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Trends and Patterns of FDI and FII in India- Implications for the Future

By Mr. Tanu Aggarwal & Dr Priya Solomon

Amity University

Abstract- Fiscal crisis in global markets have made the outlook of the Indian economic system more depressive but the idiosyncratic liberalization and globalization gave the emanation to the phenomena of the foreign investments i.e. FDI and FII in India. International economic integration plays vital role in economic development of the country. The foreign capital is one of the important means of the economic development of the country. FDI and FII are the two important investments in the global capital. The Karl Pearson Correlation and multiple Regressions are used to study the relation and impact of FDI, FII and BSE Sensex. The Correlation shows that there is strongly positive correlation between FDI and Sensex and weak negative correlation between FII and Sensex. On the other hand, Multiple Regressions shows that there is no impact of FII and FDI on BSE Sensex.

Keywords: *foreign investment, FDI (foreign direct investment), FII (foreign institutional investment) and sensex.*

GJMBR-B Classification: *JEL Code: F20, F21*



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Trends and Patterns of FDI and FII in India- Implications for the Future

Mr. Tanu Aggarwal^α & Dr. Priya Solomon^σ

Abstract- Fiscal crisis in global markets have made the outlook of the Indian economic system more depressive but the idiosyncratic liberalization and globalization gave the emanation to the phenomena of the foreign investments i.e. FDI and FII in India. International economic integration plays vital role in economic development of the country. The foreign capital is one of the important means of the economic development of the country. FDI and FII are the two important investments in the global capital. The Karl Pearson Correlation and multiple Regressions are used to study the relation and impact of FDI, FII and BSE Sensex. The Correlation shows that there is strongly positive correlation between FDI and Sensex and weak negative correlation between FII and Sensex. On the other hand, Multiple Regressions shows that there is no impact of FII and FDI on BSE Sensex.

Keywords: foreign investment, FDI (foreign direct investment), Fii (foreign institutional investment) and sensex.

I. INTRODUCTION

FDI refers to the capital flows from the rest of the world which are invested in the production capacity of the economy. FDI facilitates international trade and transfer of knowledge skills and technology¹. On the other hand FII refers to the investor or investment fund which is registered in the country outside the one in which the investor is investing.

The FDI is preferred over FII since it is considered as the most important beneficial form foreign investment for economy as a whole. The direct investment augments the capacity to ensure that the capital inflows get translated into additional production. In the case of the foreign institutional investment that flows in the secondary markets affects the increase in capital availability in general and this money is considered as the hot money that comes and goes. Therefore FDI is considered as more stable than FII².

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¹ Planning commission of India. Report of Steering group on FDI:FII in India(government report)

² Sultana Tabassum Syed Dr. and Pradhasardhi .S. Prof(2012)," Impact of flow of FDI AND FII on Indian Stock Market," Finance Research", Volume 1 Number 3 July 2012 ISSN-216508226-

a) Routes of FDI³

Automatic Route

The FDI is allowed under the automatic route without the prior approval of the either the government or the Reserve bank of India related to all activities mentioned in the consolidated FDI policy issued by the Government of India from time to time.

Government Route

The activities that are not covered under automatic route require the approval of the government which is considered in the foreign investment portfolio board (FIPB), Department of Economics Affairs, and Ministry of Finance.

b) Routes of FII⁴

Equity Investment

The 100 percent investment is related to equity instrument or can be done through 70 percent (Equity Investment).

100 Percent Debt

The 100 percent investment has to be made in the debt instruments only (Debt Investment).

c) Importance of FDI and FII

The need of the foreign capital is important in the form of the FDI and FII for the development of the infrastructure which includes railways, sea ports, roads and warehouses. The rapid industrialization also takes place from the period 1991 which further strengthened the need of foreign capital. Many of the developing countries suffer because of the problem of the infrastructure. In other countries the interest rate is around 1 to 3 % but in India it is around 7 to 9 % so the investors wants to invest in India where they get maximum return on their investments.

d) Bombay Stock Exchange⁵

The Bombay Stock Exchange is established in 1875. This stock exchange is the Asia's first and largest stock exchange with speed of 6 microseconds. The BSE is also termed as Sensex. It consists of 30 of the largest most actively traded companies on stock exchange.

³ Jasbir Singh Dr., Chadha Sumita Ms. and Sharma Anupama Dr.(2012),"Role of Foreign Direct Investment in India: An Analytical Study", International Journal of Engineering and Science

⁴ Walia Karan, Walia Rimpi Dr, Jain Monika (2012)."Impact of Foreign Institutional Investors on Stock Market".

⁵ www.bseindia.com

II. REVIEW OF LITERATURE

Dr. Jasbir Singh, Ms. Sumita Chadha and Dr. Anupama Sharma (2012) focus on the role of the foreign direct investment in India: An Analytical Study. It shows that foreign investment is increasing in terms of FDI and FII and FDI has better performance which attracts maximum amount of foreign capital.

Dr. Syed Tabassum and Prof. S. Pradhasardhi (2012) have examined the impact of flows of FDI and FII on Indian Stock Exchange. The correlation analysis shows that there is strong relation between Sensex and Nifty. The correlation analysis shows that there is strong correlation between FDI, Sensex and Nifty and on the other hand there is moderate positive correlation between FII, Sensex and Nifty.

Vinay Kumar (2014) have precipitated the trend of FDI in India and its Impact on economic growth. The Karl Pearson correlation shows that FDI and FII have weak positive correlation between them and on the other hand FDI have positive correlation with Indian GDP.

Mohammad Iftexhar Khan and Amit Banerji(2014) conducted the study on drivers, impact and pattern of foreign direct investment in India. The unit root test and times series analysis shows that FPI and FDI are non-stationary.

Sirisha S and Malayadri I(2015) have investigated the study on changing trends in flow of FDI. The CAGR(Compounded Annual Growth Rate) percentage is used to show that Luxemberg has highest inflows of FDI and on the other hand communication and manufacturing sector has the highest level inflows of foreign direct investment.

The analytical study of trend of FDI in India has been conducted by Naveen Sood(2015). The correlation and regression shows that FDI and FII is insignificant and on the other hand association and dependence of GDP in India is found to be statistically insignificant.

Kanta Rani and Sanjiv Kumar (2015) analyze the dynamic interaction between foreign investment and Indian Stock Market. The Karl Pearson correlation shows that FDI have high correlation with Sensex and Nifty.

III. OBJECTIVES OF THE STUDY

- To study the trends and pattern of foreign capital (FDI and FII) flow to India.
- To study the correlation between FDI, FII and Sensex.
- To study the impact of FDI and FII on Sensex.

IV. DATA COLLECTION AND RESEARCH METHODOLOGY

The quantitative approach is used which shows that the research design for the current study is descriptive⁶ cum exploratory⁷. The study is based on the secondary sources. The required data related to FDI and FII have been collected from the various sources that is the bulletins of the Reserve bank of India, publications from the Ministry of the Commerce, Government of India. The closing index value of each year is taken from the BSE website. The Karl Pearson coefficient of correlation and Multiple Regression is used to know the relation and impact of FDI and FII on BSE Sensex.

V. HYPOTHESIS⁸ OF THE STUDY

FDI

*Ho*⁹ There is no significant impact of FDI on BSE Sensex.

*H1*¹⁰ There is significant impact of FDI on BSE Sensex.

FII

Ho There is no significant impact of FII on BSE Sensex.

H1 There is significant impact of FII on BSE Sensex.

⁶ Descriptive Research is used to describe the characteristics of the population or phenomena being studied.

⁷ Exploratory research helps to define the best research design and data collection methods and in selection of subjects.

⁸ A hypothesis is a statement created by researchers when they speculate on outcome or experiment.

⁹ Null Hypothesis (It shows there is no observed relationship between two measured phenomena.)

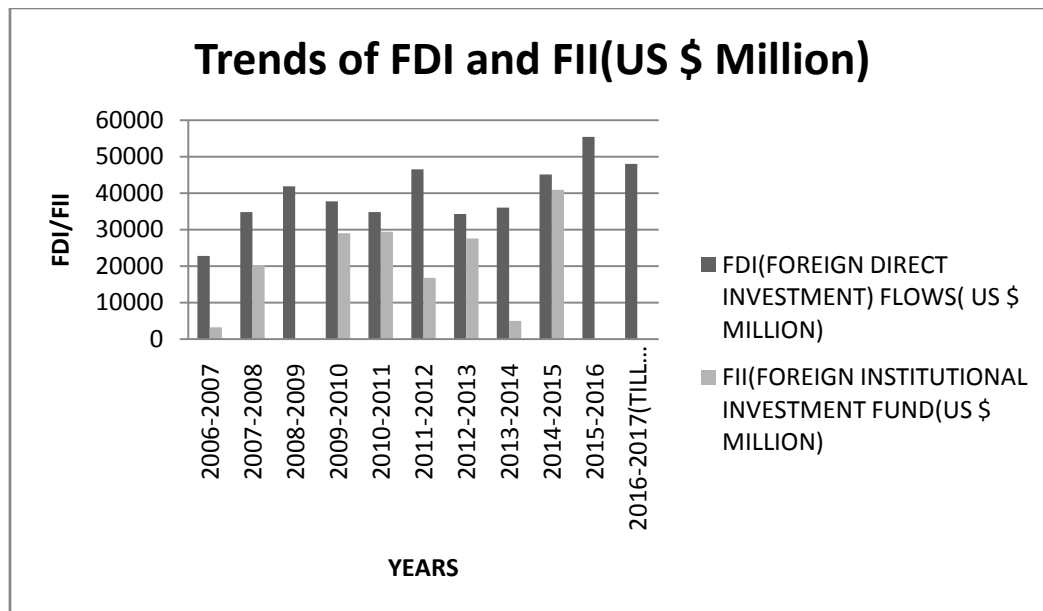
¹⁰ Alternate Hypothesis(It states that the population parameter is different than the value of the population parameter in Null Hypothesis.

Table 1: Trends of FDI and FII (Bse Sensex)

YEARS	FDI(FOREIGN DIRECT INVESTMENT) FLOWS(US \$ MILLION)	FII(FOREIGN INSTITUTIONAL INVESTMENT FUND(US \$ MILLION)
2006-2007	22825	3224
2007-2008	34842	20327
2008-2009	41872	(-)15016
2009-2010	37744	29047
2010-2011	34846	29421
2011-2012	46555	16811
2012-2013	34297	27581
2013-2014	36045	5008
2014-2015	45147	40922
2015-2016	55456	(-)3515
2016-2017(TILL DECEMBER 2016)	48031	(-)3377
TOTAL	437671	150438

Source: RBI Bulletin February 2017

Graph 1



Interpretation

The table 1 and Graph 1 presents the amount of flow of the FDI and FII in terms of US\$ million. The flow of the FDI has shown an upward trend during the considered period but during the period 2015-2016 and 2011-2012 the flow of FDI is highest that is 55456 and 46555. The flow of FII has shown the mixed trend, during the period of 2008-09 and 2015-2016 it is negative that is (-) 3515 and (-) 15016. When the flow of the FDI and FII are compared the flow of the FII is less than flow of the FDI in India.

Table 2: Trends of FDI and FII With Bse Sensex (Closing Values)

Years	FDI(Foreign Direct Investment) Flows (Us \$ Million)	FII (Foreign Institutional Investment Fund (Us \$ Million)	Sensex (Closing Values)
2006-2007	22825	3224	13786.91
2007-2008	34842	20327	20286.99
2008-2009	41872	(-)15016	9647.31
2009-2010	37744	29047	17464.81
2010-2011	34846	29421	20509.09
2011-2012	46555	16811	15454.92
2012-2013	34297	27581	19426.71
2013-2014	36045	5008	21170.68
2014-2015	45147	40922	27499.42
2015-2016	55456	(-)3515	26117.54
2016-2017(TILL DECEMBER 2016)	48031	(-)3377	26626.46
TOTAL	437671	150438	217990.84

Source: RBI Bulletin February 2017, BSE SENSEX

Correlation

Table 3: Descriptive Statistics

	Mean	Std. Deviation	N
FDI	39788.27	8816.214	11
FII	13676.18	17516.069	11
SENSEX	19817.35	5586.724	11

Authors own compilation from various data sources

Table 4: Correlations

		FDI	FII	SENSEX
FDI	Pearson Correlation	1	-.202	.495
	Sig. (2-tailed)		.552	.122
	N	11	11	11
FII	Pearson Correlation	-.202	1	.293
	Sig. (2-tailed)	.552		.382
	N	11	11	11
SENSEX	Pearson Correlation	.495	.293	1
	Sig. (2-tailed)	.122	.382	
	N	11	11	11

Authors own compilation from various data sources

Interpretation

The Karl Pearson¹¹ is applied to the study of the relationship of the FDI, FII and BSE Sensex. There is a strong positive correlation between FDI and Sensex and FDI and FII. When it comes to the FII there is a weak negative correlation between FII and FDI and FII and Sensex.

VI. MULTIPLE REGRESSIONS OF FDI, FII AND BSE SENSEX

In case of multiple regressions there are more than two independent variables and the multiple regression models would look like:

$$\text{BSE Sensex} = b_0 + b_1(\text{FDI}) + b_2(\text{FII})$$

So now it is easy to predict about the BSE Sensex on the basis of these models. The b-values tell that what degree of each dependent variable affects the independent variable if all other independent variables are held constant.

¹¹ A Statistical technique that are used to analyze the strength and direction of relationship between two quantitative variables.

Table 5: Variables Entered/Removed^a

Model	Variables Entered	Variables Removed	Method
1	FII, FDI ^b	.	Enter

a. Dependent Variable: SENSEX

b. All requested variables entered.

Authors own compilation from various data sources

Table 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.637 ^a	.406	.257	4815.368

a. Predictors: (Constant), FII, FDI

Authors own compilation from various data sources

Interpretation

The model summary helps to know the strength of the relationship between the model and the dependent variable. R (Multiple correlation coefficients) shows that correlation between the observed and the model predicted values of the dependent variable. Its

small values shows the weak relationship. R, square the coefficients of determination is .406, it shows that the model explains 40.6 % variation. In other words the independent variables FDI and FII are able to explain around 40.6 % of the dependent variable Sensex.

Table 7: Anova^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	126612724.066	2	63306362.033	2.730	.125 ^b
	Residual	185502176.254	8	23187772.032		
	Total	312114900.320	10			

a. Dependent Variable: SENSEX

b. Predictors: (Constant), FII, FDI

Authors own compilation from various data sources

Interpretation

The ANOVA shows the acceptability of the model from a statistical perspective. The Regression row displays information about the variation accounted for by the model. The residual row displays information about the variation that has not been accounted by the

model. The regression sum of squares is less than residual sum of squares which indicates 40.6% variation in Sensex is explained by the model. According to the F-Statistic (.125) is greater than .05 which is found insignificant.

Table 8: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3474.215	7499.573		.463	.656
	FDI	.366	.176	.577	2.075	.072
	FII	.131	.089	.409	1.471	.179

a. Dependent Variable: Sensex

Authors own compilation from various data sources

Interpretation

FII

The p-value related to FII in Table 7 is .179 which is greater than .05 so null hypothesis related to FII is accepted (there is no significant impact of FII on Sensex) and alternate hypothesis is rejected.

FDI

The p-value related to FDI is .072 which is greater than .05 so null hypothesis related to FDI is accepted (there is no significant impact of FDI on BSE Sensex) and alternate hypothesis is rejected.

VII. CONCLUSION

The FDI and FII helps to develop the Indian economy and also gives the advantages to the Indian industry for the technological up gradation, helps in the utilization of the human and the natural resources with greater efficiency. Since the FDI is consider as the central for the India's integration into global production chains. The current study shows that there is a strongly positive correlation between FDI and Sensex and weak negative correlation between FII and Sensex. Using the multiple regressions the results depicts that there is there is no significant impact of FII and FDI on BSE Sensex.

As the FDI has strongly positive correlation between FDI and Sensex so the government should emphasize on FDI more as it leads to the high economic growth and employment opportunities in the country. In case of FII, the foreign investors can exit from the Indian Market whenever they want as it has been proved that there is no impact of FII on BSE Sensex. So for the developing country like India, FDI is considered as the most beneficial form of foreign investment for the economy as a whole and is of long-term nature.

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Corporate Social Responsibility (CSR) and Stakeholder's Reaction: A Survey on Impact of CSR on Firm Performance in Gujarat

By Dr. Nilam Panchal
Gujarat University

Abstract- CSR has been major component for the welfare of society. This study examines whether corporate social responsibility (CSR) towards primary stakeholders influences the financial and the non-financial performance (NFP) of Indian firms. Data on CSR were collected from 25 senior-level managers including CEOs through questionnaire survey. Hard data on financial performance (FP) of the companies were obtained from secondary sources. A questionnaire for assessing CSR was developed with respect to six stake holder groups – employees, suppliers, customers, society at large. A compo site measure of CSR was obtained by aggregating the six dimensions. This study aims to obtain information about the impact of CSR activities on performance of an organization. In today's society, there is a growing interest in, and demand for Corporate Social Responsibility (CSR).

Keywords: *corporate social responsibility, corporate financial performance.*

GJMBR-B Classification: *JEL Code: M14*



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Keywords: corporate social responsibility, corporate financial performance.

I. INTRODUCTION

Corporate Social Responsibility is the continuing commitment by business to behave ethically and contribute to economic development while improving the quality of life of the workforce and their families as well as of the local community and society at large. In today's economic and social environment, issues related to social responsibility and sustainability are gaining more and more importance, especially in the business sector. Business goals are inseparable from the societies and environments within which they operate.

II. METHODOLOGY

Primary as well as Secondary information has been collected .Sample consisted of 35 companies and their stakeholders , out of which 24 responded well which includes ZydusCadila, Gujarat Narmada Valley Fertilizers Company Limited (GNFC), Gujarat State Fertilizers and Chemicals Limited (GSFC), Gujarat Alchalties and Chemicals Limited (GACL), Reliance

Limited (Dahej Division), Gujarat Fluoro chemicals Limited (GFL), Atul Limited, Gujarat Organics Limited, United Phorsphorus Limited, Dip-Flon Engineering, SRF, Super Industrial Lining, BASF.

a) Companies Involved in CSR Activities

Out of 100 organizations surveyed, 83.33% of organizations are involved in CSR activities. This shows that majority of the organizations are involved in the CSR practices and are interested to serve the society to the extent possible.

b) Organisation's View Point on CSR

There is nothing better than serving society & employee welfare for promoting CSR as the main or leading stakeholder at society and employees only.57% of the organizations believe that promoting CSR is nothing but providing service to society.27% of them promote CSR for employee's welfare.

c) Stakeholder's Focus on CSR

20% of the organization does CSR mainly for their employees.22% of the organization does CSR mainly for the civil society group.24% of the organization does CSR mainly for the local communities.29% of the organization does CSR mainly for the environment protection and society at large.

d) The Major Projects towards Which an Organisation is Contributing for CSR.

The highest is 22% for environment protection and educational initiative. 14% of organizations contribute towards promotion of green and efficient technologies and development of backward regions. 10% of organizations contribute towards uplift ment of marginalized & under-privileged section of the society and establishment of hospital.

e) Transparency in Process of CSR Practices

Transparency in the process of CSR Practices is by distribution of pamphlets & brochures. They identify goals & take measures for the betterment of the society, distribute awards, prepare monthly report to the top management, involve stakeholders while taking decision for CSR activities and display all expenses both in villages and common notice board.

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f) *Benefits Gained to Organisations by Adoption*

The main benefit the organizations believe is social benefit as the 44% of them agree to it. The other benefit they believe is motivation to employee to work efficiently as 31% of them agree.17% believe enhancing corporate image is the benefit they gain from CSR. Majority of the organizations believe that employees are motivated by the CSR activities that are performed by their organization. Many of the organizations provide

residential facilities to the employees, education facilities to their children, health facility to the employee and their family etc services if provided to the employees as a part of CSR activities it is in benefit to both, the employee and the organization. If the employees are motivated then they are loyal to their work as well as the organization.

III. FACTORS THAT LEAD TO IMPROVEMENT DUE TO CSR ACTIVITIES

Parameters	Mean	Standard deviation
Long term survival	3.75	0.78
Enhancement of corporate image	3.8	0.86
Better contribution to community welfare	4.25	1.16
Environmental welfare	3.9	0.99
Organization's interest in CSR	4.76	0.96

Majority of the organizations say that there is a strong influence of CSR activities on long term survival of the organization because if the society, customers etc are happy with the organization's performance then that will directly and positively affect the long term survival of the organization. Secondly if the employees of the organization are motivated they will surely work for the betterment of the organization and extend its life.45% of the organizations think that CSR strongly influences the corporate of the organization. The reputation of the organizations is increasing due to CSR.50% of the organizations believe that CSR has strong influence of environmental welfare.

satisfaction.30% of the organizations strongly agree to CSR has effect on stakeholder's satisfaction. The organizations have to satisfy the stakeholders as they are real assets of the organization.40% of the organizations somewhat agree that CSR has effect on internal business processes. 20% of the organizations neither nor agree that CSR has effect on internal business processes.15% of the organizations disagree that CSR has effect on internal business processes.21% of the organizations strongly agree that CSR has effect on attainment of company's goal/objectives.37% of the organizations somewhat agree that CSR has effect on attainment of company's goal/objectives.5% of the organizations disagree that CSR has effect on attainment of company's goal/objectives.

IV. EFFECT OF CSR ON BUSINESS OPERATIONS AND PERFORMANCE

45% of the organizations believe or somewhat agree that CSR effects the stakeholder's

V. STRATEGIC AND MORAL MOTIVATION THROUGH CSR TO STAKEHOLDERS

a) *Employees*

Parameters	Mean	standard deviation
Preferential treatment of women in application	3.8	0.71
Preferential treatment of minorities in application.	3.75	0.70
Measures to prevent abuses on work floor	3.5	0.61
Measures to foster proper relations among employees.	4.25	1.05

37% are strongly agreeing and 32% are somewhat agreeing that treatment of women in application is a moral motivation.21% are neither agree nor disagree.10% are disagreeing that treatment of women in application is a moral motivation.21% are saying that they are strongly agreeing and 42% are

saying they are somewhat agreeing for measuring to prevent abuse on workplace. Above 60% are agreeing for measuring to prevent abuse on workplace is a proper way to get strategic and moral motivation through employees.42% are strongly agreeing and 53% are somewhat agreeing for measuring to foster proper

relation among employees. Every company believes that measuring to foster proper relation among employees is excellent for strategic and moral motivation for stakeholders like employees.

b) *Suppliers*

20% are strongly agreeing and 20% are somewhat agreeing that having control on quality of

supplier's product is helping for gaining strategic and moral motivation.35% are neither agreeing nor disagreeing.10% are somewhat disagreeing and 15% are disagreeing that control of quality of supplier's product is not at all motivating.

Parameters	Mean	standard deviation
Control of quality of supplier's product.	3.2	0.43
Control of the environmental standards of the products & production processes of suppliers for compliance with legal requirements.	3.9	0.87
Control of the labor standards of suppliers for compliance with legal requirements.	3.55	0.70

40% are strongly agreeing and 35% are somewhat agreeing that control of the environment standards of the product & production processes of suppliers for compliance with legal requirements.5% are neither agreeing nor disagreeing.15% are somewhat disagreeing and 5% are disagreeing.20% and 45% are strongly agreeing and somewhat agreeing respectively that control of the labor standards of suppliers for compliance with legal requirements is a good motivation.15% are neither agreeing nor disagreeing.10% are somewhat disagreeing and 10% are disagreeing.

c) *Customers*

20% are strongly agreeing and 55% are somewhat agreeing that development of sustainable alternative for customers is a favorable motivation.15% are neither agreeing nor disagreeing. Majority of the companies are agreeing that the term development of sustainable alternative for customers is very positive for strategic and moral motivation for stakeholders like customers.

Parameters	Mean	Standard deviation
Development of a sustainable alternative for customers.	3.75	0.9
Complaints procedures for customers	3.5	0.71

Around 60% of companies are agreeing on the statement that complaints procedures for customers is

very useful for developing strategic and moral motivation through CSR to stakeholders like customers.

d) *Society*

Parameters	Mean	Standard deviation
Percentage of net profits allocated to local community projects.	4.2	1.24
Donation to organizations having social or environmental utility	4.1	1.05
Sponsorship of sport and cultural events	3.95	0.82
Cause related marketing campaign	3.4	0.59

Percentages of strongly agreeing and somewhat agreeing are 50% and 30% respectively in terms of having moral motivation through donation to organizations having social or environmental utility.10% are neither agreeing nor disagreeing.10% are disagreeing on that donation to organization having social or environmental utility is a moral motivation.

Higher number of companies thinks that donation to organization having social or environmental utility is kind of strategic and moral motivation through CSR to stakeholders of society.

VI. SYSTEM FOR CSR

a) *Use of the power of the media & internet to increase scrutiny & collective activism around corporate behavior.*

25% are strongly agreeing and 45% are somewhat agreeing that the use of power of the media & internet to increase security & collective activism around corporate behavior is used in CSR.20% are neither agreeing nor disagreeing.5% are somewhat disagreeing and 5% are disagreeing that the use of power of the media & internet to increase security&

collective activism around corporate behavior is used in CSR. Most of the companies are agreeing on the extent of using the power of the media & internet to increase security & collective activism around corporate behavior in CSR activities.

b) *Ull compensation to the public for bad social or environmental effect of actions or products.*

25% are strongly agreeing and 40% are somewhat agreeing that full compensation to the public for bad social or environmental effect of actions or product.25% are neither agreeing nor disagreeing.10% are disagreeing on the statement that full compensation to the public for bad social or environmental effect of actions or products.

c) *Ommunity-based development projects such as children's education, new skills for adults etc.*

50% are strongly agreeing and 15% are somewhat agreeing that community based development projects such as children's education; new skills for adults are good CSR.35% are neither agreeing nor disagreeing. None of the company is disagree with the statement. Highest numbers of companies are agreeing

on the term that community based development projects such as children's education; a new skill for adults is a positive CSR practices.

d) *Oplete adherence to government law and regulations preventing it from causing harm to the broader social group including people and environment.*

35% are strongly agreeing and 40% are somewhat agreeing that adherence to government law and regulations preventing it from causing harm to the broader social group including people and environment.15% are neither agreeing nor disagreeing.10% are disagreeing on that adherence to government law and regulations preventing it from causing harm to the broader social group including people and environment. Majority of the companies are agreeing on this statement that that adherence to government law and regulations preventing it from causing harm to the broader social group including people and environment.

Parameters	Mean	Standard deviation
Use of the power of the media & internet to increase scrutiny & collective activism around corporate behavior.	3.8	0.75
Full compensation to the public for bad social or environmental effect of actions or products.	3.7	0.69
Community-based development projects such as children's education, new skills for adults etc.	4.15	1.03
Complete adherence to government law and regulations preventing it from causing harm to the broader social group including people and environment.	3.9	0.83

VII. CONCLUSION

For any programme to be successful it must have the support of the top management and some form of implicit benefit in the near future of the business. As such, the top management can play a significant role in creating a climate of socially responsible behaviours of the business. The data analysis shows that, majority companies involved in corporate social responsibility. Organizations mainly take into consideration the project of education initiatives and environment protection. It is found that organization for promoting CSR they mainly focus on society and employees and different types of treatments are given to the stakeholders of organizations so as to focus and promote the CSR activities of an organization.

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A Literature Review of the Trend of Electronic Commerce in Bangladesh Perspective

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Abstract- This paper contains a brief discussion of search engine marketing or e-commerce, literature survey, current and future prospect, comparative study of e-commerce in Bangladesh perspective on online shopping. The buzzword e-Commerce is spreading widely in the present world of ICT by its simple applications. The basic objective of this review paper is actually exploring the difference between the traditional & online shopping and the effectiveness of e-Commerce in Bangladesh. From the previous research, we can come to a conclusion that convenience and time are the main attributes for making the decision to shop online rather than traditional shopping in Bangladesh and we also found out that young consumers are more comfortable and satisfy to make online purchases.

Keywords: e-commerce, ICT, consumer, marketer, top motivators.

GJMBR-B Classification: JEL Code: L81



Strictly as per the compliance and regulations of:



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A Literature Review of the Trend of Electronic Commerce in Bangladesh Perspective

Nazmun Nessa Moon^α, Shaheena Sultana^σ, Fernaz Narin Nur^ρ & Mohd Saifuzzaman^ω

Abstract This paper contains a brief discussion of search engine marketing or e-commerce, literature survey, current and future prospect, comparative study of e-commerce in Bangladesh perspective on online shopping. The buzzword e-Commerce is spreading widely in the present world of ICT by its simple applications. The basic objective of this review paper is actually exploring the difference between the traditional & online shopping and the effectiveness of e-Commerce in Bangladesh. From the previous research, we can come to a conclusion that convenience and time are the main attributes for making the decision to shop online rather than traditional shopping in Bangladesh and we also found out that young consumers are more comfortable and satisfy to make online purchases.

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I. INTRODUCTION

Now a days, e-commerce sector plays a significant role both in developed and developing countries. *M. S. Khan and S. S. Mahapatra et.al [1]* mentioned that Information technology can play a significant role in developing and increasing the perfection of services in business sectors and he also discussed that now a day's after the revolution of agricultural and industrial revolution, internet is considered to be the third wave of revolution. *Yaser Ahangari Nanehkaran et.al [2]* explained, e-Commerce has actually made a business situation in our modern world through technology like the internet or other computer network. The development of e-Commerce is basically depend of the accessibility of the internet of the people. According to Bangladesh Bureau of Statistics the present size of population of Bangladesh is near about 163.187 million and according

to BTRC the internet subscriber is 67.247 million at the end of February 2017. In this present situation of huge population the annual growth of GDP is 7.05% according to Bangladesh Bank and in this situation the contribution of e-Commerce market is nearly 1% but if we connected industries for example logistics, banking, export import then the e-Commerce is near about 2.5% (Source: eCab). So the contribution of e-Commerce in Bangladesh's economy is not like to avoid. After seeing and observing the effectiveness of online business, Bangladesh is also growing their capability on this particular side gigantically. In e-commerce, the payment is really a challenging part after purchasing services. Sometimes the payment is processed after delivering the goods, products and services and Sometimes, the transaction is processed through visa card both international & Bangladesh prospect and in Bangladesh bKash & DBBL is most commonly used payment medium. The second one is considered to be a standard transaction system both international & Bangladesh prospect which is shown in Fig 1.

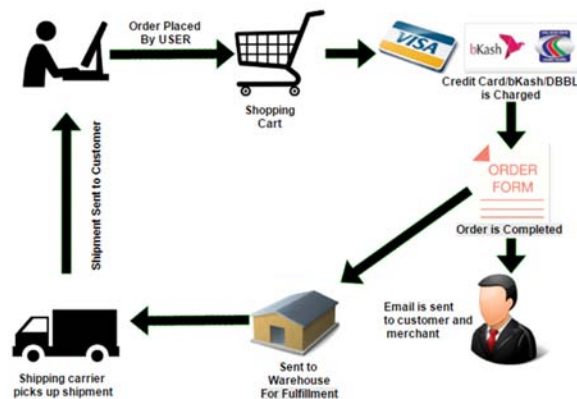


Fig.1: E-Commerce transaction Cycle

Szymanski et.al [3] described that it gives us opportunity to ignore national boundary gap in new business models and developing of modern technology cut the barrier which is used to distinct one industry from another one. Bangladesh has a large marketplace but online market is not well establish yet. From previous research, we can say that since 1970-2000 was the darkest period for Bangladesh in E-Commerce business. Then the people can't even think or imagine for e-Commerce. They only use computer to make assignment for school, college and university or even

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busy to make presentation in private & government sector. From 2000 the students as well as the public & private sectors just waked up and began a revolution of computer work. On that time, the Bangladesh Institute of Communication and Information Technology (BICIT) has been organized and run an Annual Development Programme. This organization will instruct standard ICT education and certification of IT related courses & products. According to BICIT they made report of IT Trainers, IT Professional, Language skill, operating system skills which is shown in Fig 2.

IT Trainers & Teacher		IT Professional		Language Skill		Operating System	
B.A., B.Sc, B.Com	33%	B.A.B.Sc., B.Com	41%	Java	11%	Unix	10%
MA., M.Sc., M.Com.	29%	B.Sc. Engineer	14%	C++	34%	Linux	28%
B.Sc. Engineer	25%	M.A., M.Sc., M.Com.	13%	Visual Basic	22%	Windows 95/98	30%
M.Sc. Engineer	8%	Diploma	13%	Others	11%	More than 1 OS	20%
SSC/O Level	2%	M.Sc. Engineer	9%	More Than That	22%	Other	12%
Diploma	1.50 %	MBA	5%				

Source: BICIT Survey, 1999-2000 fiscal year.

Fig.2: BICIT Survey Report

After that in 2013 when ICT ministry of Bangladesh and Bangladesh high commission London unitedly organized the first international e-commerce fair. The huge success of this fair developed our online business in Bangladesh. After that the government is like to enlarge ICT section & coverage of broadband network to 30% by 2015 and 40% by 2021 and also vision to build Digital Bangladesh by 2021. The students of private universities have done superb for e-commerce data and uses development and some private universities are giving free laptop to force them to learn things from online. This is also nice to see that they're doing online business and putting several things on their sites and selling them easily. There are so many online shopping websites has been developed in Bangladesh like cell bazaar, bikroy.com, AjkerDeal.com, daraz.com.bd, rokomari.com, priyoshop.com, bagdoom.com, lareve. com. bd, arong. com. bd, othoba. com, chaldal. com, food panda. com, bangle mart. com, muktobazar. com, shohoj shopping. com, ajkerdeal.com, akhoni.com, itbazar24. com is one of the most effective e-commerce websites in Bangladesh, wherever you can notice large numbers of products. For online dress shopping in Bangladesh, you can come with arong, plus point, bag doom, priyoshop or daraz. Chaldal is the best online store for grocery and food.

When you feel that you are hungry you can go to hungrynaki or food panda. Kaymu is going to turn into one of the highest Bangladeshi online mall & daraz so on. Recently Alibaba also started their online shopping service in Bangladesh. So we can say in near future, e-commerce sectors will spread gigantically in Bangladesh to make a revolution.

II. LITERATURE REVIEW

As we all know, internet and e-commerce are entirely committed towards every developed country. But we think it can be accomplished and can make a remarkable benefit to developing countries also if an ideal business purpose can be made. *Ohidujja man et.al [4]* clearly discussed that E-commerce is a revolution & turning point in online business practices and can make a huge contribution to the economy and *Hasan et.al [5]* also indicated that currently, e-commerce organizations have increasingly become a fundamental component of business strategy and a strong catalyst for economic development. A huge amount of research works has been done on e-Commerce which is basically on online shopping. A large group of researchers has found out and also pointed out the necessity and possibilities of Online Shopping. On the other hand, limitation of e-commerce is found and at the same time, they provided essential suggestion and came to a prediction to make Online Shopping more useful for the consumers. But the contribution of traditional marketing is also inescapable but compare to online shopping it is less effective we think. So on this basis, *Mehrdad Salehi et.al [17]* found out distinguish between online marketing & traditional marketing. Though most of the people of Bangladesh especially the rural people are not enough capable of operating internet to run the online business. For that reason, they need to be dependent on traditional marketing.

Table 1: Distinguish between e-marketing & traditional marketing

E- Marketing	Traditional Marketing
Interactive advertisement. Example: website, social networking site, Google ads, banner ads, video marketing.	Contact from one side. Example: Print media (Newspaper), Broadcast Media (TV & radio ads), telemarketing.
E-marketing methods less expensive	Traditional marketing methods more expensive
Reach out maximum people	Limited audiences
Instant Comparable	Less opportunity
Save a lot of time	Need a lot of time
Less interaction	Interaction with people can make good relationship.

In town both marketing system are available but the most cost effective is online marketing. So in this paper, we would like to show distinguish & effectiveness of both marketing system as illustrated in Table 1.

When we looked back some previous research work on e-commerce, we found out that everywhere they described their papers on consumer’s perspective but in this paper we would like to describe it both consumers and marketers perspective. By contributing both side, we can assure a healthy economy and easy marketplace in Bangladesh.

a) Customer Perspective

Williams, Bertsch, Wiele, Iwaarden & Dale et.al [6] clearly discussed that although consumers keep on to purchase from a physical store like traditional shopping but consumers feel very convenient to shop online since they find themselves free from personally visiting the stores. So we can say that online shopping saves time as well as the energy of the consumer while buying their commodities. In the case of online shopping, buying decisions can be easily made from home by sitting at home. In online shopping comparing product with lots of verity & supplies, price advantage can prevail easily. Online shopping is much useful in meeting the consumers’ needs and wants. Brown et.al [7] confirmed in his paper that consumer can now make more intelligent decisions in the way which is not possible through traditional shopping. Moreover, Monsuwé et.al [8] also made a review that the consumer can also buy anonymously which is more convenient and when it comes to personal products that consumers may feel uncomfortable buying in stores. Brown et.al [7] found out that daily tasks like shopping for groceries have become simple for consumer’s who do not like crowds. Richard Dobbs et.al [9] observed that online retail stores often market themselves through low price.

For example, Amazon.com uses this tactic to allure consumers away from traditional bookstores. These low price online retail store are causing a great consumer surplus. Goldsmith et.al [11] study reveals that some consumers use online shopping just to avoid from face-to-face interaction with salesman because they feel uneasy & uncomfortable while bargaining with the salesman and do not want to be manipulated and fooled around in the marketplace. This is a big true for those customers who may have face a negative experience with the salesman. Here Mohammad Harisur Rahman Howladar et.al [10] described in his paper that due to the up to date developing infrastructure of ICT in Bangladesh, online shopping intention among people are developed day by day and consumer & marketers make a huge contribution to the national economy through e-commerce. Let’s come to the current consumer statistics & age brackets of e-commerce in Bangladesh where the youth with male consumers is in the majority (75%) position. The most victorious age group is 26-30 years achieving 50% of the consumer group. The majority of the consumers are either professional achieving 44% or the university student achieving 33% where the contribution of female consumers is complainingly low 25% than others shown in Fig 3.



Fig.3: Consumer contribution on e-Commerce

Source: Light castle partners survey on Digital Consumers, 2016, support document.

b) *Marketer Perspective*

As we know there are many restriction in traditional marketing for selling goods and products but in online marketing there is no boundary or limit or restriction. *Johnson et.al [12]* revealed there are huge differences between the E-marketing and traditional marketing. Traditional marketing can only concentrate one to one communication that means the marketer need to market the product to one customer round the clock on the other hand E-marketing is done through one to much communication system. In case of online marketing, marketer should be trained as we know that traditional marketing and online marketing is not the same thing. If an organization adopts online shopping for the first time, it must be very cautious and its communication technique should be different from the traditional one. That's why the organization need to maintain some basic strategy for making business effective shown in Fig 4.



Fig.4: E-marketing strategy

In the 21st century trade and commerce has been so diversified that if a marketer wants to do business, he should be diversified through internet. As we all know internet is the source of innovation so online shopping will shows the way to make innovative ideas of online shopping. In online shopping marketer do their trade through a user friendly website so it is very important to design an attractive website for the prominent consumer. Internet create a marketplace where different company and the customer come in one place. As it is one kind of virtual market. Through internet every company advertise their goods and products. In 2016, total retail sales across the world will reach \$22.049 trillion, up 6.0% from the previous year. E-Marketer calculates sales will top \$27 trillion in 2020,

even if annual growth rates of the world will slow over the next few years, as explored in Fig 5.

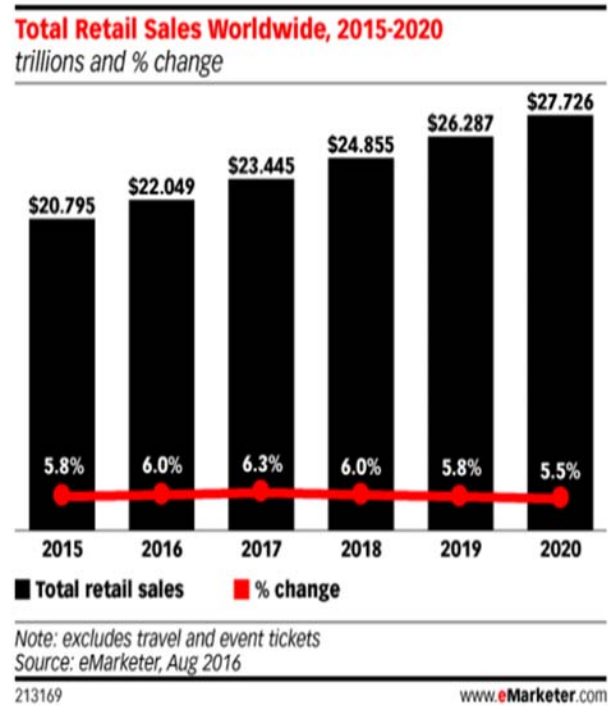


Fig.5: Chart of e-Marketer Sales

III. OBJECTIVES OF THE STUDIES

The main objectives of the study are as follows:

- To analyze the present infrastructure of e-commerce in Bangladesh To know the major types of e-commerce.
- To identify the advantages & disadvantages of e-commerce.
- To know the challenges and limitation in e-commerce in Bangladesh
- To identify the motivation factors and recommendation for future development in Bangladesh for online shopping.

IV. RESEARCH METHODOLOGY

This research is actually based on secondary information from various journals, published book, and newspapers along with internet. The study is qualitative and unique in nature.

V. TYPES OF E-COMMERCE

There are basically several types of e-Commerce in Bangladesh as well as other countries too [14].

- *Business to Business (B2B)*: B2B deals between the businesses or among business. In Bangladesh

BGMEA, readymade garment receives order from outside client of Bangladesh. Example: Sindbad.com, address bazar, Bangladesh Business Guide, trade etc.

- *Business to Consumer (B2C)*: This business is basically done with the general people like catalog utilizing shopping software. Example: ajkerdeal, bag doom, daraz, othoba and so on.
- *Consumer to Consumer (C2C)*: This business strategy which is basically done between customers. Example: Bikroy.com, Ekhanai.com and ClickBd.com.
- *Others*: G2G (Government to Government), G2E (Government to Employee), G2B (Government to Business), B2G (Business to Government), M-Commerce (Mobile Commerce), F-Commerce (Facebook Commerce).

VI. E-COMMERCE ADVANTAGES

- *Comfort*: If we need any household commodities or even anything, we can get it by sitting at home on the click of our finger on the internet.
- *Time-saving*: By using e-commerce sites, there is not a chance of waste of time and with the help of online order, our necessary product will be delivered to our address.
- *Options, options, and options*: Without visiting outside from one store to another, the consumer can simply compare goods products or commodity. We can see who offer low price for standard & branded goods and can have more option to choose from the websites.
- *Easy to compare*: When the marketers place their products to the website, they make a lucrative description of these products to compare them with other products, to let the consumers know that they have the best option and come back for more.
- *Coupons and deals*: Some online business company makes offers that we can't refuse. Some major sites sometimes offer up to 80% of discount.
- *24/7, 365 days*: if it's holiday or rainy or sunny or the road is blocked by any reason, the businessman should not be worry for his business because the door of this market is always open & the profit will go rising every day.

VII. E-COMMERCE DISADVANTAGES

- *Privacy and security*: Before making a transaction, we should be sure and check the website's security

certificate. Sometimes unauthorized access, DDOS attack make a huge problem.

- *Quality*: Quality is a big fact on e-commerce, sometimes the product which is ordered from online website will not be similar in quality. So the consumer should not touch the product or make instant transaction until they delivered the product in door.
- *Hidden costs*: Sometimes hidden fees will not be mentioned like product delivery cost, tax etc. so be alert.
- *Credit card issues*: Some company gives some free point for purchasing good by taking the credit card information after that from that vary information the credit card can be hacked.
- *Social Relationships*: Through traditional shopping a face to face interaction occurs which makes a social relationship with others but in online shopping we fail to do so.
- *Consumer dishonesty*: sometimes customer make an order through online but after delivery they refused to take the order or make a wrong address for the delivery of orders for which the marketer face Harassment as well as business loss

VIII. CHALLENGES OF E-COMMERCE

The major challenges faced by the buyer and the seller which carrying out business transactions through website are as follows.

- Now Private and Public organization work separately but if they do business jointly, the ecommerce business will be developed flourishingly in near future.
- As we know that most of the e commerce website don't have proper cyber security for this their system is not reliable & secure. If the website is hacked, the consumer will lose their money as well as the marketer too.
- In developing countries like Bangladesh there is a tradition of buying goods or products by bargaining price with the seller but in e-commerce, it is quite impossible.
- Another biggest challenges is to make a low price of the internet and cutting down the short ranged validity or expiry date. The authorities spreads high cost of internet which should be stopped.
- Lack of quality trainer to teach the e commerce knowledge. Lack of Government laws, rules and regulations.
- Our country's telecommunication service is insufficient near about 60% of lines are mainly

analog and the quality services is comparatively poor.

- Lack of transaction security. *Jayshree et.al [12]* described in his review that legality should be maintained by conducting new method of transaction instead of the existing banking system in e-commerce such as electronic signature.

Apart from that, the developing economy like Bangladesh also has to face the following challenges:

Out of 64 district few are facilitate the availability of internet services. In 2002 BTTB was planning to facilitate internet service in 64 district but in January they did just 12 district but the project is running and growing very fast nearly about all districts. According to Bangladesh e commerce country fact sheet, in 2016 the internet penetration is 38.5% which is 62,004,000 users (Source: BTRC: Bangladesh Telecommunication Regulatory Commission) out of a population of approximately 161,000,000 (Source: BBC: Bangladesh Bureau of Statistics). But if we look on e-Commerce market as percentage which is less than 1% of total GDP, which is pretty much unfortunate for our country because of some basic limitation-

- Lack of educational and practical knowledge about information technology

- Cultural tradition
- Poor concept on e-commerce
- Less Advertisement, promotion & marketing
- Political instability
- Sometimes online products are costing high rather than traditional market.
- Limited internet coverage area
- Lack of trust in business and business strategy
- No product return policy
- Absence of cyber law
- Slow and expensive internet service
- Lack of public as well as government awareness

IX. TOP MOTIVATION FACTOR

According to the following Fig 6, the top motivators for online shopping are trust and loyalty, most important is ensuring security, cash back guarantee, cash after delivery, Fast delivery service and discount & offers. If this factor can be ensured in near future in Bangladesh then both the consumer and marketers can make a huge contribution in national economy.

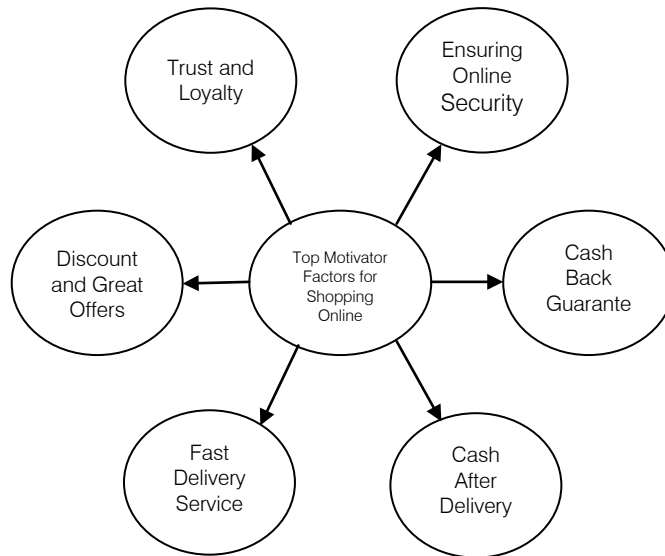


Fig.6: Top Motivator Factors

X. CONCLUSION

In near future E-Commerce will be the leader with popularity and prosperity in e-trade sector. From above discussion we can come to a view that e-Commerce has changed the business strategy and making life easier for the people of Bangladesh as well as other countries. Developing countries like Bangladesh, we faced some problem in this sector but we think we can overcome very strategically in future. In this sector Government role is also very significant for

the growth and implementation. *Shiferaw et.al [15]* Government should simplify friendly policy and e-government services. Here social support and practice is also needed for the improvement of online shopping. *Limayem et al [16]* Family practice & choice and the significant role of the media should be leaded positively. So from the above research we can easily say, maintenance of factors, handling of limitation and by the help of Govt. e-commerce can plays a significant role in 21st century.

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Does Stock Market Volatility in International Market Affect Volatility in Indian Market?

By Dr. Nilam Panchal

Gujarat University

Abstract- Introduction: Volatility in the prices of stock market creates an atmosphere of uncertainty and hampers productive investment. Foreign market changes are considered as one of the factors affecting the Indian stock market. The volatility in the Indian stock market exhibits characteristics similar to those found earlier in many of the major developed and emerging stock markets.

Purpose: The purpose of paper is to investigate the nature and characteristics of stock market volatility in India compare to foreign markets. The study establishes relationship in the movements of the Indian Stock Market in comparison to its international counterparts.

Methodology: To study the effect on Indian stock market (SENSEX) with the change in the other foreign market indices, 13 major foreign stock exchanges has been selected based on the Market Capitalization.

Keywords: *volatility, stock market, indices.*

GJMBR-B Classification: *JEL Code: M19*



Strictly as per the compliance and regulations of:



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Data Collection and Analysis: The research is based on secondary data of Indian Stock Exchange (Sensex) and other foreign stock exchanges. The data is taken for a period of 5 years (January 1st, 2010 to December 31st, 2014). Daily closing value of all the indices has been considered for analysis. Data has been analysed using Linear regression Of BSE Sensex with foreign indices through SPSS.

Keywords: volatility, stock market, indices.

I. INTRODUCTION

Presently, the fluctuations in the Indian market are attributed heavily to cross border capital flows in the form of FDI, FII and to reaction of Indian market to global market cues. In this context, understanding the relationship and influence of various exchanges on each other is very important. This study that compares global exchanges which are from different geo politico- socio-economic areas. With the cross border movements of capital like never before in the form of FDI and FII, coupled with the easing of restrictions bringing various stock exchanges at par in terms of system and regulations, it can be assumed reasonably that a particular stock exchange will have some impact on other exchanges. The main objective of this study is to capture the trends, similarities and patterns in the activities and movements of the Indian Stock Market in comparison to its international counterparts. The aim is to help the investors (current

and potential) understand the impact of important happenings on the Indian Stock exchange. This is especially relevant in the current scenario when the financial markets across the globe are getting integrated into one big market and the impact of one exchange on the other exchanges. In other words, the intention is to test the hypothesis, 'whether various stock exchanges globally have any impact on each other' or they are correlated in any way with regard to their movements and, if so, to what extent. Arising out of the main hypothesis is the question - given the above context: What impact would the result have on the understanding that international diversification of investment is desirable and profitable with regard to both risk and return

a) Objectives of Study

- To study the volatility of Indian stock market with changes in the value of the other foreign markets.
- To identify the market indices that significantly affects the volatility of the Indian stock market.

b) Need for the study

This study would thus help investors, analysts and other stakeholders in finding a relation between the volatility in Indian stock market and changes in foreign market and would thus help in making informed decisions. Risk averse and risk neutral investors may shy away from the market with frequent and sharp price movements. Investors will also get idea about how will Indian market behave with respect to particular change in any particular market. The study will enable the investors, analysts and other stakeholders of the economy to make better decisions based on the findings of the report.

II. LITERATURE REVIEW

Michel felder Richard A., Pandya Saurin(2005) analyzed the volatility of stock returns and predictability for seven emerging markets for six countries (India, Hong Kong, South Korea, Malaysia, Singapore, Taiwan) and compared them with the mature markets of Japan and the US. The made use of skewness, excessive kurtosis, EGARCH and SKED models for analysis. It was found that emerging markets have higher volatility but lower persistence of shocks than in the mature markets. It was also found that the impact of non-trading days on the volatility of emerging market stock returns was

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Rajwani Shegorika and Mukherjee Jaydeep (2013) investigated the linkages between Indian stock markets with other Asian stock markets namely, Hong Kong, Indonesia, Japan, South Korea, Malaysia, Taiwan and China. They used the daily data of the stock market indices of these countries and analyzed using units root test and Gregory and Hansen Cointegration technique. The results suggested that the Indian stock markets are not integrated with any of the Asian markets either individually or collectively, and thus lead to a conclusion that Indian markets are not sensitive to the dynamics in these markets in the long run.

Mukherjee Paramita and Bose Suchismita (2005) examined whether the Indian stock market moves with other markets in Asia and the United States. They analyzed the daily data of the indices of these markets and used tools like group wise and pair wise co-integration and Granger-causality tests. In the period of research from 1999 to 2004, it was found that on a daily basis the Indian index is most highly correlated with the Singapore STI index, and is also very highly correlated with the stock indices of Malaysia, South Korea, Taiwan and Thailand, while, the least correlation is observed with the US S&P500 index. The degree of integration that is found to be not very high implies that the nature of integration with emerging Asian markets does not yet warrant any immediate concern for India regarding possible crisis and also shows that there is still much scope for investors for reaping benefits of portfolio diversification, by investing in Indian markets.

Sarkar, Amitava and Chakrabarti, Gagari and Sen, Chitrakalpa (2008) investigated the volatility of Indian Stock Market with other foreign markets. It used SENSEX as Indian Stock Index and Dow Jones, FTSE, BVSP, MerVal and JKSE for overseas indices. It was found that impact of developed countries, particularly US market has been quite prominent. As Brazilian and Argentine economies are quite similar to India's, their impact was mild. Evidences of regional contagion were also observed as Jakarta Stock Exchange transmitted its volatility to SENSEX. This has strong implication for the investors as well as policy implications as it highlights the extent of exposure and also the vulnerability of Indian stock market to the world.

Tripathi, Vanita and Sethi, Shruti (2012) examined the short run and long run inter linkages of the Indian stock market with those of Advanced emerging markets viz. Brazil, Hungary, Taiwan, Mexico, Poland and South Africa. They analyzed the daily data from 1992 to 2009 using Johansen co-integration test and Granger's causality test. It was found that the short run and long run inter linkages of the Indian stock market with these markets has increased over the study period. Liberalization policies adopted by these nations, increasing economic relations, rapid information transmission, contagion effect and common investor

group could be the plausible reasons behind such results.

Mukherjee Debjiban (2007) captured the trends, similarities and patterns in the activities and movements of the Indian Stock Market in comparison to its international counterparts in the context of globalization and the subsequent integration of the global markets. The data of 5 global and 2 Indian indices were collected for a period of 12 years from 1995; and this period was divided into 4 smaller periods. Comparative analysis was then carried out both on qualitative and quantitative parameters. It was found that the markets have started to integrate and Indian market is no exception, especially after 2002-03.

S. Bordoloi and Shankar Shiv (2008) tried to develop alternative models from the ARCH/ GARCH family to model the Indian equity markets. The equity market was represented by the two widely traded stock exchanges in India – BSE and NSE. Two stock indices, from each of the exchanges are selected for empirical analysis. The sample was taken for a period of almost 7 years. The stock returns are found to have possessed the asymmetrical property. The Threshold GARCH (TARCH) models were found to have explained the volatilities better for both the BSE Indices and S&P-CNX 500, while the Exponential GARCH (EGARCH) model is found to be superior for the S&P CNX-Nifty. Statistical tests in frequency domain were also conducted to test whether the volatilities for all the indices move in tandem or not, and it was found that the volatilities for all the indices move in tandem.

Sabur Mollah and Asma Mobarek (2009) tried to find out the time-varying risk return relationship and the persistence of shocks to volatility within GARCH framework both in developed and emerging markets. They used nonlinear ARCH and GARCH-family models for testing the volatility both in developed and emerging markets. The empirical results reported high risk-return and predictable nature of emerging markets compared to developed markets. The findings of the paper suggest that there is a long-term persistence shock in emerging markets compared to developed markets.

Mobarek Asma and Li Michelle (2014) in their paper suggested that the company-specific factors played a more crucial role in the Asia-Pacific countries than what was evident in the European and Latin-American countries. The time-varying weighting methodology was used to determine whether the volatility function was due to country-specific factors. The results showed that the influence of the common factors was significantly enhanced during the period of sub-prime financial crisis.

Karmakar Madhusudan (2006) measured the volatility of daily stock return in the Indian stock market over the period from 1961 to 2005. The study reported an evidence of time varying volatility; periods of high

and low volatility clustering were also found; also high persistence and predictability was observed in volatility. It was also observed that volatility responds asymmetrically for positive and negative shocks. The conditional volatility also showed a clear evidence of volatility shifting over the period under study.

Affaneh Ibrahim and Boldin Robert (2001) examined five regional emerging markets in terms of volatility, correlations and effects of day of the week, month of the year and seasonally. The regional markets studied were Egypt, Greece, Israel, Jordan and Turkey. Data were analysed for the five years from 1993-1998. One of the finding was that there was an improvement in the stability of the markets over the period as measured by the variance ratio; this was the case despite the relatively high volatility in the markets. Also, low correlations were evident among the markets using the return factor (percentage change in the index). Conversely, high correlations were found using the index level.

Aggarwal Reena, Inclan Carla, and Leal Ricardo (1999) examined shifts in volatility of emerging stock market returns and the events that are associated with the increased volatility. The period of study was 1985-1995. The large changes in volatility seem to be related to important country-specific political, social, and economic events. These events include the stock market scandal in India, the Mexican peso crisis, periods of hyperinflation in Latin America, and the Marcos-Aquino conflict in the Philippines.

Chang Hsiao-fen (2012) tried to compare the volatility in stock market returns prior and post global financial crisis of 2008. For the study analysis of the closing price of stock indexes of Europe, America, and Taiwan, which are EURO STOXX 50, S&P 500, and TAIEX respectively are taken. Data was taken for a period of 6 years from 2005 to 2011. Taiwan's VIX was found to be evidently higher than America's and Europe's before the crisis. While after the crisis, Taiwan's VIX was mostly lower than America's and Europe's.

III. RESEARCH METHODOLOGY

The study is descriptive in nature. Quantitative Research approach has been used. The research is based on secondary data of Indian Stock Exchange (Sensex) and other foreign stock exchanges. The data is taken for a period of 5 years (January 1st, 2010 to December 31st, 2014). Daily closing value of all the indices has been taken for analysis. Daily data has been as daily data would reflect proper volatility of the stock markets. Data analysis has been done using SPSS. Linear regression of BSE Sensex with foreign indices has been done. To study the effect on Indian stock market (SENSEX) with the change in the other foreign market indices, we have considered 13 foreign stock

exchanges based upon market capitalization. Major indices the countries like Australia (AORD), Brazil (BOVESPA), Canada(S & P/ TSX), China (SSECOMPOSITE), France (CAC40/FCHI), Hong Kong (HIS), Germany (DAX), Indonesia (JCI), Italy (FTSEMIB), Japan (NIKKEI225), Switzerland (SMI), United Kingdom (FTSE100), United States of America (DOWJONES).

IV. HYPOTHESIS OF STUDY

H0: There is no significant correlation between Sensex and foreign market indices.

H1: There is a significant correlation between Sensex and foreign market indices.

V. ANALYSIS

a) *Comparison of BSE Sensex with all Ordinaries – AORD (Australia)*

From Table -1, it can be concluded that there is a correlation between AORD and Sensex Since $R > 0.05$, H_0 is rejected. R value of .805 signifies a highly positive correlation which means both the indices would move in the same direction. R2 value of 0. 648 shows that AORD causes 64.8% variation in SENSEX. The unstandardized coefficient of 5.662 shows that when SENSEX moves by 1 unit, AORD moves by 5.662 units. Thus we can conclude that when the stock market in Australia goes up, Indian stock market is also expected to go up, and vice versa.

b) *Comparison of BSE Sensex with BOVESPA (Brazil)*

There exists correlation between BOVESPA and Sensex. (Table – 2 in appendix) Since $R < 0.05$, H_0 is rejected. R value of -.328 signifies a negative correlation which means both the indices would move in opposite directions. R2 value of 0. 107 shows that BOVESPA causes 10. 7% variation in SENSEX which is quite low. The unstandardized coefficient of -0.145 shows that when SENSEX moves by 1 unit, AORD moves by 0.145 units in the other direction. Thus, it can be concluded that when the stock market in Brazil goes up, Indian stock market is expected to go down, and vice versa.

c) *Comparison of BSE Sensex with Toronto Stock Exchange – TSX (Canada)*

Since $R > 0.05$, H_0 is rejected, hence there exists correlation between TSX and Sensex. (Table 3 in Appendix) R value of .852 signifies a highly positive correlation which means both the indices would move in the same direction. R2 value of 0.726 shows that TSX causes 72.6% variation in SENSEX. The unstandardized coefficient of 2.343 shows that when SENSEX moves by 1 unit, TSX moves by 2.343 units. Thus, when the stock market in Canada goes up, Indian stock market is also expected to go up, and vice versa.

d) *Comparison of BSE Sensex with FCHI (France)*

H_0 is rejected Since $R > 0.05$. Hence there exists correlation between FCHI and Sensex.(Table-4 in

appendix). R value of .763 signifies a highly positive correlation which means both the indices would move in the same direction. R2 value of 0.583 shows that FCHI causes 58.3% variation in SENSEX. The un standardized coefficient of 5.424 shows that when SENSEX moves by 1 unit, FCHI moves by 5.424 units. Thus, when the stock market in France goes up, Indian stock market is also expected to go up, and vice versa.

e) *Comparison of BSE Sensex with DAX (Germany)*

There exists a correlation between DAX and Sensex (Table-5 in Appendix) Since $R > 0.05$, H_0 is rejected .R value of .836 signifies a highly positive correlation which means both the indices would move in the same direction. R2 value of 0.698 shows that DAX causes 69.8% variation in SENSEX. The unstandardized coefficient of 1.886 shows that when SENSEX moves by 1 unit, DAX moves by 1.886 units. Thus we can conclude that when the stock market in Germany goes up, Indian stock market is also expected to go up, and vice versa.

f) *Comparison of BSE Sensex with HSI (Hong Kong)*

Table -6 in appendix signifies that Since $R > 0.05$, H_0 is rejected, hence there exists correlation between HSI and Sensex. R value of 0.702 signifies a positive correlation which means both the indices would move in the same direction. R2 value of 0.493 shows that HSI causes 49.3% variation in SENSEX. The unstandardized coefficient of 1.250 shows that when SENSEX moves by 1 unit, HSI moves by 1.250 units. Thus it can be concluded that when the stock market in Hong Kong goes up, Indian stock market is also expected to go up, and vice versa.

g) *Comparison of BSE Sensex with JCI (Indonesia)*

R value of .695 signifies a positive correlation which means both the indices would move in the same direction (Table – 7 in appendix).R2 value of 0.483 shows that JCI causes 48.3% variation in SENSEX. The unstandardized coefficient of 2.930 shows that when SENSEX moves by 1 unit, JCI moves by 2.930 units. Thus it can be concluded that when the stock market in Indonesia goes up, Indian stock market is also expected to go up, and vice versa.

h) *Comparison of BSE Sensex with FTSEMIB (Italy)*

Since $R > 0.05$, H_0 is rejected, hence there exists correlation between FTSEMIB and Sensex (Table – 8 in appendix). R value of .430 signifies a positive correlation which means both the indices would move in the same direction.R2 value of 0.185 shows that FTSEMIB causes 18.5% variation in SENSEX. The unstandardized coefficient of 0.466 shows that when SENSEX moves by 1 unit, FTSEMIB moves by 0.466 units. Thus we can conclude that when the stock market in Italy goes up, Indian stock market is also expected to go up, and vice versa.

i) *Comparison of BSE Sensex with NIKKEI (Japan)*

Since $R > 0.05$, H_0 is rejected, hence there exists correlation between NIKKEI and Sensex (Table – 9 in appendix). R value of .801 signifies a highly positive correlation which means both the indices would move in the same direction. R2 value of 0.641 shows that NIKKEI causes 64.1% variation in SENSEX. The unstandardized coefficient of 0.893 shows that when SENSEX moves by 1 unit, NIKKEI moves by 0.893 units. Thus we can conclude that when the stock market in Japan goes up, Indian stock market is also expected to go up, and vice versa.

j) *Comparison of BSE Sensex with SSE (China)*

Since $R < 0.05$, H_0 is rejected, hence there exists correlation between SSE and Sensex (Table –10 in appendix). R value of -0.276 signifies a negative correlation which means both the indices would move in opposite direction. R2 value of 0.076 shows that SSE causes 7.6% variation in SENSEX which is very low. The un standardized coefficient of -2.410 shows that when SENSEX moves by 1 unit, SSE moves by -2.410 units in the opposite direction. Thus it can be said that when the stock market in China goes up, Indian stock market is expected to go down, and vice versa.

k) *Comparison of BSE Sensex with SMI (Switzerland)*

Since $R > 0.05$, H_0 is rejected, hence there exists correlation between SMI and Sensex (Table –11 in appendix). R value of .832 signifies a highly positive correlation which means both the indices would move in the same direction. R2 value of 0.693 shows that SMI causes 69.3% variation in SENSEX. The unstandardized coefficient of 2.405 shows that when SENSEX moves by 1 unit, SMI moves by 2.405 units. Thus we can conclude that when the stock market in Switzerland goes up, Indian stock market is also expected to go up, and vice versa.

l) *Comparison of BSE Sensex with DOW JONES – DJI (United States of America)*

Since $R > 0.05$, H_0 is rejected, hence there exists correlation between DJI and Sensex (Table – 12 in appendix). R value of .792 signifies a highly positive correlation which means both the indices would move in the same direction. R2 value of 0.628 shows that DJI causes 62.8% variation in SENSEX. The unstandardized coefficient of 1.063 shows that when SENSEX moves by 1 unit, DJI moves by 1.063 units. Thus we can conclude that when the stock market in USA goes up, Indian stock market is also expected to go up, and vice versa.

m) *Comparison of BSE Sensex with FTSE (United Kingdom)*

Since $R > 0.05$, H_0 is rejected, hence there exists correlation between FTSE and Sensex (Table – 13 in appendix). R value of .745 signifies a positive correlation which means both the indices would move in

t same direction. R2 value of 0.555 shows that FTSE causes 55.5% variation in SENSEX.

The un standardized coefficient of 4.278 shows that when SENSEX moves by 1 unit, FTSE moves by 4.278 units. Thus we can conclude that when the stock market in UK goes up, Indian stock market is also expected to go up, and vice versa.

VI. CONCLUSION

The above analysis reveals that Sensex is highly correlated with Australian (AORD), Canadian (TSX), French (FCHI), German (DAX), Japanese (NIKKEI), Swiss (SMI) and American (DJI) markets. A slight change in these markets causes a significant effect on Indian markets. It can be seen that Sensex is negatively correlated with Brazilian (BOVESPA) and Chinese (SSE) markets. So a change in these markets causes an opposite change in Sensex. The Toronto Stock Exchange (Canada) has the highest correlation, which shows that it causes maximum impact on the Indian market. It can also be observed that Indian stock market is significantly affected by the stock market of the developed countries.

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ANNEXURES

1. Comparison of BSE Sensex with All Ordinaries – AORD (Australia)

Descriptive Statistics

	Mean	Std. Deviation	N
Sensex	19565.4116	3012.06835	1205
AORD	4806.187	428.3907	1205

Correlations

		Sensex	AORD
Pearson Correlation	Sensex	1.000	.805
	AORD	.805	1.000
Sig. (1-tailed)	Sensex	.	.000
	AORD	.000	.
N	Sensex	1205	1205
	AORD	1205	1205

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.805 ^a	.648	.648	1786.72562	.648	2218.688	1	1203	.000

a. Predictors: (Constant), AORD

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-	579.992		-13.183	.000	-	-6508.237
	AORD	7646.146	.120	.805	47.103	.000	8784.055	5.898

a. Dependent Variable: Sensex

2. Comparison of BSE Sensex with BOVESPA (Brazil¹)

Descriptive Statistics

	Mean	Std. Deviation	N
Sensex	19559.0986	3005.65192	1184
BOVESPA	58914.42	6773.429	1184

Correlations

		Sensex	BOVESPA
Pearson Correlation	Sensex	1.000	-.328
	BOVESPA	-.328	1.000
Sig. (1-tailed)	Sensex	.	.000
	BOVESPA	.000	.
N	Sensex	1184	1184
	BOVESPA	1184	1184

¹ Table-2 Comparison of BSE Sensex with BOVESPA (Brazil¹)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.328 ^a	.107	.107	2840.97427	.107	142.121	1	1182	.000

a. Predictors: (Constant), BOVESPA

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	28123.881	723.164				
	BOVESPA	-.145	.012	-.328	-11.921	.000	

a. Dependent Variable: Sensex

3. Comparison of BSE Sensex with Toronto Stock Exchange – TSX (Canada)²

Descriptive Statistics

	Mean	Std. Deviation	N
Sensex	19554.6720	2991.88919	1193
TSX	12890.446	1087.6753	1193

Correlations

		Sensex	TSX
Pearson Correlation	Sensex	1.000	.852
	TSX	.852	1.000
Sig. (1-tailed)	Sensex	.	.000
	TSX	.000	.
N	Sensex	1193	1193
	TSX	1193	1193

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.852 ^a	.726	.725	1567.72577	.726	3150.373	1	1191	.000

a. Predictors: (Constant), TSX

² Table-3 Comparison of BSE Sensex with Toronto Stock Exchange – TSX (Canada)

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-10650.520	540.057	-19.72	.000	-11710.090	-9590.950
	TSX	2.343	.042	56.12	.000	2.261	2.425

a. Dependent Variable: Sensex

4. Comparison of BSE Sensex with FCHI (France)³

Descriptive Statistics

	Mean	Std. Deviation	N
Sensex	19618.3554	3009.98743	1196
FCHI	3788.8711	423.64204	1196

Correlations

		Sensex	FCHI
Pearson Correlation	Sensex	1.000	.763
	FCHI	.763	1.000
Sig. (1-tailed)	Sensex	.	.000
	FCHI	.000	.
N	Sensex	1196	1196
	FCHI	1196	1196

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.763 ^a	.583	.583	1944.80587	.583	1668.495	1	1194	.000

a. Predictors: (Constant), FCHI

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-934.187	506.289	-1.845	.065	-1927.503	59.129
	FCHI	5.424	.133	.763	40.847	5.164	5.685

a. Dependent Variable: Sensex

5. Comparison of BSE Sensex with DAX (Germany)⁴

Descriptive Statistics

	Mean	Std. Deviation	N
Sensex	19597.6727	2994.40971	1196
DAX	7509.9877	1326.69535	1196

Correlations

		Sensex	DAX
Pearson Correlation	Sensex	1.000	.836
	DAX	.836	1.000
Sig. (1-tailed)	Sensex	.	.000
	DAX	.000	.
N	Sensex	1196	1196
	DAX	1196	1196

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.836 ^a	.698	.698	1646.00536	.698	2760.830	1	1194	.000

a. Predictors: (Constant), DAX

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	5435.328	273.705		19.858	.000	4898.331	5972.324
	DAX	1.886	.036	.836	52.544	.000	1.815	1.956

a. Dependent Variable: Sensex

6. Comparison of BSE Sensex with HSI (Hong Kong)⁵

Descriptive Statistics

	Mean	Std. Deviation	N
Sensex	19563.9720	2998.16327	1196
HIS	21829.0050	1684.13767	1196

⁴ Table – 5 Comparison of BSE Sensex with DAX (Germany)⁵ Table – 6 Comparison of BSE Sensex with HSI (Hong Kong)

Correlations

		Sensex	HIS
Pearson Correlation	Sensex	1.000	.702
	HSI	.702	1.000
Sig. (1-tailed)	Sensex	.	.000
	HSI	.000	.
N	Sensex	1196	1196
	HSI	1196	1196

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.702 ^a	.493	.493	2135.61387	.493	1161.228	1	1194	.000

a. Predictors: (Constant), HIS

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-7722.911	803.124		-9.616	.000	-9298.603	-6147.219
	HSI	1.250	.037	.702	34.077	.000	1.178	1.322

a. Dependent Variable: Sensex

7. Comparison Of BSE Sensex With JCI (Indonesia)⁶

Descriptive Statistics

	Mean	Std. Deviation	N
Sensex	19553.6870	3011.60795	1166
JCI	4067.2661	714.41182	1166

Correlations

		Sensex	JCI
Pearson Correlation	Sensex	1.000	.695
	JCI	.695	1.000
Sig. (1-tailed)	Sensex	.	.000
	JCI	.000	.
N	Sensex	1166	1166
	JCI	1166	1166

⁶ Table -7 Comparison of BSE Sensex with JCI (Indonesia)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.695 ^a	.483	.483	2166.04455	.483	1088.102	1	1164	.000

a. Predictors: (Constant), JCI

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	7635.968	366.818		20.817	.000	6916.269	8355.667
	JCI	2.930	.089	.695	32.986	.000	2.756	3.104

a. Dependent Variable: Sensex

8. Comparison of BSE Sensex with FTSEMIB (Italy)⁷

Descriptive Statistics

	Mean	Std. Deviation	N
Sensex	19611.7085	2991.81506	1193
FTSEMIB	18353.678	2757.8049	1193

Correlations

		Sensex	FTSEMIB
Pearson Correlation	Sensex	1.000	.430
	FTSEMIB	.430	1.000
Sig. (1-tailed)	Sensex	.	.000
	FTSEMIB	.000	.
N	Sensex	1193	1193
	FTSEMIB	1193	1193

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.430 ^a	.185	.184	2702.73619	.185	269.624	1	1191	.000

a. Predictors: (Constant), FTSEMIB

⁷ Table – 8 Comparison of BSE Sensex with FTSEMIB (Italy)

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
	1 (Constant)	11057.017	526.828				20.988
FTSEMIB	.466	.028	.430	16.420	.000	.410	.522

a. Dependent Variable: Sensex

9. Comparison of BSE Sensex with NIKKEI (Japan)⁸

Descriptive Statistics

	Mean	Std. Deviation	N
Sensex	19591.5357	3028.87256	1170
NIKKEI	11493.9188	2715.60408	1170

Correlations

		Sensex	NIKKEI
Pearson Correlation	Sensex	1.000	.801
	NIKKEI	.801	1.000
Sig. (1-tailed)	Sensex	.	.000
	NIKKEI	.000	.
N	Sensex	1170	1170
	NIKKEI	1170	1170

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.801 ^a	.641	.641	1814.77839	.641	2088.337	1	1168	.000

a. Predictors: (Constant), NIKKEI

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
	1 (Constant)	9325.133	230.836				40.397
NIKKEI	.893	.020	.801	45.698	.000	.855	.932

a. Dependent Variable: Sensex

⁸ Table – 9 Comparison of BSE Sensex with NIKKEI (Japan)

10. Comparison of BSE Sensex with SSE (China)⁹

Descriptive Statistics

	Mean	Std. Deviation	N
Sensex	19472.7277	2912.85357	1161
SSE	2427.7209	333.92015	1161

Correlations

		Sensex	SSE
Pearson Correlation	Sensex	1.000	-.276
	SSE	-.276	1.000
Sig. (1-tailed)	Sensex	.	.000
	SSE	.000	.
N	Sensex	1161	1161
	SSE	1161	1161

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.276 ^a	.076	.076	2800.68596	.076	95.777	1	1159	.000

a. Predictors: (Constant), SSE

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	25323.614	603.473		41.963	.000	24139.592	26507.635
	SSE	-2.410	.246	-.276	-9.787	.000	-2.893	-1.927

a. Dependent Variable: Sensex

11. Comparison of BSE Sensex with SMI (Switzerland)¹⁰

Descriptive Statistics

	Mean	Std. Deviation	N
Sensex	19587.5225	2996.28871	1194
SMI	7044.335	1037.2480	1194

⁹ Table – 10 Comparison of BSE Sensex with SSE (China)¹⁰ Table- 11 Comparison of BSE Sensex with SMI (Switzerland)

Correlations

		Sensex	SMI
Pearson Correlation	Sensex	1.000	.832
	SMI	.832	1.000
Sig. (1-tailed)	Sensex	.	.000
	SMI	.000	.
N	Sensex	1194	1194
	SMI	1194	1194

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.832 ^a	.693	.693	1660.75029	.693	2691.283	1	1192	.000

a. Predictors: (Constant), SMI

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1 (Constant)	2647.216	330.062		8.020	.000	1999.649	3294.783
SMI	2.405	.046	.832	51.878	.000	2.314	2.496

a. Dependent Variable: Sensex

12. Comparison of BSE Sensex with FTSE (United Kingdom)¹¹

Descriptive Statistics

	Mean	Std. Deviation	N
Sensex	19636.8371	2993.02942	1188
FTSE	6024.779	521.2495	1188

Correlations

		Sensex	FTSE
Pearson Correlation	Sensex	1.000	.745
	FTSE	.745	1.000
Sig. (1-tailed)	Sensex	.	.000
	FTSE	.000	.
N	Sensex	1188	1188
	FTSE	1188	1188

Table- 12 Comparison of BSE Sensex with FTSE (United Kingdom)

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.745 ^a	.555	.555	1997.16571	.555	1479.904	1	1186	.000

a. Predictors: (Constant), FTSE

Coefficients^a

Model		Unstandardized Coefficients		Standardize d Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	-6138.301	672.515		-9.127	.000	-7457.754	-4818.849
	FTSE	4.278	.111	.745	38.470	.000	4.060	4.496

a. Dependent Variable: Sensex

13. Comparison of BSE Sensex with DOW JONES – DJI (United States of America)¹²

Descriptive Statistics

	Mean	Std. Deviation	N
Sensex	19576.1551	2998.50317	1192
DJI	13445.283582	2235.1711836	1192

Correlations

		Sensex	DJI
Pearson Correlation	Sensex	1.000	.792
	DJI	.792	1.000
Sig. (1-tailed)	Sensex	.	.000
	DJI	.000	.
N	Sensex	1192	1192
	DJI	1192	1192

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.792 ^a	.628	.628	1829.81889	.628	2008.192	1	1190	.000

¹² Table- 13 Comparison of BSE Sensex with DOW JONES- DJI (United States of America)

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1 (Constant)	5283.463	323.315		16.342	.000	4649.131	5917.794
DJI	1.063	.024	.792	44.813	.000	1.016	1.110

a. Dependent Variable: Sensex





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Fundamental Analysis of Oil Price Movements in 2010s'1

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Abstract- The oil market has proved its cyclical nature once again in recent years. After several years with price hovering above 100 USD/bbl, increased investments and consequential excessive supply caused oil prices to fall and OPEC started with active supply management. This article examines the supply and demands factors that determine the current lack of success of OPEC's activities. We think that OPEC's need for immediate increase in budget revenues helped the shale oil producers to increase their activity which results in current protracted period of low prices, with potential result of another boom cycle. We do not expect that demand will decrease in large enough scale to prevent another price spike in coming years as a result of current environment of low exploration and production investments.

GJMBR-B Classification: JEL Code: Q41, Q42



Strictly as per the compliance and regulations of:



Fundamental Analysis of Oil Price Movements in 2010s¹

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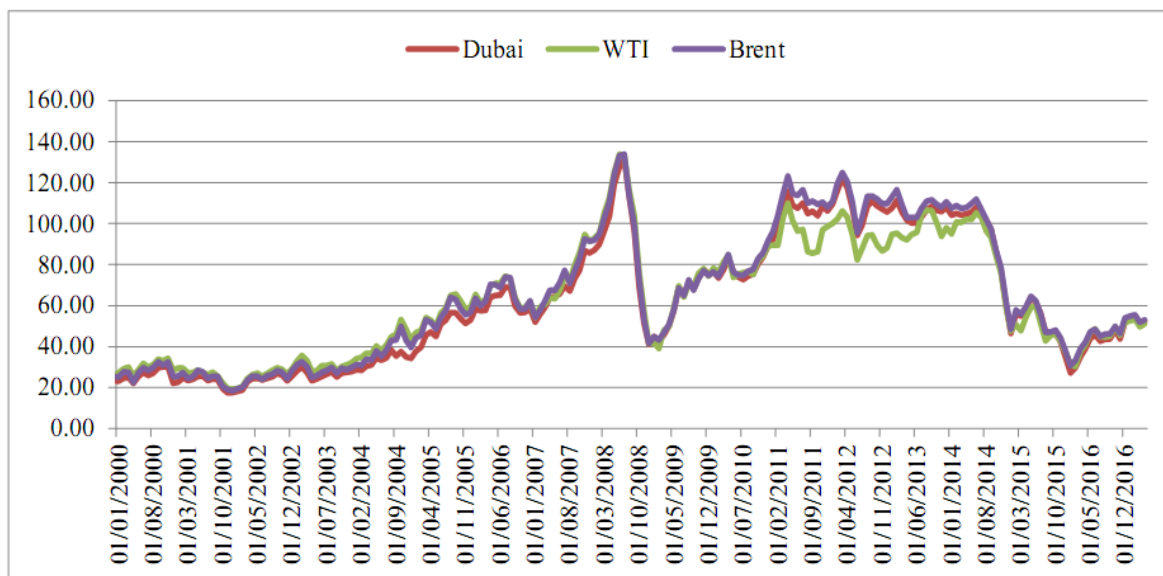
Abstract- The oil market has proved its cyclical nature once again in recent years. After several years with price hovering above 100 USD/bbl, increased investments and consequential excessive supply caused oil prices to fall and OPEC started with active supply management. This article examines the supply and demands factors that determine the current lack of success of OPEC's activities. We think that OPEC's need for immediate increase in budget revenues helped the shale oil producers to increase their activity which results in current protracted period of low prices, with potential result of another boom cycle. We do not expect that demand will decrease in large enough scale to prevent another price spike in coming years as a result of current environment of low exploration and production investments.

I. INTRODUCTION

OPEC's decision to limit its output in November 2016 came two years after it unexpectedly announced it will not change its production quota in 2014, after oil prices declined 30% from its 2014 high of August's average 111.87 USD/bbl to November's 78.44 USD/bbl. During previous three years (2011-2013), OPEC had little trouble keeping prices in the 100 USD/bbl range, that many of its members considered satisfactory. OPEC's decision to flood the market came as non-OPEC originated surplus

production resulting from the strong unconventional production growth, especially in US (which according to EIA data increased its liquid fuel production by staggering 46% from 9.7 to 14.3 mbd between 2010-2014) have kept cutting into market share of OPEC. Since during that period global supply increased only by more moderate 10% or 10 mbd and OPEC's intention was widely interpreted as a decision to fight the surge of American higher cost producers. This decision caused the oil prices to fall by 60% to just 30.8 USD/bbl in January 2016. This episode was basically another example of boom and bust cycles of oil market, when previous period of high oil prices attracted more investments which caused exceeding production. This time though, unlike in the 1980's the marginal barrels were not arriving from discoveries of brand new fields but as a result of strong technological move that enabled the production of previously not accessible resources trapped in shale and tight sands. The initial move of OPEC seemed to be reasonable as marginal production costs of "shale oil" were significantly above that of OPEC and most analysts predicted that American producers will not be able to withstand the drop in oil prices which would quickly balance the market.

Graph 1: World oil markers' prices



Source: IMF, Primary Commodity prices

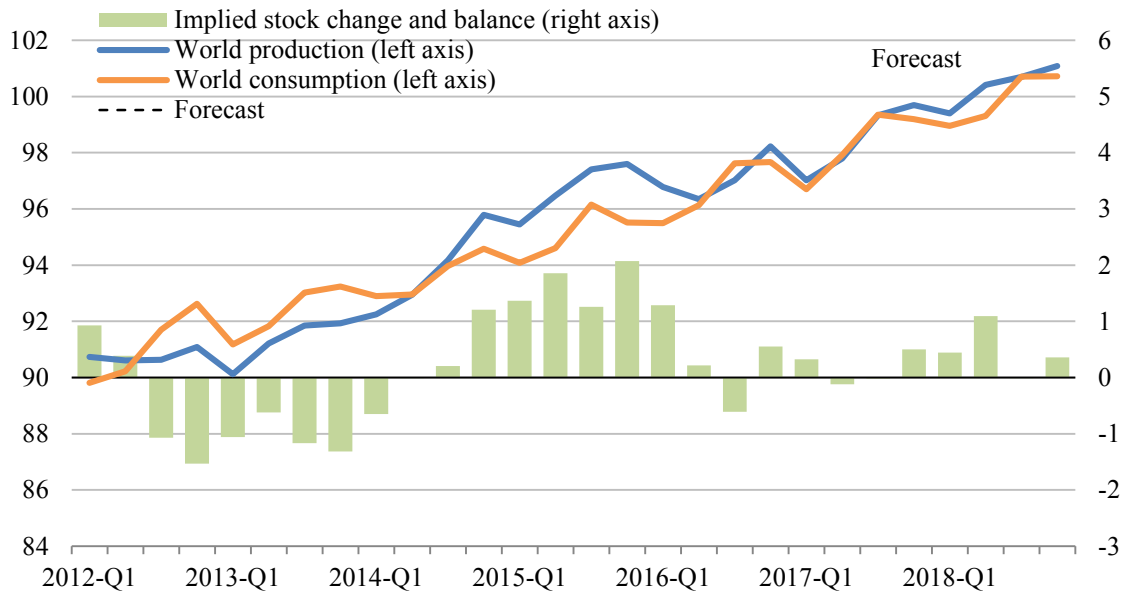
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As we stated, the initial impetus to for discussion of quotas was the imbalance on the oil market that reached its peak in 2014. During that single year the total annual supply increased from 92.25 mbd to 95.79 mbd, increase of 3.86 mbd, while the demand rose from 92.9 to 94.58 mbd, which meant the significant build up of commercial stocks in OECD countries. At the beginning of 2014 they were at the lower end of 5 years average band, but continuously started increasing from 54.7 days of consumption in January 2014 to more than 65 days of consumption in 2016. As that growth of stocks suggests, 2015 did not alter the supply-demand imbalance. The first reason for that was the price retracement, when oil prices averaged above 60 USD/bbl in second quarter of 2015

before sinking to lower 40's during the last quarter of the year. This gave American producers some time to not only hedge the price of production but also to take steps to optimize its costs, which actually enabled them to increase their annual production by another 652 kbd. Situation changed in 2016, when oil prices for the whole year averaged only 44USD/bbl, down some 8 USD/bbl from the previous year, bottoming out in the first quarter of 2016 with January's average of 30.8 USD/bbl. Such low prices already delivered the expected initial shift in supply-demand balance, when the consumption grew by just 360 kbd while consumption in 2016 increased by healthy 1,64mbd with inevitable drawdown of OECD commercial crude stocks that decreased by 118 mb to 2967 mb.

Graph 2: World liquid fuels production and consumption balance (mbd)



Source: EIA, Short term energy outlook

The supply cut was especially visible in the US as its crude output declined by 540 mbd and the overall drilling activity almost halted when the count of active oil rigs in US fell from its high of nearly 1600 in 2014 to some 300 in 2016. However the price slump hit equally hard the OPEC producers, that lost 54 % (513 billion USD) of its oil related incomes between 2014-2016, and needed to quicken the price rebound in order to stabilize their state budgets situation. With that in mind, at the end of 2016 OPEC led by Saudi Arabia announced 1.2 millions of barrels per day (mbd) cut in its production for the period of first half of 2017. This effort was joined by some non-OPEC countries led by Russia adding to the cut another 600 thousand barrels per day (kbd) effectively so pulling 1.8 mbd from the market in order to support prices. This step basically meant the shift in the strategy that largest oil producer chose previously face to face emerging shale production in the US. The aim of this article is to analyze

what led to this situation as well as recent developments on the oil market. We look at the supply demand – balance, evolution of price in order to provide holistic assessment of current oil energy market.

II. DEMAND

Oil continues to be integral part of global economy. Despite the strong push for renewable energy sources its consumption continues to grow by 1.4 % so far in the twenty first century in comparison to 1.2 % in the previous two decades. In real terms it means nearly doubling of average yearly incremental consumption from 618 kbd in first period to 1 619 in the later one. Despite that, discussion about peak oil, which dominated the oil related energy-environmental debate switched to debate reflecting the possible peaking of demand for oil. Reason for that is the fact demand for oil in the West is falling. The decline in oil demand largely reflects the improving efficiency of motor vehicles as

transport is by far the largest oil consumption area. For instance the fuel economy of new cars in the US, measured in terms of miles per gallon, around 20% higher than 10 years ago (IEA,2016).According to various analysts, this trend will only strengthened as the internal combustion engine will be replaced by alternatives in ever faster rising rate. This should effectively cap any future rise in oil demand which should start its ultimate decline in coming decades – we analyze this thesis later in the article.

Oil consumption in the US and Europe peaked about 10 years ago and has been on a downward trend ever since. The aggregate OECD consumption was surpassed by its non-OECD counterparts in 2013 and they started to slide apart for few years before the fall in oil prices which led back to slight rebound for oil demand in developed economies which is now forecasted to increase till 2018 back to its levels from 2010 (EIA, 2017). As the demand of developed countries slowed down, it was more than offset by fast growing emerging markets especially that of China and India which combined increase of incremental demand for oil reached almost 4 mbd between 2010-2016 and is expected to increase another 1 mbd during 2016-2018

period based on strong economic growth and rise of middle class. Even so, current percapita annual oil consumption in China, at around 3 barrels per capita remains well below that in the United States (20 barrels per capita) and the European Union (8 barrels per capita). There are signs of a slowdown, but the era of robust Chinese oil demand growth is not over according to IEA (2016), which projects China to grow by around 300 kbd each year for the next ten years and only then slowsto an average annual increase of 100 kbd from 2025 onwards. During that period China overtakes the UnitedStates in the early 2030's to become the world's largest oil consumer, but China's projected increase in consumption over the next 25 years (4.1 mb/d) is less than half what was added in the previous 25 years (8.6 mb/d).

The second region of strong demand of growth for oil happened to be Middle East with 0.9 mbd in first and 0.6 mbd incremental demand in second observed period. This development happened to be concern for those countries as less oil becomes available for export which together with low oil prices significantly affects their crucial governmental revenue.

Table 1: Liquid fuels consumption (mbd)

Country/Region	2010	2011	2012	2013	2014	2015	2016	2017	2018
North America	23.66	23.42	23.07	23.51	23.56	23.95	24.03	24.25	24.55
United States	19.18	18.88	18.49	18.96	19.11	19.53	19.63	19.92	20.22
Canada	2.38	2.4	2.47	2.45	2.41	2.41	2.43	2.42	2.41
Mexico	2.1	2.12	2.1	2.09	2.04	2.01	1.95	1.9	1.9
Central and South America	6.6	6.74	7.05	7.11	7.27	7.16	7.13	7.12	7.11
Brazil	2.7	2.78	2.92	3.03	3.14	3.11	3.04	2.99	2.94
Europe	15.45	14.96	14.47	14.32	14.24	14.49	14.84	14.97	15
Eurasia	4.27	4.61	4.58	4.6	4.85	4.83	4.86	4.97	5.09
Russia	3.14	3.42	3.45	3.49	3.69	3.6	3.59	3.69	3.79
Middle East	7.66	7.84	8.23	8.22	8.51	8.48	8.56	8.9	9.2
Africa	3.52	3.45	3.64	3.8	3.98	4.1	4.27	4.4	4.54
Asia and Oceania	28	28.87	30.04	30.76	31.19	32.09	33.05	33.7	34.45
China	9.53	10.05	10.55	11.08	11.49	12.01	12.44	12.78	13.12
India	3.31	3.46	3.62	3.66	3.74	4.03	4.35	4.56	4.82
Japan	4.33	4.34	4.63	4.5	4.27	4.12	3.99	3.84	3.76
non-OECD	42.14	43.52	45.13	46.21	47.8	48.73	49.88	51.15	52.48
OECD	47.04	46.36	45.96	46.11	45.81	46.37	46.86	47.15	47.45
World	89.18	89.88	91.1	92.33	93.6	95.1	96.74	98.3	99.93

Source: EIA, Short Term Energy Outlook (May, 2017)

Even though the demand for oil is widely considered to be only slightly elastic, our empirical observation suggests that economic growth together with oil prices still drive the demand for oil to a certain extent. Looking at the advanced economies, we can conclude that period of slower economic growth accompanied by high oil prices resulted in slow growth of oil consumption between 2010-2016, the stronger economy supported by current low oil prices however

coincide with the expected stronger growth in oil consumption in next two years. The opposite observation can be made about developing countries which strong growth from previous years inadvertently led to strong incremental growths of the oil consumption, with projected slowdown in coming years. This causality is even multiplied as high oil prices fuelled some of the economic growth in the group of developing countries.

Table 3: Economic growth of selected entities

	2010	2011	2012	2013	2014	2015	2016	2017	2018
World	5.4%	4.2%	3.5%	3.4%	3.5%	3.4%	3.1%	3.5%	3.6%
Advanced economies	3.1%	1.7%	1.2%	1.3%	2.0%	2.1%	1.7%	2.0%	2.0%
Developing economies	7.4%	6.3%	5.4%	5.1%	4.7%	4.2%	4.1%	4.5%	4.8%
European Union	2.1%	1.7%	-0.4%	0.3%	1.7%	2.4%	2.0%	2.0%	1.8%
China	10.6%	9.5%	7.9%	7.8%	7.3%	6.9%	6.7%	6.6%	6.2%
USA	2.5%	1.6%	2.2%	1.7%	2.4%	2.6%	1.6%	2.3%	2.5%

Source: IMF, World Economic Outlook Database 2017

As we mentioned before, transportation represents about 2/3 of global oil demand, therefore the evolution on the field of alternative fuelled vehicles is especially important for estimation of future oil consumption. In 2015, the global stock of EVs climbed to 1.3 million, a near doubling of the stock in 2014 (IEA, 2016). Although the share of electric cars in the global vehicle stock is still only 0.1%, this is a marked improvement from historic levels. Momentum has been broadly maintained over the first-half of 2016, as registrations in the European Union rose by around 20% and 130% in China, compared with the first half of 2015. China is now the largest market for EV sales, followed by the United States. The increase in sales has been accompanied by growth in the supply of EV support equipment. The number of publicly accessible chargers in 2015, for example, is estimated to be 190 000 globally, up from 110 000 in 2014. The recent rise of EVs has emerged both as a result of continuous technological improvements and because of mounting policy support. Since 2008, research, development and

deployment, as well as growing battery use in markets such as consumer electronics, have contributed to a four-fold increase in battery energy density. Costs have also fallen to less than 270 USD per kWh for batteries used in plug-in hybrid vehicles and about 210 USD/kWh for battery electric vehicles. Such improvements offer extended electric driving ranges at lower costs. Countries with the highest uptake of electric cars have typically made use of vehicle purchase incentives, including subsidies and tax incentives, and invested in the deployment of recharging infrastructure to support deployment. Ambitions for the future deployment of EVs are high: Tesla Motors targets 0.5 million annual electric vehicle sales by 2018(from 50 000 in 2015); Renault-Nissan aims for cumulative sales of 1.5 million EVs by 2020; Volvo aims to sell 1 million EVs by 2025 and Volkswagen recently announced a strategic shift to EV's and aims to launch 30 battery electric vehicles models and achieve annual sales of 2-3 million by 2025 (IEA, 2016). Those plans of private companies are indeed accompanied by national targets in some countries.

Table 2: Electric vehicle deployment targets by country

Country	Electric car targets
China	Stock target of 4.6 million in 2020
France	Stock target 2 million (2020)
Germany	Stock target 1 million (2020)
India	Stock target 200 000-400 000 (2020)
Japan	Stock target 1 million (2020), sales share target 50-70% (2030)
Netherlands	Sales share target: 30% (Battery EV), 20% Plug-in hybrids (2025)
Norway	Stocks target 50 000, already exceeded
United Kingdom	Sales share target 16 % (2020),60% (2030), 100% (2040)
United States	Stocks target 3.3 million (2025) across 8 states

Source: IEA, World Energy Outlook 2016

IEA (2016) predicts electric vehicles will grow from 1.5million today to 30 millions in 2025 and 150 millions in 2040. To put things into perspective, this would have according the IEA's prediction replaced some 6 mbd of oil consumption.

To recap, oil demand grew at 1.64 mbd in 2016, which is lower than during 2015. EIA expects demand growth to slow slightly to 1.56 mbd in 2017 but then

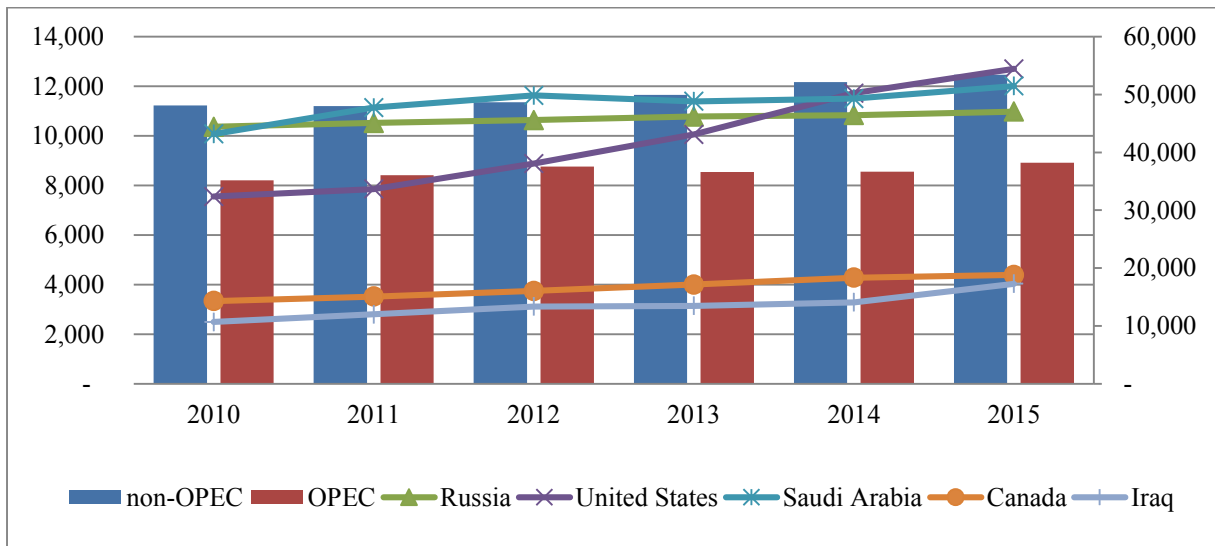
jump up back to 1.65mbd – significantly above the 0,93mbd average of two previous decades. Amid a significant cutback in production, such fairly robust demand could significantly help to balance out the supply demand equation, as the main hope for ultimate move away from oil – decrease in oil use in transportation seems to be still several decades away.

III. SUPPLY

The uneven distribution between oil reserves and its universal consumption determines the immense importance of trade flows between several producing countries and the rest of the world. Some 70 % of oil reserves are located in OPEC countries which were responsible for 44% of global production in 2016. Between years 2010-2015 non-OPEC countries increased its production by 5.3mbd while OPECs countries oil output grew by 3 mbd. This growth came predominantly from 4 countries USA (+5,1mbd) and Canada (+1mbd), in the North America and Saudi Arabia (1,9 mbd) and Iraq (1,5 mbd) in the Middle East and Russia (0,6 mbd). Shale oil in US has become a major contributor to global oil supply and was the main reason behind US oil production growth. According to

IMF (2017) uncertainty surrounding the development of unconventional sources is governed by the very uncertain nature of the processes of innovation and adoption, owing to an interaction between below and aboveground factors. All in all, the rising importance of unconventional sources in global supply is not only changing the dynamic response of production to prices, but also results in more uncertainty over the medium term. Annual oil demand growth, commonly projected at about 1.2 mbd, will be met by unconventional sources over the next few years, mainly through resources under development for deepwater and ultra deep water oil, oil sands, and heavy and extra heavy oil. However, in the absence of shale, depletion forces and the legacy of low investment would start to kick in and push prices up significantly after a few years.

Graph 3: Development of oil supply (mbd)



*OPEC and non-OPEC production on right axis

Source: BP Statistical Review, 2016

Historically, global investment and operational expenditures in oil have closely followed oil price development. During episodes of dramatic price movements, as in the late 1970's, investment in the oil sector responded promptly. In late 2008 during the global financial crisis, oil investment plummeted but then rebounded in 2009 following the sharp but temporary drop in oil prices. The 2000's episode marks the most unprecedented increase in global capital expenditure and reflects a prolonged era of high oil prices. The rapid increase in oil demand, especially from large emerging market economies, such as China and India, has driven oil prices up and encouraged further investment in tight oil formations, ultra deep water oil, and extra heavy oil, which were previously uneconomical at lower oil prices. While comovement between oil prices

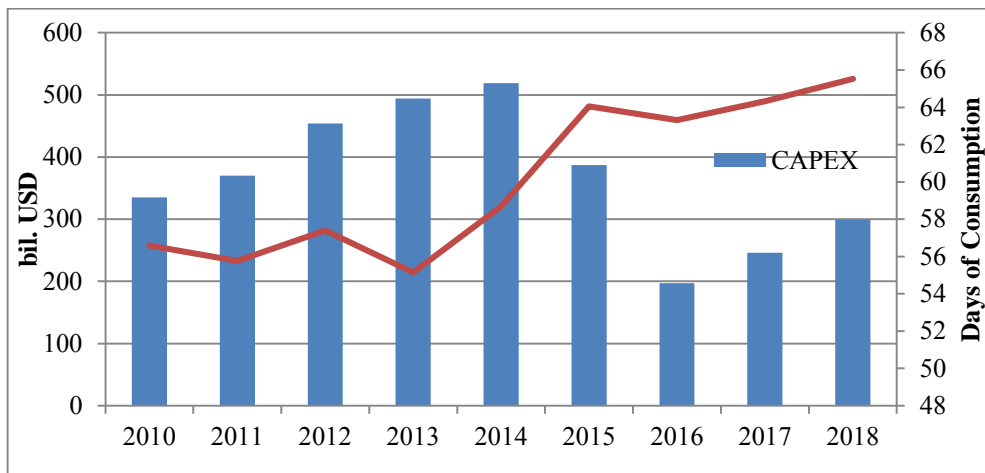
and capital expenditure in unconventional sources is akin to what it is in conventional sources, expenditure in unconventional sources embodies technological changes that contribute to changing the response of global oil production. Shale oil requires a lower level of sunk costs than conventional oil, and the lag between initial investment and production is much shorter. Shale oil is thus contributing to shorter and more limited oil price cycles (Arezki and Matsumoto 2016). The unprecedented increase in capital expenditure in unconventional sources in the 2000's meant shale oil production growth has emerged as a major contributor to global supply growth. As we stated earlier, it was the rapid increase in unconventional sources also contributed to the change in OPEC's strategic behavior, leading to the dramatic collapse in oil prices (Arezki and

Blanchard 2014). Although that abrupt decline in prices led to a reduction in investment and expenditure, large operational efficiency gains acted as automatic stabilizers. The downward shift in the cost structure induced by lower oil prices is partly temporary. However, the lower investment in exploring new fields is expected to affect production of oil sands down the line.

According to McNally (2016) the adequacy of the supply is the big question for coming years. The current price bust is delaying or cancelling investment in new oil supply that the market may need in a few years but will not have Bloomberg reported that oil companies have cancelled more than 100 USD billion in investments. In January 2016 the energy consultancy Wood Mackenzie estimated that project delays and cancelations since the 2014 oil price bust will diminish oil supply by 1.5 mbd in 2021, rising sharply to 2.9 mbd by 2025. They further warned in July 216 that oil prices

at or below 50 USD/bbl will cause most major conventional oil projects get being further delayed or cancelled. In addition to this IEA estimated that oil industry needs to invest about 300 billion USD just to keep supply from declining this is concern especially for producers like Russia, Mexico and China who relies mainly on older oil fields. IEA estimated that an average decline of about 9 %of annual production from mature fields can be expected if the industry does not invest to sustain output. Collapsing investment will translate into less oil supply in the coming five years or so. IEA sees 4.1 mbd being added to global oil supply between 2015 and 2021 down sharply from 11mbd between 2009 and 2015. It is possible that the growth in demand and growth in supply will balance out and the world oil market will settle into a steady price, but it is more likely that current bust in oil prices will be followed by another boom.

Graph 4: Historical and projected oil production CAPEX



Source: Mc Kinsey Energy Insights, 2017

The obvious first physical indicator reflecting on the changing supply demand balance is obviously the state of inventories. It provides the clear image of the long term supply demand balance. According to Stahl-Calsen (2016) it is a very useful tool for predicting the price of oil since too excessive stocks restrain process from rising, while low inventories facilitate price appreciation. For years, oil inventories remained in a relatively stable range. However in late November 2014, after OPEC gave up on its role of swing producer and chose to embark on the new strategy focused on maximizing production and market share of world supply. After this meeting OPECs production increased by 1.1 mbd, which has more than offset declines of production from countries experiencing price driven supply challenges. Overall this excess production caused OECD inventories to increase by 10.5 % to 64 days of consumption, which explains the decision of OPEC to start active supply management on its side in.

IV. RECENT DEVELOPMENT

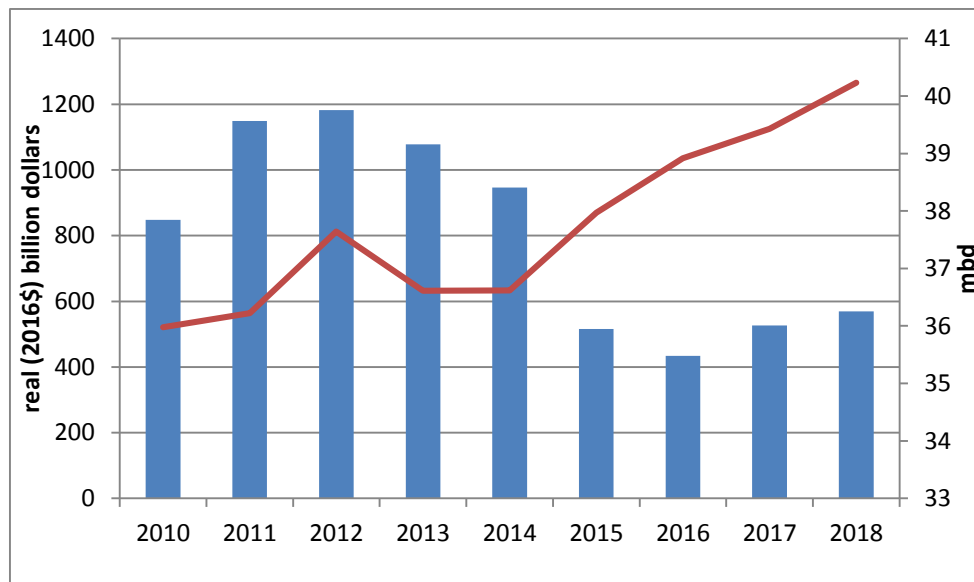
The OPECs agreement from November 2016, to cut crude oil output to 32.5mbd, effective January 2017 and for duration of six months was aimed at lowering the OECD stocks as a primary indicator of supply-demand balance. The agreement cut 1.2 mbd from production levels in October 2016. Saudi Arabia bore the largest burden while Libya and Nigeria were being exempted from the agreement. Participants at an OPEC and non-OPEC meeting in Vienna on December 10, 2016, agreed to additional cuts amounting to about 0.6 mbd. Russia, a country that is not a member of OPEC, has committed to reducing production by 0.3 mbd, and 10 other non-OPEC countries agreed to contribute the remainder. Following these production agreements, Saudi Arabia indicated it could cut production beyond its initial commitment in a bid to enhance the credibility of the agreement. In response to these agreements, spot oil

prices increased to more than \$50 a barrel. That price of oil move stimulated investment, which is expected to increase in 2017 after two consecutive years of significant decline². The effectiveness of the production agreements could thus be partially offset by an increase in U.S. shale oil production, which, unlike conventional oil, can commence within a year of initial investment. Production data from the International Energy Agency (IEA) for January 2017 indicate that only a few OPEC members fully complied with the agreement, although Saudi Arabia has cut more than initially agreed on and the overall compliance reached according to some sources above 100 %. Despite that, as we have shown above the oil prices kept range about between 48-55 USD/bbl, as market participants perception of the state of oversupply did not change dramatically, which is understandable considering the growing production from regions like US (shale oil) and Libya or Nigeria, which were not participants of the original deal due to then on-going violent unrests. The second factor watched by oil traders was the level of OECD oil stocks. Those did not register any significant draw downs, partially due to the fact, that OPEC oil production cut,

said nothing about the exports which lead some OPEC members to increase its exports using their reserves and higher production at the end of 2016 before the agreement came into force. This setup of the oil market forced original agreement being extended for another 9 months till the end of the first quarter of 2018 during another meeting in Wien on 25.5.2016. The immediate response was quite counterintuitive as the price of oil futures lost over 2.7 USD/bbl on that day and continued losing ground since then trading around 48 USD/bbl at the beginning of June 2017. A case can be made why oil market participants expected deeper cuts or longer extension of the agreement, although the fact is that primary goal of OPEC to increase its revenues was achieved as at the beginning of 2017 increased it reportedly increased by 17 %. This came after 4 years of continuous declines in revenues which have gone down by almost 700 billion USD/year from 2012's 1131 billions USD/year to 433 billions USD/year despite production growth of almost 3 mbd during that period.

It needs to be noted that upstream investment has not fallen for two consecutive years since 1986.

Graph 5: OPEC oil revenues & production



Source: EIA, Short Term Energy Outlook (May, 2017)

In order to compensate for this drop countries started using their wealth funds. Four of the world's largest SWFs are based in oil producing countries. Between March 2015 and March 2017, the collective assets overseen by sovereign wealth funds (SWF) decreased by 0.5 %. That compares with the 14 per cent increase in the two years to March 2015, according to the Sovereign Wealth Fund Institute. Governments in Norway, Saudi Arabia and Kazakhstan are among those that turned to state backed funds to help stem revenue losses as the oil price fell. (FT, 2017) and in the two years to the end of 2016, SWF with

drew at least 85 billion USD. This meant, the assets managed by state backed vehicles that owe their origin to oil and gas fell 1.5 % over the past two years, compared with growth of about 0.7 % for non-oil or gas-related funds.

V. CONCLUSION

The oil market has proved its cyclical nature once again in recent years. After several years with price hovering above 100 USD/bbl, increased investments have enabled the supply to catch up with demand which together with overestimated demand led to supply glut

and slump in the prices at the end of 2014. Almost two years of oil price being at or below 50 USD almost halted the shale oil development in US, which consequentially have led to hint of slight drawdown of oil inventories in 2016 suggesting the return of more balanced oil market. However, the low oil prices did not weight only on shale producers in US. OPEC countries which state budgets heavily relies on revenue streams from oil exports were hit as well. As we documented above, the steep decline in their incomes, were balanced through their wealth funds. We believe that OPEC countries were trying to speed up the process of supply-demand rebalancing of the oil market in order to boost their revenues, but their effort supply management backfired as their initial supply cut helped shale producers much more than they expected. During the previous two years of low oil prices, shale companies were able to streamline their operation and price boost they received from OPEC action tipped oil market back to the state of oversupply, as development of oil reserves in 2017 shows. This left OPEC countries no other choice but to extend their supply cuts in May 2017 as the other option was another protracted period of even lower prices. The trajectory of the oil price for the rest of 2017 and 2018 remains unclear. The investment banks have repeatedly adjusted their price forecasts downwards and IEA (2017) have recently predicted that oversupply will prevail in 2018 as supply in non-OPEC countries is predicted to rise by 1.5 mbd and outstrip the demand which should reach 100 mbd first time ever. On the other hand, the growth of shale oil production is not certain at all. The American shale producers face rising drilling costs as the oil rigs usage have been raising in recent months. Furthermore, as Reuters (2017) recently reported unlike 2016 shale producers in expectance of higher oil prices did not hedge their production this time, which could halt the projected fast shale development. To add even more doubts to OPEC situation, rising production of Libya and Nigeria, or geopolitical tensions might undermine the validity of the OPECs cut extension.

Either way, taking into account longer period of low oil prices necessarily coupled with the low investment into exploration and production will inevitably lead to reiteration of another boom cycle as demand is unlikely to decline fast enough to prevent repeating this scenario.

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Synopsis of Nigerian Economy and the Growth of Ponzi Schemes

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Abstract- This study was conducted to examine the effect of Ponzi scheme on Nigerian Economy. Available researches explored Nigerian economy in terms of its history, structure and growth with no literature on the economy and the growth of Ponzi in the face of the present recession. Nigerian economy is beset with myriads of economic problems ranging from unemployment to bad leadership and structure of governance that has climaxed into economic recession. Ponzi schemes became an alternative to the harsh economic realities in the country and this research investigated the effect of this in the economy. The result shows that there is a strong negative relationship between Nigerian economy and the growth of Ponzi. It created illusive picture of the economy in terms of peoples' living standard and income levels.

Keywords: *economy, recession, ponzi schemes, growth, Nigeria.*

GJMBR-B Classification: *JEL Code: H00*



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Synopsis of Nigerian Economy and the Growth of Ponzi Schemes

Asogwa, Ikenna Elias^α, Etim, Etim Osim^σ, Etukafia, Nseabasi Imoh^ρ, Akpanuko, Ekerette Essien^ω
& Ntiedo, Bassey Ekpo[¥]

Abstract- This study was conducted to examine the effect of Ponzi scheme on Nigerian Economy. Available researches explored Nigerian economy in terms of its history, structure and growth with no literature on the economy and the growth of Ponzi in the face of the present recession. Nigerian economy is beset with myriads of economic problems ranging from unemployment to bad leadership and structure of governance that has climaxed into economic recession. Ponzi schemes became an alternative to the harsh economic realities in the country and this research investigated the effect of this in the economy. The result shows that there is a strong negative relationship between Nigerian economy and the growth of Ponzi. It created illusive picture of the economy in terms of peoples' living standard and income levels. The analysis with R square of 83.8% reveal among others that the economy as presently constituted is not viable and as hunger, poverty and unemployment continue to rake the economy, people will seek alternative means to cushion the effects. It is recommended that the economic system be restructured into a six zone structure to reposition the economy on the verge of growth through job creation and industrialisation borne out of regional competition, resource control and economies of scale giving rise to greater accountability and trans parencyin governance.

Keywords: economy, recession, ponzi schemes, growth, Nigeria.

I. INTRODUCTION

Since Nigeria's independence in 1960, many unprecedented political and economic changes have shaped the country. These changes have in one way or the other affected the development and growth of the economy either favourably or adversely. The Nigerian economy itself has gone through ups and downs, however, the history of gloomy days seem to outweigh the history of rainy days forthe economy in the long run. According to the African Development Bank (ADB) Group, Nigeria has had sluggish economic growth since the end of 2015 with the rate dropping to an estimated 3% in December 2015, leading the government to adopt expansionary budgetary system in 2016 with the aim of stimulating the economy. This sluggish growth is mainly attributed to a slowdown in economic activities which has been adversely impacted

by inadequate supply of foreign exchange. These foreign exchange restrictions has resulted in cuts in production and labour loss in manufacturing and banking sectors of the economy that lead to a high unemployment rate and reduction in business activities thus limiting the flow of funds in the economy. In addition, liquidity crises hit the economy, this was exacerbated by the implementation of Treasury Single Account (TSA) [4]by the government in a bid to fight corruption. TSA was aimed at ensuring that government and its agencies maintained a single account for its transactions with the Central Bank of Nigeria (CBN). This moped up liquidity in the banking system. As the liquidity crises continued, it systemically affected other business sectors in the economy and they started crippling into liquidity crises; banks could barely guarantee loans to various sectors of the economy like the oil and gas, construction, manufacturing and aviation industries. Many businesses closed down (perhaps relocate to neighbouring countries) as they could no longer access funds from the banks at ease, interest rate skyrocketed to a point that CBN issued a warning that seven Nigerian banks may need to merge, or require bail out from their foreign counterparts or brace up for a regional banking over the worsening liquidity problem while other banks recapitalised to mitigate the effect of the crises [8]. Systemically, Nigerian economy slid in to a serious economic crisis affecting mostly youths and households as disposable income crashed due to an unbearable inflation coupled with job losses that resulted thereof. Nigeria degenerated into recession in the second quarter of 2016 after two successive quarters of negative growth [15]. This was consequently confirmed by the National Bureau of Statistics (NBS) and the Ministry of Finance grudgingly yielded to it after several undeniable economic indices alluding to the fact (Fig. 1). These economic peculiarities Nigerians faced(decline in crude oil prices and earning to Nigeria, reduction in Gross Domestic Product (GDP), high rate of inflation, increase in exchange rate, widespread unemployment and loss of job) forced the people to seek alternative means of survival. Oil is unarguably the mainstay of Nigeria's economy and since the fall in global oil prices, it has been grappling hard with the economic realities it found itself. Money at the disposal of both the government and household lost its value in terms of purchasing power,

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dollar rate to naira skyrocketed and so on. This exacerbated unemployment rate and led to job loss, massive hunger and starvation in the economy. Ponzi schemes became a ready easy succour for poor living standard of Nigerians. It provided an easy alternative to survival with its promise of a high rate of returns on investment. A number of these 'easy money making' ventures in the form of Ponzi sprang up. These stimulated the economy, people especially the youths even borrowed money to invest in the scheme as it seemed good. Based on this, the first hypotheses was developed to check if there is a relationship between Nigeria's economy and the growth of Ponzi schemes. As more people turned to this 'quick fix' systems to cushion the effect of the harsh economy resulting primarily from poor living standard caused by skyrocketing inflation, the economy was a little bit reflat. People generally had money to spend through the returns from the Ponzi and the banks were busy with customer either withdrawing their matured investment or initiating new ones through their deposits and transfers. The first set of people who went into the scheme benefited quite tremendously and was able to attract new members. Some of them built houses, bought cars and started many more business bearing little or no risk. As a result people became more liquid, they could easily augment for poor/irregular salary, high cost of living occasioned by the bad economy coupled with the economic recession currently ravaging the country. Based on this, the second hypotheses was developed to test the effect of Ponzi schemes on Nigerian economy. The following research questions are formulated below to guide the conduct of the research;

a) *Research Questions*

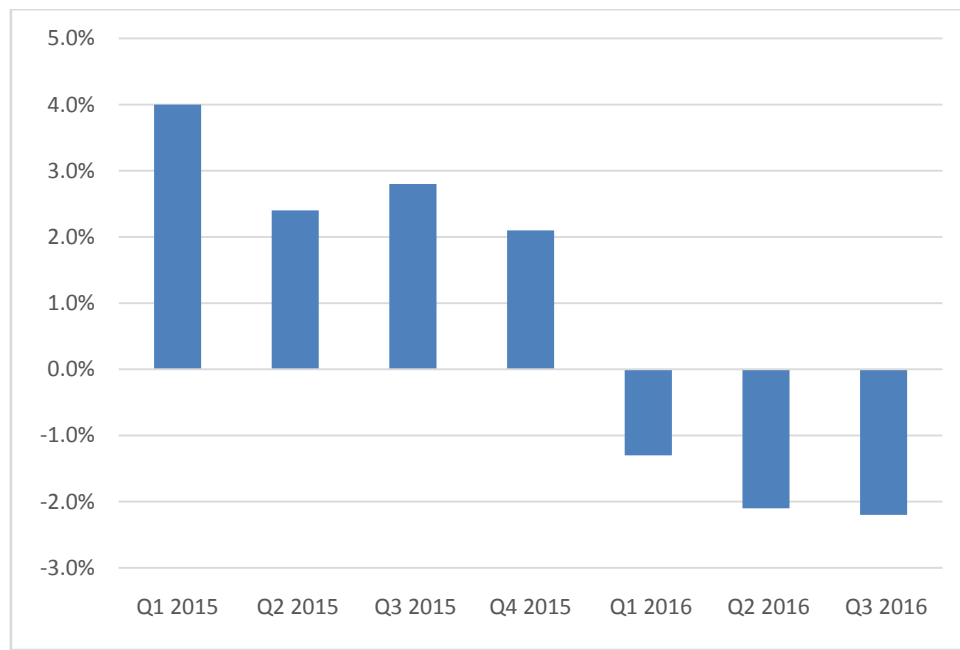
- i. What is the relationship between Nigerian economy and participation in Ponzi scheme?
- ii. How does Ponzi scheme growth affect Nigerian economy?
- iii. What is the effect of Ponzi scheme on Nigerian Economy?
- iv. What group of people engaged in Ponzi schemes?

II. LITERATURE REVIEW

a) *Overview of Nigerian Economy*

Nigeria's economy is largely dependent on oil since the discovery of oil in commercial quantity in 1956 at Oloibiri, Bayelsa State. Oil constitute about 90% of Nigeria's export market and 25% of the Gross Domestic Product (GDP) and consequently forms about 80% of total government revenue [13]. Many researches have been conducted on how to improve the economy of Nigeria away from oil through diversification but the myriad of political and governance issues in Nigeria have marred these efforts. Nigeria has been under both military and civilian rule since independence. The military era was characterised by coups and counter

coups leading to instability and civil war that engulfed the country from 1966 – 1970. On the other hand, the civilian or democratic rule has not brought about the much anticipated change the people yearn for. Nigeria is blessed with abundant natural/mineral resources and prides itself as the most populous black nation, this makes the country a big market for the world but not much has come their way. The world has estimated Nigeria to be among the fastest growing global economies in the world by the year 2015 [2] but that never materialised. CNN money also ranked Nigeria as the 3rd fastest growing economies in 2015 [2] but the question is "how did a country that promised this much hope slide into a consecutive negative growth (recession) just a year after? The 2015 general election also produced a change of government that caused a negative change in the trend of the economy through inconsistency policies and policy summersault. The body language and hard stance of corruption including the mode of fighting corruption has however painted the country black before investors (more especially the foreign investors). The unprecedented decline in the economy since the government took over power in May 2015, compelled them on 31st August, 2016 to confirm through the Minister of Finance, Mrs Kemi Ade Osun that Nigeria is technically in recession [15]; [10]



Source: Adopted from NBS

Fig. 1: Nigeria Economic Growth Index.

b) Nigeria's Economic Recession

The National Bureau of Economic Research [9] defined recession as a decline in economic activity in a given economy, lasting more than a few months. It is normally visible in real GDP, real income, employment opportunities, banking system, production, wholesale-retail sector. A country experiences recession when there is a successive significant decline in growth rate and potential of a nation's earnings lasting up to six months. The technical indicator is assumed to be two consecutive quarters of negative economic growth estimated by the GDP of the country [3]. Recession is principally caused by two factors; the endogenous and the exogenous factors. The endogenous factor represents internal factors resulting from conflict of ideas, regulatory negligence, misapplication of economic theories, policy inconsistency or summersault and so on. The exogenous or external factors are usually not within the control of policy makers (they defines the remote factors) such as; natural disaster, climate change, revolution and or war. Our focus here is on the endogenous causes of recession since Nigeria's economic recession is largely internally caused. Nigeria has faced so many leadership problems in the past. Change of government is almost synonymous with change of policies, as a new government is formed; a new idea is generated giving rise to conflict of ideas/interest, policy inconsistencies, misapplication of theories and so on. Successive governments hardly build on the previous or inherited ideas or policies no matter how good. The fig.1 above shows that Nigeria slid into recession in the second quarter of 2016 just few

months after a new government was formed in May, 2015.

i. Features of Nigerian Economy.

Some factors that could be attributed to Nigeria's recession include but not limited to;

- i. Poor Economic Planning
- ii. High Interest Rate
- iii. High Rate of Inflation
- iv. Policy Inconsistency
- v. Poor Business Environment
- vi. High Taxation
- vii. Aggressive Implementation of TSA etc

Poor Economic Planning

Nigeria is ridden with poor or misapplication of economic policies. Economic planning connected with exchange rate policies are poorly implemented aided by delay in budget preparation and passage, this to a large extent contributes to recession. Strategic plans to grow the economy through government claims of improving manufacturing/mining sectors of the economy, agriculture and foreign direct investment have not yielded any significant benefit rather the populace continue to languish in poverty [16]. However, giving dollar purchase privileges for importers of selected goods, fixing of exchange rate (cheaply) solely for pilgrims while the business sector buy it exorbitantly has further impoverished the economy. Emmanuel [5] averred that the elimination of dollar privileges (for a few importers on selected items) would help the economic system a bit but has invariably given a few individuals the opportunity to make millions of Naira effortlessly

further widening the gap between the rich and the poor, while creating more economic hardship for the people. This is exactly the case with the dollar rate advantage given to pilgrims, it offers undue advantages to people and has legally and illegally enriched some few privileged ones.

High Interest Rate

Currently, interest rates from the banking sectors hover between 26 – 30%. This is extremely high for a country that wants to develop her Small and Medium Enterprises (SMEs), it discourages both local and foreign investors. High interest rate regime discourages investment, affects economic growth and subsequently results in widespread unemployment especially for the teeming unemployed youths [12]; [1]; [14]. It reduces aggregate demand especially from the household because of its effect in the GDP of the country.

High Rate of Inflation and Policy Inconsistency

Restrictions on the importation of some essential commodities including some agricultural products like food items and other consumables without developing local production or substitute goods contributed significantly to the high inflation rate in the country. Conflict of interest has also worsened government inconsistency, a situation where the minister of finance supports decrease in monetary policy rate and the CBN governor says otherwise has affected the monetary policy. Inconsistencies in economic policies of government has aided the current economic recession and tightened the monetary policy measures with a long run effect of budget deficit [7].

Poor Business Environment and High Taxation

The internal and external factors that affect the operation of business in Nigeria is quite negative; ranging from poor power supply, poor credit facilities, dilapidated infrastructures, loss of investor confidence to double taxation. The economy will strengthen when there is a free flow of economic activities and investors are motivated. Recession presupposes a time where households and businesses are encouraged to hold more cash rather than tax them more. High tax rate regime and or double taxation create an unfavourable business climate [13], lower aggregate demand and slow the economy.

c) Policy Measures and Economic Implications

Nigeria has the potential to become a major player in the global economy by virtue of its human and natural resources endowment, however, this potential has remained relatively untapped over the years. Oil prices continue to drive the economy of Nigeria however, bad economic policies had left the country ill prepared for the recent global collapse in oil prices. This is worsened by poor management of the militancy operation in oil producing area (Niger Delta) which has

drastically reduced the aggregate oil production through pipeline vandalism, kidnapping of oil workers and general unrest. The current administration of President Buhari seem to be aware of the dangers posed by this and has developed a medium term intervention for this purpose through the launch of his Economic Recovery and Growth Plan (ERGP) strictly for restoring economic growth while leveraging on the ingenuity and resilience of the Nigerian people. The ERGP [6] focuses on increasing oil production, privatising selected public enterprises and revamping local refineries to reduce petroleum products importation. In order to implement the plan, the government hopes to collaborate closely with businesses to deepen their investments in the power sector, agriculture, manufacturing, service industry and development of solid minerals with a strong support to the private sector to engineer economic growth and development of the country through innovation, science & technology, competition and productivity. The vision of the ERGP is clearly to ensure a sustainable economic growth, increased public/private sector efficiency, diversification and so on. The outlook for the plan is that by the year 2020, Nigeria would be able to attain, stable macroeconomic environment, transformation in agriculture, job creation and massive youth empowerment, sufficiency of power and petroleum products, improved transport infrastructure, healthy foreign exchange inflows and industrialised economy. Government plan on how to fight corruption, reform public service, promote good governance and ensure adequate security for citizens including measures to evaluate and communicate the progress made towards it are well articulated in the ERGP [6].

d) Ponzi Schemes in Nigeria

Wikipedia defined Ponzi schemes as a fraudulent investment activity where individuals or organisations pay out returns to investors from new capital paid to the operators by new investors, in lieu of the profit earned (through legitimate sources), while the US securities and exchange commission defined it as an investment fraud that involves the payment of purported returns to existing investors from funds contributed by new investors. It is a financial investment that pays abnormally high return on investment strictly sequel to aggressive search and entrance of new members bearing little or no risk at all. Not until recently, Ponzi schemes are not common in Nigeria. Its history dates back to an Italian businessman called Charles Ponzi in the 20th century. He simply developed a system that rewards old investors through the new investors. This idea/business thrives until a time when it will bust (which certainty will). Technically, Ponzi became popular in Nigeria as a result of the recent economic hardship in the country. The operators of the scheme usually enticed new investors by offering a very high return on investment. In most of the Ponzi schemes, the operators

focus on attracting new investors to make good their promised interest to the earlier investors to create the impression that the investment is lucrative and that investors are profiting thereof. Ponzi scheme is mathematically a financial freedom mechanism that is capable of turning around the fortunes of millions of poor cum greedy people only on a condition that system does not collapse. It typifies a system of 'robbing Peter to pay Paul'. The intelligence behind Ponzi scheme is to be foolish and greedy. This suggest that all the investors must continually be re-investing both their initial capital, the interest and consistently persuade new people to join the scheme bearing no risk in order to keep the platform liquid and mutually beneficial. However, this is unfortunately unrealistic, no matter how long it lasts, since there is a possibility of aeroplane crash, chances are that the scheme is bound to fail at some point.

The most popular Ponzi schemes that has dominated Nigerian economy recently with some crashing along the line is listed below;

- i. MMM Nigeria
- ii. Get Help Worldwide (GHW)
- iii. Givers Forum
- iv. Twinkas
- v. NNN Nigeria
- vi. Crowd Rising
- vii. Nairadonation.com
- viii. Ultimate Cyclor
- ix. Zigma
- x. Zarfund

Paradise Payment Nigeria etc

The operations of these schemes are similar and one common feature among them is aggressive search for new members. A stepwise of how it works is as follows;

- a. Convince a few potential investors to put their money in the scheme
- b. After the specified time period, usually one month, return the investment money to the investors plus the agreed interest as profit
- c. Capitalise on the success of earlier investors to convince and entice more investors to trust their money in the scheme
- d. This steps are repeated until a point where the system crashes, in this case, the step b of the cycle is threatened and in lieu of returning the investment money and paying the interest as promised, the operators run away with the invested money.

MMM (Mavrodi Mondial Moneybox) Nigeria is one of the most common Ponzi scheme in Nigeria being part of the MMM Global Community with its origin traced to the purported founder, Sergei Panteleevich Mavrondi of Russia and dates back to 1989. Its operation in Nigeria became popular in November, 2015. It provides a platform that helps millions of participants worldwide to connect with a promise to provide help to others for

free. The money is then transferred to them given by their own goodwill towards others who needed help in the past. Technically one must provide help to a needy before he can receive help with a promise of 30% of whatever amount you provided as help to others after 30 days. Moreover, an additional 10% accrues to individuals for referrals to the scheme to the tune of whatever amount the person was able to provide as help. This sounded very juicy and lucrative for millions of poor and average Nigerian that could barely afford 3 square meals a day. Some people including some organisations invested public monies in the scheme. Subsequently the system collapsed on 14th December, 2016 leaving millions of Nigerians in debt, frustrated and generally poorer. Nigerian Deposit Insurance Scheme [11] estimated that about 3 million Nigerians lost ₦18 billion naira (about \$51.5 million USD) to MMM alone sequel to the crash.

Ultimate Cyclor is the second most popular in Nigeria. It is a peer to peer donation scheme created by Peter Wolfing from US. The scheme with a direct member to member payment plan, has no central account to pay or receive money. It provides a six level matrix one can earn from but can only pay (invest) once with as low as ₦12, 500 less than \$35 USD donated to a sponsor (member) to activate the account. After the member confirms the donation, the system automatically puts four other registered members to pay ₦12, 500 each to the person giving rise to 400% return on investment. This sounded 'too good to be true' for poor Nigerians, unemployed youths and students alike. It was a matter of convincing people to join the platform and fortunately the amount involved is not pocket breaking, at ₦12, 500 a lot of people could afford to bear the risk of loss and give it initial attempt. However, this also crashed on 3rd December, 2016 leaving a great number of people in debt while changing the fortunes of a few very fortunate ones.

In the case of Zarfund, it operates more like teamwork, developed by Hannes Jordaan from South Africa. Its members voluntarily donates to their referral to enable them participate in the programme. Every invited person(s) pay to their referral so it was more like a business of searching for people (investors) who in turn pays the referee.

Givers Forum operates more like the MMM in that every new member provides help to another which subsequently qualifies the person to request and get help with a weekly reward of 10% to the tune of the help provided plus other bonuses attached.

In all these, it is typical that Ponzi scheme is based on aggressive search for new members in the name of investment, the reward is subject to how many people a member is able to bring into the scheme and given a poor economy with people stricken with hunger and greed for quick money, these opportunities are somewhat irresistible to the extent that even the writer

has participated in it despite knowing the inherent dangers given the economic circumstances in the country.

III. RESEARCH METHODS

This exploratory research employed both quantitative and survey design based on the economy and the growth of Ponzi schemes in Nigeria. Interview was conducted across the six geopolitical regions of the country among the youths and civil servants to ascertain peoples' participation in Ponzi. A total of 300 people were interviewed in the six geo-political regions while 600 questionnaires was distributed equally to the six geopolitical zones that make up Nigeria using a five point Likert scale method. This was done to get a holistic view of the growth and impact of Ponzi schemes in Nigeria. The regions comprised of the South East, South South, South West, North East, North West and North Central of Nigeria. The questionnaire was distributed among government workers and students to capture the youths. Out of the 600 questionnaires

distributed, 501 was returned representing 83.5% response rate. A descriptive analysis was conducted to ascertain the percentage of the response in line with the geopolitical zones. A correlation matrix was carried out with the help of gretl to ascertain the level of significance and the relationship between the economy and the growth of Ponzi schemes in Nigeria. A regression analysis was also conducted to test the hypothesis.

A regression model was developed in order to carry out this research;

$$NigEcon = C + \beta_1 PGrowth + \beta_2 PPart + \varepsilon$$

Where NigEcon = Nigerian Economy, PGrowth = Ponzi Growth, PPart = Ponzi Participation, C = Constant and ε = Error term.

IV. RESULTS AND DISCUSSION

a) Descriptive Analysis

The interview was conducted across the six geo-political regions of Nigeria as shown below;

Table 4.1: Distribution of Interview Conducted

Regions	No. of people interviewed	Male	Female	Engaged in Ponzi only once	Engaged in Ponzi repeatedly	Lost Money	Never lost money
South South	50	12%	9%	3%	15%	12%	9%
South East	50	14%	7%	3%	18%	15%	8%
South West	50	12%	8%	5%	16%	12%	7%
North Central	50	11%	5%	3%	12%	10%	6%
North East	50	6%	2%	2%	8%	5%	3%
North West	50	10%	4%	4%	11%	8%	5%
Total	300	65%	35%	20%	80%	62%	38%

Authors' computation

Table 4.1 above shows that 300 people were interviewed in all the geo-political regions of the country. 65% of them were male while 35% were female, 20% participated in Ponzi just once while the remaining 80% repeatedly engaged in Ponzi in all the regions. A total of 62% of the people have lost money in the scheme at one point or the other while 38% never lost money in the scheme. In order to capture the youth and the working population of the economy, the group of people reported in the interview aged between 18 – 35 years old as older people claimed ignorance of the scheme and were generally unwilling to engage in the interview. We excused all the people who do not have knowledge of Ponzi scheme or who have never participated in it (regardless of the age bracket). Analysis of the interview reveals that people from the South Eastern Nigeria engaged more in the scheme representing 18% of the people interviewed in the region. Invariably, they also lost more money in the scheme to the tune of 15% compared to other regions, while the North Eastern part have the least no of people who engaged in the

scheme. This is not unconnected with the restiveness in the area resulting from Boko Haram activity. 38% of the people who claim that they have never lost their investment in Ponzi largely accounts for the percentage who still engage in Ponzi scheme. Out of every 6 people invited for the interview, 3 usually had knowledge of at least 2 Ponzi scheme and at least 2 of them usually agreed to have engaged in at least 1 of the schemes.

The total response rate for the survey as stated earlier is 83.5%. 100 question naire was distributed to each of the six geopolitical regions in Nigeria constituting 16.7% each to make up the 600 copies of questionnaire (Table 4.2).

Table 4.2: Distribution of Questionnaire Administered

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid South South	100	16.7	16.7	16.7
South East	100	16.7	16.7	33.3
South West	100	16.7	16.7	50.0
North Central	100	16.7	16.7	66.7
North East	100	16.7	16.7	83.3
North West	100	16.7	16.7	100.0
Total	600	100.0	100.0	

*Source: Authors' Computation**Table 4.3:* Questionnaire returned

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid South South	91	18.2	18.2	18.2
South East	89	17.8	17.8	35.9
South West	95	19.0	19.0	54.9
North Cental	84	16.8	16.8	71.7
North East	59	11.8	11.8	83.4
North West	83	16.6	16.6	100.0
Total	501	100.0	100.0	

Source: Authors' Computation

Out of the 600 questionnaire, 501 were returned as follows; 91 from South South, 89 from South East, 95 from South West, 84 from North Central, 59 from North East and 83 from North West totalling 501 (Table 4.3). The response rate in North East was the lowest, this could be attributed to the insurgency in the area caused by the activities of Boko Haram in tandem with the interview report.

Table 4.4 shows the age distribution of the respondents, in the table it could be inferred that most

of the respondents are youths (representing 58.2%), this is a reflection of how youths are affected by the economic realities of the country and the resort to Ponzi schemes as an alternative means of survival. This is further confirmed by table 4.5 which shows that BSc/HND holders constitutes the highest number of the respondents at 47.7%.

Table 4.4: Distribution of Respondents by Age

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Below 18 years	61	12.2	12.2	12.2
18 - 25 years	133	26.5	26.5	38.7
26 - 45 years	159	31.7	31.7	70.5
46 - 55 years	83	16.6	16.6	87.0
56 years and Above	65	13.0	13.0	100.0
Total	501	100.0	100.0	

*Source: Authors' Computation**Table 4.5:* Distribution of Respondents by their Highest Qualification

	Frequency	Percent	Valid Percent	Cumulative Percent
SSCE	54	10.8	10.8	10.8
BSc/ HND/Under G	239	47.7	47.7	58.5
MBA, MSc, MPA	109	21.8	21.8	80.2
PhD	99	19.8	19.8	100.0
Total	501	100.0	100.0	

Source: Authors' Computation

The table 4.5 above shows that 99 respondents were PhD holders, this accounts for 19.8% of the total respondents participated in the scheme and were affected one way or the other. The least of the respondents were high school leavers with 10.8% response rate. The second highest group of respondents are Master degree holders, and this accounted for 21.8% of the respondents.

b) *Correlation Analysis*

A correlation matrix was conducted with the help of gretl to analyse the relationship between Nigerian economy and the Ponzi scheme. Table 4.6 explains the result of the relationship.

Table 4.6: Correlation Matrix

Correlation coefficients, using the observations 1 - 501
5% critical value (two-tailed) = 0.0876 for n = 501

Nig Economy	Growth	Participation	
1.0000	-0.7882	-0.8006	Nig Economy
	1.0000	0.8097	Growth
		1.0000	Participation

The correlation matrix shows that Nigerian economy has a strong negative correlation with Ponzi Participation with a correlation coefficient of -0.8006 and also have strong negative correlation with Ponzi Growth. This suggests that as more and more people participated in Ponzi scheme, the economy of Nigeria was negatively affected. This is correct, the nominal improvement in the life of Nigerians engaging in Ponzi otherwise seen as profit does not last. It is usually followed with a crash of the scheme which spells catastrophe for those in it with attendant loss of money. Some people were lured or coerced into it by friends and families for the bonuses it promised and in other not to lose their own money already in the system. However, as more and more people engaged in Ponzi, the scheme gained prominence and more Ponzi schemes sprang up. This participation grew to a point where

some of the schemes like MMM and Ultimate Cycler became a household name. Our investigation shows that one out of every three youths/active civil servant between the age of 18 – 45 had engaged in one of the Ponzi schemes (mostly MMM, Ultimate Cycler, Givers Forum or Helping Hand). It grew/became popular over time as people made a living out of it.

c) *Regression Analysis*

An Ordinary Least Square (OLS) regression was conducted to assess the significance of the relationship between the dependent and the explanatory variables and subsequently test the hypothesis raised for the study. The sets of the explanatory variables are Ponzi Participation and Ponzi Growth while Nigerian economy constitutes the dependent variable. The result of the OLS is shown below;

Table 4.7: OLS Regression Result.

Model 1: OLS, using observations 1-501
Dependent variable: Nig Economy

	Coefficient	Std. Error	t-ratio	p-value	
const	4.71026	0.0585868	80.3979	<0.0001	***
Growth	-0.394739	0.0427854	-9.2260	<0.0001	***
Participation	-0.523081	0.0422367	-12.3845	<0.0001	***
Mean dependent var	1.976048		S.D. dependent var	0.790680	
Sum squared resid	50.45437		S.E. of regression	0.318299	
R-squared	0.838591		Adjusted R-squared	0.837943	
F(2, 498)	1293.667		P-value(F)	5.9e-198	
Log-likelihood	-135.8563		Akaike criterion	277.7125	
Schwarz criterion	290.3623		Hannan-Quinn	282.6759	

Breusch-Pagan test for heteroskedasticity -
Null hypothesis: heteroskedasticity not present
Test statistic: LM = 39.7658
with p-value = P(Chi-square(2) > 39.7658) = 2.31721e-009

Test for normality of residual -
Null hypothesis: error is normally distributed
Test statistic: Chi-square(2) = 9.2031
with p-value = 0.0100362

The regression result in table 4.7 shows that the value of R square for the model with the dependent variable, Nig Economy is 0.838591. This suggests that 83.8% of the variations in the dependent variables is explained by the model. The unexplained variation of 16.2% accounts for the error term in the model. This figure close to 1 suggests that the model is good for the study and the estimates obtained for the variables are reliable.

The OLS shows that the value of Ponzi growth coefficient is -0.394739 . This is significant at all level of significance. In addition, coefficient of Ponzi Participation is -0.523081 and it is also significant at all levels of significance. These finding leads us to the rejection of hypothesis H1 which says that *Nigerian economy has no significant relationship with the Ponzi schemes*. This finding supports the earlier statement that there is a strong negative relationship between Nigerian economy and the growth of Ponzi schemes in Nigeria. The regression coefficient of -0.394739 means that a unit increase in Ponzi scheme growth will result in a -0.394739 decrease in Nigerian economy all other things being equal while -0.523081 coefficient suggests that increase in the number of Ponzi scheme participants by one will lead to a decrease in Nigerian economy by -0.523081 . This further confirms the rejection of hypothesis H1 as the growth of Ponzi schemes affects the economy.

Breusch-Pagan test for heteroskedasticity was conducted to ensure that the variance are constant at different observation and further test the hypothesis. This shows no presence of hetero skedasti city with a p-value of $2.31721e-009 < 0.05$ therefore, the null hypothesis should be rejected. In addition, a Jarque Bera test of normality of residuals was conducted to ensure the validity of the inferential statistics of the regression model. This shows that the residuals are normally distributed with a p-value of $0.0100362 < 0.05$ therefore, the null hypothesis should be rejected.

V. CONCLUSION AND RECOMMENDATIONS

This survey was conducted to examine the economic system in Nigeria and the growth of Ponzi. The Nigerian economy was estimated based on the general welfare of Nigerians, the living standard, spending power and financial buoyancy. This was examined along the participation of people in Ponzi and its attendant growth in order to investigate the current economic crises bedeviling Nigeria in the name of recession.

The findings obtained through the descriptive analysis suggest that 83.5% of the respondents comprised of school leavers (SSCE holders), undergraduates, BSc/HND holders, MBA, MSc, PhD and so on. These groups of people constitute the knowledgeable group to make the findings of the study

reliable. The correlation matrix shows that there is a strong negative and significant relationship (table 4.7) between the growth of Ponzi scheme and the Nigerian economy. In addition, the OLS table leads us to the rejection of the two hypothesis raised for the study based on the significant relationship and the negative effect of Ponzi scheme on the economy found between the growth of Ponzi and the Nigerian economy.

Ponzi scheme has quite played a major role in the lives of average Nigerians by helping to earn 'quick money' without a legal productive means. This improved the disposable income of people (in the short term) and increased their spending power. However, the long term effect on both the individual and the economy is catastrophe. It has affected the banking sector, education sector, employment opportunities/creativity among youths, increased debt and so on. It affected the banking system through deposit withdrawals to invest in Ponzi thereby making the banks less liquid and discouraging savings [17]. The education sector made up of youths took speculative risk to invest their fees in Ponzi in order to raise pocket money and cushion the effect of hardship but ended up losing the investment resulting to school dropout and suspension of studies. It also resulted to loss of creativity and jobs as many Nigerian resorted to the easy or easier way of making money rather than being creative to productive ventures. Ponzi schemes also led many into wanton accumulation of debt as they are paid at the initial stage of the scheme, they could confidently borrow to invest more in it, only to wake up and find that it has crashed midway to their 'anticipated financial freedom'. Generally Ponzi scheme has helped to distribute more poverty in Nigeria than wealth, its effect is systemic and hydra headed. Economic hardship witnessed in Nigeria particularly mid-2015 to date encouraged and continue to encourage the scheme. The immediate cause of Ponzi in Nigeria is unemployment/underemployment and fear of poverty while the remote cause is bad leadership. The hope of an average Nigerian youth about the future appears gloomy. Indeed the future of Nigeria as a whole appears bleak and unsustainable under the current fiscal structure and the only workable antidote to this fear is to restructure its leadership and political structure to open the economy and make it more viable. Restructuring of Nigerian economy into six geopolitical regions to enable resource control and give rise to regional comparative advantage and economies of scale through competition and mass production as well as massive investment in agriculture through industrial farming will rejig the economy and lift it out from its present conundrum. Nigeria is beset with agitations and protests of marginalisation from the regions each calling for a break away. Restructuring will foster accountability and transparency to governance when power and responsibility are devolved closer to the people. This will ultimately enhance leadership quality in the regions and

bring competitive development. A six zone structure will assuage the heightened agitation for secession, heal the wound of marginalisation and quest for resource control, create jobs, foster competition, industrialisation, increase accountability and also bring economies of scale in terms of the ability of the regional governments to mobilise adequate tax revenues and channel them to regional development. These measures will open up the economy and give hope to the younger generation of a secured future through massive employment complemented with proportionate investment in education and skill acquisition

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AUTHORS' CONTRIBUTIONS

Conceived the conceptual framework: AIK. Designed survey strategy and Methodology: AIK, ENI, NBE. Analysis of result: AIK, EEO. Data collection: AIK, ENI. Critically reviewed the manuscript for important intellectual content: AIK, EEO, AEE. All authors read and approved the final version.

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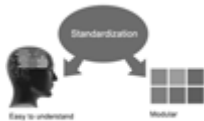


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17. Never use online paper: If you are getting any paper on Internet, then never use it as your research paper because it might be possible that evaluator has already seen it or maybe it is outdated version.

18. Pick a good study spot: To do your research studies always try to pick a spot, which is quiet. Every spot is not for studies. Spot that suits you choose it and proceed further.

19. Know what you know: Always try to know, what you know by making objectives. Else, you will be confused and cannot achieve your target.

20. Use good quality grammar: Always use a good quality grammar and use words that will throw positive impact on evaluator. Use of good quality grammar does not mean to use tough words, that for each word the evaluator has to go through dictionary. Do not start sentence with a conjunction. Do not fragment sentences. Eliminate one-word sentences. Ignore passive voice. Do not ever use a big word when a diminutive one would suffice. Verbs have to be in agreement with their subjects. Prepositions are not expressions to finish sentences with. It is incorrect to ever divide an infinitive. Avoid clichés like the disease. Also, always shun irritating alliteration. Use language that is simple and straight forward. put together a neat summary.

21. Arrangement of information: Each section of the main body should start with an opening sentence and there should be a changeover at the end of the section. Give only valid and powerful arguments to your topic. You may also maintain your arguments with records.

22. Never start in last minute: Always start at right time and give enough time to research work. Leaving everything to the last minute will degrade your paper and spoil your work.

23. Multitasking in research is not good: Doing several things at the same time proves bad habit in case of research activity. Research is an area, where everything has a particular time slot. Divide your research work in parts and do particular part in particular time slot.

24. Never copy others' work: Never copy others' work and give it your name because if evaluator has seen it anywhere you will be in trouble.

25. Take proper rest and food: No matter how many hours you spend for your research activity, if you are not taking care of your health then all your efforts will be in vain. For a quality research, study is must, and this can be done by taking proper rest and food.

26. Go for seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.



27. Refresh your mind after intervals: Try to give rest to your mind by listening to soft music or by sleeping in intervals. This will also improve your memory.

28. Make colleagues: Always try to make colleagues. No matter how sharper or intelligent you are, if you make colleagues you can have several ideas, which will be helpful for your research.

29. Think technically: Always think technically. If anything happens, then search its reasons, its benefits, and demerits.

30. Think and then print: When you will go to print your paper, notice that tables are not be split, headings are not detached from their descriptions, and page sequence is maintained.

31. Adding unnecessary information: Do not add unnecessary information, like, I have used MS Excel to draw graph. Do not add irrelevant and inappropriate material. These all will create superfluous. Foreign terminology and phrases are not apropos. One should NEVER take a broad view. Analogy in script is like feathers on a snake. Not at all use a large word when a very small one would be sufficient. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Amplification is a billion times of inferior quality than sarcasm.

32. Never oversimplify everything: To add material in your research paper, never go for oversimplification. This will definitely irritate the evaluator. Be more or less specific. Also too, by no means, ever use rhythmic redundancies. Contractions aren't essential and shouldn't be there used. Comparisons are as terrible as clichés. Give up ampersands and abbreviations, and so on. Remove commas, that are, not necessary. Parenthetical words however should be together with this in commas. Understatement is all the time the complete best way to put onward earth-shaking thoughts. Give a detailed literary review.

33. Report concluded results: Use concluded results. From raw data, filter the results and then conclude your studies based on measurements and observations taken. Significant figures and appropriate number of decimal places should be used. Parenthetical remarks are prohibitive. Proofread carefully at final stage. In the end give outline to your arguments. Spot out perspectives of further study of this subject. Justify your conclusion by at the bottom of them with sufficient justifications and examples.

34. After conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium through which your research is going to be in print to the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects in your research.

INFORMAL GUIDELINES OF RESEARCH PAPER WRITING

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form, which is presented in the guidelines using the template.
- Please note the criterion for grading the final paper by peer-reviewers.

Final Points:

A purpose of organizing a research paper is to let people to interpret your effort selectively. The journal requires the following sections, submitted in the order listed, each section to start on a new page.

The introduction will be compiled from reference matter and will reflect the design processes or outline of basis that direct you to make study. As you will carry out the process of study, the method and process section will be constructed as like that. The result segment will show related statistics in nearly sequential order and will direct the reviewers next to the similar intellectual paths throughout the data that you took to carry out your study. The discussion section will provide understanding of the data and projections as to the implication of the results. The use of good quality references all through the paper will give the effort trustworthiness by representing an alertness of prior workings.



Writing a research paper is not an easy job no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record keeping are the only means to make straightforward the progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

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- Adhere to recommended page limits

Mistakes to evade

- Insertion a title at the foot of a page with the subsequent text on the next page
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- Submitting a manuscript with pages out of sequence

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- Use standard writing style including articles ("a", "the," etc.)
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- Present your points in sound order
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- Use past tense to describe specific results
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- Shun use of extra pictures - include only those figures essential to presenting results

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Choose a revealing title. It should be short. It should not have non-standard acronyms or abbreviations. It should not exceed two printed lines. It should include the name(s) and address (es) of all authors.



Abstract:

The summary should be two hundred words or less. It should briefly and clearly explain the key findings reported in the manuscript-- must have precise statistics. It should not have abnormal acronyms or abbreviations. It should be logical in itself. Shun citing references at this point.

An abstract is a brief distinct paragraph summary of finished work or work in development. In a minute or less a reviewer can be taught the foundation behind the study, common approach to the problem, relevant results, and significant conclusions or new questions.

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- Fundamental goal
- To the point depiction of the research
- Consequences, including definite statistics - if the consequences are quantitative in nature, account quantitative data; results of any numerical analysis should be reported
- Significant conclusions or questions that track from the research(es)

Approach:

- Single section, and succinct
- As a outline of job done, it is always written in past tense
- A conceptual should situate on its own, and not submit to any other part of the paper such as a form or table
- Center on shortening results - bound background information to a verdict or two, if completely necessary
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- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
- Very for a short time explain the tentative propose and how it skilled the declared objectives.

Approach:

- Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done.
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- Present surroundings information only as desirable in order hold up a situation. The reviewer does not desire to read the whole thing you know about a topic.
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Materials:

- Explain materials individually only if the study is so complex that it saves liberty this way.
- Embrace particular materials, and any tools or provisions that are not frequently found in laboratories.
- Do not take in frequently found.
- If use of a definite type of tools.
- Materials may be reported in a part section or else they may be recognized along with your measures.

Methods:

- Report the method (not particulars of each process that engaged the same methodology)
- Describe the method entirely
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures
- Simplify - details how procedures were completed not how they were exclusively performed on a particular day.
- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

Approach:

- It is embarrassed or not possible to use vigorous voice when documenting methods with no using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result when script up the methods most authors use third person passive voice.
- Use standard style in this and in every other part of the paper - avoid familiar lists, and use full sentences.

What to keep away from

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings - save it for the argument.
- Leave out information that is immaterial to a third party.

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The principle of a results segment is to present and demonstrate your conclusion. Create this part a entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently. You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.



Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or in manuscript form.

What to stay away from

- Do not discuss or infer your outcome, report surroundings information, or try to explain anything.
- Not at all, take in raw data or intermediate calculations in a research manuscript.
- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
- Never confuse figures with tables - there is a difference.

Approach

- As forever, use past tense when you submit to your results, and put the whole thing in a reasonable order.
- Put figures and tables, appropriately numbered, in order at the end of the report
- If you desire, you may place your figures and tables properly within the text of your results part.

Figures and tables

- If you put figures and tables at the end of the details, make certain that they are visibly distinguished from any attach appendix materials, such as raw facts
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- You may propose future guidelines, such as how the experiment might be personalized to accomplish a new idea.
- Give details all of your remarks as much as possible, focus on mechanisms.
- Make a decision if the tentative design sufficiently addressed the theory, and whether or not it was correctly restricted.
- Try to present substitute explanations if sensible alternatives be present.
- One research will not counter an overall question, so maintain the large picture in mind, where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

- When you refer to information, differentiate data generated by your own studies from available information
- Submit to work done by specific persons (including you) in past tense.
- Submit to generally acknowledged facts and main beliefs in present tense.



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<i>Methods and Procedures</i>	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
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<i>References</i>	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring



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