^2 = .497$, $p = < .05$); Lean manufacturing on customer satisfaction ($R = .687$, $R^2 = .610$, $p = . < .05$); Supply chain management on efficient product delivery ($R = .751$, $R^2 = .698$, $p = < .05$); Kaizen philosophy on continuous product quality improvement ($R = .534$, $R^2 = .478$, $p = < .05$). The result obtained was in line with a priori expectation.

Research limitations: This study concentrated on the breweries industry which is in the amanufacturing subsector of the Nigerian economy. This is due to the level cut throat computation among firms and the importance of the sector to the manufacturing industry in Nigeria. It was suggested that other researchers should conducted further studies to replicate and confirm the results in other manufacturing sub ectors. This would enable the integration of these results with a view to establish the general impact of costing on the completion in Nigerian manufacturing industry. The study will provide a platform for comparative analysis and industry decisipon template.

[1] Department of Financial Studies (Accounting) Redeemer's University, Nigeria. E-mail: enocharticles@gmail.com.

European Journal of Applied Business Management, 2(2), 2016, pp. 18-35. ISSN 2183-5594

Practical implications: The four hypotheses tested indicated that the independent variable had significant impact on the dependent variable. Therefore the study concluded that target costing had reliably predicted competition in the breweries industry in Nigeria.

Originality/ Value: Previous researches reviewed shows that some of the sub variables influencing target costing and competition were omitted while those studied were not deeply examined. To the best of the researcher's knowledge, little or no study was conducted on the impact of target costing on the level of competition in the breweries industry in Nigeria. Therefore, this study was carried out to bridge the indentified gaps in the body of knowledge.

Keywords: Target Costing, Competition, Breweries Industry, Nigeria.

1. Introduction

The present day manufacturing environment embodies products with various substitutes in every product line. This has provoked grave competition among firms in the same or similar industry (Ghafeer, Abdul-Rahman, & Mazahrih, 2014). The local manufacturers in Nigeria are not only competing in the home restricted market but also against firms in the same industry in the global arena. The competition became tough with the presence of foreign products from western manufacturing giants that are cheaper and of higher quality.

The quality and cost advantage of the foriegn products emanates from the level of technological innovation, and the use of advanced strategies and tools in both manufacturing process and product costing techniques (Hussein & Sulaiman, 2014). The differential cost and quality between local products of different firms on one hand and foreign made products on the other hand has influenced meaningful changes in customers' demand. In Nigerian breweries industry, the competition is stiff as every product line whether alcoholic, beverages or foods have multiple close substitutes. The unprecedented level of competition in the industry in Nigeria among firms has assumed an ugly dimension which has also become a threat to the manufacturing sector of the economy in which breweries play significant roles.

Razaq (2010) noted that Nigerian Breweries Plc and Guinness Nigeria Plc have for ages dominated the market. However, the tune of event took a different turn as the major brewers in advanced countries have identified Nigeria as a growth frontier. SABMiller made a strategic entry into the brewery market in Nigeria in 2008 through the acquisition of effective interest of 57% in Pabod Breweries Limited and 80% in Voltic Nigeria Limited using Standard Breweries Limited as launching pads. While SABMiller is yet to boil up competitive pressure, the presence of Castel, another global brewery giant with rich African experience came into the market with one of the international premium brands, Castle Milk Stout. Castel later acquired majority stake in International Breweries Plc to soidify its presence in the Nigerian market. In a similar dimension, Carlsberg, the fourth largest brewer in the world, made a leveraged entry into the Nigerian market by sealing partnership agreement with International Breweries Plc for the production and marketing of its notable trademarks - Kronenbourg Beer and Wilfort Stout. According to Razaq (2010), Guinness

European Journal of Applied Business Management, *2*(2), 2016, pp. 18-35. ISSN 2183-5594

has been in Africa since the early 19th century and has been brewing in Lagos for more than 50 years while Nigerian Breweries Plc has a very rich Nigerian experience with an extensively solid distribution platform and a successful strong customer base. Therefore, ceding of significant market share already gained over the years to the new entrants will be gradual. This is because the volume of market share and brand positions of Guinness Nigeria Plc and Nigerian Breweries Plc are strong hurdles to cross. All the same, these new entrants infuriate the sector and steamed up the level of competition which has significant influence on consumers' behaviour.

The intense economic rivalry among firms in the industry has negatively affected all aspect of the business - individual firm's sales volume, industrial market share and bottom-line (Subhash, 1994; Ghafeer et al., 2014). This scenario has raised a major question of whether or not there is any tool within the management accounting discipline that can be employed to moderate the key parameters influencing competition variables. These variables include cost of production, pricing policy, quality of goods and customers satisfaction, and efficient product delivery service. In order to deal with these issues, government adopted some economic policies in favour of local manufacturing firms such as increased tariff on imported goods and the outright import prohibition were necessary. Sometimes, tax holiday is used as a means of encouraging local firms (Imeokparia & Adebisi, 2014). Breweries companies on their own have also continued to search for strategies, models and business tools to survive and beat the competition (Maskell & Baggaley, 2003). In order for any adopted product costing techniques to be termed efficient, it must be able to address competitive pricing, effective costing, product quality and the achievement of the desired profit level (Adeniji, 2014).

To be locally and internationally competitive, a firm apart from maximising the critical role of branding and advertising to match competitors' brands, using appropriate distribution network, and expanding its production capacity, pricing and cost structure are of utmost importance. These two critical competitive success factors are the core values of target costing. Implementation of target costing is one of the effective internal cost management technique within the control of the management that determines the success of any manufacturing organization (Clifton, Bird, Albano & Townsend, 2004). This costing technique allows for a proactive cost planning and management at product design and development cycles. It encourages market orientated product price and demand flexibility (Al-Awawdeh & Al-Sharairi, 2012; Olabisi & Dafe 2014). Target costing is implemented by firms in order to increase sales volume, retain or expand industry market share, and achieve the desired profit level (Maskell & Baggaley, 2003; Ghafeer et al., 2014).

The general objective of this study is to evaluate the impact of target costing technique on the level of competition among firms in the Nigerian breweries industry. In order to address the major issue, the study examined the effect of independent sub variables on the dependent sub variables as follows: value engineering on cost of production, lean manufacturing on customer satisfaction, supply chain management on efficient product delivery and also kaizen philosophy on continuous product quality improvement in the breweries industry in Nigeria. In this study, the researcher structured the remaining parts of this article as follows: first, the conceptual, theoretical and empirical review on target costing and competition and their sub variables. Second, hypotheses development and the statement of model of analysis structured in line with the examination. Third, the

European Journal of Applied Business Management, *2*(2), 2016, pp. 18-35. ISSN 2183-5594

methodological specification using a case study research approach to illustrate the application of the model of analysis in the breweries industry explicit context. Finally, data analysis, presentation, interpretation and discussion of funding. Contribution of the article along with the managerial implications and suggestions for future research was also presented.

2. Literature Review

2.1. Conceptual review

The first application of target costing emerged at Ford Motor in USA in early 1900s. It was implemented at Volkswagen, Germany, in the early 1930s, and the first systematic operation and development was realized in Toyota in the mid-1960s (Ellarm, 2006; Jalaee, 2012). The target costing method used at some of the Japanese automobile companies began with the corporate planning departments (Vasile & Croiteru, 2013). According to Imeokparia & Adebisi (2014), currently about 85% of Japanese major manufacturing companies includes Sony, Toyota, Nissan, Canon, NEC, and Olympus uses target costing. This costing method is commonly known as a cost reduction tool used for managing product costs during the early stages of product life cycle. The use of target cosing is important for sustaining manufacturers' overall efforts to maintain cost economy while meeting the standards and specifications demanded by customers (Ellarm, 2000; Zengin & Ada, 2010; Helms, Ettkin, Baxter, & Gordon, 2005). Target costing is one of the main tools which assist manufacturers to be globally competitive (Kumar, 2014). Adeniji (2014) posits that for the application of target costing to work perfectly in any organization, it should be supported by the senior management.

Target costing is used for deducing the overall cost of a product over its entire life cycle with the help of the production, engineering, research and design, marketing, and accounting departments (Vasile & Croiteru, 2013). According to Imeokparia & Adebisi (2014), target costing is the difference between the product selling price and target profit margin adopted by management in order to be in a better competitive position in the market place. From the above definitions, target costing uses customer oriented selling price and desired profit to determine the cost of the products. Chartered Institute of Management Accountants - CIMA (2005) official terminology defines target cost as a product cost estimate derived by subtracting a desired profit margin from a competitive market price as opposed to the traditional approach where selling price is determined by adding a percentage of profit margins to the cost of production. Target costing method is based on the rule that the market determines the product selling price (Pazarceviren & Celayi, 2013). The objective of target costing is to ensure that a firm achieves its product-specific and firm-wide profit objectives in a competitive market environment. It is becoming increasingly essential as more firms are realizing that they cannot increase price to solve cost and profit squeeze problem (Institute of Management Accountants, 1994). From various definitions of target costing reviewed so far, it can be stated target costing is a management tool adopted to maintain a competitive product cost emanating from the difference between the selling price determined by the customers in a competitive market environment and target profit margin set by management in order to survive the competition and outwit competitors.

European Journal of Applied Business Management, *2*(2), 2016, pp. 18-35. ISSN 2183-5594

Maria (2012) noted that there are six major principles that provide the conceptual foundation upon which target costing focuses. These include market price orientation, price based costing, consumers and product design support, multidisciplinary team work, product life cycle, and entire value chain involvement. The above principles are the basis upon which the following target costing practical steps were established: **Step 1:** The first step is the ascertainment of target selling pricing. This is based on the market and other competitive environmental context. The factors to be considered in setting selling price include the characteristics of the anticipated customers, consumers' level of value perception, competitors' price and strategies, the product life cycle, the expected sales quantity and targeted industry market share. **Step 2:** This step entails setting up the target profit. The desired profit margin is the residual interest of the company and the real reason for engaging in the business transactions. This is determined with reference to the company's long term strategy. **Step 3:** The third step involves the establishment of target cost which is the difference between target selling price and desired profit. The equation is TSP – TPM = TC. Where TSP = Target Selling Price, TPM = Target Profit Margin and TC = Target cost also known as the allocateable. **Step 4:** At this point, the actual manufacturing cost and the target cost for each product's functions are compared. Alternatives are also identified to bring each function's actual cost estimate to its target cost. Determination of estimated cost and target cost are technical and specialized activities involving engineers and technicians that help in the assessment of cost estimates. **Step 5:** On the fifth step, a continuous comparison of the actual cost and the target cost are made. If the cost estimate exceeds the target cost, functional cost analysis is repeated to reduce the estimated cost until it fits into the target cost. **Step 6:** Lastly, the sixth step involves final decision making on whether to proceed or not. Once the cost estimates are on target, management goes ahead with production based on manufacturing feasibility, market requirements and consumer acceptability.

2.2. The tools of target costing

The tools of target costing include (i) **Value engineering**: This is the mechanism used for a systematic analysis of a product's design, materials specifications, and production process in the context of customers' needs. It helps to balance the overall costs and benefits and increase the ultimate value of a product (Institute of Management Accountants, 1994). Value engineering method is used for improving the "value" of a product through the examination of function. Value, means the ratio of function to cost, therefore value can be increased either by improving the function or reducing the cost. (ii) **Lean manufacturing:** This is an organized method for the elimination of waste - Muda within a manufacturing system. It enables a manufacturer to eliminate waste and non value work to achieve efficiency and customer satisfaction. Lean method considers waste created through overburden - Muri and those emanating from unevenness in workloads - Mura. Lean production enables the the producer to eliminatewaste, minimizes cost and produce and sell product at a competitive price. (iii) **Supply chain management:** This refers to the entire network of the companies that support the management of the flow of goods and services. It includes the storage and movement of raw materials, work-in-process, and finished goods inventory from point of origin to place of consumption. It enhances prompt delivery of goods to final consumers. Effective supply chain management would make goods available at market place which is the competitive enironment. (iv) **Kaizen philosophy:** This is an original Japanese management concept which supports continuous product and process improvement. The enhancement is usually incremental (gradual and continuous) to effect

European Journal of Applied Business Management, *2*(2), 2016, pp. 18-35. ISSN 2183-5594

change (improvement). It focuses on using employee creativity to help define the way of improving procedures, systems, processes and products. Kaizen philosophy is mostly effective immediately after a new part is designed but before the manufacturing process begins.

2.3. Importance of breweries industry

Adekoya (2016) notes that the importance of breweries industry in Nigeria cannot be overstated. The role of the industry in the economy is seen from the large value chain, the number of employment generated, level of poverty alleviated through various programmes, and its contribution to the national GDP. Many firms in different industries depend on breweries industry to survive. Breweries companies have a long supply chain and its yearly revenue in 2015, is in excess of =N=570 billion ($3.1b). The industry currently employs more than 500,000 people with more than 50,000 distribution outlets in the country including wholesalers, retailers, hotels and clubs. However, the level of completion in the industry is cut-throat unlike what other manufacturing subsector in Nigeria is experiencing. Nigeria is Africa's second largest fastest growing beer market - second to South Africa. According to the Kirin Institute (2010), Nigeria occupied the 19th position in the most recent data for country rankings on beer consumption. Table 1 shows this global ranking of selected countries.

Table 1. Global ranking of beer consumption

2010 Ranking	*2009 Ranking*	*Country*	*Volume of Consumption In mhl (million hectolitres)*	*% Share of global market*
1	1	China	440.7	24.5
2	2	USA	241.4	13.2
3	3	Brazil	121.7	6.7
4	4	Russia	93.9	5.1
5	5	Germany	87.9	4.8
11	11	South Africa	31.0	1,7
19	25	Nigeria	18.8	1.0

Source: Kirin institute (2010).

Nigeria's beer per capita consumption (PCC) remains relatively high at 18.8mhl when compared with other African countries. This can be attributed to the production strategy and costing techniques used. The pricing policy of brewing firms especially among the big three in Nigeria - Nigeria Breweries Plc, Guinness Nigeria Plc and International Breweries Plc has been competitive. This is responsible for the share of the global market captured by the three companies.

2.4. Theoretical review

The foundation of this study is supported by pricing strategy theory which describes the relationship between product cost and profit under competitive environment. The theory states that price is the only element in the marketing mix that produces revenues while all other components represent costs. Therefore, choosing the right price for a product especially when it emanates from customers' ability to pay helps send the appropriate price-quality signal which has moderating effect on the sales volume and profitability (Kaur, 2014). The theory is centred on three main points: cost and profit objectives, consumers' demand, and competition. In pricing, the factors to be considered include target group and willingness to pay, costs to be incurred, level of competition, company objectives, and the proposed positioning strategies. Pricing may be cost-based, demand-based or competition-based. In cost-based pricing, prices are set based purely on production

European Journal of Applied Business Management, 2(2), 2016, pp. 18-35. ISSN 2183-5594

costs and the desired profit without considering the demand. In demand-based pricing, consumer research helps to ascertain the acceptable price range, then profit and cost requirements are determined within that range. In competition-based pricing, prices are set based on competitors' price. Depending on customer loyalty, or brand differences, selling price might be above or below the market price. This is where target costing becomes useful to the adaptors.

2.5. Empirical review

The empirical studies captured in Nigeria include: Adeniyi (2014) who conduct a study to ascertain the impact of target costing on competitive advantage in Nigeria manufacturing firms. The study concluded that target costing enhance cost and quality advantage in competitive manufacturing industry. Idowu (2014) examined target costing and competition in the manufacturing industry in Nigeria. The research report indicated that target costing enhances cost minimization and increases sales volume leading to competitive advantage in manufacturing industry, despite some teething problems encountered by firms in adopting the technique. Imeokparia & Adebisi (2014) explored the extent of target costing system adoption and implementation by manufacturing firms in South-Western Nigeria and the impact on their performance. It was concluded that there is a significant relationship between adoption of target costing and cost reduction on one hand and improvement in return on investment on the other hand. However, it was noted that the level of adoption and application of target costing was low in the region. Olabisi & Dafe (2014) investigated the relationship that exists among target costing technique and turnover and profitability of small and medium scale enterprises in Ogun industrial metropolis. The result of the analysis indicated that target costing technique has statistical significant relationships with annual turnover as well as profitability of SMEs in the area. The study therefore, concluded that implementing a target costing technique would enhance sales and profitability of SMEs in Ogun industrial metropolis in Nigeria.

Other researchers who studied target costing outside Nigerian environment were also considered in order to have a robust atmosphere for discussion and conclusion. These include: Dekker & Smidt (2003) who conducted a survey on the relationship between the adoption of target costing method and the intensity of competition of Jordanian and other Arab companies. Findings revealed that the global competition has led to the withdrawal of some companies from the market and forced others to apply modern methods of costing. Murat, Kadir, & Mehmet (2009) examined the application level of target costing among the Turkish manufacturing enterprises. Findings indicated that the companies applying target costing had extensive market analyses and excellent marketing information system. It was concluded that target costing had significant relationship with competitive advantage as it allows for a balanced competition strategies. Briciu & Capusneanu (2013) studied the pros and cons for the implementation of target costing method in Romanian household appliances manufacturing entities. The critical success factors were analyzed and the results show that there is possibility of adopting and implementing target costing method in the manufacturing sector in Romania due to its long term benefits. Hussein & Sulaiman (2014) studied the adoption of target costing in Malaysia. The finding shows that it is required to enable organizations deal with challenges and problems of today's competitive environment where many companies are continuously seeking to produce high quality and functional products based on customers' expectations gleaned from market research.

European Journal of Applied Business Management, *2*(2), 2016, pp. 18-35. ISSN 2183-5594

In another study, Henrik & Gustav (2003) investigated the extent to which Swedish manufacturing companies use target costing. Through random sampling, 250 companies were selected and contacted by telephone, and were asked if they would participate in a survey located on a web site. The number of answers received was 91, representing a response rate of 36.4 %. The result from this survey shows that insignificant porportion of Swedish manufacturing firms (16.5%) is using target costing. The findings indicated that firstly, lack of knowledge about target costing was responsible for many companies not adopting the practice. Secondly, Swedish manufacturing companies using target costing were the large ones which have a differentiation strategy and operate in highly competitive environments. The study concluded that there was a significant relationship between target costing and competition. Sulayman (2014) evaluated the adoption of target costing approach in manufacturing companies in Jordan. The result indicated that manufacturing companies in Jordan applies the requirements of target costing for obvious advantages. Some of the benefits discovered include: cost reduction, customers' satisfaction, quality control, efficient pricing decisions, and application of team work approach. However, they noted that the obstacles inhibiting the adoption of target costing technique in Jordan were tediousness, costly information gathering, data analysis, as well as lack of management support. Baharudin & Jusoh (2015) conducted a research on target cost management (TCM) as Japanese companies' competitive tool. The purpose of the paper was to explore how the TCM was being practiced and the major factors influencing the method in non-Japanese environment. The study finding shows that although the fundamental concept is similar, there are differences in details processes due to the adaptation with the contextual constraints. The specific gaps indentified from the previous studies reviewed, indicates that some of the sub variables supporting target costing and competition were not studied while others were poorly examined. To the best of this researcher's knowledge, no study has been carried out on the impact of target costing on competition in the breweries industry in Nigeria. Therefore, this study is conducted to bridge these gaps and contribute to knowledge.

2.6. Hypotheses development

From the literature reviewed and the emanating gaps, the following hypotheses and their rationale were developed to enable the researcher explore the impact of target costing on completion in the breweries industry in Nigeria:

H_1: The impact of value engineering no cost of production in breweries industry is not significant. The rationale for the hypothesis is based the fact that value engineering will positively predict cost of production as value of a product can be increased by minimising the cost. In the breweries industry, no study has properly reported on the relationship between these variables hence the formation of hypothesis 1. This was measured by the linear equation (1):

$$y_1 = \beta_{0+} \beta_1 x_1 + \varepsilon_3 \quad (1)$$

H_2: Lean manufacturing does not have any significant effect on customer satisfaction in breweries industry. This thoery was based on the fact that Lean production involves elimination of waste and non-value works to achieve efficiency and customer satisfaction. Following this line of reasoning, it is believed that lean manufacturing will attain customers' satisfaction. In the breweries industry, the effect of the independent sub

European Journal of Applied Business Management, *2*(2), 2016, pp. 18-35. ISSN 2183-5594

variable on the dependent sub variable has not been reported. Hence the hypothesis 2 which was measured by equation (2).

$$y_2 = \beta_{0+}\beta_2 x_2 + \varepsilon_2 \quad (2)$$

H_3: The impact of supply chain management on efficient product delivery in breweries industries is not significant. Effective supply chain management is the movement and storage of inventories from place of origin to point of usage or consumption. It enhances prompt delivery of stocks to the final consumers. In the breweries industry, no study was conducted on the impact of supply chain management on effecient product delivery, therefore the hypothsis 3 was formulated. This proposition was measured by the linear equation (3).

$$y_3 = \beta_{0+}\beta_3 x_3 + \varepsilon_3 \quad (3)$$

H_4: Kaizen philosophy does not significantly effect continuous product improvement in breweries industry. This hypothesis was formulated on the ground that kaizen method supports gradual and continuous products and process improvement. This resoning assumed that Kaizen philosophy will correlate positively with continuous product improvement. In the breweries industry, no study has been conducted on the relationship that exists between these variables. Therefore, hypothesis 4 was formulated and measured by linear equation (4).

$$y_4 = \beta_{0+}\beta_4 x_4 + \varepsilon_4 \quad (4)$$

3. Methodology

3.1. Research design and population

This research employed the case study method as suggested by Yin (2003) and Norhafiza & Ruzita (2015). Since no study had been conducted on target costing and competition in breweries industry in Nigeria, a case study was deemed appropriate for more specific and relevant data to be collected. It also allowed the whole subsector to be deeply investigated as suggested by Norhafiza & Ruzita (2015). The population of the study consists of six beer breweries firms in Nigeria with 1,451 staff members who have at least five years cognate job experiences in their respective organizations. Data were collected through the use of validated structured questionnaire. They were randomly selected among Chief Accountants, Management Accountants, Marketing Managers, Production Managers, Purchase Managers, Maintenance Engineers and Supervisors from Guinness Nigeria Plc (GN), International Breweries Plc (IB), Mopa Breweries Ltd (MB), Nigerian Breweries Plc (NB), Champion Breweries Plc (CB), and Sona Breweries Plc (SB). The six organizations were selected for the investigation based on accessibility. Table 2 shows the population make up:

European Journal of Applied Business Management, 2(2), 2016, pp. 18-35. ISSN 2183-5594

Table 2. Total Population

Staff	*GN*	*IB*	*MB*	*NB*	*SM*	*SB*	*TOTAL*
Financial Accountants	64	18	12	162	20	21	297
Management Accountants	31	9	9	66	12	14	141
Marketing / Sales Managers	45	23	10	134	21	32	265
Production Managers	50	35	15	79	24	22	225
Purchases Managers	15	8	11	28	12	22	96
Maintenance Engineers	16	17	25	45	24	14	141
Total	221	110	82	514	113	125	1,165

Source: Researcher's Field work (2016).

The breweries industry account for a small portion of Nigerian manufacturing sector in terms of number of firms but responsible for about of 65% of the total manufacturing sector contribution to GDP (Adekoya, 2016). This paper concentrated on the industry on the following grounds: first, the size of its share in the global market. Second, contribution of the industry to the national GDP. Three, employment generation and Four, the level of completion in the industries. The competition is cut-throat and differs considerably from what is experienced in other manufacturing subsector in Nigeria.

3.2. Instrumentation, Validity and Reliability

The instrument utilized 5-point Likert scale starting from strongly disagree (1), disagree (2), Average (3), agree (4), and strongly agree (5). The questionnaire was structured into Section A - demographic variables of the respondents and Section B – inferential factors. The instrument was validated by experts in the fied of management accounting. Construct validity was also conducted and the results exhibit the values between .765 and .879. It therefore showed that the instrument was valid and the variables could be used for further analysis. The reliability of the instrument was assured through a pilot study conducted in October, 2015 on site at different times. Forty five (45) respondents with the same characteristics of the population of the study were randomly selected and copies of the questionnaire were administered to each member. A Cronbach's Alpha coefficient was used and the R_c obtained for the four constructs range between .695 and .780. The Rc > .05 which confirmed the internal consistency and reliability of the instrument for data collection. Total enumeration was used. The method of data analysis technuque used was regression with the aid of SPSS (IBM version 21).

3.3. Model specification

The effect of target costing implementation on the competition in breweries industry in Nigeria is mathematically expressed as $Y = f(X)$. The model is specified as

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4 + \varepsilon \quad (5)$$

X = Target costing covers x_1, x_2, x_3 and x_4. Where:
x_1 = value engineering (VALEN)
x_2 = lean manufacturing (LEMAN)
x_3 = supply chain management (SUCMA)
x_4 = kaizen philosophy (KAPHI)
Y = competition covering y_1, y_2, y_3, and y_4. Where:
y_1 = cost of production (COPRO)
y_2 = customer satisfaction (CUSSA)
y_3 = efficient product delivery (EPROD)
y_4 = continuous improvement (CONIM)

Therefore, A priori expectation = $x_1 > 0$, $x_2 > 0$, $x_3 > 0$, $x_4 > 0$

4. Test of statistical hypothesis

The demographic profile of respondents from the selected six breweries in Nigeria shows that out of 1,451 copies of questionnaire administered, 1,242 useable copies were returned representing 86% response rate. The invalid and unreturned copies were 14%. This is considered adequate for the study (Comfrey & Lee, 1992). Table 3 shows the summary of copies of questionnaire distributed and returned.

Table 3. Summary of Copies of Questionnaire Distributed and Returned

Staff	ND	%	VNR	%	NNR	%
Financial Accountants	297	20.47	261	17.99	36	2.48
Management Accountants	141	9.72	134	9.24	7	0.48
Marketing / Sales Managers	265	18.26	231	15.92	34	2.34
Production Managers	225	15.51	168	11.58	57	3.93
Purchases Managers	96	6.62	73	5.03	23	1.59
Maintenance Engineers	141	9.72	121	8.34	20	1.38
Senior Supervisors	286	19.71	254	17.51	32	2.21
Total	**1,451**	**100.00**	**1242**	**85.60**	**209**	**14.40**

Key: ND=No. Distributed, VNR= Valid No. Returned, NNR = No. Not Returned. Source: Researchers Field work (2016).

Table 4. Model Summary

Model	R	R^2	Adjusted R^2	Std. Error (Est)	Durbin-Watson
1	.571[a]	.512	.497	.42011	1.132
2	.687[a]	.628	.610	.46027	1.092
3	.751[a]	.729	.698	.55087	1.187
4	.534[a]	. 520	.479	.46119	1.224

a. Predictors: (Constants): x_1, x_2, x_3, x_4 ; b. Dependent Variable: y_1, y_2, y_3, y_4

Table 5. ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.114	1	1.114	8.611	.000[b]
	Residual	160.414	1,240	.129		
	Total	161.528	1,241			
2	Regression	1.452	2	.726	5.370	.005[b]
	Residual	167.075	1,239	.135		
	Total	168.527	1,241			
3	Regression	2.827	3	.942	6.542	.003[b]
	Residual	177.600	1,238	.144		
	Total	180.427	1,241			
4	Regression	3.412	4	.853	5.842	.000[b]
	Residual	180.516	1,237	.146		
	Total	183.928	1,241			

a. Dependent Variable: y_1, y_2, y_3, y_4; b. Predictors: (Constants): x_1, x_2, x_3, x_4

European Journal of Applied Business Management, 2(2), 2016, pp. 18-35. ISSN 2183-5594

Table 6. Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	5.531	.343		16.337	.000
	x_1	.231	.096	. 571	1.443	.000
2	(constant)	4.513	.173		20.489	.000
	x_2	.117	.117	. 687	1.885	.005
3	(Constant)	4.255	.156		20.909	.000
	x_3	.211	.084	. 751	2.956	.003
4	(constant)	4.777	.216		17.289	.000
	x_4	.104	.078	. 534	1.141	.000

a. Dependent Variable: y_1, y_2, y_3, y_4

The overall R value in Table 4 model 1 is .571. This shows that value engineering has average positive impact on the cost of production. The R^2 of .552 means that about 55% variation (reduction) in the cost of production is traced to value engineering. This is confirmed by the F-statistics of 8.611. The VALEN percentage that is not explained is 45% which may be due to other factors not included in this model. Table 5 model 1 reveals that the relationship between value engineering and cost of production is significant as p = .000 < .05. The significance of the model at 0.05 level is confirmed by the t-statistics of 1.443 in table 6 model 1. Therefore, the null hypothesis 1 that says value engineering has no significant impact on cost of production is rejected and the alternative hypothesis not rejected. The simple linear equation can be expressed as VALEN = β_1 (COPRO) and using the estimated figures, VALEN = 5.531 + 0.231(COPRO). This implies that a unit increase in VALEN will propel about .231increase in COPRO. The estimates confirmed the positive impact of VALEN on COPRO. It also shows that is R = 0.231 > 0 which is consistent with a prior expectation. The finding of hypothesis one is in agreement with the reports of the following previous studies: Adeniyi (2014); Idown (2014); Sulayman (2014); Imeokparia & Adebisi (2014).

The overall R value in Table 4 model 2 is .687. This shows that Lean manufacturing has positive impact on customer satisfaction. The R^2 is .610. This indicates that 61% variations in customer satisfaction was due to effectiveness of lean manufacturing. This is confirmed by the F-statistics of 5.370. The LEMAN percentage that is not explained is 39% which may be due to other factors not included in this model. Table 5 model 2 indicate that effect of Lean manufacturing on customer satisfaction is significant as p= 0.005 < .05. The significance of the model at 0.05 level is confirmed by the t-statistics of 1.885 in Table 6 model 2. Therefore, the null hypothesis 2 which asserts that lean manufacturing has no significant impact on customers satisfaction is rejected and the alternative hypothesis not rejected. The simple linear equation can be expressed as: LEMAN = β_1 (CUSSA) and using the estimated figures, LEMAN = 4.513 + 0.117(CUSSA). This equation implies that a unit increase in LEMAN will propel .117 increase in CUSSA. The estimates shows that a positive impact of LEMAN on CUSSA exists. It also shows that R = 0.117 > 0 which is consistent with a prior expectation. The result of hypothesis two is in harmony with the reports of Sulayman (2014) who investigated the adoption of target costing approach in manufacturing companies in Jordan. The study concluded that one of the benefits of adopting target costing include quality control and customers' satisfaction

Table 4 model 3 is .751. This shows that supply chain management has a high positive impact on efficient product delivery. The R^2 in table 5 model is .698. This reveals that

supply chain management was responsible for about 70% variations in efficient product delivery in the industry, which is confirmed by the F-statistics of 6.542. The SUCMA percentage that is not explained is 30% which may be due to other factors outside the model. The regression result of the third hypothesis tested in table 5 model 3 confirms that the effect of supply chain management on efficient product delivery is significant as the p = 0.003 < .05. In Table 6 model 3, the t-statistics of 2.956 suports the significant of the model at .05. Therefore, the null hypothesis 3 that says supply chain management has no significant effect on efficient product delivery is rejected and the alternative hypothesis not rejected. The linear equation can be expressed as SUCMA = β_1 (EPROD), therefore, SUCMA = 4.255 + 0.211(EPROD). This equation implies that a unit increase in SUCMA will drive .211 increase in EPROD. This estimate confirms a positive impact of SUCMA on EPROD. It also shows that R = 0.211 > 0. This result is consistent with a prior expectation. The finding of hypothesis three result concurred with the result of Hussein and Sulaiman (2014) who studied the target costing evolution. Finding shows that target costing method enables an organizations deal with challenges and problems in the competitive environment where efficient product delivery and lead time is important.

In Table 4 model 4, R value is .534. This confirms that kaizen philosophy has average positive impact on continuous improvement. The R^2 is .479 which indicates that kaizen philosophy was responsible for about 48% variations in continuous improvement in the industry. This is supported by the F-statistics of 5.842. The KAPHI percentage that is not explained is 52%. This may be due to other factors outside the model. The regression result of hypothesis 4 tested in Table 5 model 4 proves that the impact of kaizen philosophy on continuous product improvement is statistically significant as the p = .000 < .05 which is confirmed by the t-statistics of 1.141. The linear equation is expressed as KAPHI = β_1 (CONIM), therefore, KAPHI = 4.777 + 0.104(CONIM). This equation implies that a unit increase in KAPHI will propel.104 increase in CONIM. The estimates shows that KAPHI has positive impact on CONIM. R = 0.104 > 0, means that the result obtained is conformed to a prior expectation. The finding of hypothesis four corresponds with the report of Hussein and Sulaiman (2014) who also reported target costing is used to resolve the problems of competition where many companies are continuously seeking to produce high quality and functional products based on customers' expectations gleaned from market research.

Multiple regression- Standard

Table 7. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.876[a]	.851	.823	.10602

a. Predictors: (Constant), x_1,x_2, x_3, x_4

Table 8. ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.814	4	1.704	7.926	.000[b]
	Residual	265.416	1,240	.215		
	Total	272.230	1,241			

a. Dependent Variable: y_1, y_2, y_3, y_4; b. Predictors: (Constant), x_1,x_2, x_3, x_4

Multiple regression- Stepwise

Table 9. Model Summary

Model	R	R^2	Adjusted R^2	Std. Error (Est.)
1	.834[a]	.736	.728	.13419
2	.856[b]	.811	.792	.11440
3	.901[c]	.825	.811	.10810

a. Predictors: (Constant), x_1,x_2, x_3, x_4

Table 10. ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.865	1	1.865	10’260	.000[b]
	Residual	225.416	1,240	.182		
	Total	277.281	1,241			
2	Regression	2.811	2	1.405	6.333	.000[c]
	Residual	275.416	1,239	.222		
	Total	278.227	1,241			
3	Regression	3.824	3	1.275	5.960	.000[d]
	Residual	265.416	1,238	.214		
	Total	269.240	1,241			

a. Dependent Variable: y_1, y_2, y_3, y_4.

Table 11. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.436	.038		63.454	.000
	Value Engineering	.117	.012	.864	9.849	.000
2	(Constant)	2.442	.033		74.517	.000
	Value Engineering	.103	.011	.763	9.585	.000
	Lean manufacturing	.048	.013	.292	3.661	.001
3	(Constant)	2.266	.086		26.313	.000
	Value Engineering	.098	.010	.524	9.353	.000
	Lean manufacturing	.046	.012	.239	3.695	.001
	Supply chain management	.114	.052	.162	2.200	.035

a. Dependent Variable: y_1, y_2, y_3, y_4

In Table 7, the R value of .876 indicates a very strong positive impact of target costing on competition in breweries industry in Nigeria. The R^2 of .823 also shows that 82% of the variation in the level competition in breweries industry can be traced to the application of target costing technique. The standard multiple regression in Table 8 reveals that the target costing do not only have positive effect but that the relationship is statistically significant (P = 0.000 < .05). The stepwise multiple regression shown in Table 9, 10 and 11, discloses that the combination of value engineering, lean manufacturing, and supply chain management are the three independent sub variables that best predict competition while kaizen philosophy was excluded. The implication of the stepwise regresion result is that, management should pay more attention to the three variables in order to survive and beat completion. Table 4 model 1 to 4 shows that the value of Durbin-Watson statistic for the four hypotheses tested are 1.132, 1.092, 1.187 and 1.224 of the residuals lies between “0 and 2”. These suggests the existence of positive autocorrelation and since they are greater than the adjusted R^2 (.497, .610, .698, and .479) in the four equations, the obtained results can be taken as valid and it also confirmed a high degree of the model specifications. The result of the studies agreed with the findings reported by: Adeniji (2014); Baharudin & Jusoh (2015); Dekker & Smidt (2003); Idown (2014); Imeokparia & Adebisi (2014); Olabisi & Dafe (2014); Sulayman (2014).

European Journal of Applied Business Management, *2*(2), 2016, pp. 18-35. ISSN 2183-5594

5. Summary of findings and conclusions

Based on the findings from data analysis in the above subsection, value engineering, lean manufacturing, supply chain management and kaizen philosophy have reliably predicted cost of production, customer satisfaction, efficient product delivery and continuous improvement. Therefore, all the four null hypotheses were rejected and the alternatives not rejected. Specifically, the findings of this study are itemized as follows: First, keen competition is the major motivation for the implementation of target costing method in Nigeria's breweries industry. Second, only three firms - Nigerian Breweries Plc, Guinness Nigeria Plc, and International Breweries Plc out of the six organizations studied have fully adopted and implemented target costing in the industry, hence they are the market leaders with a total of 75% share of the industry market. Third, value engineering has been used to achieve production cost minimization. The implication is that the implementers produce at a low cost; sell at market oriented price and achieve the desired profit. Fourth, lean manufacturing help to eliminate waste and non value activities within the production line.

This leads to efficiency and the attainment of customers' satisfaction. The implication of lean activity is that, the firms' achieve increased customer base, higher sales and share of the industry market. Fifth, supply chain management enables efficient product delivery to the market place. The implication of effective product delivery is the shorter order lead-time, which gives room for product wider reach. The supply chain management will propel increase customer base, higher sales volume and expand industry market share. Sixth, through implementing kaizen philosophy, continuous improvement is accomplished and this will put the organization products in the forefront in the market place and influence customers demand.

The study concluded that target costing had significant impact on competition in the breweries industry in Nigeria. The analysis result indicates that the adoption and implementation of target costing was responsible for between 48% to 61% variations in competition in the industry. The study recommends that brewery firms should employ target costong technique to pursue cost reduction programme, customers' satisfaction, efficient product delivery and product quality improvement on a continuous basis. This will ensure that a firm sells at customers' friendly price, increase sales volume, and achieve targeted share of the industry market. It is recommended that that brewery firms in order to compete favourably- locally and internationally, should pay more attention to value engineering, lean manufacturing, and supply chain management. This is an unbeatable mix that sustains market leaders apart from the critical role of advertising and distribution channel. This study contributed to the body of knowledge conceptually by providing a definition of target costing, theoretically by confirming the relevance of pricing strategy theory in the industry and empirically by providing practical evidence on the impact of target costing on competition in the breweries industry in Nigeria.

5.1. Limitations and suggestion for further studies

The limitation of this study is the concentration on the breweries industry which is subsector of the manufacturing industry in Nigeria. If other firms within the manufacturing sector are added, the result will vary. Therefore the study suggests that researchers should conducted further studies that will include other manufacturing subsectors in Nigeria to have the general influence of target costing on the level of completion in manufacturing

European Journal of Applied Business Management, 2(2), 2016, pp. 18-35. ISSN 2183-5594

industry. In addition, the study also suggests that the environmental and cultural factors effecting of target costing adoption be examined.

References

Abdel-Dayem., H., & Safaa, M. (2001), "Toward a proposed framework for the management target costing in the modern manufacturing environment". *The scientific journal of the economics and Commerce - Ain Shams University*, VI (3rd Ed.), 470 – 477.

Adekoya, F. (2016, February 10), "Nigeria: Brewery industry as driver of value-chain investments. *The Guardian News Paper*", p 45. Retrieve on 21st April 2016, from: *allafrica.com/stories/201602101374.html*.

Adeniji, S. (2014). Impact of target costing on competitive advantage in the manufacturing industry: A study of selected manufacturing firms in Nigeria. *International Journal research in Accounting, Finance and Management science, 4*(3), 97-108.

Al-Awawdeh, W. M., & Al-Sharairi, J. A. (2012), The relationship between target costing and competitive advantage of Jordanian Private Universities. *International Journal of Business and Management, 7*(8), 123 – 142.

Arokolaei, A. M. (2013). Studying the obstacles of applying a target costing system in firms accepted in Tehran Stock exchange. *Journal of Economics and International finance, 5*(1), 17-20.

Baharudin, N., & Jusoh, R. (2015).Target Cost Management (TCM): A Case Study of an Automotive Company. *Contemporary Issues in Management and Social Science Research. 172*(January), 525-532. doi:10.1016/j.sbspro.2015.01.398.

Baharudin, N., & Jusoh, R. (2015). Target Cost Management (TCM): A Case Study of an Automotive Company. *Procedia - Social and Behavioural Sciences 172* (January), 525 – 532 doi:10.1016/J.Sbspro.2015.01.398.

Briciu, S., & Capusneanu, S. (2013). Pros and cons for the implementation Target Costing Method in Romanian Economic Entities. *Accounting and Management Information System, 12*(3), 455-470.

Chartered Institute of Management Accountants (2005, October). *Target costing in the NHS*. (CIMA Discussion paper). Retrieved on Novermber 12, 2015 from http://www.cimaglobal.com/cps/rde/xbcr/SID-0AE7C4D1.

Clifton, B. C., Bird, H. M. B., Albano R. E., & Townsend, W. P. (2004). *Target costing: Market driven product design*. New York: Marcel Dekker, Inc.

Comfrey, A. L., & Lee, H. B. (1992). *A first course in factor analysis*. Hillsdale, New Jersey: Lawrence Erlbaum Associates.

Cooper, R., & Kaplan, R.S. (1992). *Implementing activity-based cost management*. Montvale. NJ: The Institute of Management Accountants. Avaliable at: https://searchworks.stanford.edu/view/10041213.

Dekker, H., & Smidt, P. (2003). A survey of the adoption and use of target costing in Dutch firms. *International Journal of production Economics, 84*(3), 293-305.

Ellarm, L. (2000). Purchasing and supply management's participation in the target costing process. *Journal of supply chain management, 36*(2), 39-45.

Ellarm, L.(2006). The Implementation of Target Costing in the United States: Theory Versus Practice. *Journal of supply Chain Management, 42*(1), 13-26.

Ghafeer, N. A. M., Abdul-Rahman. A. A. A., & Mazahrih, B. J. (2014). The impact of target cost method to strengthen the competitiveness of industrial companies, *International Journal of Business and Social Science, 5*(2), 250 – 263.

Helms, M. M., Ettkin, L. P., Baxter, J. T., & Gordon, M. W. (2005). Managerial Implications of Target costing. *Competitiveness Review, 15*(1), 49-56.

Henrik, B., & Gustav, F. (2003). The use of target costing in Swedish manufacturing firms. (Doctoral dissertation in Management Accounting). School of Economics and Commercial law, Goteborg University. Retrieved on 12th November, 2015 from: https://gupea.ub.gu.se/.../1/03-04-3D.pdf.

Horváth, P. (1993). *Target costing: State of the art report*. Arlington, Texas: Computer aided Manufacturing International (CAM-I).

Hussein, N. O., & Sulaiman, S. (2014). Target Costing Evolution: A Review of the Literature from IFAC's. *Asian Social Science, 10*(9), 82-99.

Idown, A. S. (2014). Impact of Target Costing on Competitive Advantage in the Manufacturing Industry: A Study of Selected Manufacturing Firms in Nigeria. *International Journal of Academic Research in Accounting, Finance and Management Sciences 4*(3), 97 – 108. doi: 10.6007/ijarafms/v4-13/1025.

Institute of Management Accountants (1994), "*Implementing target costing: Statement on management accounting*", Publication Number 98377.

Imeokaparia, L., & Adebisi, S. (2014). Target costing and performance of manufacturing industry in south-western, Nigeria. *Global Journal of management and business research. 14*(4), 51 -57.

Jalaee, H. (2012). Advantages of Target Costing in Organization. *International Journal of Research in management, 2*(1), 10-18.

Kaur, M. (2014). Poising between price and quality using target costing. GE - *International Journal of Management Research, 2*(1), 17-33.

Kocsoy, M., Gurdal, K., & Karabayir, M. E. (2008). Target Costing in Turkish Manufacturing Enterprises. *European Journal of Social Sciences, 7*(2), 92-105.

Kumar, A. (2014). Association of quality function deployment and target costing for competitive market. GE - *International Journal of Management Research, 2*(2), 24-35.

Maria, M, A. (2012). Cost measurement and cost management in target costing. *Annals of Faculty of Economics 1*(1), 533-547.

Maskell, B., & Baggaley, B. (2003). *Practical lean accounting: A proven system for measuring and managing the lean enterprise.* New York: Productivity Press.

European Journal of Applied Business Management, *2*(2), 2016, pp. 18-35. ISSN 2183-5594

Murat, K., Kadir, C., & Mehmet, E. K. (2009). Target costing in Turkish manufacturing enterprises. *Problems and Perspectives in Management*, *7*(1), 197–207.

Olabisi, J., & Dafe, P. O. (2014), Implementing Target Costing in Small and Medium Scale Enterprises in Ogun Industrial Metropolis. *International Journal of Humanities and Social Science, 4*(8), 223- 233.

Pazarceviren, S. Y., & Celayir, D. (2013). Target costing based on the activity-based costing method and a model proposal. *European Scientific Journal. 4 (*Special edition), 1-21.

Razaq, A. (2010, October 10). Nigerian breweries sector update: Brewing growth and malting value. *Vetiva Research*, 2010. Retrieved on 5th June, 2016 from: https://www.proshareng.com/.../VetivaBrewerySectorUpdate2010Brewin.

Subhash, C. J. (1994). Global competitiveness in Beer industry: A case study, Food marketing Policy Centre. (Research Report no. 28). Sorrs, USA: University of Connecticut. Retreived on 29th January, 2016 from: *ageconsearch.umn.edu/bitstream/25161/1/rr940028.pdf*.

Sulayman, H. (2014). The adoption and implementation of target costing approach in manufacturing. *International Journal of Business and Social Science, 5*(6), 72-81.

Vasile, E., & Croiteru, I. (2013). Target cost-tool for planning, managing, and controlling costs. *Romanian Journal of Economies/ Institute of National Economy, 36*(1), 114-127.

Wu, C. L., Huang, P. H., & Brown, D. (2013). Target costing as a role of strategic management accounting in real-estate investment industry. *African Journal of Business Management*, 7(8), 641-648.

Yin, R. K. (2003). *Case Study Research - Design and Methods* (3rd ed.). California: Sage Publications.

Zengin, Y., &. Ada, E. (2010). Cost Management through Product Design: Target costing Approach. *International Journal of Production Research, 47*(19), 5593-5611.

Zimina, D., Ballard, G. & Pasquire, C. (2012). Target value design: using collaboration and a lean approach to reduce construction cost. *Construction Management & Economics, 30*(5), 383–398.