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PHONE : - + 91-8877340707
E-Mail : info@enrichedpublications.com

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Aims and Scope

Optimization (Print ISSN 0974-0988) is a scholarly and peer-reviewed journal in the field of management. It is released biannually in the months of June and December. The journal was started in 2008 and is published by GL Bajaj Institute of Management and Research (GLBIMR), Greater Noida. The target audience of Optimization includes academic scholars, higher education institutions, policy makers and consultants, freelancers, university libraries, corporate business units and government apex bodies.

All submissions are assigned to an area expert editor and are put through a double-blind review process, papers that meet journal's standards are only accepted for publication.

Our aim is to: (a) Promote applied research in emergent themes that improve the practice of all management areas including Marketing, economics, finance & accounting, HRM, International Business, business analytics, operations management, digital business practices and serve as a vehicle of communication by publishing research and practice based articles.

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Contents

Factors for Successful Lubricant Brand: A Study of Positioning Strategies in Indian Lubricant Market

Dr. Gautam Srivastava* & Dr. Sandhya Rai**

ABSTRACT

Brand Positioning as the act of designing the company's offer so that it occupies a distinct and valued place in the mind of the target customers. Brand Positioning is the process of promoting buyers to form a particular mental impression of our product relative to our competitors. Brand Positioning is a 'part of brand identity and value proposition that is to be actively communicated to the target audience, and that demonstrates an advantage over competing brands. A brand could develop distinction in a chosen field by developing associations related to product performance. It focuses on the brand's delivery on the functionality expected by customers. The brand could develop associations on the intrinsic product dimensions like durability, reliability, price, style or service. This research paper focuses on the need of brand positioning of automotive lubricant in Indian market. This study represents an approach of factor analysis to determine the effect of brand positioning of lubricant on consumer perception. An empirical study has been conducted in Delhi region to find out the perceptions of consumers towards the automotive lubricants. Survey has been conducted with the help of structured questionnaire to determine the different attributes responsible for brand positioning lubricant oil. Factor analysis has been done to reduce the number of factors and identifying only the important factors for brand positioning of automotive lubricant for four wheeler segments. Further, reliability test has been conducted to test the reliability of the important factors.

Keywords: PSUs, Perception, Reliability, Brand Positioning.

INTRODUCTION

The demand of lubricant in India is, third largest in the world after USA and China. In the decade of 1990s the Indian lubricant market was dominated by PSUs (IOCL, BPCL and HPCL). India produce around 8 to 10 percent of the total global lubricant production. The demand of lubricant in India is around 9.6% of the total global lubricant demand. The Indian lubricant market changed after 1992 when liberalization took place.

After liberalization too many private lubricant manufacturers enter into the Indian market. Later on Indian government dismantled the administered pricing mechanism and free pricing policy was allowed in the Indian lubricant market. The deregulation policy of Indian government encouraged so many foreign lubricant manufacturers expand their business in India. Entry of multinational companies imposed too much competition between PSUs and Private players which benefitted the end consumers. Lubricant oil is very essential for automobile sector. Indian Oil SERVO continues to be the dominant player in the Indian lubricant sector backed by cutting edge product development, high quality customization and extensive blending and distribution network. Mak lubricant of Bharat Petroleum offers a full range of Automotive Engine Oils, Gear Oils, Transmission oils, Specialty Oils and Greases. HP Lubes is an integral part of Hindustan Petroleum Corporation Limited, one of India's frontline oil majors, committed to providing energy and fueling growth in every significant area of development. Before the liberalization of the Indian economy, the public sector oil companies dominated the Indian lubricant industry with a market share of 90 per cent. The lubricants produced were simple blends based

on low and medium level technologies. More sophisticated lubricants were imported and these accounted for a relatively small market share.

There are total 1380 lubricant manufacturer world wide. Earlier the percentage share of lubricant was very less for oil companies. But now a day's lubricant business play a crucial role for oil companies to increase their profits. Out of 1380 around 180 oil companies are manufacturing lubricants. These independent lubricants manufacturer generally purchase the raw materials from the open market. The lubricant manufacturer spent a very small amount of money on their research and development.

LITERATURE REVIEW

As per Verma Pooja (2003) there is a wide scope for new private players in Indian lubricant oil market. He find out that India is the third largest lubricant market in the world. According to him the Indian lubricant market is growing at the rate of 8 to 10 percent annually. There are so many private oil companies in the Indian market but they are not manufacturing lubricant oil so there is too much scope for them to grab the opportunity.

According to Mitra Surajit (2006) Indian lubricant market is increasing due to increase in income level of Indian middle class.Due to the growth of Indian middle class the purchasing power of middle class is increasing which enhance the sales volume of automobile sector. The increase in sales volume of automobile sector will increase the sales volume of lubricant oil.

Mang T, Dresel W (2007) said that only few oil companies are manufacturing lubricant oil. According to him there are worldwide 1380 lubricants manufacturer ranging from large to small are today. Out of which only around 180 companies are manufacturing the lubricant oil.

On one hand there are vertically-integrated petroleum companies whose main business objective is the discovery, extraction and refining of crude oil. Lubricants account for only a very small part of their oil business. At present, there are about 180 such national and multinational oil companies engaged in manufacturing lubricants. As per Kline Blog (2011) Indian commercial automotive segment represent more than half percent of India's total lubricant market. India's Market Analysis focuses on key trends, developments, challenges, business opportunities and threats and competitive positioning amongst the MNC suppliers, and other local independents the Indian lubricants market. Total demand for finished lubricants in India is estimated at over 1,400 kilotonnes in 2009. The commercial automotive segment represents about 53% of the total lubricants market, followed by the industrial segment at 34% and the consumer automotive segment at 13%. According to Frost and Sullivan (2010) India is the sixth largest lubricant market in the world so there is a wide scope for private players in Indian lubricant market. The Indian automotive lubricants market is largely price sensitive and volume growth is stagnating due to longer lasting lubricants. There are overall 22 big and small lubricants manufacturer in India but only a big companies are enjoying the market share. Companies are more focusing on customer centric approach where they are likely to focus on creating brand awareness through print and visual media. The retail trade are a major marketing channel in the Indian automotive lubricant. Petrol pumps form a major distribution channel in retail trade, however sales of lubricants through retail outlets has transformed the Indian automotive lubricants market into a fast moving consumer goods (FMCG) sector. The other marketing channels are authorized service stations, garages, rural and agricultural dealers, super markets, and wholesale distributors. Niladri B.Syamand Benedict & G.C. Dellaert (2002) said that quality of services is one of the most important factors in brand positioning. Producers' are committed to provide surplus value to the customers at least possible cost. If producer provides best quality with least possible cost, than they can survive in the market for a long time. According to a report by Mordorintelligence (2017), the increase in the sales volume of automobile sector is enhancing the sales volume of lubricant oil. In near future there will be too much competition between the oil companies for

lubricant market. Indian lubricant market is dominated by public sector unit Indian Oil Corporation (IOCL), Hindustan Petroleum Corporation (HPCL) and Bharat Petroleum Corporation Limited (BPCL). Only Castrol is playing a major role in Indian lubricant market other private players of oil and gas are also now participating in the manufacturing of lubricant oil. Indian lubricant market is one of the fastest growing retail market in India. Due to huge population the consumption of automotive lubricant in India is very high and lubricant oil is acting as a FMCG product for Indian market. Indian lubricant Market is dominated by automobile lubricant. Sun, Baohong and Neslin, Scott and Srinivasan, Kannan(2002) said that promotion play a major role in brand choice. Different promotional tools help the producers to make the consumers aware about the product. So promotion play a major role in brand positioning of lubricant oil. According to Adam Lindgreen and Gurvinder Shergil (2010), customer relationship is a very important factor for brand positioning. He also said that customer retention leads to increased market share and bigger profits. According to Pham, Michel Tuan, and E. Tory Higgins (2005) under promotion, consumers will pay relatively more attention to the desired state compared to the actual state. Consumer decision making has been dominated by informationprocessing theory and, more recently, by behavioral decision research. Satisfaction from desirable outcomes should be more intense under Promotion. Promotion-oriented consumers will experience greater dissonance from the positive attributes Availability, Accessibility, Price, Quality are some of the important factors responsible for consumer decisions. According to S. Ramesh Kumar (2003) no brand can afford to ignore consumer promotion schemes. He also said that the promotion must be in line with the other elements of the marketing mix. As per Philip J. Kitchen, Ilchul Kim, Don Edward Schultz (2008) brand positioning is a combination of high perceived prestige and price premiums in order to attract middle class. In Indian market price play a crucial role to attract the middle class. Indian consumers are highly price sensitive. They prefer good quality of product at least possible price. Sun, Baohong and Neslin, Scott and Srinivasan, Kannan (2002) said that promotion is major cause of brand switching. The main advantages associated with promotional sales are-an easy way to learn customer response and it work fast. It also an inexpensive marketing technique. Before designing a promotional campaign, an organization must identify the target groups. This is done by breaking up of our product markets and identification of small groups of consumers whose wants and needs are not the same as the mass market as a whole-this is one of the key to success in sales promotion.

RESEARCH OBJECTIVES

To determine the important factors for brand positioning of automotive lubricant oil in India for four wheeler segment consumers.

RESEARCH METHODOLOGY

Research Design

The research was exploratory research followed by descriptive research. The method of research used is that of quantitative analysis through results obtained from questionnaires. The research is based on primary data. Primary data were collected from the four strata. The four stata is based on four wheeler segment consumers. These four strata were non commercial four wheeler (petrol), non commercial four wheeler (diesel), commercial four wheeler (petrol), commercial four wheeler (diesel). The sample size of 400 had been taken by using Yamene's formula. The sample were collected from the Delhi region. Sample size has been divided into the ratio of commercial and non commercial four vehicles which are registered in Delhi. Further four vehicles are further classified on the basis of the ratio of petrol and diesel four vehicles.

DATA ANALYSIS AND FINDING

Following variables of brand positioning of automotive lubricant has been identify by pilot survey: Packaging, Advertising, Purchasing, Availability, Superiority, Promotion, Credibility, Innovativeness, Reliability, Reputation, Commitment, Quality, Experience, Extra Benefits, Longitivity.

Factor Analysis

Factor analysis has been used to determine the important factors:

The Kaiser Meyer Olkin's measuring of sampling adequacy and Bertlett's Test of Spherity.

Table 1: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.702
Bartlett's Test of Sphericity	Approx. Chi-Square	2090.789
	df	120
	Sig.	.000

Factor Extraction

The value of Kaiser Meyer Olkin is greater than 0.5 i.e. (0.702) (Table 1) so it is acceptable. The significance level of Barlett's Test is .000. It means that R- matrix is not an identical matrix and there are some relationships between different variables.

Table 2: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.015	18.845	18.845	3.015	18.845	18.845	2.971	18.571	18.571
2	2.618	16.363	35.208	2.618	16.363	35.208	2.408	15.048	33.619
3	1.956	12.226	47.434	1.956	12.226	47.434	2.110	13.186	46.804
4	1.604	10.024	57.458	1.604	10.024	57.458	1.655	10.346	57.151
5	1.177	7.358	64.816	1.177	7.358	64.816	1.226	7.665	64.816
6	.947	5.920	70.736						
7	.885	5.530	76.266						
8	.730	4.561	80.828						
9	.611	3.817	84.645						
10	.504	3.152	87.797						
11	.472	2.949	90.745						
12	.436	2.722	93.467						
13	.346	2.163	95.630						
14	.259	1.620	97.250						
15	.234	1.460	98.710						
16	.206	1.290	100.000						

Extraction Method: Principal Component Analysis.

Table 2 gives the list of Eigen values associated with each linear component (factor) before extraction, after extraction and after rotation. SPSS has identified 16 linear components within the data set The Eigen values associated with each factor represent the variance explained by that particular linear component and SPSS also displays the Eigen values in terms of the percentage of variance explained so

as to factor explained (so, factor 1 explains 18.845 % of total variance). It should be clear that the first few factors explain relatively large amount of variance whereas subsequent factors explain only small amount of variance. SPSS then extracts all factors with Eigen value greater than 1, which leaves us with 5 factors. The Eigen values associated with these factors are again displayed in the columns labeled extraction sum squared loadings. The values in this part of the table are the same as the value before extraction, except that the values for the discarded factors are ignored. In the final part of the table, the Eigen values of the factors after rotation are displayed. Rotation has the effect of optimizing the factor structure and one consequence for these data is that the relative importance of the five factors is equalized.

Component Matrix

Table 3: Component Matrixa

	Component				
	1	2	3	4	5
Price	.154	.062	.164	.762	.115
Packaging	.157	.504	.616	-.289	-.010
Advertising	-.022	.472	.599	-.175	.025
Purchasing	.088	-.122	.442	.531	.073
Availability	.035	.209	.297	.650	.081
Superiority	.278	.687	-.478	.060	-.108
Promotion	.078	.506	.574	-.258	-.023
Credibility	.798	-.186	.035	-.076	.182
Innovativeness	.814	-.362	.040	-.115	-.018
Reliability	.225	.718	-.430	.178	-.108
Reputation	.797	-.149	-.033	.063	-.185
Commitment	.880	-.114	.045	-.044	.081
Quality	.324	.690	-.202	-.042	-.113
Experience	-.065	.383	-.195	.127	.537
Extra Benefits	.073	-.054	.093	-.216	.623
Longitivity	.006	.094	-.266	-.115	.603

Extraction Method: Principal Component Analysis.

a. 5 components extracted.

This matrix contains the loadings of each variable onto each factor (Table 3). By default SPSS displays all loadings; however we requested that all the loadings less than 0.5 be suppressed in the output. At this stage SPSS has extracted seven factors. Factor analysis is an exploratory tool and so it should be used to guide the researcher to make various decisions.

Scree Plot

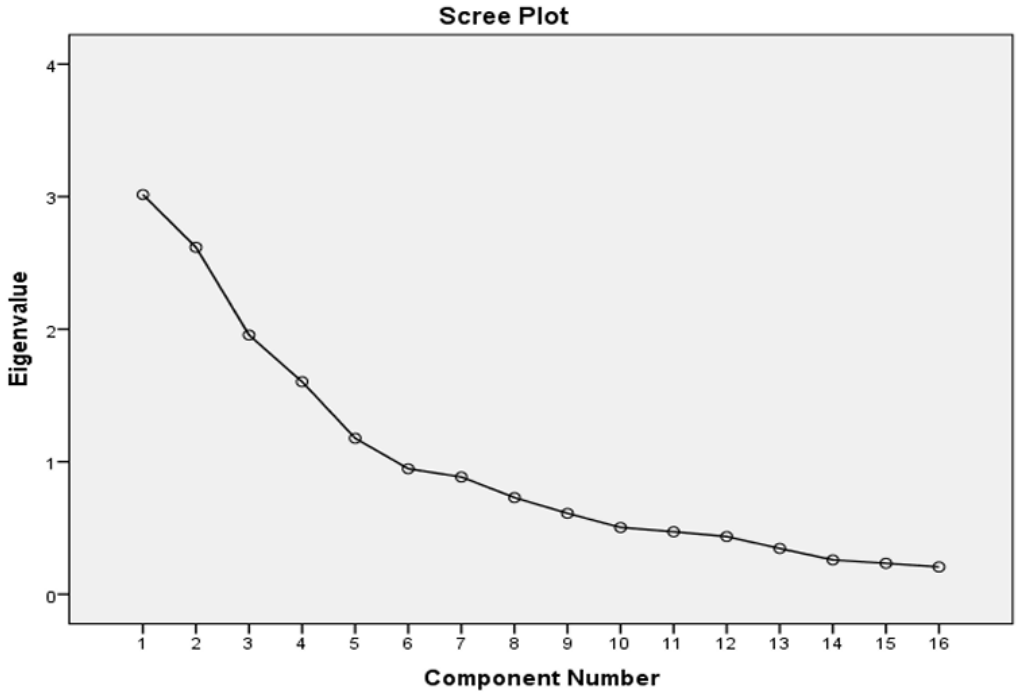

Figure 1: Screen Plot

The scree plot (Fig 1) shows the point of inflexion on the curve. The curve begins to tail off after five factors. Therefore it is justify retaining five factors.

The different factors (Table 4) after factor analysis are as follows:

Table 4: Final Factors

Factors	Variables	Correlation Coefficient	Factor Name	Cronbach α
Factor 1	Credibility	0.798	Product Trustworthiness	0.874
	Reputation	0.797		
	Innovativeness	0.814		
	Commitment	0.880		
Factor 2	Quality	0.690	Product Quality	0.830
	Superiority	0.687		
	Reliability	0.718		
Factor 3	Advertising	0.599	Marketing Strategy	0.760
	Packaging	0.616		
	Promotion	0.574		
Factor 4	Price	0.762	Accessibility	0.673
	Availability	0.650		
	Purchasing Location	0.531		
Factor 5	Experience	0.537	Extra Advantages	0.638
	Extra Benefits	0.623		
	Longitivity	0.603		

Researcher consider only those factors whose Cron Bach Alpha is greater than 0.60. The Cron Bach Alpha of Factor Extra Advantages is 0.238 so researcher do not consider this factor.

CONCLUSION

In this research, researcher has identified four factors. First factor is product trustworthiness which is a combination of variables credibility, reputation, innovativeness and commitment. Second factor is product quality which is a combination of variables quality, superiority and reliability. Third factor is marketing strategy which is a combination of variables advertising, packaging and promotion. Fourth factor is accessibility which is a combination of variables price, availability and purchasing. The factorsProduct Trustworthiness, Product Quality,

Marketing Strategy and Accessibility which have been identified by the researcher. The automotive lubricant manufacturer in India can enhance their market by focusing on these factors in their brand positioning. Trustworthiness is very important factors because companies can retain their customers only when they are trustworthy.

Product quality is also very important factors. Consumers are loyal to the lubricants companies only when the quality of product is better than other competitors. Marketing strategy is another important factor because giving the information about products to the bulk number of consumers is very essential. The consumers will purchase the automotive lubricant of particular brand only when they have full full information about the product, So the automotive lubricant companies should choose the appropriate marketing strategy channel. Accessibility is another important fator for brand positioning of automotive lubricants.

The automotive lubricant of particular should be easily accessible, so than only consumers can only purchase it easily. lubricants companies should focus on these factors to increase their market share. Automotive lubricants companies should do the immense brand positioning to make the distinct image of their lubricants in the mind of the consumers in comparison to other competitors, so they can capture the market share of competitors.

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Case Study on
PI Foods Ltd – Managing Sales and Distribution

Dr. Arpita Srivastava*, Vikram Kumar Sharma**

Ramesh Kulkarni, Regional Sales Manager, Western Region, of PI Foods was discussing with his Area Sales Managers about the complaints of shortage of supplies by some of the Distributors and NonReceipts of company's products by C and D class retail outlets. These complaints were received by Ramesh directly from the distributors and the retail outlets. Ramesh expressed his total dissatisfaction that none of the three Area Sales Managers had informed him about these problems earlier.

PI Foods' product-mix consisted of baby foods, dairy products like milk powder and ghee, chocolates and confectionary and beverages. For household and individual consumer, the company's distribution channel consisted of distributors and retailers, and for business (or institutional) customers, the company had distributors and its own sales workforce, as shown in the Exhibit 1. Each distributor's salesperson was given a geographic area (or a Sales Territory) to cover all types (or classes) of retail outlets located in his territory, as per the norms of frequency of visits shown in Exhibit 2.

The time taken for A or 'Super A' retailers was much more and also their sales potential was high. Hence, the natural behaviour of the salespeople was to achieve the weekly and monthly sales targets by spending more time with Super A, A and B Class retailers. Only if the time permitted they visited C and D class retailers, and therefore, sometimes these retailers were not visited, as per the standard norms shown in Exhibit 2.

Ramesh told the area sales managers that he came to know from C and D class retailers that the distributors' salesperson did not visit these outlets on a regular basis. He further said that not only it affected the company's sales and leadership position in the market, but also the satisfaction levels of retailers. Ramesh asked the sales managers what they were doing about these problems. The area sales managers responded that regarding irregular visits to distributors' salesperson, they would revert after talking to their sales officers. However, regarding shortage of supplies to the distributors, the main reasons were incorrect sales forecasting by distributors, factory production constraints and misallocation of dispatches from warehouses to distributors due to lack of information on the differences in the estimated or forecasted sales figures and the factory production figures. The area sales managers said they needed some time to talk to various persons before making any suggestions to solve the problems. Ramesh agreed to give one week's time to the area sales managers and said he could not give more time, as the issues involved were important and were to be resolved on priority.

Exhibit 1: Distribution Channels

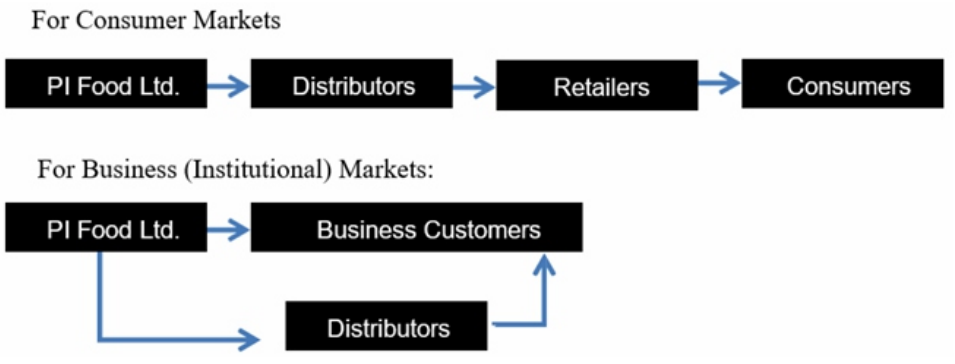

Exhibit 2: Norms of Frequency of Visits to Retail Outlet Types

Type/Class of Outlets (Retailers)	Sales Potential (Rs. Per Month)	Frequency of Visits per week (Numbers)
D Class	Pan shop (Less than 1000)	Once in 2/3 weeks
C Class	Small Shop (1000 – 2500)	Once in 2 weeks
B Class	Midsize Shop (2500 – 7500)	1
A Class	Large Size Shop (more than 7500)	1
Super 'A'	Super Markets, Chain Stores (more than 15000)	2 or 3

Questions:

1. If you were the area sales manager what would be your suggested plan of action to resolve the problems?
2. Do you agree with Ramesh that issues involved were important and should be resolved on priority? Give reasons

Analyzing the Potential of Social Media on Heritage Hotels of India

Rani Sharma
Research Scholar, Jaipur, Rajasthan

ABSTRACT

The internet's expansion has constantly supported social media in society from the late 1990s and early 2000s. Several hundred million active users utilize various social media platforms, dedicating time to communicating and finding information within the cyber community. For both hoteliers and visitors, the advent of social media has offered up new opportunities. It has increased its marketing efforts for hotels. It has also aided travelers in getting insight into the area and arranging their stay.
Such prevalence and linkage between these two variables, i.e., social media and travelers, proposes the study in the field of heritage hotels and social media. For this purpose, the data was collected from the Indian travelers with a functional sample size of 571. To conclude, the present research paper proposes the analysis of social media to understand the traveler's behaviors and suggest the marketing tactics to hotels.

Keywords- Social Media, Heritage Hotel, Travel Marketing.

1. INTRODUCTION AND REVIEW OF LITERATURE

Any traveler while surfing through the social media sites gets across with many photos and videos having beautiful locations and exotic scenes which arose the desire of being there and intends them to look into the details of the location. As soon as the location gets final and the traveling plan comes into the picture there comes the need of booking the hotel and resorts for stay. From here the search for hotels and resorts starts and social media plays its role.

Hence, to continue social media in today's times hasn't spared any sector and hotels are no exception to it. Hotels have already adopted a new and innovative way to showcase themselves through social media. Social media is an important tool for travelers by helping them to see new locations, direct engagement with a hotel, enhancing their satisfaction and also builds trust. Social media also entice travelers by offering extending market deals, giving them passive incentives to like, share and comment. Besides this, the use of influencer marketing and blogger engagements is also been crucially impactful. The use of social media is rising day by day in the hotel industry and it's creating more loyalty, attaching new customers and visibility.

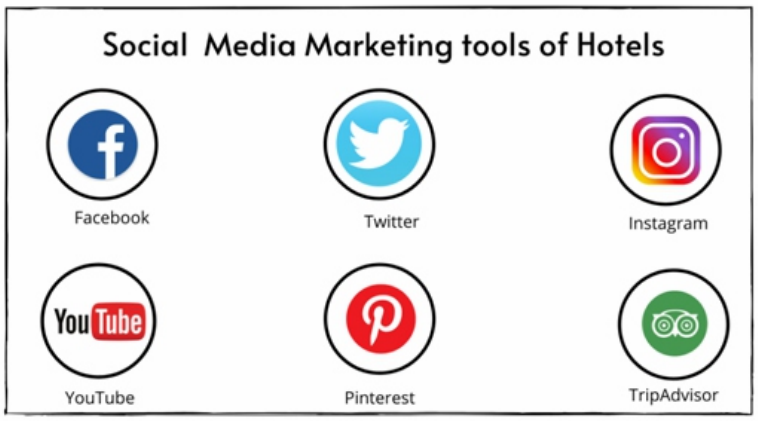

Figure 1: Social media platform that connects travellers and Hotels

Verma, M. and Verma, K. (2018), in their research paper titled "Social Media a Promotional Tool: Hotel Industry" explore the role of social media by hotels as well as customer opinions on the use and advantages of social media. Hotels that utilize social media to attract new clients, hold existing clients, and upgrade their online presence are beginning to experience positive benefits. The primary motivation for hotels to engage in social media marketing is to improve their image and promote their properties. Social media channels help hotels in Customer Relationship Management (CRM) and in learning more about customer preferences and behavior. According to the authors, social media cannot directly assist in sales, but it can assist in brand awareness and exposure to outside people, resulting in positive long-term results.

Lee, W., and Chhabra, D. (2015) , in their study "Heritage hotels and historic lodging: Perspectives on experiential marketing and sustainable culture" offer vital and remaking techniques for the sustainable use of historical accommodations. Heritage sustainable tourism, according to the authors, offers host communities with genuine economic benefits while also fostering communal and cultural participation with community welfare. Heritage hotels become a broad field of research. The influence of social media engagement by hotels on prospective booking and income generation is investigated by Healy, T. G., and Wilson, A. (2015). The authors achieve this by first examining top hotel executives' perceptions of the return on investment (ROI) by social media activity, then mining hotel booking data for determining the scope of social media involvement by visitor with a hotel before & after a reservation is done, and finally experimenting with advertising via social media to determine its effect on hotel guest booking and income creation. According to the research, social media engagement and advertising have a positive impact on hotel reservations and revenue generation, and social media participation improves customer service and brand awareness, however it is unclear if it influences purchase behavior. According to researchers, when followers are picked-out with promotional offers over social media, they are more likely to buy, share, and interact.

Shirase, R. (2014), finds in his article "The Effect of Social Networking Sites On Hotel Sector in Pune Region," that the hotel industry may advertise itself on social networking sites by engaging consumers and clients in discussion and then recognising their requirements. The hotel sector may connect with customers on social media before, during, and after their visit. SNS establishes a genuine connection between businesses and their consumers, sparking a purchase-intensity trend and providing a platform for innovative advertising to be employed successfully for the hotel industry's growth. With the usage of online social platforms, the hotels may achieve competitive edge by lowering advertising costs,

increasing awareness, capturing a larger market, transacting worldwide, improving customer service quality, and acquiring new consumers.

The article "An Empirical Study on Use of Social Media in the Hotel Industry in China: A Study of Customers' Preferences and Attitudes" by Wang, R. and Chen, T. (2014) focused on the choice and view point of Chinese passengers, as well as the association between social media utilization (based on WeChat and Sina Weibo) and hotel options in the industry. The study's findings show that associated hotels and network ticketing companies favour to utilize social media to captivate visitors and even likely customers, with the highest three factors influencing hotel selection being pricing (71.84 percent), location (68.16 percent), and online rating (33.06 percent).

2. HERITAGE HOTEL SELECTION AND SOCIAL MEDIA POTENCY: ITS DIRECT EFFECT.

Morale has improved as a result of social media. Travelers have power over information sharing since they utilize and captivate social networking platforms. As a result, travelers share only positive details about themselves with their social media networks. This constructive information mostly reverts with the affirmative response which magnifies the affirmative feedback. This eventually increases the assurance and yields various social media benefits. Besides this, higher assurance and morale on positive information shared on social media eventually turns the traveler into impulsive and liberal booking and decisions. The decision in regards to booking heritage hotels has seemed to eliminate the rational behavior of travelers. Based on the information shared by other fellows, the impulsive decision is taken and the hotel is booked. The reason contributing to it is enhancing self-esteem, less control and exhibiting the privilege among their network of acquaintances. Practically, heritage hotels exhibit luxurious and royal expenditure which enhances the traveler's prestige. Booking of the heritage hotels for stay is more showing off than the necessity. And it has been assumed that higher intensity of using social networking sites results in an absurd decision of booking a heritage hotel. Believing this, the first hypothesis of the study is framed as -

H1: Increase use of social media positively affects the booking of heritage hotels.

3. METHODOLOGY

To test the hypothesis, the study collected a sample from Indian travelers. For the data collection convenience sampling was used with a functional sample size of 571. Data is collected online through Goggle forms.

4. VARIABLES, DATA ANALYSIS AND ASSESSMENT

India, an important nation that exhibits diverse cultures and traditions. For the study, two main variables are considered. Which are – Social Media Potency and Booking of Heritage Hotel. The following variables have been analyzed with the help of six-point Likert scales.

Constructs	Question	Variable	Source
Social media Potency (SMP)	Rate your intensity of using the following social media channels? (Where 1 is "Not At All Active" and 6 being "Very Active")	SMP 1: Social Media Platforms (e.g. Facebook and Instagram) SMP 2: Micro-blogging sites (e.g. Twitter) SMP 3: Online photo-sharing platforms (e.g. Instagram, and Pinterest) SMP 4: Sited for video sharing (e.g. YouTube)	Adapted from Bush and Gilbert (2002) and Ellison, et al. (Gonzales, A. L., & Hancock, J. T., 2011)
Booking of Heritage Hotel (BHH)	Prior to booking the heritage hotel for a stay...? (Where 1 is "Strongly Disagree" and 6 is "Strongly Agree")	BHH 1: It's important to know what my colleague thinks of a heritage hotel I'm considering booking. BHH 2: It's important to know which kind of individuals are booking the heritage hotel I'm thinking about. BHH 3: Knowing what other people think of individuals who book certain heritage hotels, as I do, is important. BHH 4: Knowing which heritage hotel to book is crucial for making a good first impression.	The scale is developed based on the concept derived from Chung and Fisher (2001).

Table 1: Representing the Research Constructs and Variables.

To gauge the reliability and validity of research variables and items, squared multiple correlations and correlations among the variables were calculated. Analysis and calculation unfold the considerable interconnection between the variables. The following stats, supplement the validity of the research variables-

• Mostly, the Correlation among the variables is higher than 0.70.
• Most of the research variable has r2 higher than 0.60.
• In addition, variables are also valid. As the factor loadings of the research variables range from 0.69 to 0.91.

To analyze and inspect the reliability of constructs, variables, and scales, composite reliability (cr) and Cronbach's Alpha (α) were used. Cronbach's Alpha (α) and Composite reliability (cr) are both more than 0.70, indicating that the study variables and construct are trustworthy and valid.

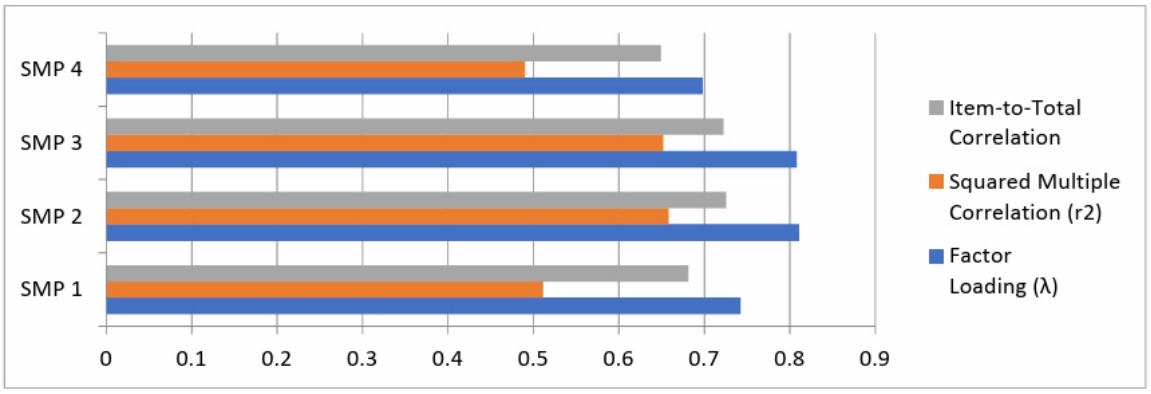

Figure 2: Delineating the analysis of Social Media Potency (SMP)

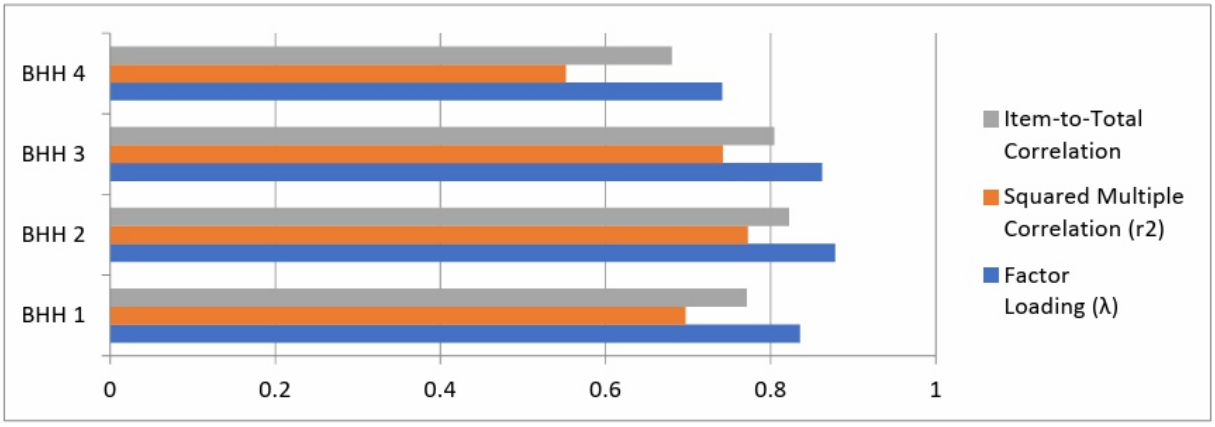

Figure 3: Delineating the analysis of Booking of Heritage Hotel (BHH)

Construct	**Composite Reliability (*cr*)**	**Cronbach's Alpha (α)**	**Average Variance Extracted (*ave*)**	**Standard Error (*se*)**	**SMP**	**BHH**
					Square root of the average variance extracted (*ave*)	
Social media Potency (SMP)	.721	.853	.393	.029	.627	
Booking of Heritage Hotel (BHH)	.823	.897	.539	.028		.734

Table 2. Delineating the analysis of reliability and validity of research constructs.

The usual approach provided by Fornell and Larcker (1981) and Bagozzi and Warshaw (1990) was used to determine reliability and scale validity. The square roots of average variance retrieved for all constructs were then determined. It was also discovered to be larger than the relevant correlation with other constructs, indicating that it was sufficient. Furthermore, each construct demonstrates viability because the correlation is smaller than 1 when the standard errors are taken into account. Since the study's constructs and variables have been proved to be trustworthy, valid, and suitable. The research has progressed to the next stage of testing the hypothesis.

5. FINDINGS AND DISCUSSION

The structural equation model was employed to test the hypothesis. The model fit was tested using the Chi-square test, as proposed by Yi and Bagozzi (2012). The model's X2 is 354.17(d.f. =71), which is significant at p.01. However, the literature on the structural equation model suggests that chi-square should not have been used alone to assess model fit. Sample size sensitivity is the explanation behind this. Given the study's enormous sample size, seeing much colossal X2 becomes impossible. As a result, other important indices such as TLI (NNFI), RMSEA, and CFI, with values of 0.972, 0.58, and 0.978, have been considered ®. P., Bagozzi & Yi, Y., 2012). The structural model bestows an appropriate and a good fit for the data, as the TLI and CFI are higher than 0.97 and RMSEA is lesser than 0.60. The data analysis expresses powerful results and supplements both the hypothesis. The following figure no. 5. depicts positive structural coefficients with a significant p<.01and having the relative standard errors indicated in parentheses. The potency and increase use of social media positively and significantly impact the booking of heritage hotels having $\beta = .384$ and $p < .01$). Thus, the data validates H1.

	SMP ≈ BHH
Direct Impact	.301
Indirect Impact	.196
Comprehensive Impact	.497

Table 3: Delineating the direct, indirect and comprehensive impact
(Standardized Structural Coefficients)

Agreeing to divination, the results of the study factually prove that the potency of social media is so powerful that it impacts and influences the booking of a heritage hotel. Research also stipulates that increased active involvement on social media by travelers leads to an increased chance of booking heritage hotels by stimulating the sense of prestige. The findings of the data analysis are also consistent with Stephen's and Wilcox (2013) study, which claims that surfing and using social media tempt vacationers to spend a little more and feel fabulous by displaying status. As a result, those who spend more time on social media are more prone to make snap decisions about vintage hotels.

6. CONCLUSION AND SUGGESTIONS

The research paper has explicitly scrutinized and has examined the phenomenon of social media impact on decision-making of travelers while booking heritage hotels in India. For this purpose, rigorous and empirical analysis of data in regards to the two research constructs of the study; social media use and potency and booking of heritage hotels has been carried out. The results of data analysis conclude that social media networking has affected traveler's choices tremendously. India is a country that offers an exemplary depiction of developing economies and its travelers have latterly escalated the usage of the

of the internet and social media networking. This growth and advancement give a wide scope to heritage hotels for implementing marketing strategies to attract travelers. Besides this, it also calls for researchers to give insight as in academic purpose and develop theories. The research paper authenticates and elongates both the literature on social media networking and the behavior of travelers by studying how social media has impacted the decision-making of travelers. Thus, it also supplements the academic contribution. Facebook, Instagram, Youtube and other social media network channels offer travelers to post and present what they wish. And often, to exhibit their prestige among their friends, travelers render and showcase the luxury and positive details.

The replies on the post by community members and friends lead to the enhancement of positive information, which thus usher the prestige and self-esteem leading to the constructive advantage of social media. This often leads the way to make an impulsive and irrational booking. In comparison to the distant know members, the close members in the social media network are also proven crucial in the decision of booking of a heritage hotel. Posting the positive information makes other travelers actively involved and makes them rely on the information and on basis of which they make the booking decision. As a result, the study supports the social network strategy and expands the trip marketing literature through highlighting activity and possibilities.

The findings of the data analysis show both primary and secondary effects of a social media site on heritage hotel bookings, which help hoteliers build modern and digital marketing strategies.

7. FUTURE RESEARCH

The further study may be elucidated in researching other relevant factors such as the expectation of travelers in booking the heritage hotels, the propensity to over-spending and over-utilization of credit and the researches focusing on the deeper insight of traveler's practices in cyber & virtual environment. Besides this, comparative studies of various models from different studies in national and international contexts can also pave a way for the generalizability of further development of advanced theories.

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Exploring and Exploiting Value Anomaly in Indian Stock Market Using Discriminant Analysis

Riya Shah *

ABSTRACT

Presently, the studies on value anomaly are conducted mainly using factor models or Sharpe ratio which results into either asserting or rejecting its existence in a particular market. However, the reality is far from such a binary classification. Therefore, by applying Discriminant Analysis the study demonstrate that what part of the excess returns on value stocks should be designated as the fair return i.e. 'value premium', and what part of it should be looked upon as a disproportionately higher return i.e. 'pricing anomaly'. Further, it also show that how long the value premium persists in the market. This knowledge can help investors decide optimum holding period for value stocks. This study is based on Indian stock market. The study found that the value effect is clearly evident in India; however, with passage of time its magnitude is decreasing. This study also document that the optimum holding period for a portfolio of value stocks happened to be of two to three years.

Keywords: Asset Pricing, Value Anomaly, Efficient Market Hypothesis, Discriminant Analysis, Indian Stock Market.

Introduction

Asset pricing continues to be one of the most investigated topics in financial economics mainly due to abnormally higher returns observed on value stocks and small-sized stocks. Value stocks are those whose Price-to-Book (P/B) ratio is lower as contrasted to growth stocks. Small-sized stocks are those whose market capitalisation is lower than their counterparts which are called as large-sized stocks. Many empirical studies found that value stocks and small-sized stocks gave higher returns. However, since the return is a reward for the risk, the debate is centred around whether the higher returns are coupled with equally the higher risk or not. As far as the measurement of return is concerned, there is a complete unanimity; but there is a disagreement for the measurement of risk, which emanates from the possibility of taking different perspectives for defining the risk. Interestingly, all the perspectives are equally valid in their own context. Thus, the root cause of the debate is the many different ways of looking at the risk. Therefore, it is very necessary that the right perspective for the right context is taken, and accordingly the right technique of analysis is employed in studying the asset pricing scenarios. The choice of the right technique of analysis is the key factor in ensuring the quality of the findings of any scientific inquiry. The study propose that the application of Discriminant Analysis in studying pricing anomalies can enhance the quality of research in the area of asset pricing, which seems to have been ignored so far. On the issue of the reliability of this technique, Alayande and Adekunle (2015) note, "Discriminant analysis often produces models whose accuracy approaches (and occasionally exceeds) more complex modern methods." The major application of Discriminant Analysis in finance has been in the area of prediction of financial performance using financial ratios with Altman (1968) pioneering its use for prediction of corporate bankruptcy. Here, Discriminant Analysis can prove to be a more robust technique for deciding as to how far the excess returns are the reward for excess risk, and how far not. Put other way round,

different approaches adopted by different scholars lead to conclude in a binary way, and designate the excess returns as either 'value premium' type, or or 'value anomaly' type. In real life, it is not a binary, or say a mutually exclusive, type of an event. In most of the cases, it would be a mix of both. That is, one part round, different approaches adopted by different scholars lead to conclude in a binary way, and designate the excess returns as either 'value premium' type, or or 'value anomaly' type. In real life, it is not a binary, or say a mutually exclusive, type of an event. In most of the cases, it would be a mix of both. That is, one part of the excess return may be due to excess risk, but the other part may be characterised as truly a disproportionately higher return. The Discriminant Analysis has that power of bifurcating the excess returns into those two types, and as a result it raises a factually correct picture of the situation.

Emerging Markets (EMs) differ from the developed markets not only on the parameters of GDP, inflation rate, per capita income, etc. Rather, their economic and financial fabric also seems to be differing significantly. As a result, the standard economic models often provide inconsistent and inconclusive results in these markets. As compared to developed markets, the EMs are characterised by higher volatility, and the associated higher returns. However, EMs commands a special significance as they accounted for 59.81% of world GDP (IMF, 2019) and 12% of the MSCI All Country World Index (Melas, 2019). Nevertheless, the historical data shows that the investment in the stock of Ems provided higher long term risk-adjusted returns (Melas, 2019). Therefore, EMs are increasingly being considered as a separate asset class by many investors due to high risk-adjusted returns and its significant contribution to portfolio diversification (Bekaert and Urias, 1996,1999; Bekaert and Harvey, 1997). This study pertains to India, which is an Emerging Market. India has the fourth-highest weightage of 10.27% in the MSCI Emerging Markets Index (MSCI, 2019) and is the seventh-largest stock market on the world map. Additionally, India is expected to hit the market capitalization of $6.1 trillion by 2027 (Morgan Stanley, 2018). This makes a case for selecting India as a representative market within the Ems.

Literature review on value anomaly in capital asset pricing

Value effect is widely investigated. Table 1 gives a snapshot view of important studies conducted in the developed as well as emerging markets highlighting the method followed and the broad conclusion in terms of whether the empirical evidence supported the notion of value premium or value anomaly.

Table 1: Literature Review

Author(s)	Year	Country of study	Period	Method followed	Broad Conclusion (Value Premium or Value Anomaly)
Fama and French	1992	United States (US)	1963-1990	Factor model	Value Premium
Capaul et al.	1993	US, France, United Kingdom (UK), Germany, Japan, and Switzerland	1981-1992	Sharpe Ratio	Value Anomaly
Lakonishok et al.	1994	US	1963-1990	Factor model	Value Anomaly
Brouwer et al.	1997	UK, France, Germany, and Netherlands	1982-1993	Factor model	Value Anomaly
Bauman and Miller	1997	US	1980-1993	Sharpe Ratio	Value Anomaly
Porta et al.	1997	US	1971-1993	t-Test and Regression	Value Anomaly
Arshanapalli et al.	1998	18 major equity markets	1975-1995	Factor model	Value Premium
Bauman et al.	1998	21 major capital markets	1986-1996	Sharpe Ratio	Value Anomaly
Fama and French	1998	US	1975-1995	Factor model	Value Premium
Dhatt et al.	1999	US	1979-1997	Factor model	Value Premium
Oertmann	2000	Europe, North America and Pacific Rim	1980-1999	Factor model	Value Premium
Anderson et al.	2003	Mongolia	1995-1996	Factor model	Value Anomaly
Dimson et al.	2003	US	1955-2001	Factor model	Value Premium
Gonenc and Karan	2003	Turkey	1993-1998	Factor model	No Value effect
Dunis and Reilly	2004	UK	2000-2002	Sharpe Ratio and t-Test	Value Premium
Yen et al.	2004	Singapore	1975-1997	Factor model	Value Premium
Ding et al.	2005	Japan, Indonesia, Thailand, Hong Kong, Taiwan, Singapore and Malaysia	1975-1997	Factor model	Mixed evidence in different countries.
Pätäri and Leivo	2009	Finland	1993-2008	Factor model	Value Premium
Athanassakos	2009	Canada	1985-2005	Factor model	Value Premium
Gharghori et al.	2013	Australia	1993-2004	Factor model	Value Premium
Singh and Kaur	2015	India	1996-2010	t-Test and F-Score Model	Value Anomaly
Xie and Qu	2016	China	2005-2012	Factor model	Value Premium
Cakici et al.	2016	18 emerging stock markets	1990-2013	Factor model	Value Premium
Perez	2017	Thailand	1999-2016	Sharpe Ratio, Anderson-Darling Test and Wilcoxon Test	Value Anomaly
Garcia and Oliveira	2018	Europe	2003-2015	Factor model	Value Premium

Source: Authors' compilation

It can be seen that as far as the research approach is concerned, all the studies can be bifurcated into two groups. One group under the influence of FamaFrench examine the value effect using the factor models. Taking the premise of efficient market hypothesis, they infer the risk from the realised returns, and thereby designate the excess return as 'value premium'. This group essentially tries to demonstrate that the theory of equivalence between return and risk comes true in real life, too. This band of theorists is in majority who subscribe to the ideology that free markets would turn out to be efficient markets also.

However, an important demerit of factor models lies in taking a biased view by inferring the risk from the realised return rather than directly measuring the incidence of risk emanating from those factors. Therefore, another group tries to examine the value effect objectively by directly studying the risk-return profiles of stocks to see whether there is any disproportionately higher return in case of low P/B stocks. However, they use a combined measure of risk-return like Sharpe ratio. Some of them document the existence of value effect in terms of identifying the excess return as risk premium, whereas the rest of them designated it as value anomaly. Not only that the findings under the direct approach are inconsistent, but more than that, this approach suffers from a limitation of using a combined measure of risk-return in terms of their ratio which does not allow to compare the levels of return and risk separately. Therefore, there is a need to search for a method that would directly and separately measure the risk and return so that a meaningful comparison of the two can be made.

Significance of using discriminant analysis

The lens that is employ to examine the value effect is unique, and at the same time apparently more scientific. Since bifurcating the firms into value vs. growth is essentially an act of discrimination, the study envisage to subject those two groups to the Discriminant Analysis, and thereby examine how far the factors of return and risk explain the a-priory classification of firms made on the basis of value. This approach is the most sophisticated one for exploring and explaining the value effect. This approach is free from the limitations of the prevalent approaches. As discussed earlier, the Fama-French led factors model approach presumes that the market is efficient, which may not be the case always. Therefore, this approach is free from any such presumption about the market efficiency. Likewise, this approach is also free from the limitation of the other group that captures the effects of the return and risk into a single metric of 'risk-adjusted return'.

Further, neither of the two have any room for capturing a mixed scenario, which is more likely in a real world. Against this, the approach of using Discriminant Analysis is capable of capturing the reality, and show that how far the excess return is due to the excess risk and how far it is due to any imperfections in the market. Additionally, since in reality, the market is not completely efficient, the investors would like to form a portfolio of value stocks and hold it for a particular period to obtain the maximum reward. Interestingly, the Discriminant Analysis is capable of identifying an optimum holding period, too. This property of Discriminant Analysis commands a lot of value for the investors.

Research objectives and methodology

This study aims to demonstrate the application of Discriminant Analysis which can reveal that how far the value stocks give disproportionately higher returns, and how to exploit that imperfection in the market by way of deciding an optimum holding period for the value stocks portfolio.

Period of Study

Previous to this, extensive work on applying the Discriminant Analysis is done for examining the value anomaly and the size anomaly in the Indian stock market. Capitalizing on it, this paper shows how to apply it and how to interpret the results. The market may not be either completely efficient or completely inefficient at any point in time. Of course, during different phases in its life, it may turn out to be predominantly efficient or predominantly inefficient. Therefore, based on the previous work, this study opts for showcasing what results the Discriminant Analysis produces under different market scenarios. Towards that, value-growth portfolios are formed at three different points of time as shown below, and hold them for a few years.

i) Portfolio formed at the end of March 2003 is held for three years
ii) Portfolio formed at the end of March 2014 is held for five years
iii)Portfolio formed at the end of March 2015 is held for four years

In the above list, the choice of the year 2014 and 2015 is governed by the considerations of identifying the recent years for which the portfolio performance can be measured over the next four to five years. Contrasted to that, the year 2003 is chosen to represent an older period for comparison that would provide the data for next four to five years before the onset of financial crisis.

Portfolio Formations and Sample Stocks

At each point of time, three portfolios are formed on median, quartile and decile bases. Towards that, all the stocks are listed in ascending order of their Priceto-Book value ratio. Then, on median bases, the upper half stocks are categorised as value stocks, and the lower half as growth stocks. Likewise, on quartile bases, upper quartile stocks are categorised as value stocks, and the lower quartile as growth stocks.

Similarly, the decile based categorisation is done. It is expected that the results of analysis should improve with the classification becoming sharper. If it happens so, then only the approach of classification gets ratified. The numbers of stocks in each set of portfolio are presented in Table 2.

Table 2: Number of companies in each portfolio

Particular	Portfolio	Criterion	No. of companies		
			Mar-03	Mar-14	Mar-15
Median-based stock classification	Value stock portfolio	Above the median	611	1012	1059
	Growth stock portfolio	Below the median	611	1012	1059
Quartile-based stock classification	Value stock portfolio	Top Quartile	306	506	530
	Growth stock portfolio	Bottom Quartile	306	506	530
Decile-based stock classification	Value stock portfolio	Top Decile	122	202	212
	Growth stock portfolio	Bottom Decile	122	202	212

Source: Authors' compilation

Source of Data

The data are sourced from the AceEquity database of Accord Fintech Limited, which compiles and makes the data available as a commercial product to universities.

Calculation of Parameter Values

Return: The yearly return is calculated as the geometric mean of the monthly returns. The monthly returns are calculated based on the monthly adjusted prices. Holding period return is also calculated as the geometric return for the entire holding period. Techniques of Analysis Risk: The risk parameter is defined as the variance of the monthly returns for the given period. As far as the calculation of holding period risk is concerned, it is calculated based on months in a given holding period. Thus, if a holding period is of five years, then the variance is calculated based on 60 months' return covered in that period.

Obviously, the Discriminant Analysis is going to be the main tool of analysis. However, it should be applied only if there is a prima facie evidence of any excess returns on value stocks. Therefore, first t-Test was conducted which proved that the value stocks did command higher excess returns over growth stocks. However, the results are not reported here looking to the limitation of space. The SPSS output for

Discriminant Analysis generates many different values. However, only the relevant ones are reported in Table 3.

Table 3: Summary of Discriminant Analysis Results

Holding Period	Value Stock Portfolio		Growth Stock Portfolio		Wilks' Lambda	*p* value	Standardised Canonical		Structure Matrix		% of Correctly Classified
	Return	Risk	Return	Risk			Return	Risk	Return	Risk	
Portfolio formed at the end of March 2003											
Median-based stock classification											
1	66.8	1668.37	59.52	690.77	0.95	0	0.24	0.97	0.25	0.97	62.60%
2	168.5	1390.47	120.05	839.11	0.93	0	0.99	0.06	1	0.22	59.10%
3	206.81	1193.7	163.72	718.31	0.96	0	0.92	0.34	0.94	0.4	58.30%
Quartile-based stock classification											
1	68.19	2332.17	54.76	617.64	0.91	0	0.31	0.95	0.31	0.95	68.60%
2	183.66	1956.52	102.68	1045.64	0.83	0	1.01	-0.04	1	0.16	67.20%
3	218.27	1631.33	146.39	842.9	0.92	0	0.95	0.25	0.97	0.32	64.20%
Decile-based stock classification											
1	74.62	3290.4	49.15	573.8	0.86	0	0.44	0.91	0.43	0.9	70.10%
2	209.59	2770.86	87.89	1708.43	0.72	0	1.03	-0.19	0.98	0.09	72.10%
3	231.28	2193.42	125.41	1284.46	0.89	0	1	0.02	1	0.17	65.00%
Portfolio formed at the end of March 2014											
Median-based stock classification											
1	45.27	451.27	39.99	306.22	0.97	0	0	1	0.24	1	57.90%
2	61.77	421.22	38.05	306.79	0.95	0	0.53	0.76	0.67	0.86	58.80%
3	95.82	372.46	61.87	270.94	0.94	0	0.59	0.74	0.68	0.81	62.40%
4	98.62	359.91	64.36	258.37	0.92	0	0.52	0.85	0.53	0.85	62.00%
5	62.38	342.29	37.03	254.18	0.94	0	0.47	0.93	0.38	0.89	61.30%
Quartile-based stock classification											
1	47.36	516.56	34.83	269.98	0.92	0	0.14	0.96	0.33	0.99	63.20%
2	62.19	474.04	25.66	275.84	0.88	0	0.51	0.8	0.61	0.86	65.90%
3	96.62	420.85	43.4	242.29	0.84	0	0.58	0.78	0.63	0.82	70.30%
4	97.84	401.47	41.68	228.65	0.81	0	0.56	0.86	0.51	0.83	70.90%
5	59.94	381.94	17.35	228.68	0.83	0	0.52	0.94	0.37	0.86	69.80%

Holding Period	Value Stock Portfolio		Growth Stock Portfolio		Wilks' Lambda	*p* value	Standardised Canonical		Structure Matrix		% of Correctly Classified
	Return	Risk	Return	Risk			Return	Risk	Return	Risk	
Portfolio formed at the end of March 2003											
Decile-based stock classification											
1	40.67	636.99	31.98	249.91	0.85	0	-0.1	1.02	0.16	1	68.30%
2	53.34	543.19	22.03	260.31	0.84	0	0.3	0.91	0.44	0.96	68.30%
3	85.21	476.79	33.57	225.65	0.81	0	0.44	0.85	0.54	0.9	74.00%
4	84.17	456.86	28.7	214.89	0.77	0	0.45	0.9	0.44	0.89	74.80%
5	48.2	433.47	7.14	218.88	0.78	0	0.43	0.97	0.29	0.9	74.30%
Portfolio formed at the end of March 2015											
Median-based stock classification											
1	17.37	376.16	0.16	266.43	0.96	0	0.61	0.63	0.8	0.82	60.30%
2	50.92	330.15	23.12	231.25	0.94	0	0.56	0.71	0.72	0.84	62.20%
3	53.98	330.38	25.17	223.6	0.92	0	0.45	0.86	0.51	0.9	63.40%
4	18.17	317.59	-2.62	222.53	0.93	0	0.39	0.95	0.33	0.92	63.20%

Quartile-based stock classification											
1	16.6	394.47	-6.12	244.42	0.93	0	0.63	0.63	0.79	0.8	66.20%
2	49.74	349.89	7.58	206.58	0.87	0	0.62	0.68	0.74	0.79	68.40%
3	51.81	356.6	7.56	203.34	0.84	0	0.53	0.84	0.54	0.85	69.90%
4	16.2	346.64	-16.97	205.63	0.86	0	0.46	0.94	0.36	0.89	69.50%
Decile-based stock classification											
1	18.06	424.65	-14.49	224.61	0.86	0	0.63	0.69	0.73	0.78	71.70%
2	50.86	387.05	-5.84	199.22	0.8	0	0.64	0.69	0.73	0.77	73.80%
3	50.53	395.32	-13.3	195.18	0.75	0	0.6	0.83	0.56	0.8	75.50%
4	11.76	381.49	-38.12	204.71	0.78	0	0.58	0.94	0.4	0.82	75.20%

Source: Compiled by authors based on SPSS 21 output

Interpretation of Results of Discriminant Analysis

Some of the output parameters are analogous to the regression analysis output. Wilks' lambda stands for 1-R2. However, in any econometric study, what matters more than the R2 value is the F ratio and its significance level. By that count, the p value of Wilks' lambda assumes more importance. It is significant in all portfolios which validates the reliability of the discriminant function.

Similarly, the coefficients of the standardised canonical discriminant function are also analogous to the beta values of explanatory variables in regression output. The sign is also to be interpreted on the same lines. It can be seen that the return turns out to be the dominant factor for explaining the apriory classification of stocks into value stocks and growth stocks for the portfolios formed in March 2003. The contribution of risk in discriminating the two portfolios is meagre. The positive values of risk account for only a small part of the excess return.

Thus, it is largely a case of 'value anomaly'. Therefore, this period needs to be identified as showing a dismal state of affairs so far as the market efficiency is concerned. Further, the sharper the classification, the greater the incidence of the value effect manifesting as value anomaly. However, just diagonally opposite to it, the other two portfolios formed in March 2014 and March 2015 reverse the results. Thus, those periods can be interpreted as the state of increased market efficiency as the large part of excess return on value stocks is explained by the risk factor.

The Structure Matrix also shows the relative importance of the explanatory variables in terms of their correlation with the discriminant function. The values stand for what can be called as factor loading on the discriminant function. This value has a more standardised interpretation which suggests that a factor having this value of less than 0.3 should be interpreted as less important one. The interpretation of these results is the same as that of the standardised canonical discriminant function coefficients. Here again, the sharper the classification, the greater the incidence of the value effect manifesting either as value premium or value anomaly, depending on the relative strength of the coefficients of risk and return factors, respectively.

The classification percentages in the Table 3 show how far the a-priory classification is justified. Intuitively, the result value of more than 50 per cent would accord a justification to the a-priory classification; however, the higher the percentage, the better it is. It can be seen that the justification is increasing with sharpening of the classification. This observation not only proves the worth of Discriminant Analysis, but also reinforces the idea of creating a value stocks portfolio for earning disproportionately higher returns.

In fact, since the Discriminant Analysis is not used for predicting the membership of the observations in future, the percentage of correctly classified cases is not important from the perspective of deciding the robustness of the analysis. What is more important is to infer as to what part of excess return is explained by the risk and what part can be attributed to the notion of anomaly. As discussed above, the coefficients of standardised canonical discriminant function, as well as the structure matrix, do that job pretty well. Of course, the magnitude of correctly classified percentage does have very important information content for the investors which can help them decide the optimum holding period. It can be seen from Table 3 that the percentage figures normally increase with increase in the holding period, and having reached the pick they start decreasing after two to three years. It can be argued that the optimum holding period is revealed by the corresponding maximum percentage figure of correctly classified cases. This point is elaborated in Appendix 1.

One more observation is worth noting here. The results of one year holding period are different from that of other holding periods. It is because of the gestation period effect, and should be simply ignored.

Conclusions and Suggestions

As discussed earlier, one objective of this paper is to examine the ability of the Discriminant Analysis to reveal that how far the excess returns on value stock portfolios are explained by the factor of risk. This relates to another objective that concerns with inferring about the level of market efficiency leading to a conclusion that in what proportion the excess returns can be divided between the two aspects of 'risk premium' and 'pricing anomaly'. As far as the Indian stock market is concerned, it can be concluded that the level of market efficiency has increased over time, which is evident in the increased contribution of 'risk premium' in explaining the excess returns on value stocks in 2014 and 2015 portfolios in contrast to 2003 portfolios. However, another very important observation that emerges from the use of Discriminant Analysis is that mostly the markets exhibit a mixed state so far as the efficiency is concerned.

The markets may not be always fully efficient or fully inefficient. The loading of risk factor in the Discriminant Analysis reveals that what part of excess return is due to extra risk; and the loading of return factor shows that what part of excess return is an unmixed bless to the holder of value stock portfolio. This is a unique contribution of Discrimination Analysis, which is lacking with other two popular approaches that conclude about the state of market efficiency in a binary way. Three sets of portfolios are formed at three points of time based on the median, the quartile, and the decile. As a result, the gap between the value portfolio and growth portfolio sharpens with moving from median based to decile based classification. This provides an opportunity to prove the worth of Discriminant Analysis, which is evident in the percentage of correctly classified cases increasing with the classification becoming sharper.

Another worth of Discriminant Analysis lies in the fact that the t-Test keeps on showing significant p values over a longer holding period. However, it is the Discriminant Analysis that clearly brings out the right number of years as the optimum holding period which is proved in Appendix 1. The clue to the optimum holding period can be of a great help to investors. Of course, it goes with the specific performance of a given year/period in future. However, the historical studies based on Discriminant Analysis can help the investors to project the optimum period. Here, it shows up as on an average a three years' period.

In summary, the contribution of this study lies not only in examining the state of value effect objectively, or for that matter, approaching it in an innovative way in terms of applying Discriminant Analysis. This study go a step forward in showing that what part of return on value stocks can be attributed to the associated higher risk, and what part can be taken as an unmixed bless. Further, how long that unmixed

bless continues. All these can help the investors design better trading strategies. Finally, this study would like to state that the Discriminant Analysis can also be applies in the similar way to examine the size effect.

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Appendix 1: Relationship between Yearly, Average, and Holding Period Returns

Year	Median-based portfolio			Quartile-based portfolio			Decile-based portfolio		
	Value Stock Portfolio	Growth Stock Portfolio	Difference	Value Stock Portfolio	Growth Stock Portfolio	Difference	Value Stock Portfolio	Growth Stock Portfolio	Difference
Yearly Returns									
2003-04	66.8	59.52	7.28	68.19	54.76	13.42	74.62	49.15	25.47
2004-05	103.86	62.4	41.46	118.04	50.19	67.85	137.96	41.08	96.88
2005-06	40.56	45.03	-4.47	37.25	44.99	-7.74	25.23	39.41	-14.18
Average Returns p.a. During the Period									
2003-04	66.8	59.52	7.28	68.19	54.76	13.42	74.62	49.15	25.47
2003-05	84.4	60.95	23.45	91.5	52.46	39.04	103.85	45.06	58.78
2003-06	68.45	55.46	12.99	71.37	49.93	21.45	73.29	43.15	30.14
Holding Period Returns									
2003-04	66.8	59.52	7.28	68.19	54.76	13.42	74.62	49.15	25.47
2003-05	168.5	120.05	48.45	183.66	102.68	80.98	209.59	87.89	121.7
2003-06	206.81	163.72	43.08	218.27	146.39	71.88	231.28	125.41	105.86

Source: Authors' compilation

This Appendix is created to prove the worth of the Discriminant Analysis output relating to the correctly classified cases. It can be seen that in case of the portfolios formed in March 2003, the maximum percentage is obtained for the holding period of 2003-05. The rationale behind it is explained by the figures of 'difference' in the Holding Period returns that are used in the analysis. The difference increases in case of the two year holding period in comparison to a one year holding period. But then, it decreases in case of three year holding period of 2003-06. Thus, 2003-05 becomes the optimum holding period. The Yearly Returns and the Average Returns together explain as to why the gap is.

Nigerian Tax Revenue and the Effect on Economic Development

ELLAWULE Abdulhamid

ABSTRACT

The challenge of climate change to the world necessitated plans to produce and use eco-friendly cars and when this policy is implemented this brings to question how Nigerian tax revenue affects her economic development. The study examined the effect of tax revenue both oil and non-oil on the economic development of Nigeria. Data used for the study was secondary data which is for a period from 2011-2018 and was sourced from the database of Federal Inland Revenue Service (FIRS) and The United Nation Human Development Report 2019. The foundation for the theoretical framework of the study is the Socio-Political Theory of Taxation. Multiple regression was used for the analysis through Statistical Package for Social Science (SPSS) version 25 and the finding revealed that tax revenue has a positive and significant effect on economic development in Nigeria. To be self-sufficient and avoid financial crunch due to changes in policy from fossil fuel to zero-emission by developed economies, it was recommended that government at all levels diversify the economy to improve their internally generated revenue.

Keywords: taxation, economic development, tax administration.

1. Introduction

The primary function of government as enshrined in the 1999 constitution of Nigeria is the provision of welfare and the protection of lives of the citizens. To achieve this, the government needs funds (Fagbemi, Uadiale & Noah, 2010). Kaldor (1963) equally states that meeting infrastructural development like health, education and communication systems, there is a need for resources. It is in this light that Kaldor (1963) asserts that discussion in connection with development is done in two perspectives; the incentives and the resources. The proponents of incentives believe that it is lack of incentives that affect investment therefore, they suggest for more concessions be granted to investors not considering the resultant effect the policy will have on state revenue while the proponents of resources believe lack of growth and investment is a direct effect of insufficient resources so they advise on the need to increase taxes which will lead to disincentives (Kaldor, 1963).

Most governments around the world raise funds through tax. Tax can be defined as a compulsory contribution levied by a government, on the incomes, profits, goods, services or property of individuals and corporate entities, trusts and settlements and the taxes when collected are used for carrying out governmental functions, such as maintenance of law and order, provision of infrastructure, health and education of the citizens, or as a fiscal tool for controlling the economy (Enigbokan, Clever & Kajola, 2014).

Raising funds to address some of these projects come with a lot of challenges. One of these challenges, as stated by Kaldor (1963), is that developing countries hardly fully exploit their tax potentials and therefore do not have the luxury of asking a question on the most appropriate taxes for maximum revenue. Interestingly, developing countries have different sources of raising funds but are not harnessed. This is the view expressed by Goodfellow (2016) wherein his study on property tax in Rwanda and Ethiopia states that any growth in urbanisation comes with tax potentials to exploit;

however, developing countries unlike the Asian Tigers in the 1960s do not introduce property tax to improve revenue generation.

Similarly, Kaldor (1963) equally states that developing countries collect indirect taxation no more than one-fifth or possibly only one-tenth of the due amount. In the same vein, it is stated that the contribution of income tax to revenue remains consistently low despite reforms carried out by the government (Alabede, Ariffin and Idris (2011a; 2011b), Alabede (2014), Ocheni (2015)). Kaldor (1963) asserts that this is largely due to bad tax laws or bad tax administration or both. To some developing countries, their problem is funding however to some their problem is an irrational scale of public funds allocation and these resources are spent on ornaments and lavish diplomatic missions (Kaldor, 1963) and further enumerates factors that determine tax potential of a country which are: real income per head; the rate of inequality of resource distribution; the relative importance of different economic activity (cash production and engaging in subsistence farming); and the competence of tax administration. In a situation where the resources have not equally distributed the well-being of the citizens will be affected (Sandmo, 2003).

In a country where there is no production, there will not be a tax because the tax is paid out of economic surplus; excess of what is produced over the minimum needs of the population (Kaldor, 1963). To some, the excess production will not be put forward for it to be taxed because they see tax as a burden and not as a civic responsibility (Owens, 2006). Consequently, the standard of living is low in a country when the tax payment is concentrated in the hands of a few wealthy individuals (Kaldor, 1963).

To improve sustainable development, some European countries; Norway, Germany, France, UK, Netherlands and Ireland have announced plans to completely phase out non-zero emission cars beginning from 2025 (Dugdale, 2018). These countries are Nigeria's trading partners that purchase petroleum products. When this policy is implemented Nigeria will face the problem of demand for these petroleum products and consequently a fall in oil revenue. The Nigerian tax system is lopsided and dominated by oil revenue (Ocheni, 2015). Inyiama Edeh and Chukwuani (2017) suggest that government at all levels should diversify the economy in the light of the dwindling oil revenue. The question that comes to mind is, has Nigeria got enough non-oil tax revenue to improve her economic development? This allows the researcher to research the effect of tax revenue on economic development in Nigeria. This problem has afforded the researcher the opportunity to answer the question, what is the effect of tax revenue on economic development in Nigeria?

In answering the research question, the study strives to either confirm or reject the hypothesis which states that, tax revenue does not affect economic development in Nigeria.

The main objective of the study is to analyse the effect of tax revenue on the economic development of Nigeria. Specifically, the study is set out to examine the effect of oil tax revenue on economic development in Nigeria. The study helps the government in policymaking concerning the dwindling oil revenue accruing to the state and make an effort in the diversification of the economy.

Time and resources are important in research as such are a constrain in this study. The study is study is therefore focused on oil and non-oil tax revenue as it affects economic development in Nigeria. Osuala (2005) opines that scope of the study states the limit and bounds of the research.

2. Review of Related Literature

2.1 Tax Administration

Tax administration is responsible for the tax policy and the tax laws of a country (ABWA, 2009). Tax policies help direct government intentions and actions toward achieving set goals. There are three tiers of government with each given certain fiscal responsibility as enshrined in the 1999 constitution with exclusive, concurrent and residual powers respectively (Anyaduba, Eragbhe, & Kennedy, 2012). Part V

Section I of Federal Inland
Revenue Service (Establishment) Act, 2007, First Schedule of the Act listed the tax laws in Nigeria. These tax laws are The Personal Income Tax (PIT) (Amendment) Act 2011, Companies Income Tax Act (CIT) Cap C21 LFN 2004 (as amended), Petroleum Profits Tax (PPT) Act Cap P13 LFN 2004 (as amended), Capital Gains Tax Act (CGT) Cap C1 2004, Value Added Tax Act (VAT) Cap V1 LFN 2004 (as amended), Education Tax Act Cap E4 LFN 2004, Stamp Duties Act Cap S8 LFN 2004 and Nigerian Information Tax Development Agency Act 2007. In this study, the taxes are categorised into two; the oil tax (PPT) and the non-oil tax (CIT, PIT, CGT, VAT, Stamp duty, Education tax, NITDA tax).

2.2 Economic Development

In an economy where there is competition, it is difficult to redistribute resources in a way where everyone is better off (Sandmo, 2003). To achieve this equal redistribution and making everyone better off, Sandmo (2003) states that, firstly, every producer must have an equal marginal cost of producing commodity; secondly, there must be marginal willingness to pay for the commodity and thirdly, there should be Pareto optimality, that is, the marginal cost of production equals marginal willingness to pay for the commodity. This is why Goodfellow (2016) states that urbanisation has a positive relationship with economic growth, but this growth is often not equally shared. Goodfellow (2016) argues that the Asian tigers' economies; Hong Kong, South Korea and Singapore used property taxation between the 1960s and 1990s for their development unlike Rwanda and Ethiopia with rising urbanisation yet could not introduce property tax because of fear by politicians not to lose their political base. However, unlike the Rwanda and Ethiopia urbanisation, the Asian Tigers' urbanisation comes with industrialisation.
In a study, measuring economic development and wellbeing, Marone (2012) states that GDP can be measured through product, expenditure and income approach and is faced with five limitations: GDP counts only goods and services that have monetary value and are sold in formal markets; GDP has a problem of counting side products of production or consumption that are not sold or bought, for instance, air pollution without taxes are negative externality while good education is positive externality; GDP does not register a change in the value of assets, and GDP does not distribute resources and has nothing about poverty. Marone (2012) then opines that measuring well-being goes beyond GDP.
Since the early 1970s, the standard measurement of economic progress has failed to account for the environmental costs and equally failed in the balanced measurement of economic and socio aspect of human progress (Marone, 2012). However, in 1990s efforts were made by the UN to have an alternative measurement instrument aside from GDP and as such the work of an Economist, Amartya Sen on Human Development Index (HDI) was adopted for measuring progress and human well-being (Marone, 2012). The HDI dimension according to UN Human Development Reports (2019), is a long and healthy living, knowledge Other alternatives to measuring well-being as stated by Marone (2012) are Millennium Development Goals (MDGs) as adopted by 189 UN member countries in the year 2000; Measure of Economic Well-being (MEW); Genuine Progress Indicator (GPI); Inequality Adjusted Human Development Index (IHDI); Multidimensional Poverty Index (MPI); Happy Planet Index (HPI); Index of Economic Well-Being (IEWB); Quality of Life Index; Gender Inequality Index (GII) and the EU Sustainable Development Indicators (SDI). In this study, HDI will be used for the measurement of economic development.

2.3 Critical Review of Related Literature

In a study on the analysis of tax revenue and economic development in Nigeria, Okeke, Mbonu and Ndubuisi (2018) revealed that tax revenue has a statistically significant relationship with infant mortality, labour force and gross fixed capital formation in Nigeria. Worlu and Nkoro (2012), equally

found that tax revenue stimulates infrastructural development. Similar to the study carried out by Okeke et al. (2018); Worlu and Nkoro (2012), Oladipopu and Ibadin (2016) showed that there is a positive and significant relationship between tax revenue and infrastructural development.

Also, Harelimana (2018) revealed that there is a significant relationship between taxation and economic development in Rwanda. It was recommended that further research be carried out on the role of corporate taxes on Rwanda economy development, the contribution of payroll taxes in the socio-economic development in Rwanda and property taxes infrastructure development in Rwanda. Also, Ofoegbu, Akwu and Oliver (2016) revealed that tax revenue has a positive and significant relationship with economic development in Nigeria. To equally measure the effect of tax revenue on economic development in Nigeria, Ibanichuka, Akani and Ikebujo (2016) revealed that they both have a positive and significant relationship. Also, Omodero, Ekwe and Ihenbinihu (2018) found that internally generated revenue has a positive and significant relationship with economic development in Nigeria. Nwite (2015) however, found that tax revenue does not have a significant relationship with economic development in Nigeria.

Adesola, Adesodun and Adekola (2014) revealed that oil revenue has a positive and significant relationship with economic development in Nigeria. In a study by Usman, Madu and Abdullahi (2015), it was revealed that oil revenue has a positive and significant relationship with economic development in Nigeria. In a similar study, Adegbie and Fakile (2011) revealed that oil revenue has a strong positive and significant relationship with economic development in Nigeria. In a paper commissioned by the United Nation Department of Economic and Social Affairs (UNDESA), Sandmo (2003) stated that carbon tax has the potentials to generate enough funds for the UN Millennium Development Goals. In their study, Inyiama et al. (2017) had a different finding. The study revealed that tax revenue resources (PIT, CIT and VAT) had a positive and insignificant effect on infrastructural development in Nigeria.

2.4 Theoretical Framework

There have been arguments and publications in support of progressive taxation for a very long time. There have been numerous restatements and refinements of earlier arguments since the publication of Seligman's progressive taxation (2d ed.) in 1908 (Fagan, 1938). One of the progressive taxation theories that is adopted for this study is the socio-political theory of taxation.

The socio-political theory of taxation states that taxes should be imposed to solve societal ills and not serve individuals (Appah & Ebiringa, 2012). This is a view held and advocated by Adolph Wagner, where he stated that socio-political objective should be the deciding factor in choosing taxation (Chigbu, Akujuobi & Appah, 2012) and equally advocated for modern welfare approach in adopting any tax policy. The tax policy should gear towards reducing income inequalities. This, therefore, means taxes should improve the economic development of a country.

3. Methodology

It is a section that highlights the population and explains the method adopted in sampling technique, the statistical test employed, sources of data collection and hypothesis used for the study (Inyiama et al., 2017). The data for the study is secondary; HDI data sourced from UN Nigeria Human Development Report of 2019 and the tax revenue generated from FIRS tax revenue for the period from 2011- 2018.

The oil revenue used as one of the independent variables is an income from the petroleum profit tax of Nigeria and the non-oil revenue comprises of company income tax, capital gain tax, stamp duty, value added tax, education development tax, personal income tax and Nigerian information technology tax. This selection is based on convenience because of the data at the disposal of the researcher. Multiple regression through SPSS version 24 is used for the analysis.

4. Data Presentation and Analysis

In this section, the data from the study will be presented and analysed. Regression is a tool of statistics used in determining the relationship between variable(s) and one dependent variable (Tabachnick & Fidell, 2007).

Table 1: Tax Revenue and HDI

Year	Oil Tax'₦Billion	Percentage Change	Non-Oil Tax'₦Billion	Percentage Change	HDI
2011	3,070.59	-	1,557.88	-	0.494
2012	3,203.13	4.32	1,804.49	15.83	0.512
2013	2,617.71	-18.28	2,187.89	21.25	0.519
2014	2,453.95	-6.26	2,260.61	3.32	0.524
2015	1,097.95	-55.26	2,176.24	-3.73	0.527
2016	1,157.81	5.45	2,149.65	-1.22	0.528
2017	1,520.48	31.32	2,507.46	16.65	0.533
2018	2,467.58	62.29	2,853.33	13.79	0.534

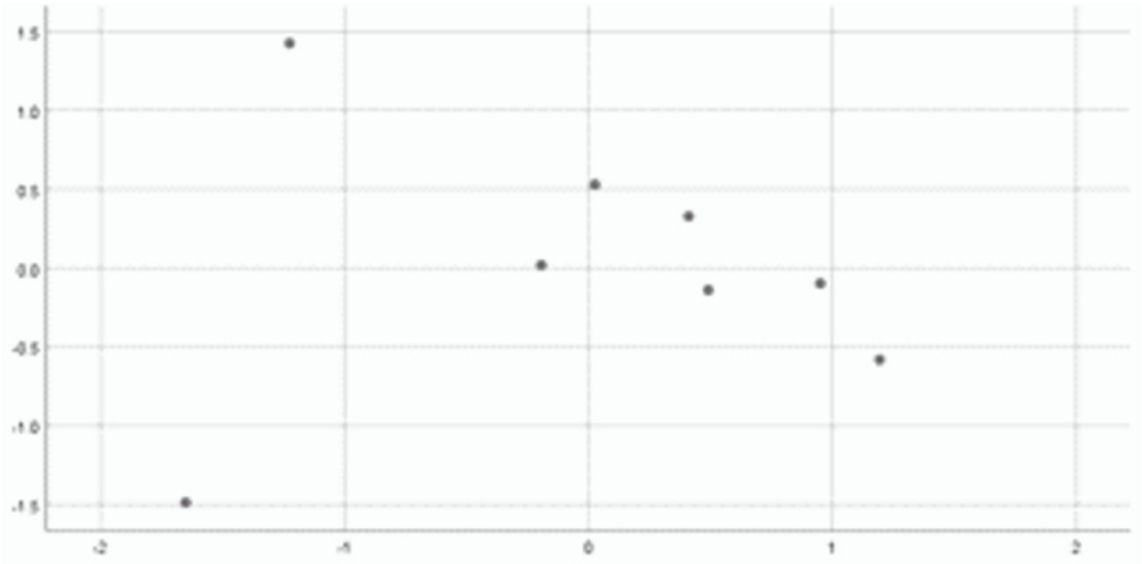
Source: FIRS tax revenue 2018 and Human Development Report 2018

Table 1 contains figures of the oil tax revenue, non-oil tax revenue and Nigerian HDI from 2011 to 2018. The tax revenue increased by 4.3 per cent and the non-oil revenue increased by 15.8 per cent from 2011 t 2012. The HDI increased by 0.018 within the same period. In 2013, there is a fall in the oil revenue by 18.3 per cent while the nonoil revenue increased by 21.2 and there is 0.007 increased in the HDI of the country in that period. There was a further decrease in the revenue from oil in 2014 but was a lower marginal return. From 2014 to 2015, the non oil revenue 3.7 per cent although the non-oil revenue increased by 39.6 per cent from 2011 to 2015.

In 2016, the fall in all revenue stopped and increased by 5.5 per cent while the non-oil still fell by 1.2 per cent from 2015 to 2016. From 2016 to 2017 and 2018, the oil revenue increased by 31.3 per cent and 62.3 per cent respectively. The non-oil revenue within the same period increased by 16.6 per cent and 13.8 per cent respectively. The HDI of Nigeria increased from 2011 to 2018 but in a In analysis regression, it is important to satisfy the regression assumptions (Hair, Black, Babin, & Anderson, 2010). These assumptions are; normality, linearity, size of the sample, absence of multicollinearity and homoscedasticity (Coakes & Ong, 2011). Meyer, Becker, and Van Dick (2006) state that violation of any of the assumptions could distort the results. When the distribution of the scores is centred in a rectangle in a scatter plot, then the linearity assumption is achieved (Hair, Black, Babin, & Anderson, 2013).

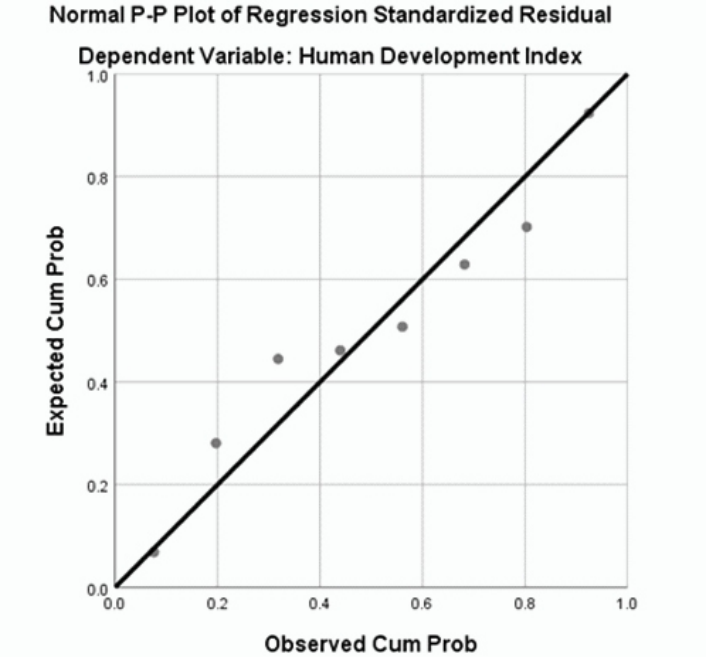
Figure 1: Scatterplot for Linearity test

ScatterPlot
Dependent Variable : Human Development Index



Regression Standardized Predicted Value
Source: Researcher SPSS analysis

Figure 1 is a scatter plot to test the linearity assumption. The scores are roughly centred in a rectangular format. That means the linearity assumption is achieved. The independent variables of a study should not be highly correlated (Tabachnick & Fidell, 2007). When this happens, it shows that multicollinearity exists. This can be checked through a correlation matrix. Sekaran and Bougie (2010) suggest a benchmark of 0.7 and any score greater than 0.7 assumes the presence of multicollinearity. From the study, the correlation is 0.391 which shows that the multicollinearity assumption is not violated. Multicollinearity can equally be tested with the value of tolerance and variance inflation factor VIF. Hair et al. (2013) state that there is a presence of multicollinearity when the value of tolerance is less than 0.1 and VIF of greater than 10. In this study, the tolerance is 0.847 and VIF is 1.181 which equally shows that multicollinearity assumption is not violated. Hair et al. (2010) state that graphically, the normality assumption is achieved when data distribution follows a diagonal line.



Source: Researcher SPSS analysis

Figure 2 represents a normal probability plot to test the normality of the data. It shows that the data is normally distributed hence the normality assumption is not violated. Homoscedasticity assumption is not violated when variances of the predictions determined by regression remain constant (Knaub, 2007). Levene's test can be used to check the homoscedasticity assumption. From the study, Levene's test of equality of error variances shows that the error variance of the dependent variable is equal across groups which means the homoscedasticity assumption is not violated.

Table 2: ANOVA Table

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	0.001	2	0.001	30.147	.002[b]
	Residual	0	5	0		
	Total	0.001	7			

a. Dependent Variable: Human Development Index
b. Predictors: (Constant), Non-Oil Revenue, Oil Revenue

Table 3: Coefficient Table

Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
		B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1	(Constant)	0.479	0.013		38.292	0	0.447	0.512					
	Oil Revenue	-5.91E-06	0	-0.372	-2.765	0.04	0	0	-0.666	-0.778	-0.342	0.847	1.181
	Non-Oil Revenue	2.51E-05	0	0.752	5.595	0.003	0	0	0.898	0.929	0.692	0.847	1.181

a. Dependent Variable: Human Development Index

Table 4: Model Summary Table

Model Summary [b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.961[a]	0.923	0.893	0.004322	0.923	30.147	2	5	0.002	2.362

a. Predictors: (Constant), Non-Oil Revenue, Oil Revenue
b. Dependent Variable: Human Development Index

Results

From table 4, Model Summary: $R = 0.923$ ANOVA: $F(2,5) = 30.147$, $p < 0.05$

With R Statistic, that is, with the coefficient of determination at 0.923, it shows that the independent variables are significant predictors of the dependent variable at 92.3 per cent and only 7.7 per cent that is due to chance.

The p-value of the study is less than 0.05 which means it is statistically significant and therefore shows that the model explains a great amount of variance in the outcome variable. From the study, it reveals that tax has a significant effect on economic development in Nigeria thereby rejecting the hypothesis and it is a confirmation of earlier study by Okeke et al. (2018); Haretimana (2018); Oladipopu and Ibadin (2016); Ofoegbu et al. (2016) and a rejection of Nwite (2015). The individual contributions by non-oil and oil tax as shown in table 3 (coefficient table), it shows that non-oil tax has a uniquely significant contribution to the economic development in Nigeria. For every increase in one Naira of non-tax revenue, there is an increase of 0.752 of the HDI However, the oil revenue contribution has a negative relationship with the economic development in Nigeria.

4.1 Conclusion and Recommendation

The importance of taxation cannot be overemphasized. When this is properly harnessed it improves the well being of Nigerians. The economic development of a country means the well-being (long and healthy living, knowledge and decent living standard) of the citizens and not just economic growth or increase in GDP.

The study revealed that tax revenue has a positive and significant relationship with economic development in Nigeria. The non-oil revenue has a positive while the oil revenue has a negative contribution towards economic development in Nigeria.

For self-sufficiency and to avoid bankruptcy as a result of changes in policy from cars using fossil fuel to zeroemission friendly cars by developed countries, the government at all levels are recommended to diversify the economy to improve internally generated revenue. For further study, researchers are advised to research the contribution of each tax type that makes up the non-oil tax to economic

development in Nigeria.

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