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THE EFFECT OF PRODUCT DIFFERENTIATION ON PROFITABILITY IN THE PETROLEUM INDUSTRY OF GHANA

Adinan Bahahudeen Shafiwu
Faculty of Mathematical Sciences, Examinations Unit, University for Development Studies, Navrongo Campus, Ghana.

Abukari Mohammed
Faculty of Mathematical Sciences, University for Development Studies, Navrongo Campus, Ghana.

ABSTRACT: *Firms differentiate their products to avoid ruinous price competition, but performance depends crucially on the degree of location. A company's physical product offering may be highly differentiated on features not provided by competitors in the same industry, some also differentiate their product on performance with basis on power, professional credibility etc. This research comprises 15 oil marketing companies in Ghana, which is made up of one government owned and 14 privately owned. The population is homogeneous in nature, due to the homogeneity of the population; a cluster sampling technique is used to select just a company out of the population. This selected company is Total Ghana Company. Members were selected using a non probability sampling technique specifically the purposive sampling technique. A total of 30 members were selected and administered with Questionnaires whiles others were also interviewed. The main variables of interest are product differentiation, profitability and patronage of Effimax*.

KEYWORDS: Product Differentiation, Petroleum, Effimax, Profitability, Industry.

BACKGROUND

Product differentiation is a positioning strategy that many firms use to distinguish their products from those of competitors. (Lamb, Hair, and McDaniel 2004)**.**Product differentiation is pervasive in markets. It is at the heart of structural empiricism and it smoothes jagged behavior that cause paradoxical outcomes in several theoretical models. Firms differentiate their products to avoid ruinous price competition. Representative consumer, discrete choice, and location models are not necessarily inconsistent, but performance depends crucially on the degree of location of competition. With (symmetric) global competition, rents are typically small and market variety near optimal. With local competition, profits may be protected because entrants must find profitable niches (Anderson 1992).

A company's physical product offering may be highly differentiated on features not provided by competitors in the same industry, some also differentiate their product on performance with basis on power, professional credibility etc. on the other hand companies may differentiate their physical product on attributes such as innovation, consistency, durability, reliability and reparability. In addition to differentiating the physical product, the image of the product can also be differentiated. The established image should convey a singular and distinguished message that will communicate the product's main benefit and positioning.

A petroleum company like Total Ghana differentiates its product with the introduction of Total Effimax where this differentiated product is to position the product as of high performance and improves upon the durability of engines of vehicles as well. A well analyzed and well designed strategy of a petroleum product must correspond with a substantial level of profitability. When emphasis is placed on activities such as research and development aimed at identifying and satisfying customer needs differentiation achieves the desired objective. To add to the above, the effect of differentiating a product may not necessarily be in terms of money or financial terms but also certain benefits that enhance the value creation process of the firm.

Problem Statement

Despite the immerging consensus or the need for firms to differentiate their products in order to create and sustain competitive advantage and the fact that competitive forces in the petroleum industry are determined by the degree of differentiation, little effort seem to be made by firms in this industry to harness the benefits associated with differentiating their products . In an industry such as the petroleum industry with most of its products being homogeneous in nature, differentiation is largely the determinant of profitability. Some hold the view that the pace at which firms in the petroleum industry utilize product differentiation strategies to insulate their firms against competitors and to enhance profitability seem to be relatively slow as compared to that of firms in other Industries. In order to find answers to why this phenomenon exists, we have sought to investigate to determine whether or not there exists a relationship between profitability and differentiation in the petroleum industry.

Objectives of the Study

- To outline the benefits associated with product differentiation.
- To identify the analytical measures of profitability.
- To determine the demand for Effimax as compared to the demand for normal fuel (super).
- To identify the various differentiated products in the petroleum industry.

Research Questions

1. Is there a relationship between differentiation and profitability in the petroleum industry?
2. Are people patronizing Total Effimax product?

Research Hypothesis

Hypothesis one

Ho - There is no relationship between product differentiation and profitability in the petroleum industry.

HA - There is a relationship between product differentiation and profitability in the petroleum industry.

Hypothesis Two

H_o: $\pi \leq 0.5$ – People do not patronize Total Effimax product

H_A: $\pi > 0.5$ - People patronize Total Effimax product.

Significance of the Study

This study provides a platform for highlighting the importance and benefits of differentiated products of Total Ghana limited to the Ghanaian economy, In addition this research will provide bases for decision making by Total Ghana in developing new products to the market, As Ghana has found oil more investors would be attracted to the petroleum business and as such this research will serve as a guide to such investors.

METHODOLOGY

This simply means a system of methods and rules applicable to research or work in a given science or art. It also explains the principles and techniques used in the research work. This stage of the study highlights how the research is designed, its sample size determination, sample frame, method of data collection and its limitations.

Research Design

The research employed a correlation research design. This research sought to find whether there exists a relationship between product differentiation and profitability. The study is cross sectional since data were collected at the same time.

Sampling Design

The population given in this study includes the number of people living in any defined area at any given point in time and also who could be contacted for research purpose. (Proctor, 2003).The research comprises 15 oil marketing companies in Ghana, which is made up of one government owned and 14 privately owned. This population is homogeneous in nature because all the firms in the population are engaged in the same type of business which is the sale of petrol and other petrol products. Due to the homogeneity of the population, a cluster sampling technique was used to select just a company out of the population. This selected company is Total Ghana Company. Out of this firm, members were selected using a non probability sampling technique specifically the purposive sampling technique. A total of 30 members were selected and administered with Questionnaires whiles others were also interviewed. The criterion for selection was two directors, 3 heads of departments precisely the marketing, finance, and operation management heads. In addition to the above, 3 supervisors from the departments mentioned above were also inclusive in the sample of the study. To determine the level of patronage of the Total Effimax product a collection of drivers were interviewed as to whether they use the product or not. These members were chosen by the accidental sampling method where any driver that was met on the street was asked of his or her view.

Data Collection Method

The main variables of interest are product differentiation, profitability and patronage of Effimax. **Differentiation** is operationally defined as the rate at which new products with unique features are introduced into the market**. Profitability** is operational defined as the increase in profit that is brought about by differentiated product or brought about as a result of product differentiation. **Patronage** is defined as the level at which vehicle owners buy the Effimax product instead of other products. Differentiation is a qualitative nominal variable and therefore was measured on the nominal scale. The data collection instruments used was questionnaires which were self-administered by the researchers. The questionnaire comprised both open ended and close ended questions. Face to face interview was also conducted to obtain the views of respondents on the street.

Study Instrument
The SPSS data analytical tool was used for the analysis of data gathered for this research work. Tables and graphs where appropriate have been used to present, analyzed data, alongside discussions of results of the study. Findings arising from the results obtained.

THEORETICAL LITERATURE REVIEW

According to (Bearden et al 1998) differentiation exists when firm's offerings differ or are perceived to differ from those of competing firms on any attribute including price. Product differentiation is a strategy that positions a product within the market such that the product presents a unique feature that is not common to competitors' offerings. Marketers attempt to position a product or service in customers' mind to convince customers that the product has unique and desirable characteristics. By developing these perceptions marketers seek to establish a competitive advantage relative to competing firms that offer similar products or brands. Berkowitz et al (2002) defined product differentiation as a firm using different marketing mix activities such as product features and advertising to help the consumer perceive the product as being different and better than competing products. The perceived differences may involve physical features or non-physical ones such as image and price. Many companies or marketers decide how to position their product in the following ways: The companies play to the weakness of their competitors in positioning their product. This is essentially a negative approach and must be used with care. One way to do this is to reposition the competition within the industry. In addition, a particular positioning is not a permanent identity but the way a product is characterized can change with time and shift in the market place. For this reasons businesses must be vigilant and must continually evaluate the effectiveness of their positioning and attitudes of target customers.

Another approach to positioning is to look for holes in the market place. Examples include the needs and preference of customers that are not being addressed and potential customers that are not being reached. Leading the market with the strength of the product or company is another approach in positioning. A business which is a market leader considers using its strength to position its product. Being first in the market place with a new concept in technology is a strength that marketers use to show that they are innovators. If a business is not a market leader it must find strength upon which to build a position. An example is *7-up* Company which studied the market structure and positioned the product as *un-cola* for those who dislike cola. Lastly, many marketers position their products by targeting different market segments. This type of positioning is used to differentiate similar products made by the same company. (Trout & Riukin 1998).

A good strategy is one that capitalizes on organizational strength and minimizes internal weakness as it utilizes organizational resources to avoid or minimizes environmental threats and exploits environmental opportunities. Baden-Fuller and Stop Ford (1992) specifically studied this context and the questions of suitable strategies for mature businesses. Their argument started by dispatching the myth that industry is a significant factor in determining the profitability of a business. They quote research by Kumelt (1991) which showed that only about 8% of a business's profitability could be explained by choice of industry compared with about 46% that could be explained by choice of strategy and 44% could not systematically be explained at all. This research result confirms the everyday observation that some companies are more profitable than others in the same industry. It also appears that there is a correlation between market share and profitability. There is little evidence that large market share causes profitability. It may be just as true to say that those firms become profitable because of their ability to innovate and their profit ability in turn allows them to price at a level which gives them a large market share. (Fifield 1998)

To position a product, businesses need to identify customers' needs and to address how their products are compared with those of their competitors. A number of strategies are used to position products in the market place. Some include: positioning by features and benefit, positioning by price and quality, positioning by unique characteristics, positioning in relation to other product in a line (Trout and Riukin, 1998).A sales person needs to learn how a product's feature will benefit the customer. A product feature is the physical characteristics in quality of a product or service that explains what it is. The most basic feature of a product is its intended use. Beyond that consumers look for certain quality in product those different users competing brands on model. These are the physical qualities of the product. A vehicle as a product may have color, price, auto-transmission air bag etc. additional features usually add more value to a product since they help provide the reasons for price differences among product models.

The extended product features is also important since they influence the decision of the purchaser. For example the extended feature of a vehicle may include warranty, service policy among others. The reputation of a company can be an extended feature why? Because there is a reduced risk in dealing with a company that is known to stand behind its product. (Achrol 1991)

Product related segmentation involves dividing a consumer population into homogeneous groups based on characteristics of their relationships to the product. This takes the following forms:

- Segmenting by the benefit that people seek when they buy a product.
- Segmenting by usage rates for a product.
- Segmenting according to consumers brand loyalty towards a product (Perreault 2002)

Differentiation has been the key to southwest Airlines two decades ago to profitability. The small Dallas based airline has carved its niches in short haul flight with low prices and no frills. Starting in 1973 with three Boeing 727s connecting three Texas cities, by 1993 the company had grown to 157 planes, a routes network to 37 cities, and annual revenues of $2 million. Flying from smaller airport and avoiding the major airport hubs, avoids direct competition from other airlines. In California, for instance, Southwest operates between Oakland and Burbank rather than San Francisco and Los Angeles. In addition, by offering point-to-point short flight at an affordable price, it has been able to lure motorists who normally drove this short distance.

Southwest offers cheaper flights, and cheaper is one of the broad ways a company can differentiate its offering. The firm can also create value by offering something that is better, newer, or faster. Better means that the company offering outperforms its rivals offers. It usually involves improving an existing product in a minor way. Newer means developing a solution that did not exist before, it usually involved higher risk than a simple improvement but also the chance of higher gain. Faster means reducing the performance or delivery time involved in using or buying a product or service. Some products can also be differentiated based on features, performance, or style. Similarly some companies differentiate their product on consistencies, durability, reliability, or reparability (McDonald 1994).

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Profitability is a primary measure of all overall success of a company. Indeed, it is a necessary condition for survival. Investors and creditors prefer a single measure of profitability that is meaningful in all situations unfortunately; no single measure can be devised to meet this comprehensive need. Test of profitability focused on measuring the adequacy of income by comparing it with one or more primary activities in factors that are measured in financial statement. To evaluate the profit margin of a company, consider the nature of the industry in which the company operates. For example a publishing company might be expected to have a profit margin between 10% and 15% while a retail supermarket might have a normal profit of 1% or 2%. The profit margin is also affected by the marketing strategy that the company uses. That is, a low margin strategy requires a high sales volume, while a high margin strategy allows a lower volume of sales to be adequate. Several different best of profitability measures are commonly used some include.

$$\text{Earning per shares} = \frac{Income}{Average\ number\ of\ shares\ of\ common\ stock\ outstanding}$$

$$\text{Profit margin} = \frac{Income\ (before\ extraordinary\ items)}{Net\ Sales}$$

(Libby et al 2002)

Factors to be considered in determining how divisional profitability should be measured, we must decide whether the primary purpose is to measure the performance of the division or that of the divisional manager. The messages transmitted from these two measures may be quite different. For example a manager may be assigned to an ailing division to improve performance and might succeed in substantially improving the performance of the division. However the division might still be unprofitable because of industry factors; such as overcapacity and a declining market. The future of the division might be uncertain but the divisional manager may well be promoted as a result of outstanding managerial performance. Conversely, a division might report significant profits but because of management deficiencies, the performance may be unsatisfactory when the favorable economic environment is taken into consideration.

If the purpose is to evaluate the divisional manager then only those items directly controllable by the manager should be included in the profitability measure. Thus all allocation of indirect costs such as central service and administration costs which cannot be influenced by divisional managers ought not to be included in the profitability measure. Such cost can only be controlled where they are incurred; which means that central service managers should be held accountable for them.

Corporate headquarters however will be interested in evaluating a division's economic performance for decision making purpose such as expansion contraction and divestment decisions. In this situation, a measure that includes only those amounts directly controllable by the divisional manager would overstate the economic performance of the division. This overstatement occurs because if the division were independent companies, they would have to incur the costs of those services provided by head office. Therefore, to measure the economic performance of the division, many items that the divisional manager cannot influence such as interest expenses, taxes and the allocation of central administrative staff expenses should be included in the profitability measure.

The following represent the various profitability measures and their significance on firms.

Profitability Measures

$$\text{Percentage change} = \frac{\textit{Dollar amount of change}}{\textit{Financial statement amount in the earlier year}}$$

Significance

- A rate at which an amount is increasing or decreasing

$$\text{Gross profit rate} = \frac{\textit{Dollar gross profit}}{\textit{Net sales}}$$

Significance

- A measure of the profitability of the company's product.

$$\text{Operation income} = \textit{Gross profit - Operating expenses}$$

$$\text{Net income as a percentage of net sales} = \frac{\textit{Net income}}{\textit{Net sales}}$$

Significance

- To determine the profitability of a company's basic business activities.

$$\text{Earnings per share} = \frac{\textit{Income}}{\textit{Average number of shares of common stock outstanding}}$$

Significance

- Net income applicable to each share of capital stock

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Return on assets = $\dfrac{Operating\ income}{Average\ total\ assets}$

Significance

- A measure of the productivity of assets regardless of how the assets are financed

Return on equity = $\dfrac{Net\ income}{Average\ total\ equity}$

Significance

The rate of return earned upon the stockholder's equity in the business (Libby et al 20020) the number of differentiation opportunity varies with type of industry. The Boston consulting group has distinguished four types of industries based on the number of competitive advantage and their size. Volume industry which is one in which companies gain only a few but rather large, competitive advantages. An example is the construction equipment industry, where a company can strive for the low cost position or the highly differentiated position and win high on either basis. Here profitability is correlated with company size and market size. Stalemated industry in which there are few potential competitive advantages and each is small. An example is the steel industry where it is hard to differentiate the product or decrease its manufacturing cost. The companies can try to hire better sales people, entertain more lavishly, and the like, but there are small advantages. Here profitability is unrelated to company market share.

Oil is a stalemate industry but Royal Dutch also known as Total remains the leading petroleum retailer by understanding that fuel is a distress purchase that people do not enjoy. They succeeded by making their petrol stations easy to use and pay attention to all the other reasons people stop on a journey to find their way, get a snack or make a phone call.
Specialization industry is an industry in which companies face many differentiation opportunities, and each differentiation can have a high payoff. An example is companies making specialized machinery for selected market segments. In this market, some small companies can be as profitable as some large companies.

Fragmented industry is an industry in which companies face many opportunities for differentiation, but each opportunity for competitive advantages is small. A restaurant, for example, can differentiate in many ways but end up not gaining a large market share. Profitability is not related to restaurant size. Both small and large restaurant can be profitable or unprofitable. A major study undertaken by the Chartered Institute of Marketing and Canfield School of Management states that differentiation is a useful starting point for discussing long term competitive advantage of a firm. Their research focused on some world's most successful companies such as Total, Tesco and Zeneca who were monitored on a continuous basis over several years. The study identified guidelines for world class marketing. The guidelines include: Develop a true marketing orientation Monitor changes in the environment, Understand your competitors, Understand your strength and weaknesses, Understand the dynamics of product market evolution, Pay attention to portfolio management, Identify strategic priorities, Develop professional management skills. Successful companies like the ones mentioned above differentiate their products so that they avoid competition between identical products.

Differentiation can arise from offering superior product quality, innovative product features, a unique product, a strong brand name, superior service levels and wide distribution coverage of course differentiation along these lines will serve a company well if they are based on thorough understanding of customer needs. Differentiation that is based on production counteraction alone may not create value in the eyes of the customer.

The ability to recognize group of customers who share similar needs and then develop appropriate product offer, has always been a crucial factor underlying success. This understanding should include a detailed knowledge of market structure; the spending habit of different segments; and the motivator which drive each group to buy. However it is important to monitor continually the needs of targeted segment as they change over time and to adapt the product offer to meet these changing needs. Overtime there has been the tendering to fragment, so it is necessary to develop new variants of a product to meet the needs of new segment.

LITERATURE REVIEW ON THE OIL COMPANY

Total Petroleum Ghana Limited, an oil marketing company, came into existence in November,2006 following the merger between Mobil Oil Ghana Limited and Total Ghana limited. The Strong historical heritage of the company dates as far back as 1964 when the subsidiary was Inherited from BP Ghana which was followed by a series of transitions from Elf Oil to TotalfinaElf. With Total's leadership position, has come a huge recognition of the Total brand amongst the Ghanaian investing and consuming public. The company is more visible and very well. Represented across the ten regions of Ghana, having inherited some of the best locations in major cities and towns. With 212 service stations in all 10 regions of Ghana, nine Bonjour shops and 43 kiosks, Total Petroleum remains at the forefront of several innovative products which range from fuels.
(www.totalghana.com*)* Total’s range of products and services is broadly grouped into 2 distinct headings, these are:

1. On the road
2. Solution for business

On the road

Under the on the road products various services are offered in various ways to suite the wide customer base the global company has. These products and services include card services which deal with the convenience customers have in purchasing their services and product. Customers may either pay with coupons or with credit cards made available by the company.

Solution for business

Under this services being offered by Total Ghana the following products are offered in the several ways:

Aviation services - providing fuel services for around 7000 aircrafts refueling a plane every 12 seconds. From Aviation, fuel like lubricants and product like total water detector and total cards are available.

1. Chemical making and supplying- distributing a range of petrol chemicals that are used by customers to make different everyday materials and end products like paint detergent, computers, mobile phones etc.
2. Exploration and production of natural gas.
3. Fuel- having a range of quality fuel to meet a wide range of customer needs from gasoline, diesel to LPG.
4. Gas and power- offering a broad range of product and services to develop major gas projects across the globe.

The following are types of differentiated products in some firms within the petroleum industry in Ghana

Total Ghana

1. Effimax both petrol and diesel
2. Total Quartz

Ghana Oil Company limited (GOIL)

- Goil G-plus
- Diesel Xp

Shell Ghana:

Shell v-power
Shell diesel Extra

Differentiation of products in the petroleum industry have some how brought competition among the giant petroleum companies in Ghana that is Total, Shell and Goil.

Differentiated products in the petroleum industry typically create more total sales than undifferentiated products. However differentiation increases the costs of doing business. The following costs are likely to be higher.

Product Modification costs: modifying a product to meet different market segment requirement.

Manufacturing costs: it is usually more expensive to produce 10units of 10 different products than 100units of one product. In this case the longer the production setup time the smaller the sales volume of each product, the more expensive the product becomes.

Administrative cost: this cost deals with developing separate marketing plans for each market segment. This requires extra marketing research forecasting sales analysis, promotion and other activities.

Inventory costs: research has proof it that it is costly to manage inventories containing few products.

Promotion costs: reaching different market segments with different promotional programs is what the company must plan to undertake. Since differentiating products leads to both higher sales and higher cost, nothing general can be said regarding this strategy's profitability.

Petroleum: Petroleum is a greenish mineral that occurs in permeable underground rock and consists mainly of hydrocarbons with some other elements such as sculpture, oxygen, nitrogen etc. petroleum has no use in its crude form and has to be refined by fractional distillation (i.e. separating the components according to their boiling points) before it gets a commercial value. Since May 2006, the government of Ghana permitted oil marketing

companies (OMCs) to market differentiated grade of petroleum products as part of the petroleum sector deregulation process. Total Ghana limited immediately blazed the trail by launching Total Super Plus in March 2007 on to the Ghanaian market and later in April 2011 introduce the Total Effimax to replace Total Super Plus. Total Effimax is designed in a unique way which enhances the performance of vehicles as a whole (Business and Financial Times, September 6, 2011). A number of differences highlighted between the differentiated product and the other product include a higher octane fuels formulation that enable more efficient combustion and more power, a powerful additive package that help protect and clean the engine. These and other invisible factors point out the differences between the two fuels.
According to management of Total Ghana ltd, a lot of benefits could be derived from Total Effimax which includes: Total Effimax is designed to prevent power robbing deposits forming on the values and injection system. In addition Total Effimax is designed is to help clean up existing deposit and enhancing the responsiveness of engines.Management further explained that Total Effimax is an advanced, metal free, unleaded fuel designed to help protect engines from corrosion by forming a protective layer over vital engine parts. Furthermore, Total Effimax meets the strict Euro IV fuel specification. Total Effimax is an advanced 95 octane unleaded petrol currently available in Ghana. In fact many cars on the road in Ghana today are developed to run best on a 95 octane fuel.

RESULTS AND DISCUSSION

Profitability of Total Ghana Limited relative to the profitability of Effimax which is a differentiated product for the years 2011, 2012 and 20013

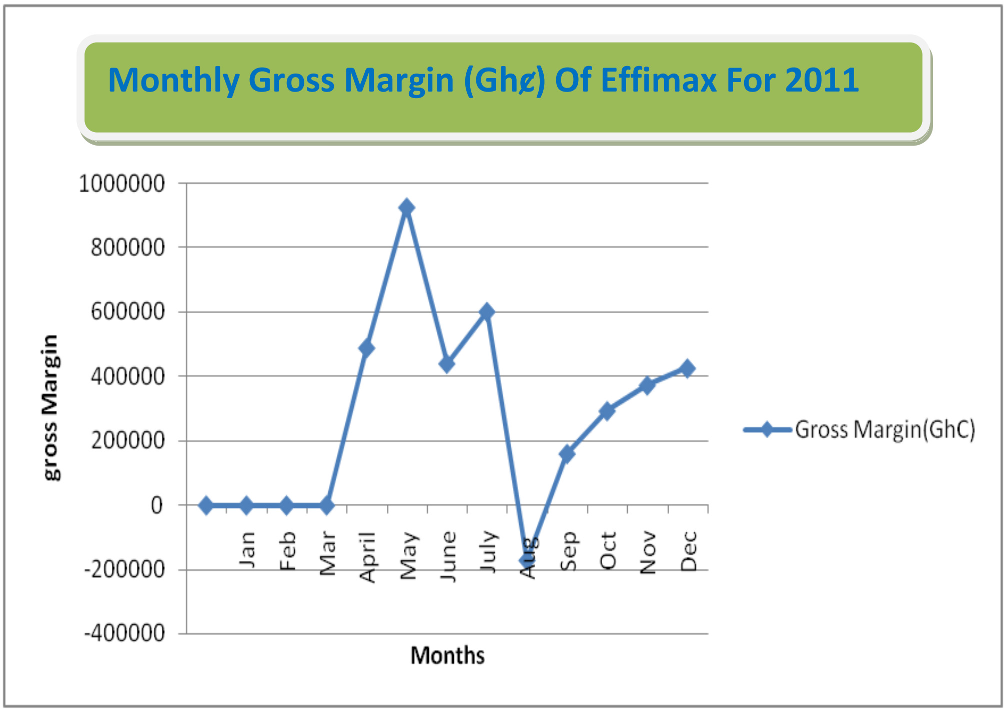
Figure 1.0

Total fuels for Total Ghana Ltd-2011		
Month	**Gross margin(GH¢)**	**Quantity (litres)**
Jan	2466288	41685227
Feb	2686438	42220943
Mar	3450096	45006125
April	2365399	39907920
May	3383356	47410464
June	2565575	34552208
July	4233371	57357426
Aug	2477902	43254340
Sept	2897502	39606784
Oct	3612061	46057888
Nov	3559757	42103434
Dec	2902644	42059027
Total	**36600389**	
Average	**3050032.417**	

Figure 1.1

Effimax –2011			
Month	Gross Margin (Gh¢)	Quantity (Litres)	Contribution (Gh¢)
Jan	-	-	-
Feb	-	-	-
Mar	-	-	-
April	488988	2677500	1876411
May	925974	4036502	2457382
June	440241	2007001	2125334
July	601725	3424500	3631646
Aug	-171046	2412000	2648948
Sept	160100	1759500	2737402
Oct	293210	2470500	3318851
Nov	372907	2470500	3186850
Dec	425816	2421000	2476828
Total	**3537915**		**24459652**
Average			**2717739.11**

Graph 1



From table 1.0 the gross margin total fuels for Total Ghana Limited for 2011 is GhC 353715 representing 0.96% of total gross margin for 2011. Except for the month of August which produced a negative value for gross margin, Effimax has product positive values of gross margin. Averagely Effimax has made a total contribution of GH¢24459652 in terms of gross margin in 2011. This indicates that Effimax as a differentiated product has contributed to profit made by Total Ghana in 2011.

Figure2.0

Total fuels for 2008		
Month	Gross margin(GH¢)	Quantity (litres)
Jan	3369070	39063852
Feb	2804187	37418192
Mar	3878287	38700859
April	4265218	44778985
May	3685138	38182968
June	3757702	36601785
July	4340471	40394391
Aug	5413229	41809262
Sept	2951504	39255776
Oct	3207830	41671787
Nov	4020742	35685744
Dec	6362190	41685392
Total	48055568	
Average	4004630.667	

Figure 2.1

Effimax –2012			
Month	Gross Margin (Gh¢)	Quantity (Litres)	Contribution (Gh¢)
Jan	344712	79449	3024358
Feb	79449	378000	3289621
Mar	878968	3874500	1925219
April	875132	2947500	3003155
May	588875	2344500	3676343
June	200722	2196000	3484416
July	252927	2191500	3504775
Aug	429653	2205000	3910818
Sept	-303437	1899000	5716666
Oct	24271	2069999	2927233
Nov	95392	1647000	3112438
Dec	597549	2025000	3423193
Total	**3719501**		**3452170.64**
Average	**338136.4545**		**3416519.58**

Graph 2

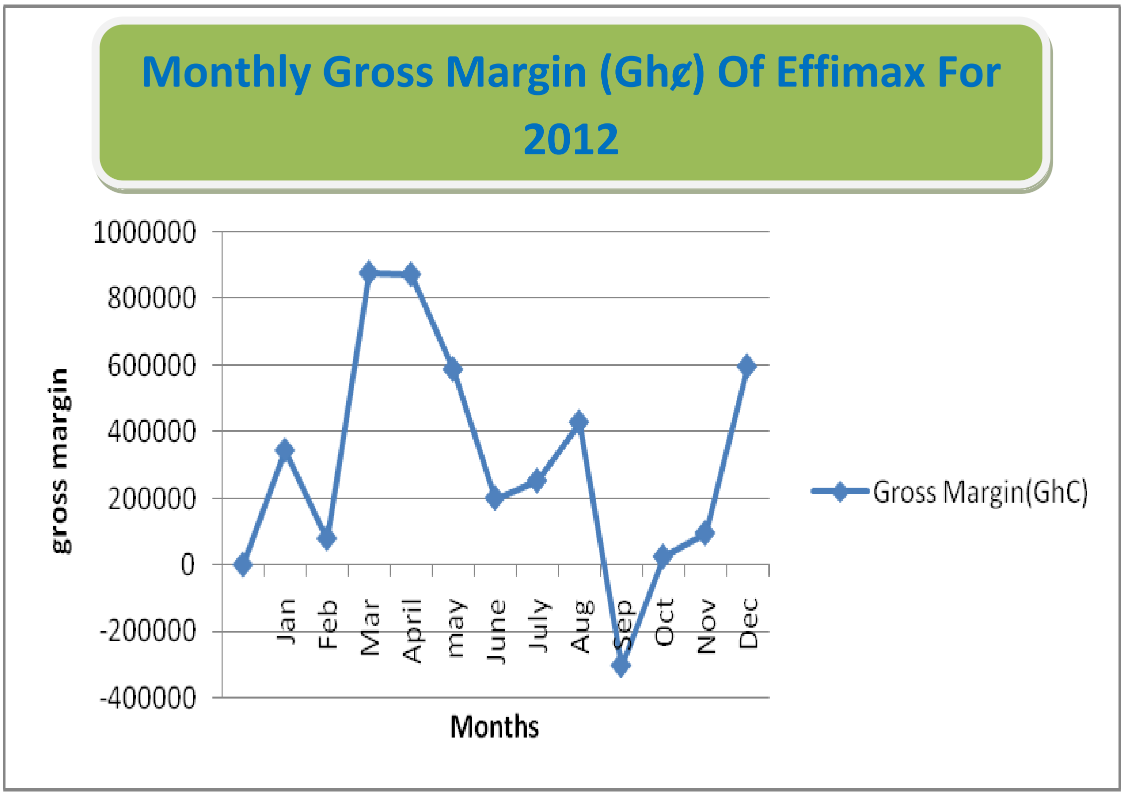


Table 2.0 and 2.1 give the gross margin of total fuel sold by Total Ghana Ltd and that of V-power. For the year 2012, Effimax recorded positive gross margin from January to December except for September which the gross margin was -303437 Ghana Cedes. Averagely Effimax made a contribution to gross margin of GH¢ 3416519.583

Figure 3.0

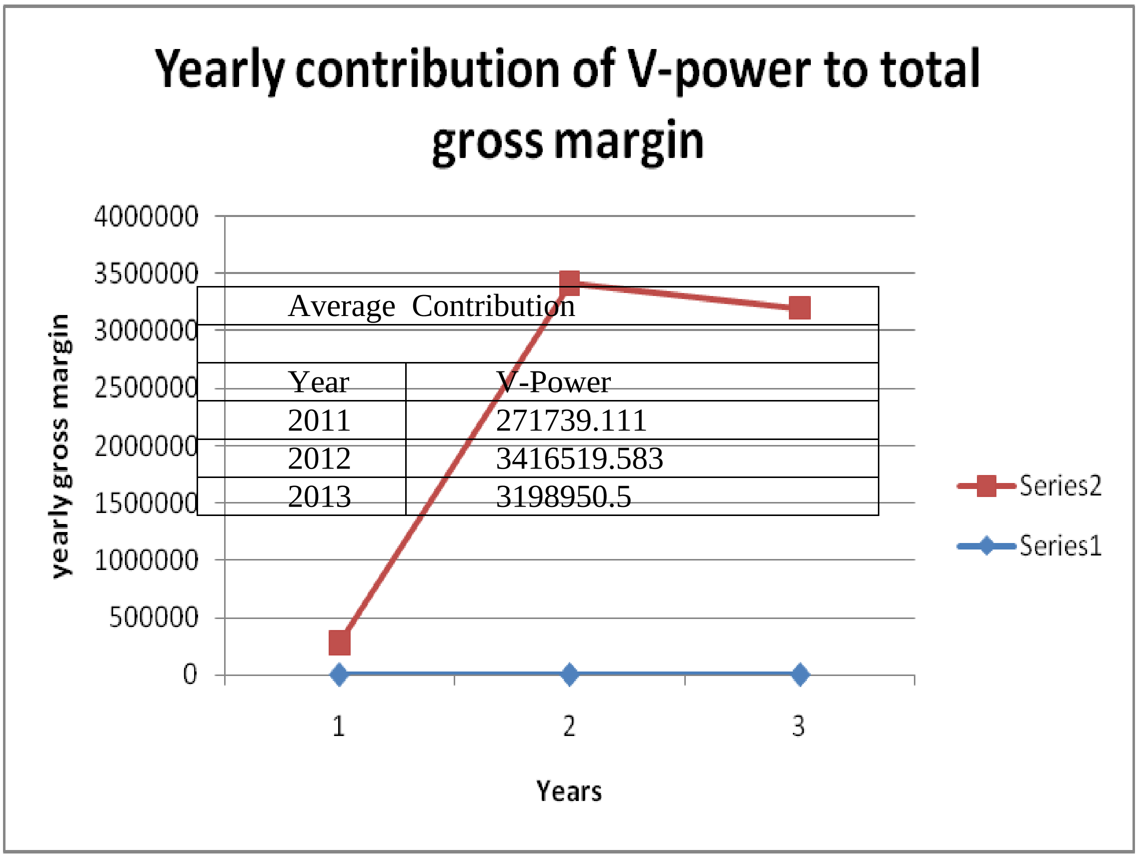
Total fuels for 2013		
Month	Gross margin(GH¢)	Quantity (litres)
Jan	1950472	37611183
Feb	4303205	34706954
Mar	3819990	41622068
April	4270066	38095783
Total	**14343733**	
Average	**3585933.25**	

Figure 3.1

Effimax –2011			
Month	Gross Margin (Gh¢)	Quantity (Litres)	Contribution (Gh¢)
Jan	413635	1475856	1536837
Feb	394089	1493584	3909116
Mar	434303	2496824	3385687
April	305904	2171420	3964162
Total	**1547931**		**12795802**
Average	**386982.75**		**3198950.5**

2011 presented data for only three months; this is due to the timing of the research work. For the three months provided, the values for gross margin are positive as well as the contributions in terms of gross margin by Effimax an indication of future prospects.

Figure 4.00



Hypothesis two

H_0: $\pi \le 0.5$ People patronize Total Effimax
H_A: $\pi > 0.5$ People don't patronize the Total Effimax.

Degree Of Freedom

For most business and social researches, the alpha level used is 0.5(5%) or 0.01(10%). This researches therefore use an alpha level of 0.01 %(10%).

Critical Values

Since the test is a one tailed test and $\propto = 0.01$, the critical values from the Standard normal distribution is +2.33

Test Statistic

$$Z = \frac{P-\pi}{\sqrt{\pi}\,(1-\pi)/n}$$

Where P = the sample proportion
π = the population proportion
n = sample size

$$Z = \frac{0.47-0.5}{\sqrt{0.5}\,(0.5)/30}$$

$$= -0.03/\ 0.0913$$

$$= \mathbf{-0.3286}$$

Decision Rule

Since the Test Value **0.3286** falls outside the critical region, there is not enough evidence to reject the null hypothesis which claims that the Total Effimax product is not patronized by customers.

SUMMARY OF FINDINGS

This gives a brief summary of the results presented, the evaluations, conclusions and recommendations based on the findings arising from the results obtained are also presented here. From the graphs and tables presented in chapter four. Researchers have enough reason to state that there is a positive relationship between product differentiation and profitability in Total Ghana Ltd. This conclusion sterns from the fact that all graph and tables presented in chapter four show positive values of gross margin made by Effimax which is a differentiated product of Total Ghana Ltd. Even though some months (August 2011 and September 2012) recorded negative values as gross margin, they are just few exceptions and other factors may have contributed to them. Researchers can also conclude that despite the fact that the petroleum industry is not seen to have differentiated products relative to other industries, that is not to mean that the act of differentiation is not profitable in the industry but rather there may be other factors responsible for that.

It can also be concluded that the differentiated product (Effimax) of Total Ghana is not being patronized by more people.

RECOMMENDATIONS

It is therefore recommended that:

Total Ghana Ltd should introduce more differentiated product in order to increase upon their profitability.

Total Ghana Ltd should also try as much as possible to improve upon its existing product as well as creating awareness on the products.

Further research should be conducted on fuel other factors such as cost of differentiation, industry attractiveness and consumer test to determine whether they are contributory factors to lack of differentiated product in the petroleum industry.

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Authors Details:

Name: Mr.Adinan Bahahudeen Shafiwu **(1)**
Work: A Senior Admin Assistant (2013 till date) UDS Research/Teaching assistant (2011/2012) FELB- UDS, Ghana.
Qualifications' and Awarded institutions: B.A (Economics and Entrepreneurship development) UDS- Ghana. Single Subject Diploma (Bus$ Admin) ICM- Bournemouth, England.
Name: Mr.Abukari Mohammed **(2)**
Work: An Assistant Registrar, Faculty of Mathematical Sciences, FMS-UDS, Ghana.
Qualifications' and Awarded institutions: M.A (Economics) B.A (Economics) University of Ghana-Legon