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### *Book Reviews*

- Rajneesh Mahajan
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# From the Desk of the Editor-in-Chief

*"Anyone who has never made a mistake has never tried anything new"*

*Albert Einstein*

The New Education Policy 2019 seeks to address the challenges of access, equity, quality, affordability and accountability faced by the current education system. This policy innovatively rejuvenates the Indian Culture, languages and rich Vedic heritage in the form of commencing Courses and programmes in subjects such as Indology, Indian languages, arts, history, culture, and modern India.

To reiterate the innovative move, it is interesting to note, that the policy emphasizes on looking beyond the teaching of cutting-edge pedagogy ; will include grounding in sociology, history, science, psychology, early childhood education, knowledge of India and its values/ethos/art/traditions, emphasizing that teachers must be grounded in Indian values, languages, knowledge, ethos, and traditions, while also being well-versed in the latest advances in education and pedagogy.

This knowledge is enriched through "Shruti" and "Smriti" and subsequently transferred to generations in oral as well as written form. Para and Apra vidya are two major classifications of the ancient knowledge system, and they collectively represent the entire wisdom of Bharata

Understanding the fact that Education must attempt to nurture the holistic development of human beings which includes intellectual, emotional, physical, social, aesthetic, and spiritual development, the present education system is not completely equipping the younger generation with the knowledge of our roots, traditions, culture and sciences. Let us hope that the NEP 2019 bridges the gap.

Enjoy reading all the articles of the present issue. Looking forward for your valued comments.

**Sanjeev Bansal**

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# The Analysis of the Effect of Microfinance Banks on SME Performance in Kwara State.

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**AdegbiteTajudeen Adejare<sup>1</sup>, Bojuwon Mustapha<sup>2</sup> & Ariyo-Edu AminatArike<sup>3</sup>**

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*This study examined the effect of Microfinance banks on SME performance in Kwara State. Primary data were collected through standardized questionnaire that were administered to entrepreneurs in Kwara state. Three hundred (300) questionnaires were distributed among the respondents out of which 250 gave the response. The data collected were analyzed using descriptive statistics, Chi-square, one way ANOVA and MANOVA to test the hypotheses formulated. The findings revealed that there is significant relationship between microfinance banks and SME in Kwara State and the microfinance banks had positive significant effect on small and medium businesses. It was recommended that MFBs should provide entrepreneurial skill training prior to the provision of credit facilities for the development and growth of SME in Kwara State.*

**Keywords:** Microfinance, Small and Medium Scale Enterprises, Microfinance Institutions and Chi Square. Kwara State, Effect.

## INTRODUCTION

The transformation of Small and Medium Enterprises (SME) in Nigeria is bifurcated to employment generation and improvement in the living condition. The small and medium business entrepreneurs are inadequate with necessary financial service, especially credit from the commercial bank. Consequently, they relied on families, friends, and other informal sources of funds (daily contributions) to finance their businesses. A major blockade to speedy development of the SME sector is inadequate access to both debt and equity financing. Accessing finance has been identified as a paramount element for SMEs to succeed in their initiative to build productive capacity, to compete, to create jobs and to contribute to poverty lessening in country. Small and medium business especially in Nigeria can rarely meet the conditions set by financial institutions, which considered SMEs as a risk because of deplorable guarantees and collateral security to repay loans. Without finance, SMEs cannot procure or absorb new technologies nor can they expand to compete in global markets (UNCTAD, 2002). Many reasons are assumed to be responsible for the denial of loans and equity fund to SMEs by commercial banks. According to Nixon and Cook (2005), poor management and accounting practices are hampering the ability of smaller enterprises to raise finance. This is coupled with the fact that small and medium businesses are mostly owned by individuals whose personal lifestyle may



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## The Analysis of the Effect of Microfinance Banks on SME Performance in Kwara State.

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have far reaching effects on the operations and sustainability of such businesses. As a consequence of the ownership structure, some of these businesses are unstable and may not guarantee returns in the long run. According to Kauffmann (2005), access to formal finance is poor because of the high risk of default among SMEs and due to inadequate financial facilities.

Successive governments have come up with special programs, whose principal targets are the overall empowerment of low income earners in urban centers. These programs range from agricultural development project (ADPs), the establishment of agricultural credit Banks to better life program for rural women and the like. Unfortunately most of the programs failed to achieve the desired result which led to the advent of microfinance banks which aimed at extending credits to micro enterprises and encouraging entrepreneurship. Microfinance contributes greatly in the enhancement of small and medium businesses in the country. It also serves as a source where loans are granted to small and medium businesses for survival and continuity. A microfinance banks are saddle with the responsibility to extending micro-loans to businesses and organizations in low-income. In addition, microfinance banks provide credit and loans to small and medium businesses so as to enhance their development, and provide tools to entrepreneurs to fulfill their passions, in all attempt to assuage poverty in the country. To eradicate poverty and high rate of unemployment, the need for microfinance support cannot be over emphasized and under estimated in Kwara state. Most people in Kwara state dependent on microfinance to finance their businesses because of the accessibility to loan and lesser interest rate compare to commercial bank. In the light of the foregoing, this study examined the effect of microfinance banks on the performance of small and medium businesses in Kwara State.

### *Research objectives*

The main objective of this study examined the effect of microfinance banks on the performance of small and medium businesses in Kwara State. Specific objectives are to:

- i. analyse the relationship between microfinance banks and small and medium businesses in Kwara State
- ii. determine impact of microfinance banks on small and medium scale businesses
- iii. appraise the benefits of

### *Research Hypotheses*

The following hypotheses were tested in the study

**Ho1:** There is no significant relationship between microfinance banks and small and medium businesses in Kwara State.

**Ho2:** Microfinance credit do not have impact on small and medium scale businesses.

## LITERATURE REVIEW

### *Small and Medium Enterprises and its importance*

SME remains one of the most reviewed topics in literature, especially as its impact on all kindeconomies cannot be overlooked. World-wide, the SMEs have been accepted as the engine of economic growth and for promoting equitable development. SME created more 90% employment in the country.

Socially, small and medium scale enterprises have engendered the well-being of the state through the provision of social amenities in the rural areas where most of these industries are situated. Politically, it has enabled both state and local government to explain and expired the abundant human and material resources that are bound in all houses and corner of the state. The most prominent among the

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roles played by small and medium enterprises is the producing of goods and service for both end users and intermediaries. These industries provide finishes goods for the individuals use and for the use of large scale industries. It also produces the same materials for the medium scale industries, some of when act as intermediaries between the small scale and large scale industries.

Given the needed financial support, small and medium businesses ensure income stability, growth and development. The colossal contribution that the small and medium businesses have made to the economic development of various countries of the world especially the developing country cannot be exhausted. Unemployment is the greatest threat to economic growth and development. Therefore proliferation of virile small and medium businesses serves as an antidote to large scale unemployment.

A growing economy tends to provide and create opportunities for the small and medium firms. Small and medium firms not only provide a production outlet for enterprising and independent people, but they are also the most efficient form of business organization in industries where the option size of the production unit or sales outlet is small. In other developed countries apart from Nigeria, they also realize the importance of small and medium scale industries and because it attached much importance to its economy development. Small and medium scale industries occupy a strategy position not only in Kwara state economy but also in the economy of any other state. The philosophy and rationale behind the creation of these industries cannot be over emphasized. The presence of these industries has been felt tremendously especially in the economic social and political development of the state. Economically, small and medium scale enterprises have helped to produce goods and services that are requisite to the viability of the state. Even when the federal

government structural adjustment programme (SAP) is in progress, these industries have enhanced the spirit of self-sufficiency among local government areas towards the economic development of the state.

### *Operations of Microfinance Banks in Nigeria*

Micro finance refers to the provision of financial services to poor or low income clients including consumers and the self-employed. Micro finance was defined by Ana (2008) quoting Gert Van Manner, a micro finance expert as banking the unbankable, bringing credit, savings and other essential financial services within the reach of hundreds or millions of people who are too poor to be served by regular banks in most cases because they are unable to offer sufficient collateral. A microfinance bank can be defined as the bank for the poor. It means investing in the income generating activities of the poor. Microfinance bank is meant for those who cannot be efficiently served by regular commercial, universal or merchant banks because their activities and volumes are too low to warrant the high cost of services by big institutions (Ana, 2008).

In order to enhance the accessibility of financial services to poor Nigerians in both rural and urban areas, Government has, in the past, initiated series of publicly-financed micro/rural credit programmes with the mandate of providing financial services to alleviate poverty and for improved standard of living of the poor in both rural and urban areas of the Country. However, none of these programmes achieved its objective because of the level of corruption in the system and other factors that inhibited the performance of the programmes. According to CBN (2005), 'microfinance is about providing financial services to the poor who are traditionally not served by the conventional financial institutions.

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As a result of provision of financial services to about 35% of the economically active population while the remaining 65% are excluded from access to financial services from formal financial system, government introduced Microfinance banks in order to make accessible the financial services to the poor. The practice of microfinance in Nigeria has been in existence for over decades, but they have been informal. Hence, Onoyere (2014) said that the practice of microfinance in Nigeria is culturally rooted and dates back several centuries. The traditional microfinance institutions provide access to credit for the rural and urban, low-income earners. The launching of the microfinance policy, regulation, and supervisory framework guideline was launched by the Central Bank Nigeria in 2005 and were licensed to begin operations in 2007.

Ana (2008) said that microfinance banking in Nigeria is guided by the microfinance regulatory policy and guideline of 2005. No micro banker may, therefore, operate outside the dictates of this policy. The microfinance banks in Nigeria were made up of community banks and Microfinance -NGO that met with the requirements Central Bank of Nigeria. In Nigeria, microfinance can be owned by government, individual, group. Hence, Acha (2012), maintain that the point of divergence between the community banks and their microfinance successors is in those which the regulatory guideline allows to own them. In addition to individuals, group of individuals, community development associations, private corporate entities which could own community banks, commercial banks and foreign investors could also own microfinance banks.

### ***Benefits of Microfinance Banks on Small and Medium Enterprises***

- a) Microfinance banks enhance the capacity of the poor for entrepreneurship significantly through the provision of microfinance services to enable

them engage in economic activities and be more self-reliant; increase employment opportunities, enhance household income, and create wealth

- b) Microfinance banks expand the financial infrastructure of the country to meet the financial requirements of the Micro, Small and Medium Enterprises (MSMEs). This also creates a vibrant microfinance sub-sector that would be adequately integrated into the mainstream of the national financial system and provide the stimulus for growth and development. It harmonizes operating standards and provides a strategic platform for the evolution of microfinance institutions.
- c) The problems of poverty and unemployment can be solved vigorously through microfinance policy, regulatory and supervisory framework for the Nigerian economy.
- d) Microfinance encourage savings and investment opportunities and contribute to the growth of the Nation's economy

### ***Review of Related Empirical Literatures***

Akande (2015) examined the Impact of Micro Finance Banks on Entrepreneurship development in Lagos state. One hundred and Twenty (120) Questionnaires were administered and distributed to registered SMEs in Lagos state. One hundred and Four (104) Questionnaires were retrieved which representing 86% of the total questionnaire distributed. Data collected from the questionnaire were analyzed, summarized, and interpreted accordingly employed descriptive statistical technique. A non-parametric statistical test; Chi-square was used to test the formulated hypothesis. Based on the findings of this study, it is concluded that Effectiveness and efficiency on the part of the Micro finance banks has positive Influence on Entrepreneur Development. However this study was conducted in Lagos state not in Kwara state.



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Therefore the results cannot be extended to Kwara state.

Bello and Mohammed (2015) examined the impact of banking sector credit on the growth of small and medium enterprises in Nigeria. The study investigated whether banking sector credit has significant impact on the growth of small and medium enterprises in Nigeria. Data were collected from 1985 to 2010 using descriptive statistics, correlation matrix and error correction model to test the formulated hypotheses which discloses that banking sector credit has positive significant impact on the growth of small and medium enterprises in Nigeria. However this study employed correlation and error correction model not ANOVA and MANOVA

Ashamu (2014) studied the performance of Micro finance Institutions (MFIS) on the development of small and medium Scale Industry in Lagos State. Simple random sampling technique was employed in selecting the 110 SMEs that constituted the sample size of the research. Questionnaire were designed and structured to simplify the collection of relevant data. Descriptive statistics which involved percentage and Chi-square were engaged for analysis. The study concluded that operations of MFIs have grown marvelously which had been extended to SMEs in terms of financial assistance which ultimately enhanced SMEs' performance. However, this study was limited to Lagos state not Kwara state, therefore, the result cannot be generalized.

Ojo (2009) analyzed the impact of Microfinance on Entrepreneurial Development in Nigeria using Lagos state as a case study. Primary data were adopted which were analyzed using tables and simple percentages. Entrepreneurial development was taken as dependent variable while independent variable was microfinance institutions. Three different hypotheses were tested and analysed

using various statistical tools such as chi square, analysis of variance and simple regression analysis. The study presumed that there is a significant effect of microfinance institutions activities in success of entrepreneurial development. Nevertheless, this study was confined to Lagos state not Kwara state. The results cannot be given wider perspective.

From the review of previous works, the gaps identified are scope, methodology and conceptual gap. This is because majority of the studies seen and reviewed are conducted in Lagos State with different scope, methodology and concepts, and the findings may not be generalized in wider perspectives. Thus, this study is exclusive and anticipates to contribute to knowledge by examining the effect of microfinance banks on the performance of small and medium businesses in Kwara State.

## METHODOLOGY

Primary data were collected through standardized questionnaire that were administered to entrepreneurs in Kwara State. Three hundred (300) questionnaires were distributed among the respondents out of which 250 were returned. The study employed five -point Likert scale ranging from 1= strongly disagree, 2= disagree, 3= undecided, 4= agree, and 5= strongly agree. Data collected were analyzed using descriptive statistics, Chi-square, one way ANOVA and MANOVA to test the hypotheses formulated.

$$\chi^2 = \sum \frac{k}{ei} \left( \frac{O_i - e_i}{ei} \right)$$

Where  $i=1$ ,  $O_i$  = observed frequency,  $e_i$  = expected frequency.

The degree of freedom =  $(r-1)(k-1)$ . Where

$r$  = no of rows,  $K$  = no of columns ( $oi - ei$ )

$i$  = constant value.

## The Analysis of the Effect of Microfinance Banks on SME Performance in Kwara State.

### RESULTS AND DISCUSSION

Table 1- Analysis of the effect of Microfinance Banks on the SME Performance in Kwara State							
S/N	Responses & Likert Rating	SA	A	N	D	SD	TOTAL
1	The introduction of microfinance banks improve the strategy of SME development in Nigeria especially in Kwara State.	91 (36.40%)	65 (26.00%)	10 (4.00%)	64 (25.60%)	20 (8.00%)	250 (100%)
2	Microfinance banks are accepted as an essential tool for promoting SME.	74 (29.60%)	137 (54.80%)	27 (10.00%)	12 (4.00%)	00 (0.00%)	250 (100%)
3	The aim of establishing Microfinance banks by Central Bank of Nigeria is to make financial services accessible to SME.	73 (29.20%)	102 (40.00%)	65 (26.00%)	10 (4.00%)	00 (0.00%)	250 (100%)
4	Microfinance banks differ from formal banks in various respects these include: absence of collateral; simplicity of operation; institutional role to connect the poor and underprivileged of society in developing countries	101 (40.00%)	127 (50.00%)	14 (5.60%)	8 (3.20%)	00 (0.00%)	250 (100%)
5	Microfinance is described also as banking for the SME.	98 (39.20%)	135 (54.00%)	02 (0.80%)	14 (5.60%)	01 (0.40%)	250 (100%)
6	The SME improve economic development in Nigeria.	66 (26.40%)	76 (30.40%)	03 (1.20%)	100 (40.00%)	05 (2.00%)	250 (100%)
7	SME are acknowledged having huge potential for employment generation and wealth creation in any economy	65 (26.00%)	168 (67.20%)	04 (1.60%)	10 (4.00%)	03 (1.20%)	250 (100%)
8	Microfinance banks render microfinance services to SME.	76 (30.40%)	169 (67.60%)	03 (1.20%)	02 (0.80%)	00 (0.00%)	250 (100%)
9	SME are believed to be the engine room for the development of any economy	85 (34.00%)	133 (53.20%)	21 (8.40%)	07 (2.80%)	04 (1.60%)	250 (100%)
10	MFB encourage people at the grassroots to cultivate the habit of saving in the bank so that, they can have direct access to loan.	88 (35.20%)	130 (52.00%)	25 (10.00%)	05 (2.00%)	02 (0.80%)	250 (100%)
11	Microfinance banks are mandated by their regulator to organize seminars for entrepreneurs so as to enlighten them about their businesses.	44 (17.60%)	186 (74.40%)	03 (1.20%)	13 (5.20%)	04 (1.60%)	250 (100%)
12	SME increases the national level of output.	16 (6.40%)	171 (68.40%)	19 (7.60%)	40 (16.00%)	04 (1.60%)	250 (100%)

Note: - The bracket figures indicate the percentage and figures not bracket indicate frequency. Source: - Authors' field survey (2018).

From table 1, 36.40% of the respondents strongly agree that the introduction of MFB improve the strategy of SME development in Kwara, 26.00% agree, 4.0% were not sure 25.6% disagree, and 8.0%strongly disagree. This indicates that MFB

improve the strategy of SME development in Kwara State. Also, 29.60%of the respondents strongly agree that MFB are accepted as an essential tool for promoting SME, 54.80% agree, 10.80% were not sure, 4.80% disagree and 0.00% strongly disagree. This

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## The Analysis of the Effect of Microfinance Banks on SME Performance in Kwara State.

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indicates that MBF is an essential tool for promoting SME. However, 29.20% of the respondents strongly agree that the aim of establishing MFB by CBN is to make financial services accessible to SME, 40.8% agree, 26.00% were not sure, 4.0% disagree and 0.00% strongly disagreed. This implies that the aim of establishing MFB by CBN is to make financial services accessible to SME.

Furthermore, 40.40% of the respondents strongly agree that MFB differs from formal banks, 50.80% agree, 5.60% not sure, 3.20% disagree and 0.00% strongly disagreed. This indicates that MFB differ from formal banks. More so, 39.20% of the respondents strongly agree that MFB is described as banking for SME, 54.00% agree, 0.80% were not sure, 5.60% disagreed and 0.40% strongly disagreed. This implies that MBF is described as banking for SME. Moreover, 26.40% of the respondents strongly agree that SME improve economic development in Kwara State, 30.40% agree, 1.20% were not sure, 40.00% disagree, and 2.00% strongly disagree. This indicates that SME improve economic development in Kwara State. In addition, 26.0% of the respondents strongly agree SME are acknowledged having potential for employment generation and wealth creation in any economy, 67.20% agree, 1.60% were not sure, 4.00% disagree, and 1.20% strongly disagree. This indicates that SME are acknowledged having potential for employment generation and wealth creation in any economy. Results showed that 30.40% of the respondents strongly agree that MFB render microfinance services to SME, 67.60% agree, 1.20% were not sure, 0.80% disagree, and 0.00% strongly disagree. This indicates that MFB render microfinance services to SME.

It is also deduced that 34.00% of the respondents strongly agree that SME believed to be the engine room for development of any economy, 53.20% agree, 8.40% were not sure, 2.00% disagree, and 1.00% strongly disagree. This indicates that SME believed to be the engine room for development of any economy. Also, 5.60% of the respondents

strongly agree that MFB encourage people at grass-root to cultivate the habit of saving in the banks so that they can have direct access to loan, 29.60% agree, 52.00% were not sure, 10.00% disagree, and 2.00% strongly disagree. This indicates that people at grass-root do not cultivate the habit of saving in the banks so that they can have direct access to loan.

Result revealed that 17.60% of the respondents strongly agree that MFB are mandated by their regulators to organize seminars for entrepreneurs so as to enlighten them about their business, 74.40% agree, 1.20% were not sure, 5.20% disagree, and 1.60% strongly disagree. This indicates that MFB are mandated by their regulators to organize seminars for entrepreneurs so as to enlighten them about their business. Lastly, 6.40% of the respondents strongly agree that SME increases the national level of output, 68.40% agree, 7.00% were not sure, 16.00% disagree, and 1.60% strongly disagree. This indicates that SME increases the national level of output.

From table 2, in testing hypothesis, the minimum chi-square calculated is 31.3908 ( $\chi^2 - \text{cal}$ ) is greater than chi-square tabulated 3.74 ( $\chi^2 - \text{tab}$ ) which make all the figures to be highly significant with  $\text{Pr}(\text{value})$  equal to 0.000. Collectively, the null hypothesis that microfinance banks has no effect on small and medium businesses in Kwara State is rejected. Therefore the alternative hypothesis is accepted that microfinance banks has effect on small and medium businesses in Kwara State.

From Table 3, it can be deduced that Microfinance Banks have significant impact on SME Performance in Kwara State. This is reflected in the results:  $f(249) = 8.64$ ,  $p = .0000$ . That is, significance value (.0000) was found to be less than the alpha value (0.05). Therefore, the hypothesis which stated that microfinance banks do not have impact on small and medium scale performance is rejected. Therefore the alternative hypothesis is accepted that microfinance banks have impact on small and medium scale performance.

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## The Analysis of the Effect of Microfinance Banks on SME Performance in Kwara State.

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Table 2- Analysis of effect of Microfinance Banks on SME performance in Kwara State				
S/N	Relationship	Pearson chi-square	Pr(value)	Remark
1	Strategy	65.7384	0.000	Significant
2	Essential Tool	48.6640	0.000	Significant
3	Financial Services	164.2994	0.000	Significant
4	Formal Banks	74.2032	0.000	Significant
5	Banking	31.3908	0.012	Significant
6	Economic Development	65.4494	0.000	Significant
7	Employment generation	92.4146	0.000	Significant
8	Microfinance services	61.5349	0.000	Significant
9	Engine room	127.7257	0.000	Significant
10	Direct access	225.2785	0.000	Significant
11	Organise seminars	128.0397	0.000	Significant
12	Level of output	48.7462	0.000	Significant

Source: Authors' Computations (2018) and output of STATA 12 based on

Table 3: One-Way ANOVA on Analysis of effect of Microfinance banks on SME performance in Kwara State						
Source	Sum of Square	Df	Mean Square	F	Sig	Remark
Between groups	46.8342945	3	15.6114315	8.64	.0000	Rejected
Within groups	444.369705	246	1.80638092			
Total	491.204	249	1.97270683			

Authors' Computations (2018)

Table 4: MANOVA on Analysis of effect of Microfinance banks on SME performance in Kwara State							
Source	Statistic		Df	F(df1, df2)	F	Prob>F	
Microfinance Banks	W	0.9328	4	8.0	488.0	25.01	0.0292 a
	P	0.0683		8.0	490.0	15.10	0.0289 a
	R	0.0477		8.0	486.0	18.45	0.0296 a
	L	0.0477		4.0	245.0	55.78	0.0217 u
Residual			245	Number of obs = 250			
Total			249				

Dependent variable = SME Performance. Source: MANOVA using STATA 12

W = Wilks' lambda, L = Lawley-Hotelling trace, P = Pillai's trace, R = Roy's largest root

e = exact, a = approximate, u = upper bound on F

To confirm the effect of Microfinance banks on SME performance in Kwara State by the outcome of Chi-square and ANOVA stated above, the Multivariate analysis of variance and covariance (MANOVA) was also employed. From table 4 above, according to

Wilks' lambda (W) statistic, 1% increases in Microfinance banks increases SME performance by 0.93%. Also, with reference to Pillai's trace statistic, 1% increase in Microfinance banks increases SME performance by 0.06%. In addition,

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## The Analysis of the Effect of Microfinance Banks on SME Performance in Kwara State.

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with the outcome of Lawley-Hotelling trace (L) and Roy's largest root (R) statistic, 1% increase in Microfinance banks also increases SME performance by 0.047%. The entire statistic outcomes suggest the positive significant effect of Microfinance banks on SME performance. This is also supported by F statistic and probability of F (Prob>F) equal to 0.0292, 0.0289, 0.0296 and 0.0217.

## CONCLUSION AND RECOMMENDATIONS

The study analysed the effect of Microfinance Banks on the SME Performance in Kwara State. It employed Chi-square, ANOVA and MANOVA to examine the effect of MFB on SME performance. MFB provides financial services to SME and has been helpful in the development and growth of SME in Kwara State. It is concluded that MFB has positive significant effect on SME performance in Kwara State. It is recommended that MFB should provide entrepreneurial skill training prior to the provision of credit facilities for the development and growth of SME in Kwara State. Most of the entrepreneurs complained that the credit facilities provided for the initiation and expansion of their businesses is too small therefore it is recommended that people at the grass root should increase their patronage of savings with MFB so that sufficient and adequate credit facilities would be provided to them.

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# Global Competitiveness Index & Its Impact: Evidence from South Asian Region

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*This study seeks to examine whether the competitiveness drivers (sub-index) i.e. basic requirements, efficiency enhancers and innovation & sophistication may influence the global competitiveness index (GCI) of the south Asian countries. To examine the above issue five south Asian countries are considered. The yearly scores of GCI, basic requirements, efficiency enhancers and innovation and sophistication factors are collected from the published reports of the world economic forum from 2010-2011 to 2016-2017. Here, panel data approach is used and found that fixed effect model is appropriate to explain the GCI function of the south Asian countries.*

**Keywords:** GCI, WEF, Competitiveness, Basic Requirements, Indicators

**Gel Code:** C1, C10

## INTRODUCTION

Competitiveness is one of the most central preoccupations for both advanced and developing countries (Porter, 1990) and “policy makers express serious concerns about it” (Lall 2001). It is the set of institutions, policies, and factors that determine the level of productivity of an economy, which in turn sets the level of prosperity that the country can achieve. The original idea of Klaus Schwab (1979) about Global Competitiveness Index (GCI) is developed by Xavier Sala-i-Martin and published it in first in 2005 in collaboration with World Economic Forum (WEF). The GCI unites 114 indicators that capture concepts regarding productivity and long-term prosperity. These components are grouped into 12 pillars of competitiveness such as (1) institutions, (2) infrastructure, (3) macroeconomic environment, (4) health and primary education, (5) higher education and training, (6) goods market efficiency, (7) labour market efficiency, (8) financial market development, (9) technological readiness, (10) market size, (11) business sophistication, and (12) innovation and each of them highlights on different aspect. Again, these 12 pillars are categorized into three sub-indices i.e. basic requirements (1-4), efficiency enhancers (5-10), and innovation & sophistication (11-12). The three sub-indices are given different weights for the computation of GCI and divides countries based on their stages of development. GCI assumes that, in the first stage the economy is factor-driven where first four pillars under basic requirements are developed. The

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efficiency enhancers include those pillars which are important for the countries at the efficiency-driven stage and the innovation & sophistication sub-index includes those pillars which are critical to countries in the innovation-driven stage. The present study focuses the impact of three sub-indices on GCI of the South Asian Region countries. South Asian is characterized by great diversity and includes one of the World's ten largest economies.

### LITERATURE REVIEW

Due to increasing importance of global competitiveness in the understanding of contemporary economic and development issues, the researchers examine the relationship of the concept with various factors that influence it. It has become common to describe economic strength of an entity with respect to its competitors in the global market economy in which goods, services, people, skills, and ideas move freely across the geographical borders (Saboniene 2009; Malakauskaite & Navickas 2010). According to D'Cruz in 1992 defines competitiveness is the ability of a firm to design, produce and or market products superior to those offered by competitors, considering the price and non-price qualities. Some researchers (Barney & Hesterly 2001; Snieska & Draksaitė 2007) observe that in changing business scenario some factors like business environment, dynamic capabilities, flexibilities, agility, speed, and adaptability are becoming more important sources of competitiveness. National competitiveness is one of the most important preoccupations for both advance and developing nations (Porter 1990) and policy makers express serious concerns about it (Lall 2001). Berger in 2008 identifies four main but very different theoretical constructs for national competitiveness and they have large divergences. According to Berger, another fifth concept of national competitiveness exists based on Porter's diamond model and its extended version. Although, the diamond model has been widely applied to examine the competitiveness of different nations. According

to Smith (2010), the weak aspects of Porter's model have been pointed out both by scholars of management and economics (Dunning 1992 & 1993; Rugman 1990 & 1991; Rugman & Verbeke 1993; Waverman 1995; Boltho 1996; Davies & Ellis 2000). While, the methodology used by World Economic Forum is very closely related to Porter's diamond model. It defines country competitiveness is the "set of institutions, policies, and factors that determine the level of productivity of a country" (Schwab, 2016).

GCI allows for several analysis levels when evaluating economic performance of the nations. Although, its application start with the firm level and it evaluates performance on the national, regional and global markets (see Hvidt 2013; Fagerberg 1996; Roessner, Porter, Newman & Cauffiel, 1996). In 2011, Silke explains global competitiveness is the ability of the countries to provide high levels of prosperity to their citizens. Measuring the global competitiveness entails quantifying the impact of various key factors that contribute to the creation of conditions for competitiveness. According to Helleiner (2008), global competitiveness measures the policies and factors that contribute to sustainable economic prosperity. Hertog in 2011 says that it is significantly influenced by the way in which a nation uses the resources that it has. A more realistic definition is given by Alvarez et al., in 2009 that global competitiveness is the ability of the country to compete in global trade by exporting its products and thus competitiveness is considered in relations to the productivity and the growth of the nation. In 2011, Colton remarks that the concept of global competitiveness has come out as a new paradigm in economic performance studies. It is being used to capture the awareness of the threats and challenges that are caused by competition that occurs at the global level. It also helps to evaluate the performance of the institutions, factors and policies that significantly influence a nation's productivity levels.

Alfaki & Ahmed (2013) evaluate the relationship

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between global competitiveness and technological readiness in the Gulf region by focusing on the United Arab Emirates (See also Aleksandra & Magdalena 2016). They observe that UAE has achieved immense success in technological readiness in terms of its Global Competitiveness Index (GCI). In a study by Wysokińska (2003), examines the concept of global competitiveness in terms of productivity levels and sustainable development in CEE and European Union. He observes that higher productivity leads to improve competitiveness in the global as well as local markets. Taner, Oncü, & Çivi (2010) also evaluates the performance of GCC nations based on international competitiveness. He concludes that the concept of global competitiveness is very multifaceted because of the wide array of indicators and factors that influence it.

Most of the existing literature, the concept of global competitiveness has been evaluated by looking at how it is influenced by specific economic parameters such as productivity levels (Wysokińska, 2003), trade balances, national economic performance (Taner et al., 2010) and technological readiness (Alfaki & Ahmed, 2013). Although, these parameters and variables have been effectively used to examine the factors that influence global competitiveness. The earlier studies basically deal with various definitions about GCI and search for different factors for formulating GCI. Some of the studies examine the impact of few factors like productivity, trade balances, economic growth and GDP etc on GCI. The present study examines the impact of three main sub-indices such as basic requirements, efficiency enhancers and innovation & sophistication on GCI on South Asian countries' / Economics. Currently, no study has been conducted to evaluate the impact of three sub-indices on GCI of South Asian countries.

The paper is organized as follows. The next section deals with details discussion about literature. Section 3 deals with objective. Data & study period is given in Section 4. Section 5 opens up the methodological part. Section 6 analyses the results

and the remaining section deals with conclusion and recommendation.

### OBJECTIVE OF THE STUDY

The study is designed to achieve whether Global Competitive Index (GCI) depends on the competitiveness drivers such as Basic Requirements (BR), Economic Enhancers (EE) and Innovation & Sophistication? The study also analyses the comparative performances of the south Asian regions.

### DATA AND STUDY PERIOD

The study uses yearly score of Global Competitive Index (GCI) and its one sub-index particularly Basic Requirements (BR). The study covers South Asian Economics. According to the GCI report (2016-2017) there are 6 countries or economics provided by World Economic Forum. Here five (5) countries are considered because data relating to annual scores of Bhutan is not available for all the years. The study period covers from 2010-2011 to 2016-2017 and the annual score of five (5) countries regarding GCI and its sub-indices is collected from the website of World Economic Forum (Secondary source).

### METHODOLOGY

In order to examine the impact of Global Competitive Index (GCI) on sub-index particularly Basic Requirement (BR) or in other words how the GCI depends on BR. To examine this issue panel data regression model is applied. Here, GCI is the countries' competitive performance indicator that depends on the performances of the remaining independent indicators. There are six cross-sectional units (Countries/economics) and seven time periods (2010-2011, 2011-2012, 2012-2013, 2013-2014, 2014-2015, 2015-2016 & 2016-2017). Therefore, the study consists of ( $N \times T = 5 \times 7$ ) 35 observations. In other words, five countries are followed by seven years and sampled annually. If each cross-sectional unit has the same number of time series



observations, then such a panel data is called balanced panel. In our case we have a balanced panel, as each country in the sample has seven (7) observations. A prior, GCI is expected to be positively related to BR, EE and IS. Polling, or combining, all 35 observations, the basic model of the determinants of GCI is the following:

$$GCI_{it} = \alpha_{1i} + \beta_1 BR_{it} + \beta_2 EE_{it} + \beta_3 IS_{it} + e_{it} \quad (1)$$

Here  $i$  and  $t$  refer to cross-sectional and time series aspects of data, respectively. As the number of cross-sectional units ( $N$ ) is 5 and number of years ( $T$ ) is 7, we have 35 observations on each variable ( $NT = 35$ ). As,  $e_{it}$  is the disturbance term that is assumed to be independently and identically distributed [ $e_{it} \sim i.i.d. (0, \sigma^2)$ ].

### ***Estimation of panel data regression model***

To estimate regression equation 1, there are three important approaches, which are Constant Coefficients Model (CCM), Fixed Effects Model (FEM) and Random Effects Model (REM). These models differ with regard to the assumptions that are made about the intercept, the slope coefficients and the disturbance term of model 1. In this study, CCM model is not considered because it is assumed that all coefficients remain unchanged across cross-sectional units, and over time which is not realistic. In other words, the CCM ignores the space and time dimensions of panel data set. In reality, the homogeneity assumption may not be true, and different cross-sectional units may have different values for intercept and / or slope coefficients and thus this model are not considered here. However, this problem can be avoided by fixed effects model (FEM) or the random effects model (REM). These two models seek to make a more rational specification of the model such that the heterogeneity among the cross-sectional units is explicitly recognized, although the methods of doing so are different. In any case, these models are viewed as proper panel data models.

### ***Fixed Effects Model***

The fixed effect or LSDV model allows for heterogeneity or individuality among 5 countries by allowing its own intercept value. The term fixed effect is due to the fact that although the intercept may differ across countries, but intercept doesn't vary over time, that is it is time invariant.

According to the equation 1,  $GCI_{it}$  = Global Competitive Index of  $i^{th}$  country in the time period " $t$ ".  $BR_{it}$  = Is the vector of the control variables such as institutions, Infrastructure, macro-economic environment and health & primary education.  $EE_{it}$  = Is the vector of control variable such as higher education & training, goods market efficiency, labour market efficiency, financial market development, technological readiness and market size.  $IS_{it}$  = Is another vector of control variable that includes business sophistication and R&D innovation.  $e_{it}$  = random error term.

### ***Random Effects Model***

The Random Effects Model (REM) doesn't use dummy variables to capture the presence of individual effect (here, country). If the dummy variables do in fact represent a lack of knowledge about the (true) model, why not express this ignorance through the disturbance term  $e_{it}$ ? This is precisely the approach suggested by the proponents of the so-called error components model (ECM) or random effects model (REM).

The basic idea is to start with model 1:

$$GCI_{it} = \alpha_{1i} + \beta_1 BR_{it} + \beta_2 EE_{it} + \beta_3 IS_{it} + e_{it} \quad (2)$$

Instead of treating  $\alpha_{1i}$  as fixed, here it is assumed that the individual effect is a random variable with a mean value of  $\alpha_1$ . Then the intercept of  $i^{th}$  cross-sectional unit can be expressed as under:

$$\alpha_{1i} = \alpha_1 + \mu_i \quad i=1,2,\dots,5 \quad (3)$$

Where  $\mu_i$  is a random error term with a mean value of zero and variance of  $\sigma^2_{\mu}$ . The study considers sixteen countries and they have a common mean value for



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the intercept ( $=\alpha_i$ ) and the individual differences in the intercept values of each country are reflected in the error term  $\mu_i$ .

Now substituting equation 3 into equation 2, we obtain:

$$GCI_{it} = \alpha_i + \beta_1 BR_{it} + \beta_2 EE_{it} + \beta_3 IS_{it} + \mu_i + e_{it} \quad (4)$$

$$= \alpha_i + \beta_1 BR_{it} + \beta_2 EE_{it} + \beta_3 IS_{it} + \omega_{it} \quad (5)$$

Where,  $\omega_{it} = \mu_i + e_{it}$  is the composite error term that has two components,  $\mu_i$ , which is the cross-section, or country-specific, error component, and  $e_{it}$ , which is the combined time series and cross-section error component, sometimes called the idiosyncratic random term because it varies over cross-sectional units as well as over time. As this model considers individual effect ( $\alpha_i$ ) as a random variable, hence the name Random Effects Model.

The usual assumptions that are made with regard to  $\mu_i$  and  $e_{it}$  are as under:

$$\mu_i \sim N(0, \sigma_\mu^2)$$

$$e_{it} \sim N(0, \sigma_e^2) \quad (6)$$

$$E(\mu_i e_{it}) = 0 \quad E(\mu_i \mu_j) = 0 \quad (i \neq j)$$

$$E(e_{it} e_{is}) = E(e_{it} e_{jt}) = E(e_{it} e_{js}) = 0 \quad (i \neq j; t \neq s)$$

$$\text{Here, } \sigma_\mu^2 = \text{var}(\mu_i) \text{ and } \sigma_e^2 = \text{var}(e_{it})$$

These assumptions imply that individual error components are not correlated with each other and are not correlated across cross-section and time series units. Using these properties of  $\mu_i$  and  $e_{it}$ , we can work out the properties of  $\omega_{it}$ .

$$E(\omega_{it}) = 0 \quad (7)$$

$$\text{Var}(\omega_{it}) = + \quad (8)$$

Now if  $\sigma_\mu^2 = 0$ , there is no difference between model 1 and model 4, in which case we can simply pool all the (cross-sectional and time series) observations and just run the pooled regression like Model 1. It is

observed that  $\omega_{it}$  has zero mean and constant variance (homoskedasticity). However, it can be shown that  $\omega_{it}$  and  $\omega_{is}$  ( $t \neq s$ ) are correlated; that is, the error terms of a given cross-sectional unit at two different points in time are correlated. The value of such a correlation coefficient ( $\rho$ ),  $\text{corr}(\omega_{it}, \omega_{is})$ , is as under:

$$\rho = \frac{\sigma_\mu^2}{\sigma_\mu^2 + \sigma_e^2} \quad \text{for } t \neq s \quad (9)$$

If we ignore this correlation structure and estimate the Random Effects Model (Model 4) by OLS method, the resulting estimators will be inefficient. The most appropriate method to estimate the REM is the Generalised Least Squares (GLS) method.

### *Choosing Between FEM and REM: The Hausmann Test*

However, selection between FEM and REM is performed more rigorously by applying the Hausman Test. As pointed out earlier, REM is not preferred if the composite error term ( $\omega_{it}$ ) gets correlated with the explanatory variable ( $s$ ) of the model, which at times becomes a possibility. Hausman adapted a test based on the idea that if there is no correlation between  $\omega_{it}$  and explanatory variable(s), both OLS and GLS are consistent but OLS is inefficient. On the other hand, if such correlation exists, OLS is consistent but GLS is not. Hausman assumed that there are two estimators  $\beta^{FEM}$  and  $\beta^{REM}$  of the parameter vector  $\beta$  and added two-hypothesis testing procedures. The hypotheses are as under:

$H_0$ : Both  $\beta^{FEM}$  and  $\beta^{REM}$  are consistent, but  $\beta^{FEM}$  is inefficient

$H_a$ :  $\beta^{FEM}$  is consistent and efficient, but  $\beta^{REM}$  is inconsistent

Here, we actually test  $H_0$  (random effects are consistent and efficient) against  $H_a$  (random effects are inconsistent, as the fixed effects will always be

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consistent). Hausman takes  $q = (\beta^{FEM} - \beta^{REM})$  as the basis for the relevant test statistic. The Hausman test statistic is given by

$$H = \hat{q}' [\text{Var}(\hat{\beta}^{FEM}) - \text{Var}(\hat{\beta}^{REM})]^{-1} \hat{q} \sim \chi^2(k) \quad (10)$$

Where,  $k$  is the number of explanatory variable. The decision rule is: If computed value of Chi-square is greater than the theoretical Chi-square value at a chosen level of significance  $\gamma$  and degrees of freedom  $k$ , i.e.,  $\chi^2 > \chi^2_{\lambda}(k)$  we reject  $H_0$  which says that the REM is consistent, and accept the FEM. In contrast, we don't reject  $H_0$  if  $\chi^2 \leq \chi^2_{\lambda}(k)$  and prefer the REM.

Now further check which model is appropriate? Fixed effect model or Pooled OLS regression model? One way to take into account the individuality of each country or each cross-sectional unit is to let the intercept vary for each country but still assume that the slope coefficients are constant across countries. The difference in the intercept may be due to countries' performances. It is also noted that the slope coefficients of the regression equation 1 don't vary across countries. This situation can be solved in a number of ways and dummy variable is one of the ways. Now the equation 1 can be written as:

$$GCI_{it} = \alpha_1 D_{1t} + \alpha_2 D_{2t} + \alpha_3 D_{3t} + \alpha_4 D_{4t} + \alpha_5 D_{5t} + \beta_1 BR_{it} + \beta_2 EE_{it} + \beta_3 IS_{it} + e_{it} \quad (11)$$

Here, intercept is considered as a variable and uses dummy variables to account for differences among the countries with regard to the value of intercept. Thus, there are 5 cross-sectional units, we use 5 numbers of dummy variables to avoid dummy variable trap. Here,  $D_1=1$  if the observation belongs to India, 0 otherwise;  $D_2=1$  if the observation belongs to Sri Lanka, 0 otherwise;  $D_3=1$  if the observation belongs to Nepal, 0 otherwise;  $D_4=1$  if the observation belongs to Bangladesh, 0 otherwise and  $D_5=1$  if the observation belongs to Pakistan, 0 otherwise. Here, the dummy variable is used to estimate the fixed effects, the

model is also known as the least-squares dummy variable (LSDV) model or covariance model. Here, BR, EE and IS are known as covariates.

Now a question arises about appropriateness of model. Which model is suitable whether pooled OLS regression model or Fixed effect model?

$H_0$ : Pooled OLS regression model meaning that all dummy variables will be 0

$H_1$ : Fixed Effect Model

This can be judged by applying the Wald test whether all dummy variables are 0 or not.

## RESULT AND ANALYSIS

The results of the FEM and REM are presented in table one. It is observed from FEM that the coefficients of basic requirements (BR) and efficiency enhancers are positive and statistically significant to explain the GCI of the South Asian countries. But Innovation & sophistication (IS) factor is positive statistically insignificant to explain GCI. Similarly, in case of REM, basic requirements and efficiency enhancers factors are positive and statistically significant to explain the GCI. But innovation and sophistication factor is negative and insignificant to explain GCI. The  $R^2$  value of FEM (0.995406) is slightly high as compared to the REM (0.98954). The estimated D-W statistic is quite low based on FEM model, suggests existence of positive autocorrelation in the data.

Table one also presents Hausman test statistic. It is observed that the Hausman test statistic is 8.196921 and the probability value is 0.0421 which is less than 5 percent that means rejection of null hypothesis and can accept the alternative hypothesis. Thus, fixed effect model (FEM) is appropriate model to explain the GCI function.

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<b>Table 1: Estimation of FEM&amp; REM</b>								
<b>FEM</b>				<b>REM</b>			<b>Hausman Test</b>	
<b>Variable</b>	<b>Coefficient</b>	<b>t-statistic</b>	<b>R<sup>2</sup></b>	<b>Coefficient</b>	<b>t-statistic</b>	<b>R<sup>2</sup></b>	<b><math>\chi^2</math></b>	<b>df</b>
Constant	-0.231980	-0.983273 (0.3342)	0.995406	0.30293	0.417891 (0.6789)	0.989454	8.196921 (0.0421)	3
BR	0.577376	11.94970* (0.0000)	0.549414	30.07260* (0.0000)				
EE	0.383582	5.552325* (0.0000)	<b>D-W statistic 1.321369</b>	0.465030	12.93166* (0.0000)	<b>D-W statistic 1.161349</b>		
IS	0.100672	1.020537 (0.3165)		-0.031909	-1.101676 (0.2791)			

\*significant at 5% level. Values in parenthesis are the probabilities values.  
Source: Authors' computation

<b>Table 2 : Estimation of FEM using dummy variables</b>							
Variable	Coefficient	t-stat	Prob.	R <sup>2</sup>	D-W	Wald	Test
						F-stat	$\chi^2$
BR	0.577376	11.94970*	0.0000	0.995406	1.321369	0.342341	1.69434
EE	0.383582	5.552325*	0.0000			(0.9432)	(0.9512)
IS	0.100672	1.020537	0.3165			df=(5, 27)	df=5
India	-0.250995	-0.918224	0.3666				
Sri Lanka	-0.319430	-1.228337	0.2299				
Nepal	-0.182414	-0.905993	0.3730				
Bangladesh	-0.188051	-0.866763	0.3937				
Pakistan	-0.219010	-0.927756	0.3618				

\*Significant at 5% level.  
Source: Authors' computation

The study also further checks which model is appropriate to explain GCI function? Fixed effect model or pooled OLS regression model? Here, dummy variables are used to estimate FEM. The result of the FEM based on model 2 is given in table two. It is found that the coefficients of the BR and EE are statistically significant and the probabilities values are less than 5 percent meaning that those variables have significant impact on GCI. Innovation and sophistication factor is not a significant variable to explain GCI because the probability value is 31.65% which is more than five percent. Moreover, the estimated coefficients of the countries dummies are negative and statistically insignificant, as the

probability values are very high that means the variables such as basic requirements, efficiency enhancers and innovation & sophistication are the insignificant variables that explain the GCI function properly for south Asian countries.

Table two also shows Wald test statistics to test the null hypothesis which is as under:

H<sub>0</sub>: Pooled OLS Regression model, meaning that all dummy variables are zero or not

H<sub>a</sub>: Fixed Effect Model

The estimated F-statistic (0.342341) and chi-square

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statistic (1.69434) are insignificant and the probabilities values are high meaning that higher than five percent. Thus,  $H_0$  is accepted and can reject  $H_a$ . Therefore, FEM with dummy variable is not an appropriate model to explain the GCI function.

Now come to the result of fixed effect model again. Here, fixed effect model without dummy variable is the appropriate model. It is previously found that the explanatory variables such as Basic Requirements and Efficiency Enhancers are the significant variables which are positively influence the Global Competitive Index (GCI) of the south Asian countries/economics. Here the innovation and sophistication factor is positive but not significant whereas it is found negative and insignificant based on REM. The cross-section fixed effects are non-zero that confirms about presence of fixed effect and the statistical tests also confirm about the superiority of fixed effect model (FEM) as compared to the REM.

The comparative average performance of the global competitiveness index and its competitiveness drivers are given in table 4. It is observed that the

global competitiveness index of India (4.324) is highest as compared to the other countries. Although, the GCI (4.225) of Sri Lanka is very close to India as its rank is second. Pakistan is the lowest performer as compared to the other south Asian countries. In terms of basic requirements, Sri Lanka acquires the first position as compared to the other countries while India is very close to Sri Lanka. India ranks first in terms of efficiency enhancers factor and Sri Lanka occupies the first position in innovation and sophistication driven factor.

## CONCLUSION & RECOMMENDATION

The present study examines whether variables such as basic requirements, efficiency enhancers and innovation & sophistication affect the global competitive index. Therefore, panel data regression model is applied because panel data, by combining the inter-country differences and intra-country dynamics have advantages over the cross-sectional or time-series data. It has greater capacity to capture the diverse complexity of global competitive index (GCI) than a single cross-section or time series data.

**Table 3: Estimation of FEM & Cross Section Fixed Effect**

Variable	Coefficient	Probability	Country	Effect
Constant	-0.231980	0.3342	India	-0.019015
Basic Requirements	0.577376	0.0000	Sri Lanka	-0.087450
Efficiency Enhancers	0.383582	0.0000	Nepal	0.049566
Innovation & Sophistication	0.100672	0.3165	Bangladesh	0.043929
			Pakistan	0.012970

Source: Authors' computation

**Table 4: Comparative Average Performance**

Country	GCI	Rank	BR	Rank	EE	Rank	IS	Rank
India	4.324	1	4.331	2	4.365	1	3.971	2
Sri Lanka	4.225	2	4.534	1	3.981	2	3.973	1
Nepal	3.628	4	3.892	3	3.324	5	2.862	5
Bangladesh	3.715	3	3.830	4	3.614	4	3.040	4
Pakistan	3.478	5	3.388	5	3.632	3	3.452	3

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After various estimation of regression models and statistical testing the study reach to the conclusion about superiority of fixed effect model (FEM) as compared to the CCM and REM in respect of south Asian countries. FEM perfectly estimates the coefficients of the parameters such as BR and EE which are statistically significant and positively affect the GCI. Based on GCI ranking, India stands first as compared to the other south Asian countries. Finally, it may be recommended that panel data regression model whether it may be FEM or REM accurately estimates the model parameters. It contains more degrees of freedom and more sample variability than cross-sectional or time series data.

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# The Role of Universities in Socio-Economic Transformation in Zimbabwe: Voices of University Graduate Entrepreneurs and Business community in Gwanda Urban

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*The main thrust of universities is to generate knowledge and drive the economy at local, regional, national and international levels. The ability by universities to generate knowledge has made them become the primary tools for promoting the realization of social, political and economic development goals of any nation. The main purpose of this study was to examine the role of universities in enhancing, strengthening domestic institutions and promoting socio-economic development in the country. The study utilized the qualitative research methodology to collect data from fifty (50) respondents who included business leaders and university graduates in Zimbabwe. The research results indicated that universities play an important role in socio-economic, technological and political development of any country. The research also found out that universities play an essential role in shaping national development policies which are vital in attracting both national and foreign investment. Universities promote industrial diversification and entrepreneurship, which are vital pre-conditions for sustained social, economic and political growth.*

**Keywords:** University Education, Human Capital Formation, National Development, Zimbabwe

## INTRODUCTION

The role of universities in socio-economic transformation, revival, closing the skills gap and poverty alleviation has been of much debate in Zimbabwe since time immemorial. Attentive interest in the contribution of universities in the promotion of economic development, social transformation has ballooned over the years in Zimbabwe. Zimbabwe pins its hopes on universities to help it address socio-economic, political and technological challenges which have been bedevilling the country since 2000. In Zimbabwe there are over 10 (ten) universities registered and accredited by the university education governing board Zimbabwe Council for Higher Education (ZIMCHE). Universities in Zimbabwe and beyond are expected to play a key role in poverty alleviation, economic transformation and attracting foreign and local investors. In spite of having many universities, Zimbabwe continued to face socio-economic challenges, industry and company closure and technological challenges. One of the main purposes of establishing universities was to address economic and social challenges such as poverty, unemployment, illiteracy, low production, averting and managing natural disasters such as cyclone and

drought. University education is critical to human, economic, social transformation and political stability. Access to university education coupled with dedicated and knowledgeable populace is a key driver to economic growth, poverty reduction and social transformation (Mwale 2009). Despite the advent of several universities in Zimbabwe, the country has continued to experience serious socio-economic challenges. It is therefore critically essential to carry out a study to establish the role universities in Zimbabwe play or can play to propel socio-economic transformation in Zimbabwe.

## LITERATURE REVIEW

Socio-economic transformation is the process of rejuvenating and reviving the social and economic activities in society. It involves escalating the fraction of economic yield and employment produced by various sections of the economy. The aim of socio-economic transformation in any society is to create sustainable growth in the well-being of people and society in general. Mpango (2013) says, "Socio-economic transformation is a process in which an increasing proportion of economic output and employment are generated by sectors other than agriculture. This process of transformation connotes the shift from agricultural-based societies to urban, industrial and/or service-based economies with sustained high GDP growth rates." Socio-economic transformation has a positive effect on life expectancy, Gross Domestic Product (GDP), poverty alleviation and employment.

The Zimbabwean socio-economic situation has been facing a host of challenges since 2000. The socio-economic situation has been characterized by upwards and downwards trends caused by various factors. The instability of the socio-economic environment has given birth to various forms of business challenges which in turn propelled poverty among citizens, company closures and market distortions (Kanyenze et al 2017). The socio-economic situation in Zimbabwe requires a major

surgery by various players of which universities are expected to take the lead. In 2018 the government announced that its aim was to make the Zimbabwean economy become the upper middle income economy by 2030. The intended transformation can be spurred by industrializing and technologically modernizing the economy. Socio-economic transformation make urban and semi-urban areas become employment hubs for various groups of people in society. To achieve the government of Zimbabwe's objective of becoming an upper middle economy by 2030, like other key stakeholders universities have to play a role.

The traditional functions of universities are teaching, research and community service. In teaching activities, universities provide professional training for high level jobs such as engineers, doctors, teachers, accountants and others. Universities throughout the world are multi-dimensional and multi-disciplinary hence they present a favorable environment for the development of the human capital in the country (Bailly et al 2005). Bailly et al (2005) further observed that universities are multi-dimensional and complex organizations which are engaged in a range of different activities and responsibilities and pursue different agendas at different spatial scales. For example every university in Zimbabwe pursues an alcove which is different from its sister universities. Great Zimbabwe University's niche is in arts, culture and heritage studies while the National University of Science and Technology's alcove is science and technology. Sanders, (1994) argue that universities develop interdisciplinary approaches to dealing with real life problems. Several disciplines and professions such as economics, politics, law, psychology, sociology, social anthropology, industrial relations and human resource management are developed for purposes of meeting the real life needs of the communities they serve. Universities are integral to providing workforce, development of resources that support economic

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growth and development (Harrison 2017, Vladimir 2011). Universities throughout the world are expected to provide the business community with highly skilled and trained professionals who can assist in economic, socio-political and technological development of communities. The ability by universities to provide high quality education appropriate to the needs and demands of society makes university education relevant in socio-economic development in the twentieth century. It is the availability of vastly educated and skilled people that has become the key to economic, technological and social development. University graduates can immensely contribute to socio-economic development as they are better equipped to deal with contemporary real life issues.

According to Nyarige (2018) university education fosters improvement of individual and collective human conditions, increasing choices and participation, equality and standard of living. Universities are expected to play a central role in national economic development and cultivate the required civil morals, principles and ethics for society. University education is usually at the vanguard of knowledge generation and propagation which makes it play a crucial role of fostering social and economic change in any society (Altbach, 1998). Universities are conveniently positioned to address the challenges that face communities around them. A university has a great and unique role to play in fostering the development of social and political values in a society, (Kalvern committee report, 1967). The role played by universities is defined by the distinctive mission of the university and defined too by the distinctive characteristics, vision and values of the university as a community. The needs of the society have to be at the centre of a university's activities and flexible adjustments to changing needs of society. Szirmai (2005) argues that the full benefit from a university can be obtained only if the university and society are organically linked together. The university lays down the basis for the

progress of mankind by impacting on citizen's values and morals that make them acceptable in society.

Furthermore Foster (2016) argues that in the twentieth century, economic growth is largely driven through technology and skilled committed and loyal workforce. To propel socio-economic development universities create the required technology such as production, marketing, accounting and human resource management software which can be used by organizations to do business. Universities are the engine rooms of skills and knowledge production to feed the socio-economic and technological development of a country. The availability of technologically skilled human capital is crucial (Hellmich 2015) since all competitive businesses rely on technology for them to operate effectively in a global village. The global market is technologically driven hence employees should be technologically sound if they are to contribute to the country's socio-economic development.

Literature review show that there are a number of strategies which universities throughout the world can put in place to ignite and enhance economic, social, technological and political development. Universities can propel and influence poverty eradication, incubation of vibrant businesses, growing and nurturing emerging companies, economic growth and employment creation. What however has remained unclear in literature search is whether universities in Zimbabwe play the same role of propelling socio-economic growth that is played by their counterparts in the region and abroad. It was the aim of this study to establish the role universities in Zimbabwe can play to trigger socio-economic transformation in the country.

## RESEARCH METHODOLOGY

The study employed the qualitative research methodology. The population of the study comprised university graduates entrepreneurs and

business leaders in Gwanda urban. Gwanda urban is home to a number of businesses in the mining, agriculture, construction and manufacturing sectors. There are also a number of other commercial ventures such as supermarkets which are found in Gwanda town. Gwanda town is also home to a number of employed, self-employed and unemployed university graduates. Some university graduates have become prominent and established business leaders, owners and managers. The study targeted university graduates entrepreneurs and business leaders. The population of the study was approximately 2000. To select research participants the study employed purposive sampling technique to choose fifty (50) participants who provided information about the subject under investigation. Data was collected using focus group interviews and semi-structured interviews. Five (5) focus groups which comprised eight (8) people each drawn from the business community and university graduates were interviewed over a period of one month. University graduates who participated in focus group interviews comprised those who were either employed or were not involved in any business ventures or were self-employed. Semi-structured interviews were conducted on five (5) university graduates entrepreneurs and five (5) business leaders. Interviews were preferred in this study because they assisted the researcher to get in-depth information on the role of universities in addressing societal needs, problems and improving the economic status of Zimbabwe. Zimbabwe has been wallowing in socio-economic challenges for over two decades, hence to get detailed information on the role that can be played by universities to revive the economy needed an in-depth analysis of the matter. The employment of the follow up questions strategy in cases where respondents gave ambiguous responses and in cases where a new theme emerged during the focus group discussion made the researcher to amass the much needed and detailed information about the subject under investigation.

## FINDINGS

This study revealed that universities in Zimbabwe contribute to the Gross Domestic Product (GDP). Results indicated that most universities in Zimbabwe contribute to GDP by engaging in various stand alone business ventures, which are highly productive and make significant contributions to GDP, poverty reduction and employment creation. University business ventures expose students to hands on work activities which do not only lead to the generation of new knowledge but creates employment and open new avenues for socio-economic development and transformation. One respondent said *"The diversification by universities from traditional functions of universities which are; teaching, research and community engagements to entrepreneurial activities in Zimbabwe propel economic development, poverty alleviation and employment creation. Zimbabwe is an agro based economy; hence establishing entrepreneurial activities in agriculture boost the economy."* For universities to contribute to the government's vision of becoming an upper middle-income economy by 2030, they need to be engaged in entrepreneurial activities such as ranching, crop production, brick moulding and others. One of the respondent remarked, "Universities should establish businesses that are autonomous that generate income for the university and at the same time create employment and empower people through skills development so that they can start their own businesses." The generation of income through entrepreneurial activities reduces government budgetary constraints on universities since universities will be able to generate their own financial resources to support their services such as student affairs, research, teaching and community engagements. The findings are consistent with Trippel et al (2014) who argued that for universities to contribute in regional development they need to engage in entrepreneurial activities. The findings concur with Elias & Jones (2015) who argued that universities throughout the world's role are to contribute to economic development and poverty



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eradication in society. The findings further concur with a Harvard report which revealed that, higher education generates broader economic growth as well as individual success. For example, the Harvard University Gazette, (2010) reported that universities contributed nearly 60 billion pounds to the economy of the United Kingdom in 2007-2008. The generation of income by universities has a national, regional and global impact to socio-economic growth and transformation. This shows that although universities in Zimbabwe's efforts to contribute to socio-economic transformation is hampered by limited funding due to economic distress, they however make significant contributions and have the potential of making more contributions to socio-economic transformation.

Universities in Zimbabwe provide expertise that assist businesses and government in economic, technological and social advancement and transformation. University professors and lecturers provide assistance to government and business community on various issues such as policy formulation, business management skills and other development oriented services that can influence development in the country. Sanders (1994) propound that universities' quest for reality and truth make them better placed to give advice to policy formulators on the making of socio-economic transformation inclined regulations and policies. Respondents indicated that, the opportunity to study and discuss social, political, economic and ethical issues in an environment of tolerance and objectivity makes both university graduates and lecturers better informed to positively contribute to policy formulation. Universities provide consultancy services to political parties, government and business community thereby helping in the production of democratic ethos of development such as political values that are influenced by freedom of thought, speech, human rights and political accountability. Universities nurture, promote and protect development slanting morals and values through influencing policy, (Sabir 2001,

Sutz 2005, Mukherjee et al 2004). Societal acceptable moral values and ethos are very crucial for economic, social, political and technological transformation. The advice given by universities to government on critical economic matters such as agriculture, mining, education and social services are the life and blood of economic transformation.

The study also revealed that universities contribute to economic development and revival by creating functional synergies with industry for purposes of guiding them to be more productive and efficient. Nyanga et al (2012) observed that between 2000 and 2008 most SMEs in Zimbabwe faced serious financial and labour challenges due to economic meltdown which led to brain drain and reduction of business operation activities. Universities comprise different teaching and research units such as commerce, engineering, social science, education, law and arts which assist emerging and established manufacturing and other business organizations to grow and survive in an economically distressed environment. One of the respondents remarked, "Since 2018 the government of Zimbabwe has been encouraging universities to participate and significantly contribute to the socio-economic growth and transformation of the country by training SMEs and established corporate employees on financial management, business management, contemporary marketing strategies and effective and efficient production and operations systems". Respondents 7 said, "Universities that are community centered contribute to the development of industry and economy by creating synergies with businesses." Universities in Zimbabwe can contribute to the government's blue print on economic development and revival by imparting management and operations knowledge and skills in employees for various organizations. Some organizations such as newly established ones may need to be nurtured by universities until they reach a stage of being able to run their own affairs.

The study also found out that one of the roles of universities in Zimbabwe to socio-economic

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transformation is for academics to increase their efforts to commercialise their knowledge and research through registering patents. Most universities in Zimbabwe have become research intensive institutions which generate useful research which can be used to solve real life and business challenges locally, regionally and globally. Universities have amassed a lot of work and research in various disciplines most of which has not been disseminated to intended beneficiaries and registered as patents. In collaboration with the findings of the study Grimaldin et al (2011) argues that most university generate income by registering and commercialising their knowledge through spinoffs and patents. One respondent however said, "If universities are to become entrepreneurial universities they need to be financially supported by government to register their patents and also come up with valuable academic work." Most universities face financial challenges to introduce entrepreneurial activities and support SMEs and other emerging companies and industries. On the contrary respondent 23 argued "There is no direct link of universities commercialisation efforts to the needs of businesses and society." It therefore follows that some universities and academics' effort to support economic growth and revival are hampered by lack of dissemination of research findings to intended beneficiaries and also producing cutting edge research that address societal needs.

The study revealed that universities in Zimbabwe provide the local, regional and global communities with highly trained professionals with requisite skills, knowledge and attitude to meet the needs of both the business community and government. Universities in Zimbabwe produce high class professionals who have the potential of managing existing organisations and also start new businesses. The 2018 National Skills Audit (NSA) report which was compiled by the ministry of Higher and Tertiary Education, Science and Technology Development showed that the areas which were hard hit by skills deficit were Agriculture 88%, Engineering and

Technology 93.57%, Natural and Applied Sciences 96.91% and Medical and Health Sciences 95%. With such a skills deficit in critical areas which should drive innovation and industrialisation it becomes difficult to fully transform the socio-economic status of the country. The NSA indicated that for the country to achieve high levels of economic growth and address social challenges such as poverty, unemployment and inequality it needs to invest in relevant education and training. Human capital development is indispensable in the modernisation, transformation and industrialisation of a country. The socio-economic transformation agenda of Zimbabwe can only be achieved if people with requisite and appropriate skills needed by industry are developed. In 2018 the Zimbabwean government observed that there was a very huge skills gap in the areas of engineering, commerce, agriculture and others. It therefore follows that universities need to provide training for high critical skills shortage areas and key drivers of the economy such as agriculture. Almost all the universities in Zimbabwe have schools or centres or departments that offer degrees in agriculture. Zimbabwe as an agro-based economy requires people with skills of managing farms and other agricultural activities that contribute to economic transformation through agriculture. It follows that universities in Zimbabwe offer programs that address the socio-economic needs of the country, thereby leading to socio-economic transformation.

Universities should produce graduates who are highly skilled with full knowledge of how to start and operate own business. Industries in Zimbabwe are general operating at a very low scale; hence there is need for universities to produce graduates who can contribute significantly to the revival of industries. To revive the industry there is need for universities to introduce more engineering programs and also to incorporate social sciences and financial management in engineering programs so as to produce a balanced graduate with the potential of rejuvenating existing industries or starting new

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organisations. Universities sensitise graduates with new socio-economic demands of the country so that a graduate becomes fully aware of the form of contribution society expect him/her to make. The findings concur with Sharma (2015) who argued that well trained, skilled and knowledgeable students contribute significantly to economic development in the country. Zimbabwean universities produce graduates for the local, regional and global market as evidenced by the fact that the graduates occupy influential business, social and political positions across the globe. Respondent 47 remarked, "To remain relevant universities in Zimbabwe should create, adjust, develop and evolve the curriculum to meet the needs of society." Respondent 7 said, "Some universities such as Great Zimbabwe University, National University of Science and Technology, Chinhoyi University of Technology create and build their curriculum around entrepreneurship education so as to produce graduates who are flexible to contribute to economic development either as employees or as employers". Graduates of entrepreneurship based education would have a relevant skill to directly contribute, support and leverage economic development in the country. Harrington (2008) views economic development as a result of entrepreneurship hence to influence economic development universities must provide a service to their clients by promoting and sustaining entrepreneurial education.

The study also established that universities contribute to economic revival and development in Zimbabwe by producing graduates who possess business friendly social values such as integrity, transparency, honest, efficiency and effectiveness. Social values can either make or break an organisation hence it is essential that while universities impart knowledge and skills about their area of specialisation, it is important that key social values be also imported in students. One participant said, "The introduction of compulsory university wide modules on culture and heritage significantly help in moulding graduates' behaviour, which can in turn help to curb corruption and other mal-

practises in organisations". Social values help to promote socio- economic, political and cultural transformation in the country. For example an employee with the right values report for duty on time and is committed to his/her work which in turn helps to ignite organisational performance and economic development in general. The government of Zimbabwe document which outlines its agenda of becoming an upper-middle income economy by 2030 stressed that the government of Zimbabwe was going to do everything possible to create an environment that promote effective and efficient business management system. Nyanga et al (2018) argued that job satisfaction and employee commitment play a key role to organisational performance. It follows that those social, religious and cultural values which prohibit people from engaging in unprofessional and unacceptable behaviours such as stealing, sexual assaults, corruption are essential for sustainable socio-economic transformation and development. To propel economic and sustainable development in Zimbabwe universities should impart in students with social values and morals that promote good organisational governance.

Universities should champion social and economic transformation in their host environment by establishing innovation hubs which generate ideas that propel the revival of industries and the resuscitation of the economy. One of the respondents said, "I greatly benefited from one of the newly established innovation hubs at one of the universities in Zimbabwe. The idea of establishing innovation hubs helps in promoting the incubation of businesses which in turn ignites socio-economic transformation. The government should be applauded for establishing innovation hubs." Aligaweesa (1987) argued that throughout the world universities are expected to change or match changes in their host environment. Universities bring change by generating ideas through research, teaching, community engagement and innovation. The idea of creating innovation hubs help to nurture emerging manufacturing SMEs and industries

thereby creating employment and reducing poverty. Innovation hubs also help to develop employees' good governance practises. The introduction of innovation hubs make universities change their traditional teaching style which is lecture method to more practical methods where students put into practise what they learn. Students can also do their work-related learning practises at innovation hubs and also in organisations with relativism with the university. Universities can be vital drivers of innovation, poverty eradication and economic development, if they break free from outdated teaching, research and community service models and paradigms and introduce business incubation centres. Such a move will make universities make sound contributions to national development. According to Kiabu (2012) universities are neutral convenors, assemblers of talent and unmatched ideas and factories that can be applied to solve problems and advance societal and economic wellbeing.

The current economic challenges Zimbabwe is facing require universities that transcend traditional disciplines in pursuit of intellectual fusion. Intellectual fusion leads to the development of a culture of academic enterprise and knowledge entrepreneurship. Universities should be socially embedded and be creative thereby fostering socio-economic transformation. Universities should be student- centric as opposed to program- centric. Universities that are student centric produce graduates who are master thinkers, innovators and risk takers which are all key attributes of successful entrepreneurs. Zimbabwe needs graduates who are strategic thinkers and adaptable to various conditions. Such graduates help to create sustainable growth in organizations and hedge their organizations from socio- political and economic upheavals and distress. Over the years Zimbabwe has been experiencing socio-economic and political challenges which have created economic meltdown and imposition of sanctions on the country by America and the Europeans Union. Operating a

business in such an environment require sharp and strategic thinkers who appropriately position their organizations so that they are not 'swallowed' by socio- economic challenges. Universities must not view themselves as self- indulgent human capital manufactured but as valuable partners who generate essential ideas for economic development and poverty alleviation.

## CONCLUSIONS

Universities are the primary tools to development in the twentieth century since they can reconfigure their teaching, research, community service and become more developmental and productively involved in development issues in the country, region and world. They contribute to development through a more direct management with the communities to serve their needs. This is achieved through consultancy work, spin off companies, policy advocacy and student volunteerism. Universities are essential for the enhancement of citizen's participation in public life, for social mobility and for the achievement of harmony and justice which are key antecedents to development. For universities to become more relevant and meaningfully contribute to development there is need for the government and the entire business community to fully support them financially and materially. If well supported universities through research, teaching and community service can produce autonomous and responsible citizens committed to national and universal principles, capable of dealing with the challenges of the nation. However, despite the importance of university education, long term strategic planning have failed to allocate enough resources to promote access, innovation, research on indigenous and alternative knowledge and maintenance of academic values. With adequate funding, university education in Zimbabwe can contribute immensely towards economic, social and political development in the country.



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# Analysing Existence of Volatility Persistence in Sub-Sahara Africa Stock Markets

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*The aim of this paper was to analyse volatility persistence in Sub-Sahara stock markets. The study concentrated on selected markets including Ghana, Nigeria and South Africa by analysing univariate GARCH (1,1) model using monthly data from January 2000 to December 2017. Estimates from descriptive statistics show that the mean monthly returns are positive for the Sub-Sahara stock markets, but the South Africa stock market generates more returns than Nigeria and Ghana within the study period. Skewness coefficients show that the stock returns distributions of the Sub-Sahara Africa stock markets are negatively skewed. Excess kurtosis is positive for all the stock markets returns. The Jarque-Bera statistics indicate the stock markets' series are not normally distributed. Unit roots tests results indicate that the Sub-Sahara Africa stock markets series are integrated of order one. The results of the GARCH (1,1) model provide evidence to show that the Sub-Sahara Africa stock markets exhibit volatility clustering and persistence. The study therefore concludes that there is volatility persistence in Sub-Sahara Africa Stock Markets. The study therefore recommends that Sub-Sahara Africa portfolio managers watch movements in stock market volatility as part of their portfolio management strategy and formulate cushion policies to mitigate effects of volatility shocks.*

**Keywords:** Stock market returns, volatility persistence, GARCH model, Sub-Sahara, Africa

**JEL Classification Code:** G10, O55

## INTRODUCTION

There exists a consensus in the financial literature that stock returns volatility affects the overall health of the economy (see, Schwert, 1989; Chowdhury et al, 2006). Volatility breeds uncertainty which hampers the growth of the entire economy. An unexpected increase in volatility today, according to Emenike (2014), results in upward revision of future expectation of volatility and risk premium which in turn leads to the discounting of future expected cash flows at an increased rate which leads to lower stock returns today. Understanding the nature of volatility of stock market return has numerous applications in managing investment portfolio, pricing of options, risk management and financial market regulation (Poon & Granger, 2003; Granger, 2003). Hence the interrelationship between changes in macroeconomic variables and stock market return volatility is useful for investors to make necessary investment decisions and for policy-makers to regulate financial markets more effectively.

Many empirical studies have analysed the nature of volatility clustering in both developing and developed markets using GARCH models (see for example, Emenike, 2010; Ahmed and Suliman, 2011; Makhwiting, Lesaoana and Sigauke, 2012; Anjikwi & Danjuma, 2018). Ahmed and Suliman (2011) for example modeled stock market volatility using the Generalized Autoregressive Conditional Heteroscedastic (GARCH) models to examine evidence of volatility clustering in the daily returns of the Khartoum Stock Exchange (KSE) Sudan over the period from January 2006 to November 2010.

They reported evidence of volatility clustering and persistence in Khartoum Stock Exchange. Makhwiting, Lesaoana and Sigauke (2012) also applied GARCH models to investigate volatility and financial market risk of stocks in the Johannesburg Stock Exchange (JSE) assuming skewed Student-t distribution. However, these studies are country-specific studies that examine stock market volatility in specific countries. There is need for comparative evidence on the nature of stock market volatility in Sub Saharan Africa.

The aim of this paper is to analyse the nature of volatility clustering on one hand and volatility persistence of stock market returns of Nigeria, Ghana and South Africa on the other hand. The analysis will not only be useful to portfolio investment management and risk management but also to financial market regulation in Sub-Sahara Africa. The portfolio managers for instance, will have evidence on the behaviour of stock return volatility in Sub-Sahara Africa as well how volatility respond to positive and negative stock market information. Such information will assist in evidence-based portfolio selection and management. Scholars will equally find this paper useful as it will serve as reference material for future research.

## REVIEW OF RELATED LITERATURE

One of the earliest studies on volatility was Engle (1982) which propounded the autoregressive conditional heteroscedasticity (ARCH) model to evaluate volatility by relating the conditional variance of the error term to the linear combination of the squared error terms in the recent past. Bollerslev (1986) generalized the ARCH model including the conditional variance to depend on its lagged values as well as squared lagged values of the error terms, as a result of the long lag length and large parameters needed to estimate ARCH model. After the premier ARCH paper of Engle (1982) and the generalization of ARCH model by Bollerslev (1986), the study of volatility has gained major

attention from policy makers, practitioners and researchers.

Okpara and Nwezeaku (2009) examined the impact of idiosyncratic risk and beta risk on stock returns of 41 quoted companies selected randomly from Nigerian Stock Exchange for the study period ranging from 1996 to 2005. The study adopted a two-step estimation procedures in which the time series procedure was used on the data to determine the beta and idiosyncratic risk for each of the companies; and a cross-sectional estimation procedure of EGARCH (1,3) model was adopted to establish the effect of both the idiosyncratic risk and beta risk on the stock market returns. The results show, amongst others, that volatility clustering is not quite persistent but there exists asymmetric effect in the Nigerian stock market. They concluded that unexpected bad news increases predictable volatility more than good news of similar magnitude in Nigeria.

Emenike (2010) used monthly All Share Index (ASI) from January, 1985 to December, 2008 as an empirical sample to investigate stock return volatility clustering and persistence in the Nigerian stock exchange market using GARCH (1,1) model. The overall results indicate evidence of volatility clustering; fat-tailed distribution and the existence persistence in the Nigerian stock exchange market return series.

Ahmed and Suliman (2011) Modeled volatility of stock market using the GARCH model to examine whether there is volatility clustering and persistence in the daily returns of the Khartoum Stock Exchange Sudan for the January 2006 to November 2010 period. Findings obtained from the study suggest that there is evidence of volatility clustering and persistence. They conclude that the Sudanese stock market exhibit volatility clustering and persistence over the sample period.

Makhwiting, Lesaoana and Sigauke (2012) adapted autoregressive moving average (ARMA) GARCH models to investigate volatility and financial market risk of stocks in the Johannesburg Stock Exchange

(JSE) assuming skewed Student-t distribution. They used daily data for the period starting from 2002 to 2010. They estimated several types of GARCH models namely threshold GARCH, GARCH-in mean and exponential GARCH. Their findings show that JSE daily returns can be modeled using an ARMA (0, 1) process. This implies that shocks to conditional mean disappear after one period. The results further show that ARMA (0,1)-GARCH(1, 1) model achieves the most accurate volatility forecast. Emenike and Aleke (2012) examined the volatility of Nigerian stock exchange market for the presence of asymmetric effect using daily closing prices of the weighted All Share Index from January 2, 1996 to December 30, 2012, they employed GARCH (1,1), EGARCH and GJR-GARCH model and report volatility clustering, and high volatility persistence in the Nigerian stock exchange market (NSE). They also report the presence of asymmetric effect in the NSE return series.

A more recent study by Anjikwi & Danjuma (2018) analyzed volatility in Nigeria stock market using Bayesian approach in stochastic volatility model. The sample data used for this study were daily and weekly closing prices of All Share Index over the period of January 30th, 2012 to December 8th, 2016. The findings show amongst others that there is volatility and persistence in Nigeria stock returns. From the brief review of empirical literature presented above, it is clear that African stock market returns exhibit volatility clustering and persistence behaviour.

## RESEARCH METHODOLOGY

### Description of Data

The data for this study were generated from secondary sources. The data consisted of Monthly All-Share Index (ASI) of the Nigerian Stock Exchange (NSE), the Ghanaian Stock Exchange (GSE) and the Johannesburg Stock Exchange (JSE). These series were transformed into the first difference of natural logarithm of prices or indices thus:

$$R_t = \ln(P_t - P_{t-1}) \quad (3.1)$$

Where:  $R_t$  = monthly returns of the Sub-Sahara African stock market returns,  $P_t$  = closing monthly stock indices at time  $t$ ,  $P_{t-1}$  = previous month closing stock indices, and  $\ln$  = natural logarithm.

### Method of Data Analysis

To examine volatility clustering on the Nigeria, Ghana, and South Africa Stock market returns, the GARCH (1, 1) was used. This is in agreement with earlier studies of volatility clustering (see for example, Brook and Burke, 2003). The GARCH (1, 1) is a parametric test developed to examine whether an observed sequence has a GARCH feature or not. Positive slope coefficient suggest that if volatility was high in the previous period, it will continue be high in the current period, thus indicating volatility clustering. Zero coefficient; on the other hand, indicate evidence against volatility (Gujarati, 2003:858). Volatility persistence on the other hand was measured using the sum of the ARCH and GARCH parameters. The GARCH (1, 1) modeling process involves two steps. The first step involves specifying a model for the mean return series and the second step involves modeling the conditional variance of the residuals (Emenike, 2010). The GARCH (1, 1) was specified as follow:

$$R_t = \theta + \mu_t \quad (3.2)$$

$$\mu_t \sim (0, \sigma_t^2)$$

$$\sigma_t^2 = \alpha_0 + \alpha_1 \mu_{t-1}^2 + \beta_1 \sigma_{t-1}^2 \quad (3.3)$$

Where,  $R_t$  is the mean return equation,  $\theta$  is a constant  $\mu_t$  is the error term or residual. The  $\sigma_t^2$  is the conditional variance equation (i.e. the volatility at time  $t$ ),  $\alpha_0$  is the constant,  $\alpha_1$  is first order ARCH term, and  $\beta_1$  is first order GARCH term (i.e., clustering coefficient). The conditional variance equation (3.3) postulates that volatility in the current period (i.e. month  $t$ ) is not only related to the squared error term in the previous term but also on its conditional variance in the previous time period (i.e. month  $t-1$ ). Under the null hypothesis of no GARCH effects (i.e. no volatility clustering in the Sub-Saharan African

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return series), all slope coefficients are zero. The robustness of the GRACH (1,1) model was evaluated using the non-negativity constraints as well as the Ljung-Box Q statistic and ARCH-LM test (Enders, 2004: 136; Engle & Paton, 2001).

## RESULTS AND DISCUSSIONS

### *Descriptive Statistics of Stock Market Indexes in Sub-Sahara Africa*

Table 1 shows the descriptive statistics of the level and return series of the monthly All-share index for Sub-Sahara Africa stock markets. As shown in Table 1, the average monthly All-share index for Nigeria is 26625, Ghana is 3481 and South Africa is 28218. The average monthly return for Nigeria, Ghana and South Africa are 0.008, 0.005 and 0.009 respectively, for the study period. These results indicate that the South Africa stock market generates more returns than Nigeria and Ghana; and Nigeria stock market generates more returns than the Ghana stock market within the study period. The corresponding monthly standard deviations are 0.069, 0.144, and 0.047. These indicate that Ghana stock market has the highest rate of variability from the mean return, whereas the South Africa stock market has the least

variability from its mean. The null hypothesis of normal distribution of Jarque-Bera statistics is 0. The empirical Jarque-Bera statistics for all the variables deviate from normal distribution at the 5% significance level. Similarly, skewness and kurtosis represent the nature of departure from normality. In a normally distributed series, skewness is 0 and kurtosis is 3. Positive or negative skewness indicate asymmetry in the time series under study and kurtosis coefficient greater than or less than 3 suggest peakedness or flatness of the data (Gujarati, 2003; Emenike, 2016). The skewness coefficient for Nigeria, Ghana and South Africa Stock markets are -0.577, -11.318, and -0.278, respectively. These indicate that the Sub-Saharan African stock markets returns are negatively skewed; thus implying that there are more negative changes in the Sub-Saharan African stock markets returns than predicted by normal distribution. The kurtosis coefficients for all the Sub-Saharan African stock markets returns series show evidence of peaked distribution. The implication of peaked is that, for a large part of the time, extreme observations are much more likely to occur. Leptokurtic stock returns, for example, implies that investors can make very high returns and as well lose large amount of their investments (Wilcox and Keselman, 2003).

**Table 1: Descriptive Statistics for Sub-Saharan African Stock Markets Indexes**

Variable	Mean	Std. Dev.	Skewness	Kurtosis	J-B Stat.
<b>Level Series</b>					
NSI	26625.466	12291.142	0.664	0.552	18.649
GSI	3481.267	2678.746	0.999	0.088	36.006
SASI	28218.295	16029.133	0.308	-1.204	16.469
<b>Return Series</b>					
NSI	0.008	0.069	-0.577 (0.000)	5.520 (0.000)	284.926 (0.000)
GSI	0.005	0.144	-11.318 (0.000)	151.422 (0.000)	209993.181 (0.000)
SASI	0.009	0.047	-0.278 (0.098)	0.655 (0.053)	6.623 (0.036)

**Note:** P-values are displayed as (.). All the tests are conducted at 5% significant level

**Source:** Author's computation



### *Time Series Graphs of Stock Market Indexes in Sub-Sahara Africa*

Figures 1, 2 and 3 present graphs of the log-levels and returns series of the All-share index for Nigeria, Ghana and South Africa for the study period. Notice from Figure 1, that the log-level series is trending whereas return series appear to be mean reverting. This implies that the log-level series may not be stationary whereas the differenced series appear stationary. Notice also large downward and upward spike in the 2008 and 2009 period, which correspond with the era of the global financial crisis. Again notice the Nigeria stock return series regained its upward movement after the global financial crisis. From the last quarter of 2016, the series started moving towards a new upward level.

Observe from the Ghana stock market series in

Figure 2 that there is one major spike between the large quarter of 2010 and first quarter of 2011. This corresponds to the period the GSE introduced a new methodology for computing daily closing prices of equities on the bourse in January 2011. Two new indices were also introduced on January 4, 2011 to replace the GSE All-Share Index which tracks price changes in the listed equities. The new indices were the GSE Composite Index and the GSE Financial Stocks Index.

From Figure 3, notice that the log-level series has a smooth trend during the sample period except for the first quarter of 2003 and 2008/2009 global financial crisis. The return series on the other hand appear to be mean reverting. This implies that the log-level series may not be stationary whereas the differenced series appear stationary.

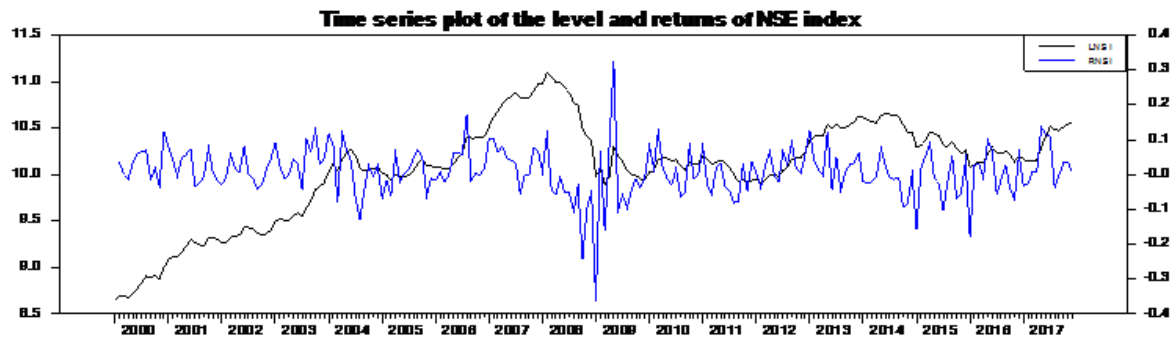


Figure 4.1

Figure 1: Time graph of level and returns for stock market index in Nigeria  
January 2000 to December 2017

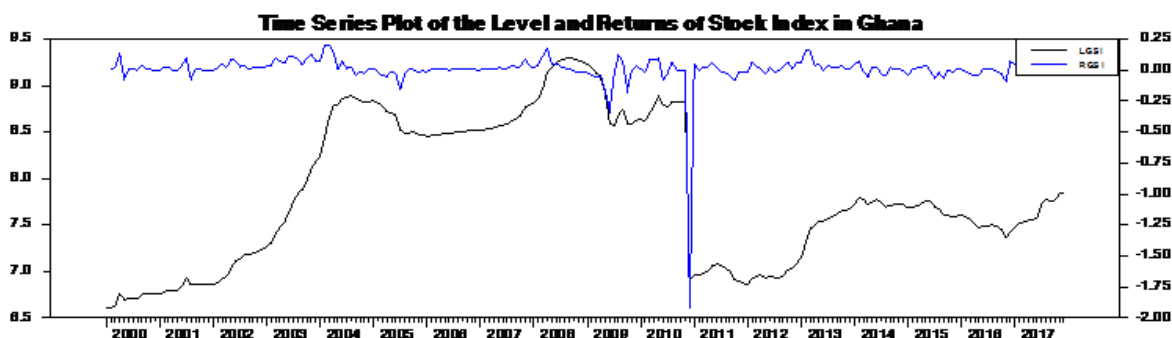


Figure 4.2

Figure 2: Time graph of level and returns for stock market index in Ghana  
January 2000 to December 2017



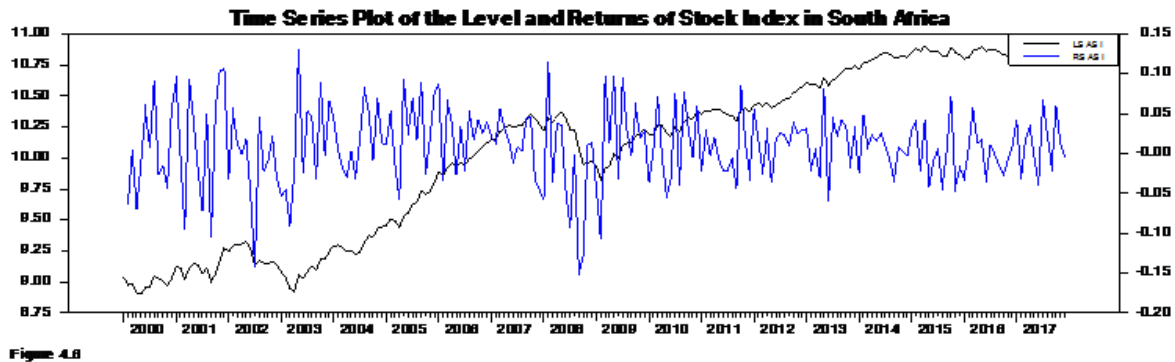


Figure 3: Time graph of level and returns for stock market index in South Africa  
January 2000 to December 2017

### *Unit Roots Tests for Stock Market Indexes in Sub-Sahara Africa*

This sub-section presents the unit roots tests conducted to examine the stock market indexes for stationarity. Tables 2 presents the result of unit roots tests for the log-levels and first difference series of the stock market indices for Nigeria, Ghana and South Africa. The unit roots tests were computed using augmented Dickey-Fuller (ADF) (Dickey & Fuller, 1981) and Phillips-Perron (PP) tests. The ADF and PP tests were computed at the 5% level of significance in order not to accept a false null hypothesis.

Notice from Table 2 that the Nigeria, Ghana and South Africa stock markets level series are not stationary. This is because the absolute computed ADF values for Nigeria (-2.54), Ghana (-1.82) and South Africa (-0.67) are less than the 5% ADF critical tau value (-2.87). The PP tests show similar results for all the stock markets studied. In their first differences, however, the absolute values of the computed ADF coefficients exceed the critical values at 5% significance level. Table 4.4 shows that the computed ADF coefficient -12.29, -13.68, and -15.28 for the Nigeria, Ghana and South Africa stock markets returns are greater than the theoretical value (-2.87) at 5% significance level.

### *GARCH (1,1) Results for Nigeria Stock Market Returns Volatility*

Table 3 presents the results of GARCH (1,1) model estimated to evaluate volatility clustering and persistence in the Sub-Sahara Africa stock markets returns. Notice from Table 2 that the coefficient for long-run average volatility ( $\alpha_0$ ) is significant at 5% significant level for the Nigeria and Ghana stock markets, suggesting that volatility of stock returns in the past periods influence current volatility in both Nigeria and Ghana stock market but not for South Africa stock market. The coefficient of ARCH parameter ( $\alpha_1$ ) is significant at the 5% level for the Nigeria and Ghana and South Africa stock markets, indicating that the volatility of stock returns in the previous periods influence current volatility in Sub-Sahara Africa stock markets. The coefficient of GARCH parameter ( $\beta_1$ ) is also statistically significant at the 5% level, thus indicate evidence of volatility clustering in the Sub-Sahara Africa stock markets returns. The persistence parameter ( $\alpha_1 + \beta_1$ ) also indicate evidence of volatility persistence in the Sub-Sahara Africa stock markets returns. This is because the persistence parameter tends to unity in all the Sub-Sahara Africa stock markets examined.

The finding of significant volatility clustering in Nigeria stock market returns has support in

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**Table 2: Unit Root Tests Results for Sub-Saharan African Stock Markets Indexes**

ADF Unit Root Test Results				
	Log-level series		Return series	
Variables	critical value 5%	computed value	critical value 5%	computed value
NSI	-2.875	-2.540	-2.875	-12.299**
GSI	-2.874	-1.820	-2.875	-13.682**
SASI	-2.874	-0.678	-2.875	-15.287**
Phillips-Perron Unit Root Test Results				
Variables	critical value 5%	computed value	critical value 5%	computed value
NSI	-2.874	-2.571	-2.875	-12.524**
GSI	-2.874	-1.919	-2.875	-13.786**
SASI	-2.874	-0.694	-2.875	-15.337**

**Table 3: Results of GARCH (1,1) Model for Sub-Sahara Stock Markets Returns**

Parameters	Coefficients		
	Nigeria	Ghana	South Africa
Mean	0.013 (2.997)	0.0127 (1.581)	0.012 (4.326)
RSI {1}	0.171 (2.109)	-	-0.105 (-1.503)
Constant ( $\alpha_0$ )	0.000 (2.098)	0.016 (5.480)	0.000 (1.203)
ARCH ( $\alpha_1$ )	0.166 (2.607)	0.227 (8.903)	0.207 (2.456)
GARCH ( $\beta_1$ )	0.718 (8.965)	0.694 (16.258)	0.762 (9.006)
( $\alpha_1 + \beta_1$ )	0.884	0.921	0.969
Panel B: Diagnostic Tests			
	Statistic		
	Nigeria	Ghana	South Africa
Ljung-Box Q (2)	2.429 (0.296)	10.906 (0.240)	0.338 (0.844)
Ljung-Box Q (12)	20.689 (0.155)	31.725 (0.091)	6.101 (0.910)
ARCH-LM (6)	7.174 (0.304)	14.814 (0.201)	3.639 (0.725)

Source: Author's Computation using RATS Version 8.1

empirical literature. For example, Okpara and Nwezeaku (2009) show, among others, that there is existence of volatility clustering in the Nigerian stock market when examined the effect of the

idiosyncratic risk and beta risk on the returns of the 41 randomly selected companies listed in the Nigerian stock exchange from 1996 to 2005. Similar finding was documented by Emenike and Aleke

(2012) who examined the volatility of Nigerian stock exchange market for the existence of volatility clustering using daily closing prices of the weighted All Share Index from January 2, 1996 to December 30, 2012. They documented evidence of volatility clustering and high volatility persistence in the Nigerian stock exchange market (NSE). They also report the presence of asymmetric effect in the NSE return series. Similarly, the finding of significant volatility clustering in Ghana stock market returns has support in the empirical literature. For example, Njimanted (2012) investigate volatility and efficiency of stock returns in African stock markets including, Egypt, Kenya, Nigeria, South Africa, and Ghana. The results from their GARCH-M model provide support for volatility clustering in the markets evaluated. The evidence of significant volatility clustering in South African stock market returns has been documented by earlier studies. Makhwiting, Lesaoana and Sigauke (2012) evaluated Johannesburg Stock Exchange using ARMA-GARCH models for the period starting from 2002 to 2010. The findings show amongst others that South Africa stock market returns exhibit volatility clustering. Our results also agree with the findings of Mwamba, Thaba and Uwilingiye (2014) and Botha and King (2014) who also document evidence of volatility clustering in South Africa stock market returns.

Visual inspection of Table 3 also shows that the non-negativity constraint of the GARCH (1,1) model is not in doubt for the models estimated. This suggests that models are robust. More so, the diagnostic tests results presented in the Panel B of Table 3 show that the Ljung-box Q-statistic for residuals of the Sub-Sahara African stock markets returns are not significant, indicating that there is no serial correlation in the standardized residuals. The ARCH-LM result also indicates that the null hypothesis of no heteroscedasticity in the squared residuals is accepted at the 5% significance level. Hence supporting adequacy of the GARCH (1,1) model for policy-making.

## CONCLUSIONS AND RECOMMENDATIONS

This study majorly hunted for evidence of volatility clustering and persistence in Sub-Sahara Africa stock markets with specific reference to Nigeria, Ghana and South Africa. The financial econometric methodology applied in this study include descriptive statistics, tests for unit roots and univariate GARCH (1,1) model. Descriptive statistics calculated to evaluate the mean; symmetry and distribution of the stock markets returns provide insightful information. The mean monthly returns are positive for all the stock markets but the South Africa stock market generates more returns than Nigeria and Ghana within the study period. Skewness coefficients show that the stock returns distributions of all Sub-Sahara Africa stock markets are negatively skewed. Excess kurtosis positive for all the stock markets returns. These show that all the markets returns are peaked. The Jarque-Bera statistics indicate the stock markets' series are not normally distributed. Unit roots tests to verify the nature of stationarity of the Sub-Sahara Africa stock markets series indicate that the Sub-Sahara Africa stock markets series are integrated of order one. The results of GARCH (1,1) model estimated to examine the nature of volatility clustering and persistence provide evidence of volatility clustering and persistence in the Sub-Sahara Africa stock market returns. On the basis of the findings, the study concludes that there is volatility clustering and persistence in the Sub-Sahara Africa stock market returns.

Based on the conclusions from this study, we recommend that Sub-Sahara Africa portfolio managers watch movements in stock market volatility as part of their portfolio management strategy and formulate cushion policies to mitigate effects of volatility shocks from the stock markets. In addition, Sub-Sahara Africa stock market authorities should also enlighten retail investors on the behaviour of stock market volatility in their respective stock markets so as not to discourage their

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participation in stock trading as a result of stock returns volatility. This is necessary because evidence of volatility clustering provide basis for investors adjust their portfolio accordingly.

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# A Comparative Study on Job Search Behavior of Job Applicant towards Social Recruitment

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*People and corporate around the globe are exploring social media, recruitment being one such avenue. The growing use of social networking websites facilitates the individuals to explore the broad range of new job opportunities. The main purpose of this paper is to identify the importance of social networking websites in job seeking behavior of applicants. The study analyzed job information and organizational attributes available on these websites to examine the preference of formal, informal social networking website and employer review website. Social Networking websites undertaken for the study were LinkedIn, Glassdoor and Facebook. Questionnaire was designed and primary data was collected from students, fresher's and those who are at entry level position in ITES sector of Delhi NCR. Convenience sampling was applied and data was collected from 360 respondents. The results of the study show that LinkedIn is regarded as prime channel of recruitment for job search by applicants in Delhi NCR today.*

**Keywords:** Job Seeking Behavior, LinkedIn, Recruitment, Social Networking Websites.

## INTRODUCTION

The growing population and increasing unemployment in India is a biggest challenge for the job seeking section of society today. With technological advancement and new innovations, adoption of social networking website for recruitment to meet the need of talented resource is increasing. The focus of organization has moved to social networking websites from other sources since they do not facilitate to attract semi passive and passive potential candidates (Dutta, 2014; Singh & Sharma, 2017). Also, accessing the information of job seekers through these new sites is time and cost effective. On the other hand individuals make connections on these social networking websites for different purposes. They join Facebook, to connect personally with their friends, family, groups and known for enjoyment. They join LinkedIn to widespread their scope of professional opportunities by making professional network. Job search is the main reason for individuals to make their account on LinkedIn (Stopfer& Gosling, 2013). People Join Glassdoor, an employer review website and LinkedIn to gather more detailed and realistic and trustworthy information about organizations (Kaur, T 2016; Wadhawan, 2018).

Wide use of internet and Social networking websites SNW in job search and recruitment process is increasing today. Different articles in newspapers, reports show the increasing use of these platforms by individuals. (Global trend report, 2015), gave the



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insight of different online and social networking websites used by individuals to explore new opportunities. Online job boards being the most preferred source, followed by SNWs and word of mouth. As per economic times report on TeamLease Survey LinkedIn 2017, article by (Akash Sinha, July 2017) LinkedIn is considered to be the most effective source to get hired.

Advancement in technology and increasing use of the social networking website facilitate the job seekers the extract information about job and organization attributes from various sources. The technological features of “perceived ease of use” and “perceived user friendliness” of websites influence the decision of applicant (Hsiu-Fen Lin, 2015). Dependence on the source is associated not only with amount of information but also with characteristics of information. If the information available on advertisement is perceived by the job applicant as Specific, reliable, appropriate or credible then the intention to apply for the job with the organization increases (Feldman, 2006). Thus, amount of information, information characteristics and perceived credibility, influence the decision of applicant to apply for the job (Allen et.al, 2004; Cober et.al., 2000). As organization dependent sources such as company website, job portals etc provide overly positive information about the job. Thus, the use of independent sources is growing. The increased use of social networking sites has altered the manner in which the people extract information (Lin & Lu 2011).

### RESEARCH PURPOSE

The current study aims to explore the usage of social networking websites in the job search activity of job applicant. It attempts to compare different social networking platforms on the basis of information attributes and its characteristics such as Specificity, realism, appropriateness, credibility and outline the preferred platform of social networking website for job search activity by applicants. Thus, facilitating the job seekers to make effective use of the

opportunities SNS extends in their job search activity. On employers front this will enable organizations to know the source most preferred and how they can place themselves on these sites to attract best talent resource.

### REVIEW OF LITERATURE

Koch, Gerber & Klerk (2018) studied social media and its role in activities of recruitment in South Africa. Data was collected from 12 recruiters of different recruitment agencies through semi structured interviews. It was found that mostly recruiters use LinkedIn than Twitter and Facebook for recruitment. Researcher compared its finding with Jobvite report 2014. It was found that use of Facebook and Twitter is less as compared to the Jobvite report. This is because of the difference in sample size. But use of LinkedIn is high as mentioned in the report. Overall it was found that social media is an important part of recruitment.

Hsiu-Fen Lin (2015) examines the impact of company recruitment website and social influence as an information source, on job seekers perceptions of organizational attractiveness in Taiwan. 193 responses from job seekers were collected from undergraduate and graduate students of Northern Taiwan University. 126 companies who had recruitment websites were used in the study. Job seekers surveyed in research were senior undergraduates and graduate from Northern Taiwan University. It was found that both perceived usefulness and perceived ease of use of recruitment web sites have a significant effect on job seeker evaluations. At the same time it was also found that perceived ease of use of recruitment web sites was a much stronger predictor of organizational attractiveness as compared to perceived usefulness along with social influence.

Karim, Miah and Khatun (2015) examine the perceptions and behaviors of job-seekers towards e-recruitment. Simple random sampling method has been used to select 204 respondents. It was found

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that even though e-recruitment is growing in organization but traditional methods are still in use

Nikolaou (2014) author conducted two surveys to investigate the role profession and non profession social networking website in organization recruitment and job search activity of job seeker. First study aims to explore job seekers perception about SNW and its frequency of use. The second study aims to understand the way in which recruitment team uses SNS and drive recruitment process effectively. And Study 2 explores how HR professionals use SNWs, focusing on recruitment, how they use them in the recruitment process, and how effective they also think they are. Responses are collected by questionnaire. The results of both the study revealed that both the groups recruiter and job seeker are actively engage more with professionally oriented SNW such as LinkedIn.

Moghaddam, Amin, et al. (2013) examine job seekers perception and behavioral intention towards online recruitment with respect to influence of information content qualities (ICQ), vividness (VID), ease of navigation (EN), interactivity (INT), attractiveness and effectiveness (EFE), search engine optimization (SEO), website ranking (WER) on graduate students' behavioral intention (BI). 232 responses from Malaysian graduate students were analyzed by the researcher using PLS-SEM path modeling approach. It found that there is a positive relationship between ICQ, VID, INT, EFE, SEO, WER and BI whereas the positive relationship between EN and BI was not supported.

Wadhawan, (2018) examined the influence of different that effect online job search and post hire decision of job applicant. Where the job search activity is through a well know job portal Naukri.com. The author made an attempt to understand the difference in perception of millennial and post millennial group of job applicant. Results of the study showed Perceived usefulness, Perceived Ease of use, prospective career information, system quality, Perceived trustworthiness and extended services are some of

the factors which influence millennial to build perception over job search.

### OBJECTIVES

1. To understand the importance of different social networking websites job search activity of job applicant.
2. To examine significant difference in perception of job seekers towards social networking websites with respect to job information characteristics and organization attributes.

### RESEARCH METHODOLOGY

To understand the importance of social networking websites in the job search by the applicant professional networking website LinkedIn, unprofessional and personal networking platform Facebook and employer review website Glassdoor were undertaken for the study. The perception of job applicant towards these above mentioned social networking websites were analyzed. Different dimensions of information and its characteristics covered were; specific, realistic, appropriate, credibility. Hypotheses were formulated on all the dimensions of information characteristics.

Descriptive study was conducted where data was collected with the help of convenience sampling from students and entry level employees of ITES sector. An initial group of 360 respondents responded to set of questions. After filtering invalid responses, the total number of participants was 343.

### Hypotheses

- H<sub>1</sub>: Job Information Specificity Perception of Social Networking Websites differs among job applicant.
- H<sub>2</sub>: Organization Information Specificity Perception of Social Networking Websites differs among job applicant.
- H<sub>3</sub>: Organization Realism Information Perception of Social Networking Websites differs among job applicant.

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H<sub>4</sub>: Credibility Perception of Social Networking Websites differs among job applicant.

### RESULTS AND DISCUSSION

The table 1 below shows the descriptive statistics table for all the dimensions of information for three social networking websites which the job applicant uses in their job search today.

Table 1: Descriptive Statistics				
Factors	Institution	N	Mean	Std. Deviation
Job Information Specificity	LinkedIn	115	30.43	4.80
	Glassdoor	114	27.82	6.01
	Facebook	114	22.77	5.86
Organization Realism Information	LinkedIn	115	12.85	2.52
	Glassdoor	114	13.18	3.53
	Facebook	114	10.61	3.41
Organization Information Specificity	LinkedIn	115	10.74	2.24
	Glassdoor	114	11.32	2.15
	Facebook	114	10.40	2.44
Credibility	LinkedIn	115	10.39	2.28
	Glassdoor	114	10.88	2.58
	Facebook	114	9.17	2.51

With respect to Job Information Specificity LinkedIn has the highest means score of 30.43 as compared to mean score of 27.82 for Glassdoor and 22.77 for Facebook.

Job applicant perception for Organization Realism Information for LinkedIn is 12.85, Glassdoor is 13.18 and Facebook is 10.61. Job Applicant of Glassdoor for Organization Specific Information have mean score of 11.32 as compared to 10.74 for LinkedIn and 10.40 for Facebook. This indicates to gather specific organization information. Thus, Glassdoor as an employer review SNS is perceived to be hirer in terms of realism and specific organization information.

As far as credibility perception is concerned Glassdoor has mean of 10.88, LinkedIn has mean of 10.39 and Facebook has mean of 9.17. Glassdoor has highest mean for credibility perception of job applicant, which shows that job applicant prefer more Glassdoor as social networking websites to extract correct, trustworthy and believable information.

The descriptive statistics enable us to understand the difference in sample mean. However, it does not statistically proves if there is significant difference in various social networking website with respect to information characteristics extracted and perceived by job applicant in their job search activity. As the number of group compared is more than 2, One Way ANOVA is applied to understand the significant difference among the group of LinkedIn, Glassdoor and Facebook.

#### Job Information Specificity Perception of job applicant towards different SNS

Table 2: ANOVA					
Job Information Specificity					
	Sum of squares	df	Mean Squares	F	Sig.
Between Groups	3470.432	2	1735.216	55.713	.000
Within Groups	10589.463	340	31.145		
Total	14059.895	342			

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### Organization Realism Information Perception of job applicant towards different SNS

**Table 3: ANOVA**

#### Organization Realism Information

	Sum of squares	df	Mean Squares	F	Sig.
Between Groups	444.039	2	222.020	21.868	.000
Within Groups	3451.996	340	10.153		
Total	3896.035	342			

### Organization Information Specificity Perception of job applicant towards different SNS

**Table 4: ANOVA**

#### Organization Information Specificity

	Sum of squares	df	Mean Squares	F	Sig.
Between Groups	48.549	2	24.274	4.662	.010
Within Groups	1770.244	340	5.207		
Total	1818.793	342			

### Credibility Perception of job applicant towards different SNS

**Table 5: ANOVA**

#### Credibility

	Sum of squares	df	Mean Squares	F	Sig.
Between Groups	177.206	2	88.603	14.642	.000
Within Groups	2057.505	340	6.051		
Total	2234.711	342			

The table above shows results of one way ANOVA where F statistics value of 55.713 at  $p = 0.000$  which is less than the selected significance value of 0.05. Thus, we accept the hypothesis and conclude that there is significant difference in the perception of job applicant for Job specific information obtained from different social networking website.

The table 3 above depicts the results of one way ANOVA where F statistics value of 21.868 at  $p = 0.000$  which is less than the selected significance value of 0.05. Thus, we accept the hypothesis and conclude that there is significant difference in the perception of job applicant for Organization

Realistic information obtained from different social networking website.

The table 4 above depicts the results of one way ANOVA where F statistics value of 4.662 at  $p = 0.000$  which is less than the selected significance value of 0.05. Thus, we accept the hypothesis and conclude that there is significant difference in the perception of job applicant for Organization specific information obtained from different social networking website.

The table 5 above depicts the results of one way ANOVA where F statistics value of 14.642 at  $p =$



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0.000 which is less than the selected significance value of 0.05. Thus, we accept the hypothesis and conclude that there is significant difference in the Credibility perception of job applicant for towards different social networking website.

### FINDINGS AND CONCLUSION

As per economic times report on TeamLease Survey LinkedIn 2017, article by (Singh, July 2017) social networking websites are widespread in everyday life and its usage for networking, both personal and professional connections and job search has seen a remarkable growth in India The current study is in congruence to previous report and articles published. It also reflects that the job seekers after creating their account on LinkedIn become easily accessible to the recruiters, increase their visibility in the corporate world. Moreover they make better professional connections as can extract updated recruitment and organization related information. Organizations should be careful in providing the information on these networking websites in the form of advertisements about the job vacancy and also in providing information about organization attributes to capture the competent and talented resource for the company.

On the other hand, recruitment team of any organization can extract not only their profile, education qualification and other details but they can also gather useful information on skills and abilities by checking the endorsements and recommendations of the individuals.

Data results shows that Glassdoor and LinkedIn are mostly used by job applicants for their job search. This further reflects that today job seeker wish to gather information about organization which is more reliable, realistic and trustworthy before making any decision on employment. Thus, dependence of job applicants is increasing more on LinkedIn and Glassdoor. Job boards provide information about the vacancy and SNS provides

platform of interaction to job seekers, enabling them to make a better employer choice.

### Limitations and Scope for Future Research

The current study was limited in Delhi NCR region on job applicants who are working with ITES sector at entry level positions. Since it is only conducted on the job applicants of ITES Sector the study cannot be generalized. There is a scope to further research on usage of Social Networking sites by job applicants of different domains and industry. Even geographical area for research study can go beyond Delhi.

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# An Empirical Study on Work-Life Balance - A Case Study of Pharmaceutical Companies in India

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*Work-life balance (WLB) refers to the desire on the part of both employees and employer to achieve a trade-off between workplace obligations and personal responsibilities. Work-life conflict can be the major reason of job stress for employees affecting both professional life and personal/family life. Work-life conflict occurs when the cumulative demands of work and role at home are incompatible in some respect so that participation in one role is more difficult by participating in the other role. For an employee striking a trade-off between job satisfaction and personal/family obligation is a challenging task. Having a positive work life balance is dependent on several independent variables labelled as critical success factors for achieving positive work life balance.*

*To identify critical success factors contributing to positive work life balance the ensuing study was carried out taking the data of four hundred employees of eight pharmaceutical companies listed on stock exchanges in India. The primary objective of the study was to identify critical success factor that help in having positive work life balance. Both primary as well as secondary data have been used to achieve the research objectives.*

*In the study an attempt has been made to find out the application of Altman's model of discriminant analysis, therefore the research is empirical in nature. The result of discriminant analysis helped in achieving twin objective – first, the identification of the critical success factors that affect the status of work life balance of employees in pharmaceutical companies. The result of discriminant analysis helped in arriving at the conclusion that three factors - work from home, day care facility and day offs were the most critical success factors in achieving positive work life balance. Second, a 'Z Score' of 3.507 that can help in the classification (identification) of individual employees of pharmaceutical companies in one of the two groups identified a-priori.*

**Keywords :** Work life balance, Job stress, Job satisfaction, discriminant analysis, Z score.

## INTRODUCTION

Work-life balance is an expectation of today's job seeker. Life in the 21st century is increasingly complex with people juggling multiple roles, therefore they will only stay with a job that offers flexibility in achieving multiple goals at a time. Work-life balance (WLB) is a term that refers to the desire on the part of both employees and employer to achieve a trade-off between workplace obligations and personal responsibilities of employees. Job related stress, lack of job satisfaction, stressed personal life, life style diseases are the common complains of the employees who fail to achieve a proper trade-off between job responsibilities and personal/family obligations.

### *Job Stress Associated with Work Life Balance*

Everyone experiences some kind of stress in his daily life. Then the question arises why people say that they have a job stress ? It is the job which creates the stress or the attitude of individual towards the job which creates the stress ? Many emotions characterize stress, such as anger, anxiety, sadness, despair, depression and disappointment. In today's life the main reason for stress is multitasking and failure to balance between career goals and family goals.

Practically stress is the psychological and physical state that results when the resources of the individual are not sufficient to cope with the demands and pressures of work situation or family affairs, or both. For an employee striking a trade-off

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## An Empirical Study on Work-Life Balance - A Case Study of Pharmaceutical Companies in India

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between job stress and work life balance is a challenging task. Therefore stress is major problem for such employees who fail to balance between these two diverse goals, particularly female employees. This becomes more difficult when both husband and wife are working, in such situation the male member is expected to share certain responsibility at home also. Therefore irrespective of the gender of the employees the incidences of job stress are increasing day-by-day due. Work-life conflict can be the major reason of job stress. Work-life conflict occurs when the cumulative demands of work and role at home are incompatible in some respect so that participation in one role becomes more difficult by participation in the other. Sometimes described as having too much to do in too little time to do it, role overload is a term that is sometimes used as a means of examining the conditions that give rise to work-life conflict accordingly it has three components (i) role overload, (ii) work encumbrance with family, and (iii) family encumbrance with work.

Role overload is the major reason for work-life conflict. Role overload is caused by a convergence of pressures and conditions found both in the workplace and in a person's private/social life. At work, the combination of high job pressure and low control over the job causes workers to feel overload. When these conditions are combined with stressors from the home and family situation (such as caring for children or aging relatives – parents), this can create work-life conflict, especially when the social support is absent. The absence of social support is more in case of female employees as compared to male employees.

## REVIEW OF LITERATURE

Association between employee attrition, work life balance (WLB) and job turnover among educated employees has very little association. Banerjee Sharmistha, (2010) also concluded in her study on employee attrition and work life balance issues. It was observed that the graduates get better

opportunities for promotion as compared to diploma holders. At the same time it was concluded that WLB and other HR policies were not much effective in holding back highly ambitious employees. These policies were effective in holding back the employees which were not much ambitious or the one which did not have the opportunity to move out in a better organization.

Job satisfaction and work life balance policies have a high positive correlation. Connolly and Gregory (2008) concluded in a research work that the work-life balance policies have a positive impact on job satisfaction of employees. It was further concluded that WLB policies are like add-on feature of HR policies in creating job satisfactions particularly for female employees. In the study it was further concluded that majority of the WLB policies are aimed at female employees/workers which sometimes work as negative motivating factor for male employees. The WLB policies have played a grater role in enhancing job satisfaction among employees.

Holding back talented employees is a challenging task for HR department of an organization. There is a positive correlation between employee retention and WLB policies of the organization. Sloane Williams (2008) in his study established a relationship between HR practices particularly WLB policies and employee retention in United Kingdom in mining industry. The research findings also helped in concluding that the non-monetary policies like education facilities, medical facilities, day care center, transportation facilities are the prominent in motivating the employee to remain loyal to the organization. These policies have more positive impact on female employees as compared to male employees.

In a research on employee retention Eileen M. Garger (2007) concluded that HR professionals face a tough time in retaining the employees who fail to achieve proper work life balance, and such employees have more stressful life at job. It was also observed that such employees having negative work

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life balance created negative atmosphere for other employees in the organization. Due to this many HR professionals are finding it difficult to maintain minimum staffing requirement or are struggling to achieve the manpower targets they set to support continued growth of the company. In many cases, resolving these staffing problems must involve more than just new ideas for recruitment. Also required is a systematic and focused review of what is being done to retain employees, especially those who are identified as high performers.

Employee commitment is another aspect that triggers work life imbalance. Boehman, (2006) concluded that the organizational commitment refers to the employee's emotional attachment to, identification with, and involvement in the organization. It is not the monetary package that motivates the employees in having commitment for the organization but there are certain other non-monetary factors which help in creating the sense of belongingness among the employees. In general a more dedicated and committed employee is likely to find it difficult to achieve positive work life balance.

### RESEARCH PROFILE

Review of literature cited above and analysis of certain other concept papers helped in designing the research methodology of the ensuing research work titled "An Empirical Study on Work-Life Balance - A Case Study of Pharmaceutical Companies in India". With the help of this research an attempt has been made to identify critical success factors affecting work life balance of pharmaceutical companies in India the research design was empirical in nature as it attempts to develop 'Z Score' model using Altman's model of discriminant analysis.

#### *Objectives of the research were*

- To Identify critical factors affecting work life balance.
- To develop 'Z Score' using Altman's model of discriminant analysis.

- To analyze work life balance policies of pharmaceutical companies.

The universe and sampling frame : Study focused on pharmaceutical Companies in India and their Employees. To have a representative sample for the study, the pharmaceutical companies listed on stock exchanges in India were considered as the true representative for sampling. Hence sampling frame comprised of all the listed companies of pharmaceutical sector on both the leading stock exchanges of India – Mumbai Stock Exchange (a.k.a. BSE) and National Stock Exchange (a.k.a. NSE) of India.

Method of multistage random sampling was considered appropriate and unbiased to have representative sample of sampling units – employees of pharmaceutical companies. In the first stage eight pharmaceutical companies out of the total pharmaceutical companies listed on the stock exchange were selected by draw of lots. From each of the selected company fifty employees were included in the final sample resulting into a total sample size of four hundred employees of these sample companies.

Both primary and secondary data were used to achieve the objectives of the study. The primary data was collected by means of a structured questionnaire (sent by email) to employees of the sample companies. The secondary data was collected from annual reports, brochures, websites and other literature published by the companies. The study was conducted from period January 2016 to December 2018.

#### **Hypothesis :**

Null Hypothesis ( $H_0$ ) :-

There are no critical factors that affect work life balance of employees irrespective of the level of satisfaction of employees.

#### **Alternate Hypothesis ( $H_a$ ) :-**

There are critical factors that affect work life balance



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of employees irrespective of the level of satisfaction of employees.

Hypothesis was tested using “z test” statistics at 5% significance Level.

### **Assumptions and Limitations :**

The findings of the research work are subject to the following assumptions and limitations.

The findings should not be taken for generalized interpretation as these were based on the data about WLB policies of the sample companies.

The findings would be applicable under the employment scenario which prevailed during the period of the study and the scope of the study.

Findings would be based on Altman’s models selected for the purpose of the analysis. Hence these are subject to the limitations of this model.

The findings would be subject to the sample design adopted in the study.

Findings were based on the data collected through questionnaire hence these would be subject to the limitation of data collection tool. However due care has been taken to eliminate the errors which might creep in while carrying out the research work.

The results would be true for the WLB policies and HR policies and their role in employee retention.

The comparison has been done only for the specific HR policies helping in employee retention and work life balance.

Every possible attempt was made to neutralize the effect of these limitations so that the authenticity and relevance of the findings could help in arriving at a proper conclusion.

## **ANALYSIS OF FACTS**

The primary data were analyzed from different dimensions presented below :

### ***Job Satisfaction and Work-Life Balance***

To interpret whether employees feel that they have job satisfaction just because of being able to strike a proper balance between work and personal life, a cross tabulation was done to show the correlation between level of job satisfaction and level of work life balance. Job satisfaction is closely linked to job stress and employee turnover. An employee having low job satisfaction will have either job stress or is likely to switch the job very frequently. Here job satisfaction is the dependent variable and work-life balance is the independent variable affecting job satisfaction. Normally it is perceived that an employee having positive work-life balance will have high job satisfactions and vice-a-versa. The result of this cross tabulation is presented in the table number 1 given below :

Table No. 1 : Work-Life Balance and Job Satisfaction				
Presence of Work-Life Balance	Job Satisfaction			Total
	High	Moderate	Low	
Yes	171	49	24	244
No	62	21	73	156
Total	233	70	97	400

### ***Interpretation***

The table number 1 given above shows across link between job satisfaction and presence of work-life balance. 244 (61%) respondents out of 400 were having positive work life balance. 70% of the respondents who reported positive work life balance were having high job satisfaction. Whereas, only about 10% of these were having very low job satisfaction. 156 out of 400 i.e. 39% employees reports negative work-life balance out of these 40% were having high job satisfaction, whereas 47% of these were having low job satisfaction. This implies that both their family life as well as work life are disturbed which might lead to reduced productivity, increased job stress, high employee turnover and presence of physical or psychological disorders like blood pressure, stress, mental fatigue, heart diseases

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and so on. Therefore companies should try to provide for such policies in the organization which help in maintaining positive work-life balance, this is required for the betterment of company as well as for the well-being of employees.

### Gender and Job Satisfaction

When it refers to work-life balance the immediate reference goes towards the work-life balance of female employees, which is not true because in present scenario even male employees find it difficult to cope with the job pressure and family affairs. To understand this phenomenon a cross tabulation between gender and job satisfaction was carried out it revealed the follows facts :

Table No. 2 : Gender and Job Satisfaction				
Gender	Job Satisfaction			Total
	High	Moderate	Low	
Male	128	73	67	268
Female	89	29	14	132

### Interpretation

Table given above reveals that about 67% (89 out of 132) of female are having high job satisfaction whereas only 48% (128 out of 258) of the male employees have high job satisfaction. Whereas only about 10% of the females have low job satisfaction as compared to 25% female employees. This shows that woman can work well even under stress situation or even can balance well between home and work.

### Analysis Using Ranked Scores of Work-Life Balance Factors

To find out the important/critical work-life balance (WLB) factor that value the most for the sample employees of pharmaceutical companies the respondents were asked to rank different factors. The result of which was as follows

Table No. 3 : Ranked WLB Factors					
WLB Factor	Rank - 1	Rank - 2	Rank - 3	Rank - 4	Rank - 5
Work from home	130	156	62	38	14
Day care facility	116	88	92	78	26
Day offs	55	90	154	69	32
Entertainment and yoga facility	77	43	45	88	147
Flexi working hours	22	23	47	127	181
Total	400	400	400	400	400

The table given above shows responses on the basis of rank given by the respondents to different work life balance factors as per their preference. Here rank one implies highest preference and rank five implies least preference.

The rank responses were analyzed by using the method of ranked mean calculation for the purpose ranked responses were multiplied by the inverse of the rank score i.e. rank 1 responses were multiplied with 5 and rank 5 scores were multiplied with 1 and similarly other ranked responses were used. The purpose was to ascertain most critical work life balance factor out of the factors ranked by the respondents. The result of this analysis was as follows :

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**Table No. 4 : Rank Weighted Score of WLB Factors**

WLB Factor	Rank - 1	Rank - 2	Rank - 3	Rank - 4	Rank - 5	Total
Work from home	650	624	186	76	14	1550
Day care facility	580	352	276	156	26	1390
Day offs	275	360	462	138	32	1267
Entertainment and yoga facility	385	172	135	176	147	1015
Flexi working hours	110	92	141	254	181	778

The table given above shows weighted ranked scores. The scrutiny of total score of weighted ranked scores helped in identifying critical success factors. The table given reveals that out of the five factors the facility of “work from home” scored the maximum weighted ranked score that means the sample employees value this factor the most out of all the factors listed in the table and the facility of “day care center” has been ranked second, followed by “day offs”. Factor “Flexi working hours” has been ranked the least.

## DISCRIMINANT ANALYSIS AND INTERPRETATION

**Conceptual Background :** Discriminant analysis is a statistical technique useful in classification of individuals or observations into two or more mutually exclusive groups, on the basis of a set of predictor variables. General features of discriminant analysis are like there is one nominal dependent variable and two or more interval scaled predictor (independent) variables. The predictor variables have certain common characteristic features. These features are useful in discriminating among individuals. The groups in which the individuals or the objects are classified are mutually exclusive and exhaustive, such as sick and healthy, good and bad, user, casual user and non-user, satisfied and unsatisfied and so on. The variance and covariance of the predictor variables are equal across the groups.

Objective of the discriminant analysis is to determine the variables or factors, which account for

major portion of inter group difference. The model of discriminant analysis helps in arriving at a cut-off point called as ‘Z Score’ that provides a basis for assigning new individuals to one of the two groups, assuming that it belongs to one of the groups defined a-priori.

However the application of discriminant analysis has certain limitations like the Discriminant function is based on past data therefore these may not give accurate classification of the dependent variable in one of the two groups identified a-priori, if conditions change in future.

**The Application :** To apply discriminant analysis on the findings of the study different factors contributing to work life balance were labelled as independent factors affecting the dependent variable - work life balance. Further to complete the discriminant analysis and validate the result of this analysis a discriminant model was developed using the data of different work life balance factors.

Out of the total four hundred employees surveyed for the purpose of research work. Employees surveyed were classified into two exclusive groups, (i) Group ‘A’ – employees who were successful in maintaining a balance between work life and personal life. These have been identified as the employees having positive work life balance, and (ii) Group ‘B’ - employees who were not successful in maintaining a balance between work life and personal life. These employees have been identified as the employees having negative work life balance.

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In group 'A' there were 244 out of a total of 400 employees, remaining 156 were belonged to group 'B'.

Prima facie identification of critical success factors leading to work life balance was carried out with the help of hypothesis testing. For this a null hypothesis and alternate hypothesis mentioned below were tested using 'z' test.

**Null hypothesis** - There was no significant difference between the weighted mean values of work life balance (WLB) factors for the two groups of employees.

**Alternate hypothesis** - There was a significant difference between the weighted mean values of work life balance (WLB) factors for the two groups of employees.

**Table No. 5 : Calculated value of 'z score' of WLB Factors**

S.No.	WLB Factor	Calculated Value of 'z'
1	Day care center facility	2.89
2	Work from home	3.52
3	Day offs	2.14
4	Entertainment and yoga facility	1.07
5	Flexi working hours	1.32

The Calculated Value of 'z' for three factors - (i) Day care center facility 2.89, Work from home 3.52, Day offs 2.14 was greater than the table value of 'z' (1.96) at 5% level of significance.

Hence it was concluded that these three WLB factors could discriminate between the individuals of group 'A' and group 'B'. Therefore, Pharmaceutical companies should focus on these WLB factors with utmost priority so as to facilitate positive work-life balance.

Further discriminant coefficient using Altman's model for discriminant analysis was calculated for each of these three critical success factors. The result of that is present in the table given below :

**Table No. 6 :Discriminant Coefficient For Three Critical Success Factors**

Factor	Discriminate Coefficient	Rank
Day offs	0.036039	3
Work from home	3.112177	1
Day care center facility	0.658715	2

**Calculation of discriminant score for each group :** The discriminant score of each of the groups was calculated using below given formula :

Discriminant Score of Group = Mean of R-I x DI + Mean of R-II x DII + mean of R-III x DIII

Discriminant Score of group 'A' was 4.569 and of group 'B' was 2.445

**Determination of cut-off point - 'Z Score':** Cut off point is an optimum value, which results in minimum number of misclassification. Cut off point is the mean of discriminant score of both the groups. It was 3.507, this cut-off point helps in identifying the individuals as belonging to group 'A' or group 'B'. The individual whose discriminant score is more than the cut-off point belongs to group 'A' and if the score is less than cut-off point then it belongs to group 'B'.

**Validation of result of discriminant analysis:**

To validate the prediction capability of 'Z Score' developed using Altman's model given above s misclassification probability was calculated. The result of which is shown in the table given below

**Table No. 7 :Showing Misclassification Probability**

	Z-Score	Misclassification Probability
Group A	-1.517	09.51%
Group B	1.517	09.51%

Table represents that there was a possibility of 9.51% of the results of the study may not coincide with the real situation that translates to a success rate of



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90.49% of the results of the discriminant analysis being true in majority of the similar situations.

### ***Hypothesis about significant factors across the groups***

Null hypothesis : there exists no such set of WLB factors which act as discriminating factor between employees of group 'A' and group 'B' i.e. there is no difference between the satisfaction level of employees of group 'A' and group 'B'.

Alternate hypothesis : there exists a set of WLB factors which act as discriminating factor between employees of group 'A' and group 'B' i.e. there is no difference between the satisfaction level of employees of group 'A' and group 'B'.

Hypothesis was tested on the basis of mean discriminant score of group 'A' and group 'B'. The calculated value of 'z test' was 4.97 as compared to the table value 1.96 of 'z' - area under normal curve at 5% significance level. This resulted into the rejection of null hypothesis and arriving at the conclusion that work from home, day care center facility, and day offs are the three critical success factors which discriminate between the satisfaction level of group 'A' employees and group 'B' employees.

## **INFERENCES AND CONCLUSION**

### ***Inference on The Basis of Secondary Data***

Out of the total respondents 67% were male and 33% were female. 44% of the sample employees were having post graduation degree and 43% of the sample employees were only graduate. 87.50% companies out of total eight companies were providing facilities of yoga and medication to reduce job stress. Only 37.50% of the companies were providing day care center facility for their employees. 61% of the sample employees were having two dependent members whereas 24% of the sample employees were having only one dependent and rest 15% were having 3 dependent members.

51% out of 400 employees surveyed were always on their toe for work as they always think about work when away from work, whereas only 16% of the respondents out of 400 sample size never think about job while away from job. 56% of the sample employees felt very happy while spending time at work whereas 5% of the sample employees were very unhappy while being at work.

### ***Inferences Based on Primary Data***

The empirical testing of Altman's discriminant model and 'Z Score' helped in achieving the primary research objective of identifying critical success factors contributing to positive work-life balance. The inference are as follows :

The discriminant model so tested empirically indicated that the three factors were the critical success factors - (i) work from home, (ii) day care center facility, and (iii) day offs were the critical. These three factors can discriminate between the employees of group 'A' and group 'B'. Further the model resulted into a 'Z Score' of 3.507, that can be used to classify individuals into one of the two groups i.e. group 'A' and group 'B'. Here group 'A' means the employees having positive work-life balance and group 'B' means the employees having negative work-life balance.

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organized by MMIM, Mullana, India in 2004, his Ph.D. research work was awarded the best Ph.D. He has twenty six years of teaching experience and four years of corporate experience. He has successfully guided eleven Ph.D. scholars in completing their Ph.D. degree.

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# Customer Perspectives of E-service Quality in Indian Retail Banking Context

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*The purpose of this paper is to examine a multiple item scale (E-S-Qual) for measuring electronic service quality (e-service quality) of banking in India. This study makes an attempt to ascertain customers' perspectives of e-service quality as well as its dimensions in Indian retail banking context.*

**Methodology-** *This study adapts the dimensions of e-service quality as proposed by E-S-Qual scale to develop a framework that can be used to measure e-service quality in banking in India. Data is collected through a survey of bank customers in Delhi and NCT region.*

**Findings-** *The findings suggest that only three (efficiency, privacy and fulfillment) out of four dimensions originally proposed in the E-S-Qual scale, to be significant influencing positively e-service quality in banking. However, system availability is not found significantly affecting e-service quality in banking.*

**Research implications-** *Based on the understanding of the key e- service quality dimensions and the perception of consumers toward e-service quality, managers may discover methods to improve e-service quality and create loyal customers.*

**Originality/value-** *This paper adapts E-S-Qual as the basis to measure e-service quality in banking service. This method is more suitable than that of the previous studies that are based on the traditional service quality models.*

**Keywords:** *E-service quality, efficiency, system availability, privacy, fulfillment*

## INTRODUCTION

The incredible growth of internet is changing the way corporations conduct business with customers (Siu & Mou, 2005). It has not only created opportunities for businesses to reach out to consumers directly but also allows customers an immediate access to the electronic markets. The banking industry is no exception. Many banks, in India, have entered the banking industry, providing customers with financial services over the internet.

E-banking or internet banking industry has emerged as one of the most dynamic segments of the banking industry. Banks have begun to set up their own web portals to provide internet services and gain the advantages of unlimited time and areas, fewer costs, and more customers from internet banking. E-banking signifies making use of electronic channels like telephone, mobile phones, internet etc. for delivery of banking services and products. According to Fassnacht and Koese (2006), e-banking is a fast-growing sector and banks can exploit it as an opportunity to gain competitive advantage and companies cannot afford to be complacent. Indian banks offer various e-banking products and services to their customers like automated teller machines (ATMs), internet banking, mobile banking, phone banking, tele-banking, electronic clearing services, electronic clearing cards, smart cards, door step banking and electronic fund transfer.

In India, the development of e-banking (also referred as internet banking or online banking in the present study) has a great potential and has grown

significantly along with the use of smart phones and tablets. Internet banking, as a medium of delivery of banking services, is fast catching up in India with more and more banks entering the e-banking world. Despite the increasing number of internet users, customer adoption of internet banking has not yet reached the level as expected. One of the common concerns in adopting internet banking is poor service quality and customer satisfaction (Calisir & Gumussoy, 2008), and lack of awareness and understanding of the benefits provided by internet banking (Laforet & Li, 2005).

The way a customer perceives the service quality of web-based settings is different from that of traditional services. Research literature on customer perception of service quality in Indian traditional banking is rich and varied. However, there are very few studies which measure the relative importance of the different dimensions of electronic service quality (e-service quality or e-SQ) in Indian banking sector. So, there is a need to examine the electronic service quality of Indian retail banking sector. This study makes an attempt to ascertain customer perception of e-service quality as well as its dimensions in Indian retail banking context. The purpose of this paper is to examine a multiple item scale (E-S-Qual) for measuring e-service quality of banking in India.

The present paper is organized as follows. First, an overview of e-service quality, E-S-Qual model and the different dimensions of e-service quality are proposed. Research design used in the study is discussed next. Third section presents and discusses findings of the study. The last two sections are devoted to conclusions, managerial implications, limitations of the study and directions for future research.

## **THEORETICAL FRAMEWORK**

### ***Electronic service quality***

Electronic service quality is a new concept and the way it is conceptualized varies greatly. E.g.

Fassnacht and Koese (2006) define e-service quality as the degree to which an electronic service is able to effectively and efficiently fulfill relevant customer needs. Santos (2003) defines service quality in e-commerce as the consumers' overall evaluation and judgment of the excellence and quality of service offerings in the virtual market place. This definition is in a somewhat circular way (Kim et al., 2006) and do not capture all the aspects of the purchasing process (Parasuraman et al., 2005).

Variations in conceptualization of online service quality may be attributed to the focus of specific individual research (e.g., user interface, consumer shopping process) and the types of Web sites used in the study (e.g., B2C retailing sites, Web site portals, or B2B sites). Given the growing importance of online retailing in the retail industry, the present study focuses on service quality provided by retail Web sites offering internet banking. The definition of e-service quality (e-SQ) by Zeithaml et al. (2000, 2002) provides a relevant (and non-circular) conceptualization of online service quality for the context of the present study. According to Zeithaml et al. (2002), e-service quality (e-SQ) is defined as "the extent to which a Web site facilitates efficient and effective shopping, purchasing, and delivery of products and services". This definition is the most commonly used and accepted definition till date. Explicably, this definition encompasses all phases of customer's interaction with the Web site, by capturing all the aspects of purchasing process from pre-sale to the post-sale (Parasuraman et al., 2005).

The importance of delivering high quality e-services has been recognized by many companies, but still there is a problem in defining the quality of online services, its dimensions and its measurement. The initial studies in electronic services marketing focus on the technical quality rather than the service quality of the Web sites (Barnes & Vidgen, 2001; Aladwani & Palvia, 2002; Loiacono et al., 2002; Chen & Yen, 2004; Cao, Zhang, & Seydel, 2005; Evarard & Galletta, 2006). Loiacono et al. (2002) develop the WebQual scale and the researchers cite this study as the most



comprehensive research, both theoretically and empirically, on identifying the Web site quality (Wolfinbarger & Gilly, 2003; Parasuraman et al., 2005). WebQual introduces twelve dimensions to help designers to better shape their Web sites. The researchers conduct the study on a student sample that only makes evaluations for Web sites rather than actual purchases. The focus of the scale is, therefore, more on design evaluations rather than service quality measurements (Zeithaml et al., 2002).

The studies on the technical quality of Web sites and electronic satisfaction has led the researchers' attention to the service quality of the Web sites and development of measurement scale to study electronic service quality (e-SQ); for example, SITEQUAL by Yoo and Donthu (2001); eTailQ by Wolfinbarger and Gilly (2003); E-S-QUAL by Parasuraman et al. (2005); eTransQual by Bauer et al. (2006). Among these, Wolfinbarger and Gilly (2003) introduced one of the first psychometrically robust electronic service quality oriented instrument, eTailQ. From their 14 item scale, five distinct factors (Web site design, customer service, fulfillment, reliability and privacy/security) emerge. Parasuraman et al. (2005) like several other studies, criticize this research for several reasons. The authors express that privacy/security and fulfillment/reliability dimensions have face validity, but the statements defining other dimensions do not have internal consistency and dimensionality. Similarly, Bauer et al. (2006) criticize the scale for the elimination of quality items referring to hedonic aspects of online shopping.

## E-S-QUAL Model

On the evaluation of Web sites' service quality, Parasuraman et al., (2005) conducted one of the most comprehensive studies and introduced E-S-QUAL and E-RecS-QUAL scales. Prior to this scale, Zeithaml et al. (2002) have developed e-SERVQUAL, an e-service quality measurement scale for rating online shopping experience. The initial e-SERVQUAL scale consisted of 11 dimensions which

are: reliability, responsiveness, access, flexibility, ease of navigation, efficiency, assurance/trust, security/privacy, price knowledge, site aesthetics and customization/personalization.

Later, Zeithaml et al. (2002) revised this scale based on the combination of different kinds of concepts of online service quality (Yoo & Donthu, 2001; Loiacono et al., 2002; Wolfinbarger & Gilly, 2003). The new revised scale E-S-QUAL / E-RecS-QUAL lowered the dimensions to seven: efficiency, fulfillment, system availability, privacy, responsiveness, compensation and contact. E-S-QUAL is considered to be the core service quality measurement scale while E-RecS-QUAL is a recovery scale. E-S-QUAL/E-RecS-QUAL was established based on previous studies of online service quality, involving not only interaction between consumers and Web site interface, but also the purchasing process and post interaction services as well. Accordingly, E-S-QUAL/E-RecS-QUAL is considered to be one of the most comprehensive measurement to evaluate online services, involving the users' experiences before (which can be understood as evaluation of Web site quality), during (purchasing process) and after the transaction process (after-sales service).

The present paper focuses only on examining the dimensions of e-service quality, so the study is discussing the E-S-Qual model only. Table 1 gives the detailed description about the dimensions of E-S-QUAL.

After 2005, many researchers have focused on E-S-Qual model and tested the validity of the model (Kim et al., 2006; Boshoff, 2007; Yang & Tsai, 2007; Akinci et al., 2010; Fuentes-Blasco et al., 2010; Marimon, Vidgen, Barnes, & Cristobal, 2010; Honore Petnji Yaya et al., 2011; Marimon et al., 2012; Petnji Yaya, Marimon, & Casadesús, 2017). Although they have respecified the model for different service settings, different service categories and cultures, many of them agreed that the most effective scale to measure the quality of service offered by the internet retailers is the E-S-Qual. They recommended E-S-Qual for

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Table 1: Dimensions of E-S-QUAL scale	
E-S-QUAL scale	
Dimension	Meaning
Efficiency	The ease and speed of accessing and using the Web site
Fulfillment	The extent to which the site's promises about order delivery and item availability are fulfilled
System Availability	The correct technical functioning of the site
Privacy	The degree to which the site is safe and protects customer information

Source: Parasuraman et al. (2005)

use in managerial purposes. Boshoff (2007) concluded that "E-S-Qual instrument is a valid and reliable instrument to measure service quality in an electronic shopping environment". Marimon, Vidgen, Barnes and Cristobal (2010) have tested the applicability of E-S-Qual in Spain for a supermarket.

Kim, Kim and Lennon (2006) identified online service retailers' attributes that facilitate efficient and effective shopping, purchasing, and delivery based on the modified E-S-QUAL scale. Their study focused on apparel retail web sites and the modified E-S-QUAL model was labeled as E-A-S-QUAL (E-S-QUAL for apparel). The E-A-S-QUAL model included nine dimensions: six dimensions from E-S-QUAL and E-RecS-QUAL (efficiency, fulfillment, system availability, privacy, responsiveness, and contact) and three additional dimensions (personalization, information, and graphic styles). E-S-QUAL model is considered as important step in conceptualizing e-service quality, although the conceptualization of e-service quality could benefit from further development (Collier & Bienstock, 2006).

### *E-service quality and its dimensions*

As against being a unidimensional construct, e-service quality in the services marketing literature has in general been posited as a multidimensional concept (Parasuraman et al., 2005). As a multidimensional concept, it is viewed as comprising of various dimensions (i.e., attributes or determinants) that the consumers take into account while evaluating e-service quality. An analysis of

service quality dimensions is important to the service firms because it can help them identifying attributes that consumers consider important in selecting service providers and evaluating quality of services to the consumers (Jain & Jain, 2015)

The review of the literature on e-service quality (e-SQ) suggests that the following are the major dimensions affecting e-SQ and thus e-banking service quality also:

- a. Efficiency (E-S-Qual)
- b. System Availability (E-S-Qual)
- c. Privacy (E-S-Qual)
- d. Fulfillment (E-S-Qual)
- a. **Efficiency:** Parasuraman et al. (2005) have defined efficiency as "the ease and speed of accessing and using the Web site" in an online context. According to Zeithaml et al. (2002), efficiency is the ability of the customer to get to the Web site, find their desired product and information associated with it, and check out with minimal effort. In fact, this definition of efficiency includes 'the ease of navigation' and 'access' which have been mentioned in the first phase of e-SERVQUAL instrument developed by Zeithaml et al. (2002). Past researches have shown that efficiency is a significant dimension of e-service quality (Jun & Cai, 2001; Parasuraman et al., 2005; Siu & Mou, 2005; Kenova & Jonasson, 2006; Sohail & Shaikh, 2008; Khan, Mahapatra, & Sreekumar, 2009; Akinci et al., 2010; Zavareh et al., 2012)

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Wu et al. (2012) have related the efficiency dimension to Web site design, web interface, aesthetics/contents/ease of use, and transaction support while other studies (Jun & Cai, 2001; Herington & Weaven, 2009; Rod et al., 2009; Zavareh et al., 2012; Hussien & Aziz, 2013) have taken efficiency, ease of use/ user friendliness and site aesthetics as different dimensions. In our conceptualization, the focus is on customer's ease in interacting with the Web site and accessing the information easily. Thus, the present study is considering efficiency as a dimension to conceptualize e-SQ, defining it as the ability of a customer to find information or enact a transaction with least amount of effort (including ease of navigation, ability to easily change or cancel an order, and ability to inform the customers about the missing information) and it is hypothesized that:

**H1:** Efficiency is positively related to e-service quality.

- b. System Availability:** System availability means the correct technical functioning of the site (Parasuraman et al., 2005). According to Fram and Grady (1995), technical software issues are problems related to browsing or purchasing on the internet. When consumers use a Web site for browsing or purchasing, problems related to the functioning of a Web site such as missing links and non-working buttons lead to frustration and exiting. Consequently, the online retailer loses a valuable opportunity to build customer loyalty (Wachter, 2002). According to Santos (2003), avoiding and eliminating broken links and links to Web sites that no longer exist or that are under construction directly affects e-service quality.

Various studies have used the dimension of system availability in their researches related to online banking (Kenova & Jonasson, 2006; Wu et al., 2008; Akinci et al., 2010) and found this aspect to be positively affecting e-service

quality. The present study is also following the same definition as given by Parasuraman et al. (2005) and it is hypothesized that:

**H2:** System availability is positively related to e-service quality.

- c. Privacy:** The privacy dimension of E-S-QUAL is defined as "the degree to which the site is safe and protects customer information" (Parasuraman et al., 2005). The issue of privacy has been a critical issue in online retailing (Sharma & Sheth, 2004). Because of perceptions of risk related to misuse of personal information, many people are still unwilling to use services provided on the internet. Due to heightened concern with privacy, online retailers are becoming more aware of the importance of providing consumer privacy policies (Ranganathan & Ganapathy, 2002). The privacy dimension has been shown to have a strong impact on intention to purchase (Loiacono et al., 2002), satisfaction (Szymanski & Hise, 2000), and overall site quality (Yoo & Donthu, 2001).

Security is regarded as a major issue for customers when faced with the decision of using internet banking and it has also been identified as significant determinants of e-banking service quality (Jun & Cai, 2001; Liao & Cheung, 2002). This term has very often been used interchangeably with 'privacy', in the literature. While some studies have used the term security (Jun & Cai, 2001; Bauer et al., 2005; Siu & Mou, 2005; Kenova & Jonasson, 2006; Loonam & O'Loughlin, 2008; Sohail & Shaikh, 2008; Yu, 2008; Rod et al., 2009), others have used 'privacy' (Parasuraman et al., 2005; Collier & Bienstock, 2006; Wu et al., 2008; Akinci et al., 2010; Hussien & Aziz, 2013). Moreover, in some studies, these terms have been observed to be used together as 'privacy and security' or 'privacy/security' (Khan et al., 2009; Wu et al., 2012).

As stated before, this study uses the term

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privacy which includes consumer's perception of the bank site's personal data protection practices and the bank information system security measures and so it is hypothesized that:

**H3:** Privacy is positively related to e-service quality.

- d. Fulfillment:** The fulfillment dimension of the E-S-QUAL scale is defined as "the extent to which the site's promises about order delivery and item availability are fulfilled" (Parasuraman et al., 2005). Fulfillment is one of the most crucial factors related to judgments concerning the quality of an online site (Wolfenbarger & Gilly, 2003). Yang and Fang (2004) indicated that accurate order fulfillment and keep service promise are primary service quality elements leading to customer satisfaction.

This dimension is similar to reliability as used in many studies (Jun & Cai, 2001; Jayawardhena, 2004; Loonam & O'Loughlin, 2008; Khan et al., 2009; Rod et al., 2009; Ramseook-Munhurrin & Naidoo, 2011; Wu et al., 2012; Zavareh et al., 2012; Hussien & Aziz, 2013). Reliability is defined as the extent to which the provider keeps its service promise (Parasuraman et al., 1988). It is important to note that this dimension

does not refer to the reliable functioning of the provider's technical infrastructure during service delivery as defined by Zeithaml et al. (2002). That aspect is already covered by system availability. Rather, reliability refers to the accuracy and timeliness with which the underlying service promise is fulfilled.

Previous studies (Collier & Bienstock, 2006; Fassnacht & Koese, 2006) have reported positive relationship between reliability and e-banking service quality, therefore, it is believed that fulfillment has also positive relationship with e-service quality and it is hypothesized that:

**H4:** Fulfillment is positively related to e-service quality.

### *The proposed research model*

The proposed research model comprises of 5 main constructs (Efficiency, system availability, privacy, fulfillment and e-service quality). It is built upon rewording the various dimensions of the framework proposed by Parasuraman et al. (2005). The dependent variable, viz. e-service quality has been incorporated from the works of Fassnacht and Koese (2006).

The research model is presented in figure 1.

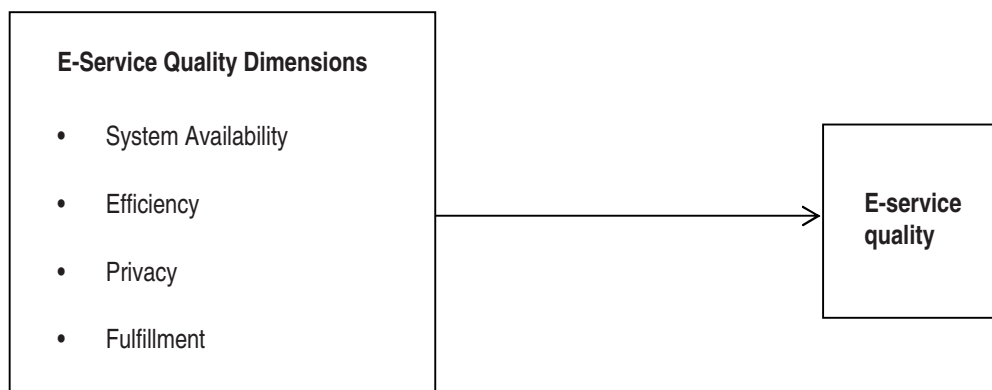


Figure 1: The proposed research model



## RESEARCH DESIGN

Using a structured questionnaire, a survey of bank customers residing in Delhi and the NCT area was conducted to collect the information needed for the study. The questionnaire was prepared after a thorough review of the previous research work pertaining to e-service quality in banking sector that helped in formulating a series of statements to measure the variables viz., dimensions of e-SQ and overall e-SQ. The scale items for the variables listed in the conceptual framework were identified from the literature review. The core construct (e-service quality) has been borrowed from the works of Fassnacht and Koese (2006) and the other variables have been incorporated from the E-S-Qual model as proposed by Parasuraman et al., (2005).

Responses to each of the scale item were obtained on a seven-point Likert scale, ranging from Strongly agree (7) to Strongly disagree (1). Before conducting the main survey, the draft questionnaire was pre-tested on a sample of 30 banking customers. Based on their observations, suitable modifications were made in the questionnaire so as to make it more understandable to the respondents.

Convenience sampling method was used for selecting the respondents during the main phase of the survey. Due care, however, was taken to ensure to select respondents from various demographic groups of people living in Delhi. In total, 800 questionnaires were distributed to the respondents at their houses, offices, institutes and colleges. After repeated calls, 435 filled-in questionnaires were received back, resulting in an overall response rate of 54.38 per cent. Of these, however, only 358 were found usable in the study.

Despite efforts made at the time of selecting respondents, the finally selected sample appears skewed towards younger persons, with 53 per cent respondents being below 30 years. Majority of the

respondents (72.4 per cent) were, moreover, graduates and post graduates. Gender wise, male and female respondents were in fairly equal proportion (i.e., 52 and 48 per cent respectively). Occupation wise, while majority of the respondents were belonging to service class (i.e., 64.2 per cent), percentage shares of students and self-employed business were 28.5 per cent and 7.3 per cent respectively.

The collected data were first subjected to reliability analysis, with Cronbach alpha values above 0.70 taken as representing reliability of the multi-item scales (Hair, Tatham, Anderson & Black, 1998). Results reported in Table 2 reveal that all multi-item scales have alpha values exceeding the recommended threshold of 0.70.

**Table 2: Reliability Analysis**

Scale	Number of items	Cronbach alpha ( $\alpha$ )
System Availability	4	0.764
Efficiency	12	0.899
Privacy	4	0.885
Fulfillment	6	0.854
e-service quality	3	0.888

Descriptive statistics were then computed to gauge the customer attitudes toward internet banking adoption and perceptions about various antecedent factors. The causal relationship among the variables was examined through regression analysis. Before performing the regression analysis, multicollinearity among the independent variables was assessed through use of VIF and tolerance indices. VIF value of less than or equal to 10 (or tolerance > 0.1) is commonly suggested as a threshold to rule out the possibility of presence of multicollinearity among the independent variables (Hair et al., 1998). VIF values as well as the tolerance values for all the independent variables were found within acceptable limits, thus ruling out the problem multicollinearity in the data set used in this study.

## STUDY FINDINGS AND DISCUSSION

### Descriptive statistics

Table 3 provides a summary of descriptive statistics relating to various constructs used in the study. Mean scores of 5.34 and 5.53 for the two constructs; system availability and efficiency respectively indicate surveyed customers to be having highly favourable attitude towards e-service quality of banking and also holding positive perceptions about the system availability and efficiency in e-banking. Customer perceptions about privacy and fulfillment are also high and favourable, mean score being 5.91 and 5.90 respectively. A mean score of 5.61 score in respect of e-service quality indicates that customers appear to be holding similar and favourable opinions about e-service quality of banking.

**Table 3: Consumer perceptions of e-service quality and its dimensions: Descriptive statistics**

Scale	Mean score	Standard deviation
System Availability	5.34	1.108
Efficiency	5.53	0.894
Privacy	5.91	0.870
Fulfillment	5.90	0.749
e-service quality	5.61	1.066

Note: 1. Responses to all the scale items were obtained on a scale of 1 to 7, with 1 standing for "Strongly disagree" and 7 for "Strongly agree".

### Regression results

Causal relationships between e-service quality and various dimensions were examined through use of regression analysis. Results presented in Table 4 show that efficiency ( $\beta = 0.265$ ,  $p \leq 0.001$ ), privacy ( $\beta = 0.225$ ,  $p \leq 0.001$ ) and fulfillment ( $\beta = 0.338$ ,  $p \leq 0.001$ ) are significant and positively related to e-service quality. However, system availability ( $\beta = 0.012$ ,  $p \geq 0.05$ ) is not found significant. Taken together, these variables are able to explain 46.5 per cent of the variations in customer attitudes towards internet banking adoption ( $R^2 = 0.465$ ,  $p \leq 0.001$ ).

The results thus provide support to hypotheses  $H_1$ ,  $H_2$  and  $H_3$  but  $H_4$  is rejected.

**Table 4 : Consumer perceptions of e-service quality and its dimensions: Regression results**

Independent variables:	$\beta$	p
System Availability	0.012	0.821
Efficiency	0.265***	0.000
Privacy	0.225***	0.000
Fulfillment	0.338***	0.000
Model statistics	Adjusted $R^2 = 0.465$ , $F = 78.602$ , $p \leq 0.001$	

Note: 1. Significance level: \*\*\*  $p \leq 0.001$

## CONCLUSION AND MANAGERIAL IMPLICATIONS

E-banking represents the latest and most innovative technology-based service in India. Its penetration among the Indian publics, however, continues to be abysmally low. Employing the a multiple-item scale (E-S-QUAL) for measuring the service quality delivered by Web sites, an attempt was in this study made to identify dimensions that affect e-service quality of e-banking in India. A survey of banking customers located in Delhi and its NCT region was conducted using a structured questionnaire.

The results of the study have practical implications for bank managers in India, as they can help management plan their marketing strategies and make improvements in the quality of internet banking services. The four dimensions could be integrated into marketing strategies in order to develop unique and superior internet banking services for customers. The managerial implications are as follows.

First, not all the four dimensions proposed in the literature have been found in the present study to be significantly and equally importantly affecting e-service quality. The effects of efficiency, privacy and fulfillment on the dependent variable are positive and significant, whereas the effect of system availability is non-significant.

Secondly, of the four E-S-QUAL dimensions, customers' assessments of a Web site on efficiency and fulfillment have the strongest influence on overall quality perceptions. This finding is in line with Parasuraman et al. (2005) and other studies done in online banking field (Akinci et al., 2010; Marimon, Vidgen, Barnes, & Cristobal, 2010; Honore Petnji Yaya et al., 2011; Marimon et al., 2012; Petnji Yaya, Marimon, & Casadesús, 2017). The consistency of these results underscores the need for companies to place extra emphasis on Web site attributes pertaining to these two dimensions. It is also important to provide browsing and order instructions to make the completion of online banking transaction easy. More specifically, for online service providers, this knowledge gives the firm managers a clue for prioritizing their firm's resources to improve electronic service quality. Bank managers should also frame policies and take steps to ensure the successful completion of online banking transactions, as fulfillment has strong influence on e-service quality in context of online banking.

Online retailers need to make sure that their web site is up-to-date such that all links are current and available. If online retailers need system maintenance, they need to announce necessary maintenance in advance and have such information with an accurate time schedule available on a main page during maintenance. Also, system maintenance should be scheduled when web site traffic is slowest. An unavailable web site is directly related to lost sales. Therefore, online retailers need to monitor dead links and system availability.

Most online retailers currently provide information about privacy and security. For all online retailers, this is "must have" information. Often times, despite its availability, privacy and security statements are difficult to read because they are written in small fonts using technical language. It would be useful for online retailers to provide a brief version of such statements so that online consumers can quickly and easily understand privacy and security policies. A

full version of such statements needs to be available by clicking a button for those who need more detailed information.

## **LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH**

Although the present study brings out interesting findings and implications for the bank marketers, it has certain limitations too which are discussed below. These limitations highlight the possible areas that could be taken care of in future researches.

First, the study has been conducted in city of Delhi. As such, its findings cannot be considered generalisable to the country's population of the banking customers as a whole. Studies based on samples from different parts of the country, including rural areas, are called for in future to arrive at more generalisable and externally valid inferences.

Secondly, the antecedent constructs included in the study are not exhaustive. Past studies suggest certain other variables such as Web site design, information quality, emotional benefits and trust as important factors influencing e-service quality. These variables could also be possibly researched in future.

Thirdly, the application of advanced statistical techniques such as structural equation modelling, discriminant analysis, etc. is also suggested as it would help in determining not only the independent effect of each of the antecedent variable (dimension) on e-service quality but, also their interacting effect.

Fourth, bank customers are becoming more open to competitive advancements, thus service quality alone may not be sufficient to ensure long-term relationship between the customers and the banks. Consequently, customer satisfaction and loyalty have been identified as an important factor in building and maintaining the relationship with their

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customer in order to reduce the perceived risk of using internet banking. Future research may attempt to investigate the relationship between customer satisfaction, customer loyalty and e-service quality.

Finally, the conclusions drawn from this study are based on cross-sectional data. A basic problem with the cross-sectional data is that only a snapshot of the E-S-Qual model is possible. A stricter testing of the propositions enshrined in E-S-Qual model and its variants, however, calls for use of longitudinal studies. Such studies can be greatly helpful in understanding the underlying temporal process as well as factors involved in internet banking adoption.

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# Financial Parameters of Country Influencing Capital Structure Decisions of Listed Companies: An Empirical Study for Indian Economy

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*The capital structure decision is crucial for any kind of business organization owing to organization's need to maximize returns for various organizational constituencies as well as its impact on organization's ability to deal with its competitive environment. The present study is an attempt to expound empirically the relationship between financial parameters and the capital structure of Indian listed companies. In general, this study targeted all the 500 companies that have been listed on the Nifty 500 index of National stock exchange as on April 30, 2018 and covered a period of ten years from 2009 to 2018. The study employs data from Bloomberg and Reserve Bank of India Database. The data has been carefully scrutinized and a number of companies have been excluded including banking and non-banking financial entities and accordingly a total of 255 companies qualified to be included in the sample for study. The financial parameters i.e. stock market growth, government intervention in financial markets and rate of capital formation have been employed as proxies for representing financial scenario of Indian economy. The regression results of panel data using Eviews suggests stock market growth to be negatively though not statistically significantly related with capital structure. Further, with respect to government intervention in the markets via borrowing from market, a statistically significant and negative relation has been found with long term debt whereas positive and statistically insignificant with respect to total debt. As far as relationship between levels of debt and rate of capital formation is concerned, the results of panel regression suggest positive and significant relation between the two.*

**Keywords:** Capital structure, financial parameters, Stock Market, Capital Formation, Government Intervention.

## INTRODUCTION

Capital structure is one of the most argumentative areas in the field of financial literature and the puzzle of debt and equity equation in the firm's capital structure is an ever going mystery. In the technical jargon, capital structure refers to the way firm funds its investment decisions by combining different sources of funds particularly with a blend of debt, equity or hybrid securities. Firms often thrive to achieve an optimal mix of different long term sources of fund which implies a capital structure where combination of sources leads to maximizing firm's value and minimizing firm's overall cost of capital.

Among the various contributors, some names include Modigliani and Miller, Durand, Myres, Donaldson, Jensen and Meckling each of which has a different proposition regarding firm's capital structure. A range of empirical and theoretical researches are available testing the relevance of these theories developed and their propositions. Apart from the various theories developed over time, researchers have shown keen interest in determining the factors influencing capital structure decisions of firms. Accordingly, almost an endless list of attributes relative to capital structure decisions could be created. Looking from micro perspective, various firm specific attributes such as assets

structure, size of the firm, growth opportunities, profitability, taxation, risk & volatility, liquidity, product uniqueness, non-debt tax shields have been found to be the key determinants of firm's capital structure (Harris and Raviv, 1991; Gaud et al., 2005).

Besides the various above mentioned factors researched upon over past years, several country specific factors can also play significant role in determining the capital structure of firms. However this aspect of country specific attributes has been an area not very much researched upon and whatever researches have been done are majorly confined to developed economies of the world. Also, the limited literature review available in this respect suggests the studies relating to financial parameters of a country influencing capital structure decisions. Accordingly the present study focuses on India, the fastest developing economy and aims at studying the relationship that might exist between the financial parameters of Indian economy and the capital structure decisions of Indian Listed companies. This study conducts panel data analyses on a sample of 255 non-financing Indian companies listed on NIFTY 500 Index for a period from 2009 to 2018.

## LITERATURE REVIEW

Capital structure area drew major attention of financial economists after the seminal work of Modigliani and Miller's (1958) "irrelevance theory of capital structure". As per Modigliani and Miller (1958), under the perfect capital market assumption, the capital structure of a firm has no impact on the value of the firm. However this theory was criticized by many researchers on the ground that there cannot be a situation of perfect capital market prevailing in reality. Although later on Modigliani and Miller (1963) revised their earlier theory by including tax benefits on debt and argued that in case of market imperfections and when interest on debt is tax deductible, a firm's value can be increased by

incorporating more that in its capital structure. The trade-off theory claims that a firm's optimal ratio is remained by a trade-off between the losses and gains of borrowings, holding the firm's assets and investment plans constant. Jensen and Meckling (1976), proposed the agency cost theory, which argues that the agency problem is caused by conflict of interest between shareholders and managers i.e. agency cost of equity or between shareholders and debt holders i.e. agency cost of debt. Donaldson (1961) first suggested the pecking order theory. As against the trade-off theory, Myres (1984) developed a pecking order theory about how firms finance themselves and about the capital structures that results from these pecking order decisions. Baker and Wugler (2002) recommended a new theory of capital structure called "market timing theory of capital structure" which argues that the firms time their equity issues in the sense that they issue new stock when the stock price is perceived to be overvalued and buy back own shares when there is undervaluation. Consequently, fluctuations in stock prices affect firm's capital structures.

Further, in the recent era, a lot of discussion has revolved around the fact that it's not just firm specific factors or industry specific factors that influences capital structure but a whole gamut of country specific factors in terms of institutional framework, macroeconomic scenario and financial sector development might play very important role.

Gajurel (2006) provided evidences on how macro-economic conditions affect the financing decisions of firms in the context of Nepal. Jong et al. (2008) constructed a database of nearly 12000 firms from 42 countries across the world for the period from 1997 to 2001 to analyze the significance of various firm specific and country specific variables in taking capital structure decisions by firms. Results obtained revealed that Bond market development, stake holder's protection laws and GDP growth rate were found to be significantly impacting capital structure



across countries. Study further concluded that firm specific factors are influenced by country specific factors resulting into indirect impact also on capital structure of country factors. Bokpin (2009) analyzed a panel data for 34 emerging market economies with the objective of examining the influence of macro-economic factors on the capital structure and the results of the research supported the existing literature in the field of capital structure concerned with the effects of investment opportunity, profitability, stock market development, interest rate, inflation, GDP per capita and banking sector development on financing decisions of the firms.

Basto et al. (2009) conducted a study in Latin America covering 388 publicly traded companies from the seven largest economies over the period from 2001-2006 to analyze the determinants of capital structure by involving a whole gamut of company specific, macroeconomic and institutional factors of countries. At the country level growth of GDP was found to be the variable statistically significantly and negatively impacting indebtedness of companies. Results of the study indicated that at times of economic boom companies reduce their financial leverage due to availability of better internal resources according to pecking order theory.

Sett and Sarkhel (2010) suggested financial leverage to be positively associated with banking sector development as against negative association with stock market development for Indian private corporate. Further, inflation and effective corporate tax was observed to be positively related with leverage decisions. Researchers concluded that the development in financial sector of the country did influence the non-government non-financial Indian corporate sector.

Gungoraydinoglu and oztekin (2011) observed that the cross country differences among firm's decision regarding capital structure were systematically

related to effectiveness of a country's legal, financial and political institutions. Muthama et al. (2013), examined the magnitude and the nature of relationship between the macroeconomic environment and the corporate capital structure decisions for the firms in Kenya. GDP growth rate was found to be positively related to long term debt ratio while the same had a negative relation with other two proxies of leverage. Inflation and interest rates were found to be negatively impacting the short term debt ratio while the other two proxies were found to be positively influenced by interest rates measured by the treasury bills.

Camara (2012) examined the influence of macroeconomic factors such as gross domestic product, inflation, commercial paper spread; growth in aggregate capital expenditure of non-financial firms by employing an integrated dynamic partial adjustment capital structure model. Results revealed that aggregate capital expenditure and commercial paper spread were strongly and positively related to leverage for multinationals as against domestic firms. Consumer price index showed negative relation with leverage in case of both types of firms. Negash (2013) investigated the role of macroeconomic conditions of a country, institutional setup as well as industry and firm specific characteristics in determining firm's capital structure decisions. A positive association was observed between investor's rights protection and leverage as against inverse relationship between rule of law, size of banking sector and capital structure decisions. The results of the study further suggested that the legal and institutional framework of a country as well as the level of income of the country in which a firm operated along with the growth rate and inflation level did matter in taking financing decisions of the firms in the sample created.

Kim et al. (2015), study aimed at analyzing the relationship between economic conditions and

firm's capital structure. The results indicated that as economy is under expansionary conditions, firms adjust faster towards target level of leverage. Perera and Gunadeera (2015), suggested banking sector development and government intervention to be significantly influencing capital structure decisions whereas stock market developments and GDP growth rate to be having a negative insignificant influence on financing decisions of firms. Belkhir et al. (2016), indicated that higher the economic growth and inflation, higher will be leveraged opted by firms. Further, as the institutional environment improves with regulatory effectiveness strengthening, leverage increases.

The review of researches already reported suggests lack of consensus in terms of factors determining the leverage decisions of firms. Most of these studies were confined to developed economies and limited literature was available in context of developing and emerging economies like India. Further, there was rarely any research found in context of examining the influence of financial parameters of a country on the capital structure decisions of companies. Accordingly, the coming sections of this study will be devoted to empirically examine the gaps found from the literature review.

## OBJECTIVE OF THE STUDY

The study seeks to examine how financial parameters of Indian economy influences and drives the capital structure decisions of Indian listed firms. Accordingly the following objectives have been framed for the evaluation purpose:

- To study the relationship between stock market growth and the capital structure decisions of Indian listed companies.
- To study the relationship between government intervention and the capital structure decisions of Indian listed companies.
- To study the relationship between rate of capital

formation and the capital structure decisions of Indian listed companies.

## METHODOLOGY OF THE STUDY

For the empirical analysis, in general, this study has used non- random and convenience sampling methods wherein all the 500 companies that have been listed on the Nifty 500 index of National stock exchange as on April 30, 2018 have been targeted. The study covered a period of ten years from 2009 to 2018. Firm and country specific data has been collected using Bloomberg database, World Bank Database as well as Reserve Bank of India Database for the Indian economy. Data so collected has been carefully scrutinized and a number of companies have been excluded including banking and non-banking financial entities on account of their different financial structures and the companies with incomplete financial records or non-availability of required data for the said period. After the elimination of companies on the above mentioned basis, a total of 255 companies qualified to be included in the sample for study.

### *Variable specifications*

The variables employed in the current study are based on the theoretical knowledge and what the past researchers have derived over decades of research in the area of corporate finance.

### *Dependent Variables*

The measures of leverage serve as dependent variables in the current study. Literature provides a number of proxies to be used as a measure of leverage. However, keeping into consideration the availability of data over entire study period, two proxies have been shortlisted to serve as dependent variables for this study namely: Long Term Debt (LTD) represented by taking a ratio of long term debt to total assets and secondly, Total Debt(TD) represented by ratio of total debt to total assets.

### *Explanatory Variables*

Since the objective is to study the relationship between financial parameters of India and capital structure of Indian Listed companies, accordingly few most popular indicators representing economy's scenario have been employed as independent variable. They include:

- i) Stock market growth (SMG)- the extent to which equity market is grown and funds availability is simpler will definitely influence the leverage decision as equity and debt are the two major components of capital structure. On the basis of past studies, stock market growth has been taken as one of the financial parameter of country for analysis. Market capitalization as a percentage of GDP has been used as a proxy to indicate stock market growth.
- ii) Government intervention (GI)- The extent to which government is involved in the financial markets of the country in terms of borrowing influence the private credit preference for firms. An increased borrowing by government may actually induce banks and other financial institution to undertake relatively more risky private lending as government assets in portfolio are safe enough to enhance risk bearing ability. Again government intervention has been measured by taking a ratio of Gross government borrowing from market to Gross Domestic product.
- iii) Capital Formation (CF)- Rate of capital formation theoretically is supposed to be positively associated with leverage. The higher the level of investments happening the greater would be the profitability permitting a firm to undertake financial obligations of incorporating debt in its capital structure. In the current study, capital formation has been measured by taking Gross capital formation as a percentage of Gross Domestic Product.

### *Hypotheses of the study*

Past empirical researches suggested the existence of some relationship between country's macro-economic scenario and the firm's capital structure decisions. However, no concrete relationship has been found, rather a hybrid view has been developed across different researches in this area. Thus, depending upon the objectives under study, following hypotheses have been formulated:

Ho<sub>1</sub>: There is no significant relation between Stock market Growth (SMG) and capital structure of Indian listed companies measured by Long term debt (LTD).

Ha<sub>1</sub>: There is a significant relation between Stock market Growth (SMG) and capital structure of Indian listed companies measured by Long term debt (LTD).

Ho<sub>2</sub>: There is no significant relation between Government Intervention (GI) and capital structure of Indian listed companies measured by Long term debt (LTD).

Ha<sub>2</sub>: There is a significant relation between Government Intervention (GI) and capital structure of Indian listed companies measured by Long term debt (LTD).

Ho<sub>3</sub>: There is no significant relation between Capital Formation (CF) and capital structure of Indian listed companies measured by Long term debt (LTD).

Ha<sub>3</sub>: There is a significant relation between Capital Formation (CF) and capital structure of Indian listed companies measured by Long term debt (LTD).

Ho<sub>4</sub>: There is no significant relation between Stock market Growth (SMG) and capital structure of Indian listed companies measured by Total Debt (TD).

Ha<sub>4</sub>: There is a significant relation between Stock market Growth (SMG) and capital structure of Indian listed companies measured by Total Debt (TD).

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Ho<sub>5</sub>: There is no significant relation between Government Intervention (GI) and capital structure of Indian listed companies measured by Total Debt (TD).

Ha<sub>5</sub>: There is a significant relation between Government Intervention (GI) and capital structure of Indian listed companies measured by Total Debt (TD).

Ho<sub>6</sub>: There is no significant relation between Capital Formation (CF) and capital structure of Indian listed companies measured by Total Debt (TD).

Ha<sub>6</sub>: There is a significant relation between Capital Formation (CF) and capital structure of Indian listed companies measured by Total Debt (TD).

### Regression Models

For empirical analysis a panel data technique has been employed. The reason for opting panel data approach is to overcome collinearity issue among independent variables and enhance the degrees of freedom thereby giving more efficient estimates. For testing various hypotheses, a following two models have been developed as given below:

#### Model 1

The first model considers Long term debt (LTD) as dependent variables and Stock Market growth (SMG), Government intervention via borrowings from markets (GI) and Capital formation (CF) as explanatory financial parameters of India to study relationship that might exist between India's financial market scenario and Indian company's capital structure decision. The model is as follow:

$$LTD_{it} = \beta_{1i} + \beta_2 SMG_{it} + \beta_3 GI_{it} + \beta_4 CF_{it} + u_{it} \quad (1)$$

Where,

LTD<sub>it</sub>: Long term debt to assets ratio, a proxy for capital structure of firm.

SMG<sub>it</sub>: Stock market growth, measured as ratio of market capitalization to GDP

GI<sub>it</sub>: Government Intervention, measured as ratio of gross govt. borrowing to GDP

CF<sub>it</sub>: Capital Formation, measured as ratio of gross capital formation to GDP

u<sub>it</sub> = error term

i = companies in the cross section (eg. 1, 2, 3.....255)

t = period of time (years, 2009, 2010.....2018)

#### Model 2

The second model considers Total Debt (TD) as dependent variables and Stock Market growth (SMG), Government intervention via borrowings from markets (GI) and Capital formation (CF) as explanatory financial parameters of India to study relationship that might exist between India's financial market scenario and Indian company's capital structure decision. The model is as follow:

$$TD_{it} = \beta_{1i} + \beta_2 SMG_{it} + \beta_3 GI_{it} + \beta_4 CF_{it} + u_{it} \quad (2)$$

Where,

TD<sub>it</sub>: Total debt to assets ratio, a proxy for capital structure of firm.

SMG<sub>it</sub>: Stock market growth, measured as ratio of market capitalization to GDP

GI<sub>it</sub>: Government Intervention, measured as ratio of gross govt. borrowing to GDP

CF<sub>it</sub>: Capital Formation, measured as ratio of gross capital formation to GDP

u<sub>it</sub> = error term

i = companies in the cross section (eg. 1, 2, 3.....255)

t = period of time (years, 2009, 2010.....2018)

The results have been presented in the next section of the paper with relevant empirical evidences.

## ANALYSIS AND INTERPRETATION

Based on the methodology discussed this section of study reports the results and outcome for the both



the models tested. Both regression equations are estimated for their  $\beta$  parameters using panel regression analysis. Firstly, all the variables in multiple models have been tested for stationarity of the paneled series using Levin, Lin and Chu unit root test. Further, as it can be seen from table 1 none of the variables in analysis are found to be normally distributed as per Jarque-Bera test of normality. The null hypotheses of normal distributed get rejected as p-value for each variable is less than .05. However, due to number of observations being very large, central limit theorem is applied and variables are assumed to be normally distributed.

The table 1 shows the results of panel unit test conducted by using Levin, Lin and Chu test under the common unit root process assumption and balanced observations. The test has employed modified  $t^*$  statistics for asymptotic normality and Newey–West automatic bandwidth selection as well as BarlettKernal. As the p-values for all the variables under study are less than .05, this implies that all the variables exhibit stationarity at the significance level of 5%. Hence, procedure for further analysis of data has been adopted.

A total sample of 255 Indian listed companies has been investigated over a period of ten years from 2009-2018. Eviews Software has been used for analysis purpose. Panel data is used to analyze the impact of country's financial parameter on capital structure. It is to be noted that in this analysis, company specific variables i.e. leverage ratios vary across companies and time whereas financial parameters are same for every company but vary across time. Before analyzing the regression results, the explanatory variables have been tested for the multicollinearity issue by using Correlation Matrix and Variance Inflation Factors (VIF).

For multicollinearity to be present between independent variables, the correlation coefficient has to be greater than  $\pm 0.8$ . However, correlation

matrix in table 2 clearly shows that none of the explanatory variables' coefficients are greater than  $\pm 0.8$ , thereby indication of no issue of multicollinearity between explanatory variables.

Further, multicollinearity between independent variables has been tested by using VIF statistics in table 3. A general accepted level of VIF up to 10 represents no multicollinearity. Accordingly VIF values here for Model 3 are 1.22, 3.07 and 8.47 and for Model 4 are 5.97, 4.92 and 1.27 which are well in acceptable limits, so no problem of multicollinearity.

### ***Regression Results***

To ensure the robustness of the regression analysis, both fixed effects and random effects equations are estimated and the applicability of the either effect in the panel data analysis has been checked using Redundant Test for Cross section fixed effects and Hausman test.

To test whether the cross sectional fixed effect is well specified, the redundant fixed effects test has been conducted and it can be seen from table 4 that the p-value of the cross section F-test is 0.0000 at 5% level of significance for both Model 1 and Model 2 indicating the applicability and significance of the cross section fixed effect model specification. Further, table 5 shows the results of Hausman test (null hypotheses being that the two estimation models i.e. fixed effect and random effect both are OK and therefore they will be giving coefficients that are similar) in case of both models, wherein p-value (1.0000) of the chi-square test suggests that null hypotheses of model being well specified may not be rejected and hence random effects may also be applicable.

But it is to be noted that the estimates of random effects are based on the assumption that the individual error terms are independent of each other and not auto correlated across both cross section and time series units. Also, the random

effects estimator makes the assumption of random effects being orthogonal to the regressors which the fixed effects estimator does not. If this assumption is wrong, the random effects estimator will be inconsistent but the fixed effects estimator is unaffected.

Accordingly, table 6 presents the regression results based on fixed effect model of panel data analysis. As evident from table 6, analysis provides the statistical test for overall model fit in terms of F ratio. Since the significance (p-value) for F-test is less than .05 for both models, this implies that overall regression models are best fit.

The results indicate a negative association between stock market growth and the extent of debt incorporated by Indian companies in their capital structure. This implies the more the equity market is growing, easier it is for companies to raise capital via equity without incurring the risk of higher financial distress arising out of financial obligations backing debt capital. This relationship holds both for long term debt as well as total debt in line with studies of Demirguc-Kunt&Maksimovic (1996), Booth et al. (2001), Sett & Sarkhel (2010), Perera&Gunadeera (2015), Buvenendra et al. (2016).

Stock market growth is however, not a significant factor influencing the company's leverage as p-value (0.3990) in case of long term debt as dependent factor is greater than .05 as well as for total debt as dependent variable is also greater than .05 (i.e. p value = 0.7063) at confidence level of 95%. Accordingly, the null hypotheses of no significant relationship between capital structure and stock market growth cannot be rejected.

Further, when it comes to influence of government intervention in the market by way of borrowing from markets, the relationship is negative and statistically significant with long term debt (Emran & Farazi, 2009; Fayad, 2012) at 95% confidence level. However, a positive but statistically insignificant

association has been found between government intervention in the market and total debt incorporated by Indian companies in capital structure (Dincergok&Yalchiner, 2011; Zuoping, 2011; Perera&Gunadeera, 2015).

This evidence of positive association between the government intervention and leverage can be reasoned on the grounds that higher the government intervention implies more borrowing by government from markets. Government bonds being a risk free assets, encourages private sector to invest in comparatively risky sources of debt. Thus higher lending to government sector does not result in major reduction of credit available to the private sector.

Also, the rate of capital formation is found to be positively and statistically significantly associated with leverage decisions of companies. The result holds true for both long term debt as well as total debt measures of capital structure. This relation can be explained as higher the rate at which new capital is being created provides greater opportunities for profitable avenues, thereby encouraging businesses to diversify and excel to achieve higher growth levels. This in turn provides an incentive to make further investments and debt being relatively cheaper source of funding gets first preference in the absence of retained earnings over equity funding. Thereby, suggesting a positive association between capital formation and leverage.

## CONCLUSION, LIMITATIONS AND FUTURE SCOPE OF THE STUDY

The present study focused on analyzing the influence of India's financial market scenario on the capital structure decision of listed Indian companies for the period from 2009 to 2018 by taking a sample of 255 companies.

Looking from the perspective of financial

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parameters impacting capital structure decisions of Indian companies, a negative association has been found between stock market growth and the extent of debt incorporated by Indian companies in their capital structure though not statistically significant. Further, when it comes to influence of government intervention in the market by way of borrowing from markets, the relationship is negative and statistically significant with long term debt. However, a positive but statistically insignificant association has been found between government intervention in the market and total debt incorporated by Indian companies in capital structure. Also, the rate of capital formation is found to be positively and statistically significantly associated with leverage decisions of companies. The result holds true for both long term

debt as well as total debt measures of capital structure

However, the current study covers only a span of ten years and a sample of 255 companies only. So, for future prospective and to do a further detailed research it will be recommended to take into account a larger sample of companies not just belonging to India but other developing companies also. Also, the whole lot of financing and banking sector should be made a part of analysis to gain a more generalized applicability of the results. Further, to achieve a deeper understanding a comparative sector analysis could be done so that a clearer picture regarding difference in capital structure patterns across different industries depending upon each industry's unique characteristics can be analyzed.

**Table 1: Panel Unit Root Test for Variables (Model 1 & Model 2)**

Null Hypothesis: Unit root (common unit root process)		
Variable	Statistic	p-value
LTD	-417.496	0.0000
TD	-82.3886	0.0000
SMD	-30.7825	0.0000
GI	-57.7660	0.0000
CF	-10.5712	0.0000

(Source: Researcher's computation)

**Table 2: Correlation Matrix (Model 1 & Model 2)**

	SMG	GI	CF
SMG	1.000000		
GI	-0.120223	1.000000	
CF	-0.041176	0.201711	1.000000

(Source: Researcher's computation)

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<b>Table 3: Variance Inflation Factor (Model 1 &amp; Model 2)</b>		
Variance Inflation Factors (Model1)		
Sample: 2009 2018		
Included observations: 2550		
	Coefficient	Uncentered
Variable	Variance	VIF
C	6.745066	9.309770495
SMG	0.001441	1.223905451
GI	242.5212	3.073485958
CF	42.94629	8.470113404
Variance Inflation Factors (Model2)		
Sample: 2009 2018		
Included observations: 2550		
	Coefficient	Uncentered
Variable	Variance	VIF
C	7.227063	1.174465712
SMG	0.001721	5.972528065
GI	289.6531	4.921802075
CF	51.29254	1.27991767

(Source: Researcher's computation)

<b>Table 4: Redundant test for fixed effects (Model 1 &amp; Model 2)</b>			
Effects Test	Statistic	d.f.	Prob.
Redundant Test for Fixed Effects (Model 1)			
Dependent variable- LTD			
Cross-section F	23.728028	(254,2292)	0.0000
Cross-section Chi-square	3287.224198	254	0.0000
Redundant Test for Fixed Effects ( Model 2)			
Dependent Variable- TD			
Cross-section F	27.462428	(254,2292)	0.0000
Cross-section Chi-square	3562.564676	254	0.0000

(Source: Researcher's computation)



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**Table 5: Hausman Test (Model 1 and Model 2)**

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random (Model 1)	0.000000	3	1.0000
Cross-section random (Model 2)	0.000000	3	1.0000

(Source: Researcher's computation)

**Table 6: Regression Results of panel data Regression using fixed effects (Model 1 & 2)**

	C	SMG	GI	CF	F-statistics	R-square	Adjusted R square
Cross section fixed effects	10.64630	-0.032018	-53.32538	33.71731	23.57906	0.725569	0.694797
(p-value)	(0.0000)	(0.3990)	(0.0006)	(0.0000)	(0.000000)		
<b>Model 1</b>							
Cross section fixed effects	19.02941	-0.015635	3.534930	27.90719	27.20609	0.753123	0.725441
(p-value)	(0.0000)	(0.7063)	(0.83550)	(0.0001)	(0.000000)		
<b>Model 2</b>							

(Source: Researcher's computation)

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### BRIEF PROFILE OF THE AUTHOR

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# Structural Capital: Concept and its Application in Service Sector with special reference to Information Technology and Banking Sector.

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*Structural capital is that infrastructure, processes, procedures and databases of the organization that help human capital to function (Maddocks & Beaney, 2002). In order to gain perspective on the concept of structural capital an extensive review of literature was carried out. Objective of the study is to see whether there is a statistically significant difference between the different factors of structural capital for information technology and banking sector. The basis of selection of information technology and banking sector organizations was the top 3 information technology and top three private and public sector banks according to the Net Sales for 2012 as given in Prowess database.*

*The data were collected using the questionnaire formulated after the Review of Literature, the questionnaire had 123 questions. 12 hypotheses were formulated and mean scores were calculated; also chi-square test was applied using PASW.*

*Out of 12 factors, 6 show statistically significant difference in the means of information technology and banking sector, it means that both the sector give different weightage to different factors of structural capital.*

**Keywords:** System, Information System and Participation.

## INTRODUCTION

Our economy is evolving from being an agrarian economy, to industrial economy to service economy to knowledge economy to a wisdom economy. So, the nature of our economy has made it necessary to understand the concept of structural capital. As new employees, who will replace old employees can always learn from these structures so that the significance of the employees who leave diminishes.

Structural capital is that infrastructure, processes, procedures and databases of the organization that help human capital to function (Maddocks & Beaney, 2002). "The knowledge that stays in the organization when all employees leave at the end of the day. This includes processes, databases and software, (Lundberg, 2012) but also work products from the enterprise architects."

## REVIEW OF LITERATURE

In order to gain perspective on the concept of structural capital an extensive review of literature was carried out. It was found that hardly any literature is available on this topic in India which means not much work has been done on this area in India.

Table No.1 has been formulated stating the definitions given by different researchers.

## Structural Capital: Concept and its Application in Service Sector with special reference to Information Technology and Banking Sector.

**Table No. 1: Conceptualization of Structural Capital**

Authors	Definitions of Structural Capital
Bontis, (1996)	Those technologies, methodologies and processes that make the functioning of the organization possible, this is, basically the elements that define the working mode of the firm.
Kogut & Zander, (1996)	Elements that belong to the organization and that facilitates its configuration as an entity providing coherence and superior principles for coordination.
Euroforum, (1998)	Knowledge that can be reproduced and shared and, therefore, becomes somewhat explicit.
Camison, Palacios, & Devece, (2000)	Knowledge that the organization has internalized and that remains within its structure processes or culture although employees leave.
Carson, Ranzijn, Winefield, & Marsden, (2004)	Processes and procedures that arise from employee intellectual contribution.
Ordenez de Pablos, (2004)	Knowledge that remains in the organization when employees return to their homes and, therefore, is owned by the firm. In this sense, SC is integrated by organizational routines, strategies, process manuals, and databases.
Alama, (2007)	Intangibles that determine the manner of working of a company.

([www.ukessays.com](http://www.ukessays.com))

Dr. Nick Bontis, Director, Institute for Intellectual Capital Research Inc. designed a questionnaire to develop and test a measure for Intellectual Capital. The questions relating to structural capital were as follows:

- When an employee leaves the firm, we do not have a succession training program for his/ her replacement.
- Our company develops more new ideas and products than any other firm in the industry.
- When someone comes up with a great idea, we do not share the knowledge within the firm as much as we should.
- Our recruitment program is comprehensive; we are dedicated to hiring the best candidates available.
- Our data system makes it easy to access relevant information.
- If certain individuals in the firm unexpectedly leave then, we would be in big trouble.
- The systems and procedures of the organization support innovation.
- Individuals learn from others.

- Employees are excited to voice their opinions in group discussions.
- Our organizational structure keeps employees from being too far removed from each other.
- The organization's culture and atmosphere is supportive and comfortable.

(<http://www.business.mcmaster.ca/mktg/nbontis/ic/publications/BontisMDIC1998survey.pdf>)

Aziz, Sharabati, Jawad & Bontis, (2010) conducted a research on intellectual capital and business performance in the pharmaceutical sector of Jordan. In this study 132 top and middle level managers drawn from Jordanian Association of Pharmaceutical Manufacturers (JAPM). The survey instrument was based on Bontis' intellectual capital questionnaire (Bontis, 1998). The study has taken three factors of structural capital into consideration i.e., Systems and programs (S&P), Research and Development (R& D), and Intellectual Property Rights (IPR).

In this research, the following tests were applied:

- To test normal distribution Kolmogorov Smirnov for all dependent and independent variables.



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- Cronbach alpha to test the reliability.
- To test validity factor analysis (i.e., Pearson's principal component analysis) was conducted with and without rotation (i.e., Varimax rotation with Kaiser normalization).
- Pearson's bivariate correlation coefficient to test relationship between independent and dependent variables.
- ANOVA test to analyze respondents' characteristics related to gender, age, education, experience, department, and sector.
- Before conducting multiple regression analysis, a test of multi-collinearity using the VIF (variance inflation factor) was also conducted.
- Partial Least Squares (PLS Graph v.3.00) was used to test conceptual model and relationships among independent and dependent variable.
- Path analysis.

(Youndt & Snell, 2004) define organizational capital as representing institutionalized knowledge and codified experience stored in databases, routines, manuals, structures, patents, trademarks and so forth.

They also state that organizational capital is also embedded in standard operating procedures, business processes, rules, routines, and informal "ways of doing business".

Hypothesis relating to organizational capital were:

Hypothesis 1: A documentation HR configuration (focused on knowledge documentation, employee work redesign, and employee suggestion systems) will be positively related to a firm's level of organizational capital.

Hypothesis 2: An information technology HR configuration (focused on accessible, user-friendly, and integrated information systems) will be positively related to a firm's level of organizational capital.

Hypothesis 3: An organization's level of

organizational capital will be positively related to organizational performance.

The results of the above stated study were that:

- Both documentation ( $\beta = 0.227$ ,  $p = 0.01$ ) and information systems ( $\beta = 0.271$ ,  $p = 0.01$ ) HR configurations were significantly related to an organization's level of organizational capital, supporting the above two Hypothesis.
- Organizational capital ( $\beta = 0.189$ ,  $p = 0.05$ ) was significantly related to organizational performance, providing string support for the Hypothesis 3.

Under Documentation HR Configurations the following statements were used:

- We encourage employees to write "lessons learned" reports after learning experiences (employee exchange programs, projects etc.).
- Our employees help redesign work systems.
- We encourage our employees to continuously update our company's knowledge databases.
- We have a successful employee suggestion program.

Under Information Systems the following statements were used:

- Our information systems are user-friendly.
- Our information systems are accessible to all employees.
- Our information systems are integrated with each other.
- We utilize groupware, email, etc.

(Sofian, Tayles, & Richard, 2005) conducted a study in large Malaysian firms with varying level of Intellectual Capital and its mix, in terms of human, structural, and relational capital. The study was both exploratory and descriptive.

The companies were randomly selected from the Kuala Lumpur Stock Exchange (KLSE) list. The high

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## Structural Capital: Concept and its Application in Service Sector with special reference to Information Technology and Banking Sector.

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IC companies were drawn from four broad sectors, where IC is expected to be beneficial, technology, consumer products, trading and services, and finance sectors. 119 responses were received, a response rate of 35%. (Sofian, Tayles, & Richard, 2005)

25 questions were used to construct variables for human (HIC), structural (SIC), and relational (RIC) capital. Tests for reliability, and response bias and analysis of descriptive statistics indicate that the responses used in this study meet the levels of reliability and validity required for meaningful further analysis. Findings from the survey questionnaires were analyzed using Spearman-Rho's Rank Correlation. Association between variables were identified. (Sofian, Tayles, & Richard, 2005)

(Sofian, Tayles, & Richard, 2005) Survey items used for Structural Capital were as stated below:

- Systems allow easy info access.
- Procedures support innovation.
- Systems require knowledge sharing.
- High investment in innovation.
- Keeps track and makes full use of intellectual assets.
- Develop most ideas in industry.
- High annual information technology allocation.
- Documents knowledge in manuals, databases, etc.
- Protects vital knowledge and information.

## RESEARCH METHODOLOGY

Objective of the study is to see whether there is a statistically significant difference between the different factors of structural capital for IT and banking sector.

### Scope of the study

This study concentrates on information technology and banking sector of India. The organizations have been selected on the basis of Net Sales according to

Prowess. The banking sector has been further sub divided into private and public sector banks. The net sales of top three private banking companies, top three public sector banks and top three IT companies given in Prowess is given in the Table No. 2, Table No. 3 and Table No. 4 respectively.

**Table No. 2 Net Sales for Top Private Banks**

	Annual Interim Consolidated
	Rs. Million
	Mar-12
Company Name	Net sales
I C I C I Bank Ltd.	379948.6
H D F C Bank Ltd.	276055.6
Axis Bank Ltd.	219949

**Table No. 3 Net Sales for Top Public Banks**

	Annual Interim Consolidated
	Rs. Million
	Mar-12
Company Name	Net sales
SBI	1471973.9
PNB	374473.1
Canara Bank	308156.4

**Table No. 4 Net Sales for Top 3 IT Companies**

	Annual Interim Consolidated
	Rs. Million
	Mar-12
Company Name	Net sales
Tata Consultancy Services Ltd.	488938.3
Wipro Ltd.	372839
Infosys Ltd.	337340

### Data Collection

The data was collected using the questionnaire formulated after the Review of Literature, the questionnaire had 123 questions and Table No. 5 gives the details of the studies which have been used for formulation of the questionnaire.

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## Structural Capital: Concept and its Application in Service Sector with special reference to Information Technology and Banking Sector.

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**Table No. 5 Table showing variables and factors taken from various researches**

S.No.	Factor	Research
1.	System	(Topal, Conkar& Mustafa, 2008), (Bontis, 1998), (Aziz, Sharabati, Jawad, & Bontis, 2010), (Sofian, Tayles, & Richard, 2005), (Youndt & Snell, 2004)
2.	Research and Development	(Aziz, Sharabati, Jawad, & Bontis, 2010)
3.	Intellectual Property Rights	(Amiri, Jandghi, Alvani, Hosnavi, & Majid, 2010), (Sofian, Tayles, & Richard, 2005), (Youndt & Snell, 2004)
4.	Information System	(Topal, Conkar& Mustafa, 2008), (Bontis, 1998), (Youndt & Snell, 2004), (Aziz, Sharabati, Jawad, & Bontis, 2010), (Sofian, Tayles, & Richard, 2005)
5.	Culture	(Topal, Conkar& Mustafa, 2008), (Bontis, 1998), (Amiri, Jandghi, Alvani, Hosnavi, & Majid, 2010), (Youndt & Snell, 2004)
6.	Learning Organization	(Topal, Conkar& Mustafa, 2008), (Bontis, 1998), (Amiri, Jandghi, Alvani, Hosnavi, & Majid, 2010), (Sofian, Tayles, & Richard, 2005)
7.	New Ideas	(Bontis, 1998), (Sofian, Tayles, & Richard, 2005), (Amiri, Jandghi, Alvani, Hosnavi, & Majid, 2010), (Human Factor International, 2011)
8.	Documentation	(Youndt & Snell, 2004)
9.	Strategy	(Amiri, Jandghi, Alvani, Hosnavi, & Majid, 2010)
10.	Communication	(Human Factor International, 2011)
11.	Authority and Responsibility	(Human Factor International, 2011)
12.	Participation	(Human Factor International, 2011)

The details of data collection are given in Table No. 6 and Table No. 7

**Table No. 6 showing details of data collection from information technology organizations**

S.No.	Name of Information Technology Organizations	Actual	Target	Gap
1.	Tata Consultancy Services Ltd.	28	31	3
2.	Wipro Ltd.	12	31	19
3.	Infosys Ltd.	4	31	27
	Total	44	93	49

It was difficult to get in touch with the HR department over phone and even by personal meetings, thus again it was finalized that, any number above 30 is a large sample hence data collection was stopped.

**Table No. 7 showing details of data collection from banks**

S.No.	Name of Banks	Actual	Target	Gap
1.	State Bank of India	31	31	0
2.	Punjab National Bank	31	31	0
3.	Canara Bank	24	31	7
4.	ICICI Bank Ltd.	31	31	0
5.	HDFC Bank Ltd.	24	31	7
6.	Axis Bank Ltd.	15	31	16
	TOTAL	156	186	30

It was decided that 31 is a large sample hence, 31 respondents from each bank should be there. As, a detailed study of banking sector is to be conducted hence 156 is also a sufficient sample. Although Axis, HDFC and Canara has responses less than 31 but the total number of responses from banking sector is more than 31, hence, we stopped our data collection here.

### ***Hypotheses of Study***

Null Hypothesis 1 (HO 1): There is no statistically significant difference between the means of the factor system of IT and banking sector.

Alternative Hypothesis 1 (HA 1): There is statistically significant difference between the mean scores for factor system of IT and banking sector.

Null Hypothesis 2 (HO 2): There is no statistically significant difference between the means of the factor research and development of IT and banking sector.

Alternative Hypothesis 2 (HA 2): There is statistically significant difference between the mean scores for factor research and development of IT and banking sector.

Null Hypothesis 3 (HO 3): There is no statistically significant difference between the means of the factor intellectual property rights of IT and banking sector.

Alternative Hypothesis 3 (HA 3): There is statistically significant difference between the mean scores for factor intellectual property rights of IT and banking sector.

Null Hypothesis 4 (HO 4): There is no statistically significant difference between the means of the factor information system of IT and banking sector.

Alternative Hypothesis 4 (HA 4): There is statistically significant difference between the mean scores for factor information system of IT and banking sector.

Null Hypothesis 5 (HO 5): There is no statistically

significant difference between the means of the factor culture of IT and banking sector.

Alternative Hypothesis 5 (HA 5): There is statistically significant difference between the mean scores for factor culture of IT and banking sector.

Null Hypothesis 6 (HO 6): There is no statistically significant difference between the means of the factor learning organization of IT and banking sector.

Alternative Hypothesis 6 (HA 6): There is statistically significant difference between the mean scores for factor learning organization of IT and banking sector.

Null Hypothesis 7 (HO 7): There is no statistically significant difference between the means of the factor new ideas of IT and banking sector.

Alternative Hypothesis 7 (HA 7): There is statistically significant difference between the mean scores for factor new ideas of IT and banking sector.

Null Hypothesis 8 (HO 8): There is no statistically significant difference between the means of the factor documentation of IT and banking sector.

Alternative Hypothesis 8 (HA 8): There is statistically significant difference between the mean scores for factor documentation of IT and banking sector.

Null Hypothesis 9 (HO 9): There is no statistically significant difference between the means of the factor strategy of IT and banking sector.

Alternative Hypothesis 9 (HA 9): There is statistically significant difference between the mean scores for factor strategy of IT and banking sector.

Null Hypothesis 10 (HO 10): There is no statistically significant difference between the means of the factor communication of IT and banking sector.

Alternative Hypothesis 10 (HA 10): There is statistically significant difference between the mean scores for factor communication of IT and banking sector.



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Null Hypothesis 11 (HO 11): There is no statistically significant difference between the means of the factor authority responsibility of IT and banking sector.

Alternative Hypothesis 11 (HA 11): There is statistically significant difference between the mean scores for factor authority responsibility of IT and banking sector.

Null Hypothesis 12 (HO 12): There is no statistically significant difference between the means of the factor participation of IT and banking sector.

### DATA ANALYSIS

Table No. 8 Chi square test for IT and banking sector for the factor system			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	62.756 <sup>a</sup>	32	.001
Likelihood Ratio	69.152	32	.000
Linear-by-Linear Association	1.341	1	.247
N of Valid Cases	197		

a. 54 cells (81.8%) have expected count less than 5. The minimum expected count is .22.

In Table No. 8 Pearson has a value of 62.756 with .001 significance. This significance value is well below alpha level of .05 and is thus significant, which means there is significant difference between the means of the factor system of IT and banking sector.

Table No. 9 Chi square test for IT and banking sector for the factor research and development			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.981 <sup>a</sup>	30	.917
Likelihood Ratio	25.615	30	.695
Linear-by-Linear Association	.006	1	.937
N of Valid Cases	197		

a. 50 cells (80.6%) have expected count less than 5. The minimum expected count is .22.

In Table No. 9 Pearson has a value of 19.981 with .917 significance. This significance value is well above alpha level of .05 and is thus not significant, which means there is no significant difference between the means of the factor research and development of IT and banking sector.

**Table No. 10 Chi square test for IT and banking sector for the factor intellectual property rights**

#### Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	76.674 <sup>a</sup>	36	.000
Likelihood Ratio	83.952	36	.000
Linear-by-Linear Association	11.310	1	.001
N of Valid Cases	197		

a. 63 cells (85.1%) have expected count less than 5. The minimum expected count is .22.

In Table No. 10 Pearson has a value of 76.674 with .000 significance. This significance value is well below alpha level of .05 and is thus significant, which means there is significant difference between the means of the factor intellectual property rights of IT and banking sector.

Table No. 11 Chi square test for IT and banking sector for the factor information system			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	47.820 <sup>a</sup>	24	.003
Likelihood Ratio	48.709	24	.002
Linear-by-Linear Association	1.131	1	.288
N of Valid Cases	197		

a. 36 cells (72.0%) have expected count less than 5. The minimum expected count is .22.

In Table No. 11 Pearson has a value of 47.820 with .003 significance. This significance value is well below alpha level of .05 and is thus significant, which means there is significant difference between the means of the factor information system of IT and banking sector.

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**Table No. 12 Chi square test for IT and banking sector for the factor culture**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	31.044 <sup>a</sup>	25	.188
Likelihood Ratio	32.953	25	.132
Linear-by-Linear Association	2.493	1	.114
N of Valid Cases	197		

a. 40 cells (76.9%) have expected count less than 5. The minimum expected count is .22.

In Table No. 12 Pearson has a value of 31.044 with .188 significance. This significance value is well above alpha level of .05 and is thus not significant, which means there is no significant difference between the means of the factor culture of IT and banking sector.

**Table No. 13 Chi square test for IT and banking sector for the factor learning organization**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	34.678 <sup>a</sup>	20	.022
Likelihood Ratio	37.195	20	.011
Linear-by-Linear Association	.073	1	.788
N of Valid Cases	197		

a. 31 cells (73.8%) have expected count less than 5. The minimum expected count is .22.

In Table No. 13 Pearson has a value of 34.678 with .022 significance. This significance value is well below alpha level of .05 and is thus significant, which means there is significant difference between the means of the factor learning organization of IT and banking sector.

**Table No. 14 Chi square test for IT and banking sector for the factor new ideas**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	56.225 <sup>a</sup>	48	.194
Likelihood Ratio	59.028	48	.132
Linear-by-Linear Association	.601	1	.438
N of Valid Cases	197		

a. 90 cells (91.8%) have expected count less than 5. The minimum expected count is .22.

In Table No. 14 Pearson has a value of 56.225 with .194 significance. This significance value is well above alpha level of .05 and is thus not significant, which means there is no significant difference between the means of the factor new ideas of IT and banking sector.

**Table No. 15 Chi square test for IT and banking sector for the factor documentation**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	30.403 <sup>a</sup>	15	.011
Likelihood Ratio	29.561	15	.014
Linear-by-Linear Association	.103	1	.748
N of Valid Cases	197		

a. 21 cells (65.6%) have expected count less than 5. The minimum expected count is .22.

In Table No. 15 Pearson has a value of 30.403 with .011 significance. This significance value is well below alpha level of .05 and is thus significant, which means there is significant difference between the means of the factor documentation of IT and banking sector.

**Table No. 16 Chi square test for IT and banking sector for the factor strategy**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	17.192 <sup>a</sup>	14	.246
Likelihood Ratio	22.998	14	.060
Linear-by-Linear Association	1.796	1	.180
N of Valid Cases	197		

a. 19 cells (63.3%) have expected count less than 5. The minimum expected count is .22.

In Table No. 16 Pearson has a value of 17.192 with .246 significance. This significance value is well above alpha level of .05 and is thus not significant, which means there is no significant difference between the means of the factor strategy of IT and banking sector.

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**Table No. 17 Chi square test for IT and banking sector for the factor communication**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	35.703 <sup>a</sup>	28	.150
Likelihood Ratio	41.374	28	.050
Linear-by-Linear Association	5.040	1	.025
N of Valid Cases	197		

a. 45 cells (77.6%) have expected count less than 5. The minimum expected count is .22.

In Table No. 17 Pearson has a value of 35.703 with .150 significance. This significance value is well above alpha level of .05 and is thus not significant, which means there is no significant difference between the means of the factor communication of IT and banking sector.

**Table No. 18 Chi square test for IT and banking sector for the factor authority responsibility**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	45.273 <sup>a</sup>	30	.036
Likelihood Ratio	50.704	30	.010
Linear-by-Linear Association	3.778	1	.052
N of Valid Cases	197		

a. 51 cells (82.3%) have expected count less than 5. The minimum expected count is .22.

In Table No. 18 Pearson has a value of 45.273 with .036 significance. This significance value is well below alpha level of .05 and is thus significant, which means there is significant difference between the means of the factor authority responsibility of IT and banking sector.

**Table No. 19 Chi square test for IT and banking sector for the factor participation**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	41.600 <sup>a</sup>	33	.145
Likelihood Ratio	43.293	33	.108
Linear-by-Linear Association	.528	1	.467
N of Valid Cases	197		

a. 60 cells (88.2%) have expected count less than 5. The minimum expected count is .22.

In Table No. 19 Pearson has a value of 41.600 with .145 significance. This significance value is well above alpha level of .05 and is thus not significant, which means there is no significant difference between the means of the factor participation of IT and banking sector.

## RESULTS

**Table No. 20: Overall analysis**

<b>HO 1:</b> There is no statistically significant difference between the means of the factor system of IT and banking sector.	<b>Reject</b>	Pearson Chi square has a value of 62.756 with 0.001 significance. This significance value is well below alpha level of 0.05 and is thus statistically significant.	There is statistically significant difference between the means of the factor system of IT and banking sector.
<b>HO 2:</b> There is no statistically significant difference between the means of the factor research and development of IT and banking sector.	<b>Fail to reject</b>	Pearson Chi square has a value of 19.981 with 0.917 significance. This significance value is well above alpha level of 0.05 and is thus not statistically significant.	There is no statistically significant difference between the means of the factor research and development of IT and banking sector.

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<b>HO 3:</b> There is no statistically significant difference between the means of the factor intellectual property rights of IT and banking sector.	<b>Reject</b>	Pearson Chi square has a value of 76.674 with 0.000 significance. This significance value is well below alpha level of 0.05 and is thus statistically significant.	There is statistically significant difference between the means of the factor intellectual property rights of IT and banking sector.
<b>HO 4:</b> There is no statistically significant difference between the means of the factor information system of IT and banking sector.	<b>Reject</b>	Pearson Chi square has a value of 47.820 with 0.003 significance. This significance value is well below alpha level of 0.05 and is thus statistically significant.	There is statistically significant difference between the means of the factor information system of IT and banking sector.
<b>HO 5:</b> There is no statistically significant difference between the means of the factor culture of IT and banking sector.	<b>Fail to reject</b>	Pearson Chi square has a value of 31.044 with 0.0188 significance. This significance value is well above alpha level of 0.05 and is thus not statistically significant.	There is no statistically significant difference between the means of the factor culture of IT and banking sector.
<b>HO 6:</b> There is no statistically significant difference between the means of the factor learning organization of IT and banking sector.	<b>Reject</b>	Pearson Chi square has a value of 34.678 with 0.022 significance. This significance value is well below alpha level of 0.05 and is thus statistically significant.	There is statistically significant difference between the means of the factor learning organization of IT and banking sector.
<b>HO 7</b>	<b>Fail to reject</b>	Pearson Chi square has a value of 56.225 with 0.194 significance. This significance value is well above alpha level of 0.05 and is thus not statistically significant.	There is no statistically significant difference between the means of the factor new ideas of IT and banking sector.
<b>HO 8:</b> There is statistically significant difference between the means of the factor documentation of IT and banking sector.	<b>Reject</b>	Pearson Chi square has a value of 30.403 with 0.011 significance. This significance value is well below alpha level of 0.05 and is thus statistically significant.	There is statistically significant difference between the means of the factor documentation of IT and banking sector.
<b>HO 9:</b> There is no statistically significant difference between the means of the factor strategy of IT and banking sector.	<b>Fail to reject</b>	Pearson Chi square has a value of 17.192 with 0.246 significance. This significance value is well above alpha level of 0.05 and is thus not statistically significant.	There is no statistically significant difference between the means of the factor strategy of IT and banking sector.
<b>HO 10:</b> There is no statistically significant difference between the means of the factor communication of IT and banking sector.	<b>Fail to reject</b>	Pearson Chi square has a value of 35.703 with 0.150 significance. This significance value is well above alpha level of 0.05 and is thus not statistically significant.	There is no statistically significant difference between the means of the factor communication of IT and banking sector.
<b>HO 11:</b> There is no statistically significant difference between the means of the factor Authority & Responsibility of IT and banking sector.	<b>Reject</b>	Pearson Chi square has a value of 45.273 with 0.036 significance. This significance value is well below alpha level of 0.05 and is thus statistically significant.	There is statistically significant difference between the means of the factor Authority & Responsibility of IT and banking sector.



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<b>HO 12:</b> There is no statistically significant difference between the means of the factor participation of IT and banking sector.	<b>Fail to reject</b>	Pearson Chi square has a value of 41.600 with 0.145 significance. This significance value is well above alpha level of 0.05 and is thus not statistically significant.	There is no statistically significant difference between the means of the factor participation of IT and banking sector.
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It can be clearly inferred from Table 5.1 that out of 12 factors, 6 factors show statistically significant difference in the means of banking and information technology sector, it means that both the sector give different weightage to different factors of structural capital. The remaining 6 factors do not show any statistically significant difference in the means of banking and information technology sector.

The 6 factors that show statistically significant difference in their means are system, intellectual property rights, information system, learning organization, documentation and authority responsibility.

The other 6 factors which do not show statistically significant difference in the means of banking and information technology sector are research and development, new ideas, culture, communication, strategy and participation.

## SUGGESTIONS

As we see in order to have a good structural capital in service sector, organizations should have focus on factors like system, research and development, intellectual property rights, learning organizations, new ideas, culture, authority responsibility, communication and participation etc. It is important that organizations that wish to build a good structural capital should emphasize on all the above stated factors.

### *Suggestions for improving Organization Culture and Climate*

According to the Organization Culture questionnaire from (www.hfi.com, 2011), organization culture can have thirteen dimensions,

out of the thirteen dimensions only four dimensions were found to be related to structural capital and were included in the present study.

The dimensions were innovation, communication, organization structure and participation. After the application of SEM all these four dimensions were clubbed into one factor and named as Organization culture and climate.

It was found that organization culture is a predictor of structural capital, thus, to enhance the structural capital of an organization following steps can be emphasized:

1. Promoting innovation: Employees should be encouraged to be innovative, rewards and appreciation can bring innovation in the organization as was stated in the eighth question relating to the factor participation of the questionnaire.
2. Top management should spend time on the new ideas submitted by employees and time should be made available to employees to come up with new ideas as was stated in eleventh question relating to the factor new ideas and fifth question relating to the factor participation of the questionnaire.
3. A smooth and extensive orientation and socialization program should be held while inducting employees in which the job responsibilities, job functions, authorities and duties should be clearly defined as was stated in the fifth and sixth question relating to the factor authority and responsibility of the questionnaire.
4. Employees should feel that they are important for the organization and their contribution in the organization is being well appreciated as was

stated in the seventh question relating to the factor authority and first and fourth question relating to the factor participation of the questionnaire.

### ***Suggestions for improving Intellectual Property Rights***

Intellectual property rights are important for any organization as these are the assets which are though intangible but bring in a lot of business. The Intellectual property rights of organization can be improved by:‘

1. Investing sufficiently in trademarks as stated in the thirteenth question relating to the factor intellectual property rights of the questionnaire. Trademarks of a company are nothing but the logo, symbols. All the organizations that formed part of this study like SBI, HDFC, DLF, Omaxe, TCS, Wipro have logos. The logo gives recognition to the organization and hence needs to be very carefully selected.
2. A clear cut strategy should be formulated in order to ensure creation and management of intellectual property rights as stated in the first question relating to the factor intellectual property rights of the questionnaire.
3. Clear cut procedures should be set for intellectual property rights management as stated in the second question of the factor intellectual property rights of the questionnaire.
4. The performance of the intellectual property rights portfolio should be monitored as stated in the third question of the factor intellectual property rights of the questionnaire.
5. Finance should be made available for intellectual property rights as without money none of the other steps can be achieved.
6. Support from top management shall be made available for intellectual property rights as without the top management support nothing is possible.

### ***Suggestions for improving Research and Development***

1. Appropriate budget should be determined for research and development as stated in the fourth question relating to the factor research and development of the questionnaire.
2. Top management support shall be made available for research and development as nothing is possible without top management support.
3. The company should continuously develop and reorganize itself based on R & D as stated in the second question of research and development factor of the questionnaire.

### ***Suggestions for improving Business Reengineering***

1. Old and obsolete ways of working should be replaced with new and improved ways of working.
2. Systems, programs and procedures should be analyzed and regular efforts should be made in order to remove the steps which are of no use and lead to waste of time.
3. Employees who work on the systems should be asked to give suggestions and they should be involved in redesigning the systems as stated in the second question of the factor documentation of the questionnaire.
4. Change is the only constant and hence organizations should keep on learning, unlearning and relearning. Employees should be given opportunity to enhance their skills and help the organization develop.

### ***Suggestions for improving Management Information System***

All the managerial functions like planning, organizing, staffing directing and controlling require information of all sorts and so it is important

that the right information is available to the right person at the right time, ensuring that significant information is maintained and can be retrieved as and when required is what management information system is all about. Management Information system can be improved in the following manner:

1. Information of all sorts like human resource, finance, and marketing should be maintained and backups should also be created.
2. Rather than keeping paper based information keeping, electronic form of data is easier and better.
3. Finance shall be made available for information system
4. Innumerable softwares are available for all the fields. For Human Resource, softwares like sage HRMS, Halogen, Kronos, Time Click, mindScope, TimeIPS, optimum HRIS, Synerion, mitrefinch, PeopleTrak, PDS, elogic Learning, Workday, grey tip, people soft, and ISGUS are available. For accounting softwares like Oracle, SAP, Account Mate, CYMA, Intacct, Red Wing TRAVERSE are available. In marketing there are softwares like Marketics, Market Smart 360, Lyrus HQ, LIFT, Leadsius, and Lead Follow-Up. For finance softwares like pc Financials, BusinessPLUS, FinPro, FMS II and PlumFAS are available. These softwares can be used.

### ***Suggestions for improving Internal Control System***

It is significant to have an internal control system in an organization to ensure that the organization is performing in accordance with the plans, and there are no major deviations. A good internal control system ensures a good structural capital in an organization. In order to ensure a good internal control system following points should be kept in mind:

1. All the employees should be well aware of the business philosophy. In case the employees only

concentrate on their own job and do not see how their job adds value to the organization and contributes to achieving the organization vision and mission, there can be major losses incurred by the organization. Therefore, a well-coordinated system is what is essential for a good internal control system. No department and no employee should work in vacuum rather they should understand the broader picture.

2. The first and foremost step for controlling is measurement. If you cannot measure anything, you cannot control it. Thus, it is significant to measure the performance in all the fields, i.e., marketing, human resource management and finance etc. And measurement alone is of no use if records are not maintained of whatever is being measured. So, having an information system can be of great help as stated in the first question of the factor information system of the questionnaire. A strong information system will help ensure that the internal control system is worthwhile. Hence, adequate investment shall be made in information system.
3. This information system should be very strong, as wrong information can be disastrous.

### **FUTURE AREAS OF RESEARCH**

1. A study of other sectors like manufacturing etc. and its relation to structural capital can be carried out.
2. Relationship between structural capital and organization culture and climate.
3. Relationship between structural capital and Management Information System.
4. Relationship between Research and development and structural capital.
5. Relationship between structural capital and organization productivity and profitability.

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# Book Reviews

**Book Title:**  
“Operations Strategy”

**Author:** “Nigel Slack,  
Michael Lewis and  
MohitaGangwar Sharma”

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**Price** INR 814

Operations Strategy is one of the newer subjects in India. It became popular among Business School Professors and students three to four years ago. Author Nigel Slack is one of the pioneer to offer his first book with Pearson in 2008 as South East Asian edition. It implied that book published in India and is authorized for sale only in India, Bangladesh, Bhutan, Pakistan, Nepal, Sri Lanka and Maldives. The book is ideal for advance undergraduates, post-graduates, doctoral scholars and industry practitioners. The author has written this book with focus on building concepts from Strategic Management, Operations Management, Marketing and HRM to give

readers a comprehensive understanding of Operations Strategy. This book is a perfect blend of excellent theory, practice and real case studies. “Operations Strategy, edition 5” provided a clear, well-structured, and interesting insight into the subject. The book applied various ideas of operations strategy to a variety of businesses and organizations. The text ensures a comprehensive coverage of the important ideas and issues that are relevant to most of the firms. The 5th edition of this book is Indian adaptation published in 2018. It incorporates the indigenous context in the form of real-life examples.

New Features of 5th edition of Operations Strategy

The Author has added new broader case-studies, studies from Patanjali, Akshaya Patra, Fabindia, Sun Pharma etc. in the book. The new examples have been amalgamated in this edition covering broader issues of Operation strategy, namely VRIO framework, and concepts related to product as well as service innovation. The two major case studies from Adani AGRI Logistic Limited and Green Dust have been cited in case section

highlighting issues with technology, and supply chain trust and culture. They also present the concept of reverse logistics and sustainability in Indian context.

Chapter 1 is on Operations Strategy-developing resources and processes. For strategic impact it describes Operations Strategy, developing resources and processes for strategic impact. Defines strategy, operations strategy, differentiates from operations management. In this chapter, the author talked about operations strategy, its process, and matrix.

Chapter 2 is on Operations Performance. The author elaborated on the role of Operations performance for future of firm. It has been applied to judge operations performance from societal level, from strategic level, operations level. The relative importance of performance objectives changes over time trade-offs.

Chapter 3 is on substitutes for strategy. In this section, the writer has written on fads, fashion and new approach to operations, total quality management (TQM), Lean operations, business process reengineering (BPR), and six sigma.

Chapter 4 is on Capacity Strategy. In this chapter capacity strategy is discussed, overall level of operations capacity, capacity change, and location of capacity.

Chapter 5. Purchasing and Supply Chain strategy: the author described role of purchasing, supply strategy, buy decision, vertical integration decision making, contracting and relations. Role of contractual relations, type of arrangement, supply chain network dynamics, managing supplies and highlighting supply chain risk.

Chapter 6. Process Technology strategy: here the author has talked about concept of process technology strategy, its reflect volume and variety, product process matrix, challenges of information technology, and evaluating process technology.

Chapter 7. Improvement Strategy: in this chapter the author has elaborated on the Operations improvement, setting the direction, importance of performance mapping, developing operations capabilities, and deploying capabilities at market place.

Chapter 8. Product and Service development and organization: this chapter depicted innovation, design and creativity, strategic importance of product and service development, product and service development as a process, market requirement, and operations resources perspective on product and service development.

Chapter 9. The process of operations strategy - formulation and implementation, author illustrated role of formulating operations strategy, its alignment, maintain alignment over time, analysis requirement for formulation, process of strategy formulation and operations strategy implementation.

Chapter 10. The Process of Operation Strategy-monitoring and control: this is the last chapter of the book. It describes the differences between operational and strategy monitoring and control; how progress towards strategy objectives is tracked; how can the monitoring and control process attempt to control risks?

#### **Case Studies in the 5th edition**

Aarens Electronic  
Aztec Component Suppliers  
Adani Agri Logistics Limited:  
Blocking the Grain Drain  
Clever Consulting  
Delta Synthetic Fibres (DSF)  
Developing Savory Rosticrips at Dreddo Dan;s  
Disneyland Resort Paris  
Dressing Medical  
Hagen Style  
Green Dust: Revolutionizing the Return Process  
McDonald's: Half a Century of Growth  
Ontario Facilities Equity Management (OFEM)  
Slagelse Industrial Services (SIS)  
The Though Space partnership  
Turnround at the Preston Plant  
Zara's Operatiing Modle  
Zentrill

The book is an excellent read for postgraduate, research scholars, academicians and industry practitioners, who deals in decision science and operations management. This piece of work is based on authors experience, research and his academic background.

**Professor (Dr.) Rajneesh Mahajan,**  
**Amity Business School,**  
**Amity University, Noida.**

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**Top of Mind: Use Content to Unleash Your Influence and Engage Those Who Matter To You**

**By John Hall; Rs. 1700 (Hard Cover Printed Price)**

**ISBN: 978-1-260-01192-0**

**Bar Code: 9781260011920**

This book is a good read, especially for the practicing marketing professionals because it's like a mirror that helps to reflect upon what we have been doing and why it is important to evolve continuously and transition to modern approach of marketing.

The consumer today is no more the same considering the advent of digital era. The plethora of information that is available at the click of a button for consumers, now it is almost impossible to tell only one-sided story about your product or brand. Consumers today seek a panoramic view about any product or brand before purchase.

The transition is clearly from 'Me Marketing' to 'You Marketing'. The author John Hall has beautifully captured the essence in this book.

In this book , the following aspects have been highlighted:

- How to craft a message that'll make people think you're a mind reader;

- Why you should choose between Paul Rudd and Oprah; and
- Why you shouldn't overcontrol your content.

**Top of Mind Key Idea #1: Traditional Me Marketing has given over to the new strategies of You Marketing, which are based on trust and value.**

Telemarketers and door-to-door salespeople are two staples of the old, traditional method known as Me Marketing. It's earned this name because the marketing message was all about the salesperson and her pitch about how amazing the product and company was.

These days, marketing is thankfully breaking away from the annoying Me Marketing methods and moving toward You Marketing.

This transition is primarily due to the internet, which has changed the way people interact with businesses and their products. People don't need to listen to a salesperson's biased pitch anymore because they can read customer reviews and make their own informed choices. With a few searches and clicks, anyone can do their own research, compare products and form their own opinions about future purchases.

Me Marketing can still be found online with intrusive pop-ups and banner ads, but even these are becoming a thing of the past.

So how do you market to online customers without using annoying ads? You Marketing is all about establishing trust and value while avoiding aggressive techniques.

**Top of Mind Key Idea #2: You can stay relevant to the concerns of your customers by using content triggers and a knowledge bank.**

The practitioners of You Marketing aren't mind readers – but they work hard to come across that way. And if you've ever read an article and felt like it had been purposely written with you in mind, it was likely the work of an effective You Marketer who'd employed an all-important tool of the trade: a content trigger.

An effective content trigger might be a popular question that a lot of people are asking, an interest that many people have or a general concern a lot of customers share. When you employ one, you'll be on your way to crafting effective content that touches on the relevant subject and demonstrates how your business can help.

To find a good content trigger, you should simply listen to what your customers have to say. What are their common concerns? What answers or solutions are they looking for?

When used well, content triggers will make your audience feel as though you're speaking directly

to them and addressing their most immediate concerns. In turn, this will greatly boost the amount of trust people have in your brand.

**Top of Mind Key Idea #3: Help form a trusting bond with clients by presenting a likeable and transparent brand.**

It might sound obvious, but every effective You Marketer should remember the importance of having their brand appear likeable and attractive. And this means showing your brand's vulnerable side.

In other words, you don't want your company to come across as cold and robotic. People don't want to buy from uncaring, faceless corporations. They'll be much more comfortable and responsive if they can recognize the human element behind the brand.

One way you can make this happen is to publish relatable articles in a company blog. When the author writes blog posts, he shares honest stories from his life and even writes about how he sometimes feels like a bad writer. This kind of vulnerable self-deprecation can really hit a sweet spot, since it lets the public connect with a relatable, human brand.

Another tip is to pinpoint the kind of likeability your brand is going for.

The advantage of knowing the type of likeable you're going for is that it will make it easier to create

effective content with a consistent voice.

**Top of Mind Key Idea #4: To stay relevant, helpful and trustworthy, be consistent with your content and take advantage of networking opportunities.**

Before making a big purchase, many people will check the websites and social-media accounts of the brand they're considering. So what do you think happens when they see that the latest content is from five or even ten years ago? That's not a very trustworthy sign, is it?

To maintain a credible and relevant image, you need to stay consistent with up-to-date content. If you want to keep your customers engaged with and loyal to your brand, you need reach out to them on a regular basis. Otherwise, they'll start looking elsewhere.

Every day, try to have a couple sessions where you actively pursue creative ideas and write down whatever comes to mind. If you keep up this practice, you'll soon have a backlog of potentially great ideas that can be converted into meaningful content when the time comes for another article. If at first it seems fruitless, just remember that it gets easier with time and practice.

Networking events provide another effective way to connect and be of help to clients.

Now, networking events might seem hard to navigate, especially when it feels as though everyone

is just there to see the keynote speaker. However, you can make a strong, lasting impression by simply offering your assistance and listening to what people have to say.

**Top of Mind Key Idea #5: To stand out and connect with customers, give your brand a strong purpose and allow all employees to share the company message.**

What makes a brand stand out? If you were to ask people what they like about their favorite smartphone, they might list popular features, such as a long battery life or a large screen. These are good examples of what a brand does. But here's the thing: no what can make your brand stand out as much as a good why can.

So what's a why? Well, it's the reason your brand exists, and you can articulate it by defining your company's purpose, which is usually summed up in a mission statement emphasizing the values you stand for. This gives your customers a direct way to personally connect with your brand.

Once you've got your why, make sure to keep your employees involved by letting them be the ones to spread the message to the masses. By doing this, you can transform your whole team into thought leaders.

A lot of CEOs try to control the content their company publishes as well as where it's published.



And it might be reasonable to assume that having multiple thought leaders pushing content will result in an inconsistent message. But this doesn't have to be the case.

Remember, you don't want a sterile, robotic image. So having several employees who're posting positive things about your brand will likely come

across as being genuine and positive.

To summarize, as marketing professionals, we all are aware of these ideas about You Marketing. The interesting part of the book is the writing style of the author how he has been able to remind us about them without being preachy. In our day to day, many a times, we start thinking like

'company; instead of like a 'consumer'. It is important to keep on reading such interesting books and contents to bring us back to our core.

**Bharat Saxena**  
**Marketing Director**  
**Artsana India - Chicco**

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**Name of Book -**  
**Effective Training :**  
**System, Strategies and Practices**  
**Publisher - Pearson Education**  
**Author - P Nick Blanchard,**  
**James W Thacker**  
**ISBN NO. -9789332537019**  
**Price -Rs.520**

The Book titled "Effective Training: System, Strategies and Practices" authored by P Nick Blanchard and James W. Thacker is a perfect bend for practitioners, readers and those developing interest in the area of Training and its implications for measurable outcome.

The Book is divided in 11 Chapters comprehensively delving into significant areas necessary for developing a complete understanding about training and development conceptually and practically.

Chapter 1 "Training in Organization" starts with a thought-provoking case emphasizing the overall need of training and highlighting introductory heads like how training is significant as a complete system for an organization and its roles and goals and a complete training process model (The ADDIE Model). It further entails different opportunities and challenges associated with training and development right from role of aligning it to business strategy, demographics, legal issue and knowledge workers. The chapter

ends with recapitulation of important terms and summary with assessment questions and closing case.

Chapter 2 "Business Strategy and HRD deals with Business perspectives and implications of training for effective business outcome with a focus on understanding the role of external and internal environment variables in making training more effective. The chapter emphasizes on Strategic role of HRD and how Organization development, strategy and training are interrelated. The chapter highlights the importance of strategic imperatives of training and development through varied strategic training alternatives. The chapter ends with a closing case about strategic planning at reputed firms and suggested outcomes along with self - assessment.

Chapter 3 Learning, Motivation and Performance this chapter highlights the importance and connectedness between motivation and performance and its significance in pushing strategic delivery. The chapter further details different theories of motivation and learning thus emphasizing the importance of learning and motivation in effective outcome. It further details training design and learning process thus clarifying how different components of

training, internal and external environment variables on learning pace, training outcome and necessary instructional technique's available like Gagne-Briggs Nine events to ensure effective outcome. This chapter sets a foundation for understanding the basic necessities for training design.

Chapter 4 Need analysis this chapter systematically explains the relevance of training design and its various components, trigger, inputs, process and outcome. The chapter in a simple and comprehensive manner explains framework of TNA at all the three levels-Organization, functional/departmental and individual analysis which helps with a practical perspective to understand how training design can be foolproof done both qualitatively and quantitatively. The chapter highlights major theories and its implication in the design part. It further explains the necessary components and essentials for training design which is the basic step for effective training. The Chapter closes with a practical case of organization to comprehend on preparing a training design and need analysis.

Chapter 5 Training Design this is a very important chapter of this book that focuses on areas of organization constraints that affect training and gives a practical and complete understanding in practical sense about how to evaluate no. of

training days, training budget and objectives of training. The succeeding paragraphs under the heading training objectives completely aids in ideating on the important components of objectives, and its significance with the perspective of all the stakeholders. The chapter is very important as it also explains method to evaluate expectations and motivation level of trainees to attend the training program and thus help in designing an effective program parallelly working on resistance to training. It also emphasizes on other important factor i.e transfer of training and outcome of training design.

**Chapter 6 Traditional Training Methods** this chapter emphasizes on traditional training methods, each method is been elaborated with its features, merits and limitations. The chapter helps in providing insights on choosing correct method of training based on stakeholder's perspective and thus ensuring maximum outcome from the designed training. The chapter explains well how each training method both on the job and off the job can be designed /chosen based on training expected outcome.

**Chapter 7 Computer Based Methods** in lines with the earlier chapter gives a broader understanding about different computer enabled training methods as a revolutionary step towards technology adoption and implementation. This chapter gives an understanding

and knowledge on essentials to be remembered while choosing computer-based method, introduces to the concept of e-learning, Learning management system, and different CBT methods like Programmed Instruction, Intelligent Tutorial system, Interactive multimedia system and different ways to merge multimedia methods with other training methods. The chapter closes with a case and web research based questions.

**Chapter 8 Development and Implementation of Training**, this chapter explains the relevance of chosen training method based on its suitability and effectiveness of training. It emphasizes on instructional strategy and different components to be remembered to make training effective right from content material and equipment, trainers manual, facilities, training room, off site training facilities, trainers KSA, On the Job trainers, different implementation ideas of trainers pilot training and different methods to ensure effective transfer of training.

**Chapter 9 Evaluation of Training** this is an outcome of above-mentioned chapters and details the significance of evaluation as an important aspect of effective training. The chapter begins by introducing through a case what evaluation means and its multiple aspects. It focuses on a very basic aspect of evaluation which acts like a fear point in the minds of people i.e whether evaluation is a threat to training.

It talks about various training evaluation methods available theoretically and essentials to be remembered while choosing training evaluation method. It throws light on various aspects of evaluating the cost of training assessment. The chapter ends with practical exercises to practice and how based on each component of evaluation method needs to be assessed right from training need identification to assessment and also introduces the aspect of reliability and validity in training evaluation.

**Chapter 10 Key Areas of Organizational Training** this chapter talk as about practical aspects and areas of train which organization strategically provides based on the understanding developed in the earlier chapters. The chapter talks about diversity, sexual harassment, orientation, sensitization training which are essential components of strategic growth. It also focuses on other important areas of training like equity, glass ceiling, training related to people with disability, cultural differences etc. It also introduces aspects of Learning organization and role of HRD in learning organization.

**Chapter 11 Management Development**, this chapter deals with identifying and describes the role of manager in an organization at different level and characteristics of managers. The chapter explains how organization training strategy changes with different

organization situation and different executive development programs. The chapter comprehensively explains integration of different strategies and characteristics for management development, different competencies needed. It further explains different sources of knowledge and skill acquisition based on external and internal training. It explains

different type of Management Development methods and skills, traits and leadership styles. It also encapsulates different methods of executive development- coaching, mentoring, job rotation, action learning and special job assignments.

Thus, overall the book is highly recommended for students, academicians and practitioners to develop a complete insight on

training need assessment, its design, selection of methods, implementation and evaluation. The book provides useful insights to choose appropriately the training requirement and the strategic goals of organization.

**Dr. Vijit Chaturvedi,**  
**Amity Business School,**  
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