



THE INDIAN JOURNAL OF COMMERCE

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Notes for Contributors

Papers based on application oriented research or field studies in the areas of industry, commerce, business studies and management are invited. The length of a paper including tables, diagrams, illustrations, etc., should not exceed 20 double space pages. Short communications (not more than 5 double spaced pages) relating to review articles, report of conferences, summary/views on various governments reports, debatable issues, etc., are also published. Book reviews and summary of Ph.D. dissertations not exceeding two double spaced pages, are welcome. Manuscripts sent for publication in this journal should not have been published or sent for publications elsewhere. All correspondence will be held with the senior (first) author only.

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Lifestyle Segmentation of Subsistence Level (BoP) Consumers

TEJINDER SHARMA, ROLAND GAU AND SAEED TAJDINI

Abstract: Its commonly nuanced that the consumers living in extreme poverty conditions would share a common constraint with regard to their economic resources. Current research construes those at the Bottom of the Pyramid (BoP) consumers, or the individuals that comprise the subsistence marketplace as a monolithic entity and do not anticipate heterogeneity between them. On one hand, the extreme financial constraints faced by BoP consumers do restrict marketplace choices for these individuals so that a high proportion of their financial resources are devoted to addressing basic needs. In purely economic terms, BoP limits the possibility of heterogeneity, but it is hypothesized that there is a possibility of differences in cognitive and conative parameters. Extant research highlights a number of individual differences with regards to a variety of characteristics, ranging from happiness to hope, to individual agency, to the ability to acquire social capital, suggesting that heterogeneity within the BoP is present. This research extends the extant research, which has often examined BoP consumers at the individual level with qualitative methods, by presenting quantitative evidence that lifestyle segmentation offers a more nuanced understanding of BoP consumers. A survey of 580 BoP consumers was conducted in the state of Haryana, India. The use of cluster analysis reveals that meaningful market segments based on the lifestyle preferences exist within this population. Additionally, the customer segments differed in a variety of factors associated with the usage and adoption of mobile phones, suggesting that these customer segments can provide a more nuanced understanding of BoP consumers.

Keywords: Bottom of the Pyramid, subsistence consumers, market segmentation, technology adoption, cluster analysis

Introduction

This research presents quantitative evidence that subsistence consumers – those who live in extreme poverty and are often described as the Bottom of the Pyramid (BoP) - are not a homogeneous population, and proposes that customer segments within subsistence consumers exist. While relatively basic in both concept and execution, customer segmentation provides a powerful tool for marketers and policy makers as they make decisions for the traditionally under-served and under-researched

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subsistence marketplace. Although similar conclusions have been drawn in the extant scholarship on subsistence consumers, these conclusions are often built from theoretical propositions or qualitative evidence that tends to focus on individual-level analysis or case studies, rather than employing quantitative findings to build toward more specific customer segments (e.g., Abdelnour and Branzei 2010; Fang, Russell, and Singh 2014; Gau, Jae, and Viswanathan 2012; Viswanathan, Seth, Gau, and Chaturvedi 2009; Weidner, Rosa, and Viswanathan 2010).

Customer Segmentation in Subsistence Marketplaces

Despite recent successes in poverty alleviation that have led to an increased quality of life for many of the world's inhabitants, millions of people remain constrained by poverty (Shah 2010). Subsistence consumers face difficulties in everyday life that are characterized by unmet basic needs that represent challenges that may seem distant to individuals living in developed economies, such as malnutrition, lack of clean water, and/or increased rates of disease (Viswanathan et al. 2009). With many subsistence consumers earning incomes of less than \$1.25 USD a day (World Bank 2012b), the ability to meet basic needs is difficult, thus it is not surprising that subsistence consumers spend a greater proportion of their financial resources on the meeting of basic needs, and often come up short. While the notion that "the poor pay more" for basic needs is true across different contexts, this takes on a qualitatively different flavor in subsistence contexts. For example, in the US and Western Europe, typical expenditures on food range from 6% to 15% of household income, but in places such as Kenya or India, where extreme poverty is more prevalent, typical households spend 35% to 45% of their income on food (Battistoni 2012).

A natural conclusion may be that since subsistence consumers have unmet basic needs, that the entirety of their spending is on addressing basic, physical needs. However, in reality there many purchases that are extend beyond the basic needs. Given the importance of social capital for individuals living in subsistence (Ansari, Munir, and Gregg 2012), purchases of products or services that maintain social capital may play a crucial role in remaining in good standing within a community (Woolcock and Narayan 2000). Individuals may need to allocate resources to pay for the things associated with the education of their children (Simanis and Hart 2006). Individuals may need to simply indulge on an occasional treat, and on the darker side, some individuals turn to more illicit, addictive things, such as tobacco or alcohol (Neufeld, et al. 2005). The implication is that even within subsistence populations, there is spending on goods and services beyond those that address basic needs, and these purchases are likely to differ based on factors that go beyond low income.

Additionally, with the recent trend of increased access to capital through microfinance programs, increasing numbers of subsistence consumers are able to make purchases at higher price points than in times past. In

fact, more recent iterations of business paradigms such as the Bottom of the Pyramid Protocol have moved away from simply reducing price and package size as the means of reaching the poor (2007). Instead, subsequent versions but have placed a greater emphasis on understanding of the non-financial considerations for reaching this population (Bottom of the Pyramid Protocol 2012)

Given these differences, it is likely that market segmentation within subsistence populations will have a variety of benefits. Certainly, for firms selling goods and services for particular usages (such as agricultural or medical goods and supplies), the ability to reach more specific groups within the subsistence marketplace will make for more effective marketing efforts. Moreover, understanding the lifestyle preferences and aspirations of subsistence consumers will result in a more nuanced understanding of how useful products may be adopted in these contexts. A number of products have captured the imagination of those involved in poverty alleviation efforts, with the intent of providing products and services that can help address the unmet basic needs that are faced by subsistence consumers.

One such device is the mobile phone. The use of mobile phones allows for more flexibility and mobility in communications, and in many parts of the world mobile phone service does not serve as an upgrade from land-based phones, but rather as the baseline product for individual use. In addition to voice communications, mobile phones allow for access to market information as well as access to secure financial services, bypassing costly services that were that were often limited in availability to subsistence consumers (Fang et al. 2014). However, marketing efforts around these products have tended to be based on earlier paradigms of reaching subsistence consumers through lower pricing of products (e.g., subscription plans with very small or no monthly fees, no payments for receiving calls or messages) and smaller package sizing (e.g., calls priced per second). The implication is that for products such as cell phones, the ability to segment subsistence consumers may lead to more nuanced and more effective marketing efforts.

The use of market segmentation as a response to differences in customer demand has been a long-standing practice in marketing (e.g., Smith 1956). Market segmentation attempts to create distinct groups, where members within a given segment are homogeneous in their response to a given set of marketing interventions, while members of different groups have different responses to the same interventions, allowing for marketing strategies that are more focused than mass or undifferentiated marketing, while still allowing for economies of scale. Market segmentation procedures often employs demographic (i.e., age, gender, income) and geographic factors as segmentation bases to create customer segments (cf. Beane and Ennis 1987 for a review of early research on segmentation). Although very powerful in nature, the use of the traditional segmentation bases offers an incomplete view of the factors that describe customer predilections.

However, with income being a major factor used in traditional segmentation (e.g., Hirsch and Peters 1974; Slocum and Mathews 1970), this method faces limitations in the examination of the subsistence marketplace.

A more nuanced view of market segmentation, based on a greater understanding of the lifestyles and values of consumers, allowed marketers to push for a more nuanced view of market segmentation (e.g., Plummer 1974). The use of consumer's preferences for various activities, interests, and opinions offers greater insight into how consumers interact with the marketplace, beyond what would be learned from their demographic factors. These factors have been used with success in determining more refined customer segments within an emerging economy (e.g., Cui and Qui 2001), as well as within an age group (e.g., Mathur, Sherman, and Schiffmann 1998), suggesting that the use of lifestyle segmentation within an existing demographic-based segment is useful. This research extends this notion by examining the segmentation of subsistence consumers, who all have low incomes, through lifestyle segmentation.

Methodology

Preliminary research consisted of a series of 74 open-ended interviews conducted with low-income residents of Kurukshetra, located in the state of Haryana, India. The preliminary findings from these interviews resulted in the creation of a questionnaire used for the present analysis. Questionnaire respondents were distributed from Kurukshetra, with a total of 586 responses. Six responses were incomplete and not used in the analysis, resulting in a sample size of 580. Respondents were given a small cash incentive in return for their participation. Respondents were screened such that they all self-identified as having low income, and all received financial support from the Indian government. Data collection was conducted over the period of 6 months.

The questionnaire consisted of: a) 36 items intended to measure different elements of lifestyles, created based on the findings from the preliminary interviews, b) 35 items intended to measure different preferences and usages of cell phones, and c) 9 demographics items intended to identify potential covariates. Whenever possible, items were designed with subsistence consumers in mind (Gau, Jae, and Viswanathan 2012), including the use of 4-point scales to reduce the complexity of potential responses. Similarly, the questionnaires were administered verbally to each respondent, and the answers were recorded by the administrator, so as to minimize the reading and writing involved with the process (Gau, Jae, and Viswanathan 2012).

Data Analysis and Results

While the end goal was to use cluster analysis to identify market segments. However, given the relatively exploratory process, which emphasized breadth, used in survey design, an exploratory factor analysis (EFA) was

conducted to better understand the conceptual structure of the resultant data (e.g., Coviello et al., 2002; Gonzalez and Bello 2002). This approach allows for the incorporation of the relevant measured variables without the diminishing returns that come with having too many variables (i.e., having 36 different variables for each of the 36 lifestyle items from the survey) decreasing the cluster analysis fit indices. In response to Fabrigar et al.'s (1999) call for more transparent reporting of the factor analyses, a detailed explanation of this procedure, and also the subsequent cluster analysis is provided in the following subsections.

Exploratory Factor Analysis

There are three major decision points associated with EFA: appropriate extraction method, the number of factors to retain, and the factor rotation technique to use (Costello and Osborne 2005).

Extraction method. For our extraction method, we used Common Factor Analysis, rather than Principal Component Analysis, in our analysis, given our goal of not only reducing the number of variables – a key feature in PCA – but also understanding the latent structure underlying their shared variance (Conway and Huffcutt 2003). We employed computer software using algorithms for Principal Axis Factoring (PAF), rather than Maximum Likelihood Factor Analysis (MLFA). Despite the advantages that MLFA offers (Cudeck and O'Dell 1994), it assumes that the population distribution of variables is normal, which was an inappropriate assumption given the exploratory nature of this questionnaire. On the other hand, PAF is more robust in that it can be employed even without an assumption of normality (Fabrigar et al. 1999). Moreover, another advantage of PAF is that it is less likely than MLFA to produce improper solutions (Finch and West 1997). A preliminary analysis of our data offered assurance that our choice of factor analysis was appropriate with our data. The KMO measure of sampling adequacy (.735) and the Bartlett's test of sphericity ($p < .000$) support the suitability of factor analysis for our data.

Additionally, traditional EFA uses the Pearson correlation matrix in the factorization process, which requires the assumption that data have been measured on, at least, an equal interval scale and a linear relationship exists between the variables. These assumptions are, however, usually violated when ordinal rating scales are used in social sciences (Costello and Osboren 2005; Timmerman and Lorenzo-Seva 2011), as is the case in our study, resulting in the possibility of spurious multidimensionality and biased factor loadings (Bernstein and Teng 1989). To address this, we use polychoric correlations (as suggested by Joreskog and Sorbom 1986; Muthen and Kaplan 1985), which have been found to be better in such cases, resulting in improved fit indices (Holgado-Tello et al., 2010), and improved construct validity, a cornerstone of basic research (e.g., Cronbach 1984; Shadish et al. 2002). Thus, in the factor analysis (and also the parallel analysis) that follow, we use polychoric correlation matrices.

Number of factors retained. The second decision point is about the number of factors to retain. A variety of methods are available in determining this number, including, but are not limited to, the Kaiser 1 rule, the scree test, parallel analysis, a priori theory, retaining the number of factors that gives a high proportion of variance accounted for or provides the most interpretable solution, and minimum average partial (MAP). Many scholars have noted the power of parallel analysis (Zwick and Velicer's 1986; Fabrigar et al. 1999), to the point of suggesting that there is little reason to use any other method (Glorfeld 1995). However, Ruscio and Roche (2012) have developed a novel method to determine the optimal number of factors using comparison data (CD). Rather than generating random data (what is done in parallel analysis), their method uses a simulation technique that reproduces the observed correlation matrix (That is the correlation matrix from the research data). Then it compares the correlation matrix of the original data with that from the reproduced 1-factor data, 2-factor data, 3-factor data, and so on (the researcher decides how many factors the program has to generate and compare) until the reproduction of the observed eigenvalues fails to improve significantly. Thus, the appropriate method in determining the number of factors is not precisely established in the extant research.

Given the importance of the number of factors in factor analysis (Conway and Huffcutt 2003), we measured the number of factors that result from the application of different criteria, with the intention of basing our decision on a combination of criteria calculated. Table 1 shows the number of factors each of 5 commonly-used criteria used.

The two methods highlighted, Parallel Analysis and CD, both result in 7 as the optimal number of factors, roughly the arithmetic average of all the 5 numbers suggested by the five methods. The Kaiser 1 criteria resulted in 11 factors, though that method accepts factors that are only marginally more explanatory than a single variable, and thus may over-extract factors. For the sake of completeness, we did the factor analysis without limiting the factors to 7, which led to 11 factors some of which with factor loadings greater than 1 and with negative corresponding residual variance.

Table 1: The five different criteria used and the optimal number of factors

Criteria	Proposed optimal number of factors
Kaiser 1 rule	11 factors is optimal
Sample Size adjusted BIC	achieves minimum with 9 factors
MAP	achieves minimum with 3 factors
Parallel Analysis	7 factors is optimal
CD method	7 factors is optimal

This would imply that the use of 11 factors results in over-extraction. Additionally, the MAP method results in only 3 factors. Since over-extracting is less harmful than under-extracting (e.g., Cattell 1978; Wood et al., 1996), we opted to be conservative, and proceeded with Principal Axis Factor Analysis, with polychoric correlation matrix, and 7 factors.

Factor rotation. The third decision pertains whether to use an orthogonal or oblique factor rotation. Conway and Huffcutt note that using an orthogonal rotation while factors are actually correlated can lead to misleading results (2003). Additionally, orthogonal methods have been criticized as most factors that make up a latent variable are expected to share some degree of relationship (Gaskin and Happell 2013). On the other hand, using an oblique rotation will produce superior results if factors are correlated, and essentially equivalent results if they are not. Thus, we used oblique rotation. We tested both Direct Oblimin and Promax oblique rotation algorithms and the loading structures were similarly simple in the sense that there were no cross-loadings of absolute magnitude .3 or higher (cf. Kline 2002, p. 52-53; Costello and Osborne 2005).

Table 2: The refined pattern matrix from the exploratory factor analysis

Factors	Items	Factor Loadings
Hedonic Consumption	I spend money on cosmetics	.83
	I like to spend on fashion	.90
	I like to watch movies in cinema hall/ multiplex	.58
	I take lot of interest in pursuing my hobbies	.41
	I take initiative to purchase new things	.40
Social-boundedness	I prefer to purchase from the retailers I know personally	.33
	I participate in the happy and sad moments even if I have to take a loan for this	.58
	I participate in the happy and sad events of my nears and dears	.83
	I give useful suggestions for purchase	.53
Materialism	I prefer to buy a thing which my neighbor has purchased	.60
	I intend to purchase costly things in life	.42
	I try to impress others by the things I purchase	.56
	Money can buy happiness	.57
	I am recognized by the things I possess	.65
Business Skepticism	Shopkeepers adulterate the products they sell	.82
	I believe that shopkeepers cheat us	.60
	Shopkeepers can cheat in weight/measurement	.65
	I have been overcharged for purchase by shopkeeper	.51
Social Activism	I give donation to social organizations for a cause	.81
	I participate in the activities of social organizations	.55
	I can leave my work for the sake of a cricket match	.35
Uncertainty Avoidance	I have regular income from my work	.71
	I prefer to go for regular work than small earning opportunities	.79
	I talk to lot of people before I go for purchase	.33

Contd...

Traditional-mindedness	I believe that education can improve my present life	.48
	I intend to have a government job for my child	.44
	I am contented from my present life	.70

However, there were slight differences in the factor loadings resulting from each rotation algorithm. Thus, we followed the recommendation of Gorusch, and used the Promax algorithm (1983). Items were deleted if they met either of two conditions: a) if cross-loadings were greater than .3, or b) if they did not have loadings greater than .3 on any of the factors. Table 2 shows the refined pattern matrix from the factor analysis, as well as our description of the corresponding factors. A follow-up confirmatory factor analysis supported uni-dimensionality of each factor.

Cluster Analysis

Following Punj and Stewart (1983) we used a two-stage method in which an optimal number of clusters is first identified using Bayesian information criterion (BIC) and Akaike information criterion (AIC). An iterative algorithm was used to create a cluster solution that minimizes the log-likelihood distance. We followed Bacher, Wenzig, and Vogler's finding that SPSS' two-step cluster analysis performs well if all variables are continuous - which is the case in our summated factors - we proceed with SPSS' two-step cluster analysis (2004). Using the 7 summated factors formed previously, SPSS identified 4 clusters, with a silhouette measure of cohesion and separation of .2, which is considered fair. Table 3 shows how the 4 clusters score on average on each of the 7 factors.

Table 3: Clusters' average scores

Factors		Factor average scores by cluster			
		1 (19.3%)	2 (24.7%)	3 (23.4%)	4 (32.6%)
1	Hedonic Consumption	10.70	13.15	8.11	11.26
2	Social-Boundedness	11.61	13.14	9.96	12.81
3	Materialism	9.01	10.98	7.10	8.45
4	Business Skepticism	11.18	11.57	11.27	8.34
5	Social Activism	5.86	8.03	5.66	6.17
6	Uncertainty Avoidance	8.64	9.96	10.12	7.93
7	Traditional-Mindedness	8.88	11.43	11.44	11.30

Notes: the numbers in parentheses below each cluster show the size of each cluster in relation to the whole sample size of 580.

To provide a more fluent discussion, we label the clusters, based on the factors that significantly distinguish one cluster from other clusters. For example, we note that Cluster C is lowest on factors 1, 2, 3 and 5 and highest on factors 6, and 7. Thus, we label the members of this cluster "*traditional strugglers*." Using a similar process, we describe the 4 clusters

as:

Cluster A: Modern Workaholics

Cluster B: Worldly Social Leisure Seekers

Cluster C: Traditional Strugglers

Cluster D: Optimistic Risk Takers

It is worth noting that potential, 2-cluster solution also emerged. We conducted a Pearson chi-square test ($p < .000$), which indicated that the pattern of memberships from the 2-cluster and 4-cluster solutions are dependent. To avoid confusion, we call the clusters from the 2-cluster solution clusters 1 and 2 and the clusters from the 4-cluster solution clusters A, B, C, and d. From the Table 4, it appears that membership in cluster A corresponds to membership in cluster 1, while membership in clusters B and D correspond to membership in cluster 2. However, cluster C seems to be independent of membership in either cluster 1 or 2. Given the descriptor of cluster C as being traditional strugglers, our findings suggest that even within subsistence communities, there is a segment of consumers that have very limited resources and are the most at-risk. This corresponds to the view of income as a key factor in traditional segmentation. In contrast, the suggestion is that within subsistence communities, there are segments of consumers that experience a more stable form of poverty, and that within that population, differences that are more aligned with lifestyle preferences emerge.

Analysis of Between-Cluster Differences

To offer additional evidence for the validity of the proposed clusters, differences in the preference and usage habits regarding cell phones between clusters were examined. Cell phones represent a product in subsistence marketplaces that have the potential to be transformative in subsistence marketplaces through the facilitation of information flow, as well as enabling mobile money and greater access to the formal economy (Fang et al., 2014). Some differences between clusters emerged along a number of factors associated with cell phone acquisition and usage.

Initial and on-going costs of consumption. A one-way analysis of variance (ANOVA) found that cluster membership was a significant factor in predicting the cost of cell phones owned ($F(3, 490) = 5.46, p = .001$). The cost of cell phones and monthly expenditures were log-transformed and square-root-transformed to approximately achieve normality. Post-hoc analyses using the Bonferroni post hoc criterion for significance indicated that the average cost of cellphones was significantly lower among Traditional Strugglers compared to Modern Workaholics (mean difference = $-.13, SD = .045, p = .019$) and compared to Optimistic risk takers (mean difference = $-.15, SD = .045, p = .039$). Similarly a one-way ANOVA showed that, cluster membership was also a significant predictor of monthly cell phone expenditures ($F(3, 470) = 4.74, p = .003$). Post hoc analyses

using the Bonferroni post hoc criterion for significance indicated that the average cost of cell phones was significantly lower among the Traditional Strugglers, compared to the Worldly Social Leisure Seekers (mean difference = -4.77, $SD = 1.40$, $p = .004$) and compared to Optimistic Risk Takers (mean difference = -4.03, $SD = 1.34$, $p = .016$).

Table 4: Cross tabulation of 2 and 4-cluster solutions

		4-Cluster solution				
		A	B	C	D	Total
2-Cluster Solution	1 Count	142 _a	39 _b	26 _c	23 _b	230
	Expected Count	58.3	78.5	26.2	67.0	230.0
	% within TwoCluster Solution	61.7%	17.0%	11.3%	10.0%	100.0%
	% within FourCluster Solution	96.6%	19.7%	39.4%	13.6%	39.7%
	% of Total	24.5%	6.7%	4.5%	4.0%	39.7%
2	Count	5 _a	159 _b	40 _c	146 _b	350
	Expected Count	88.7	119.5	39.8	102.0	350.0
	% within TwoCluster Solution	1.4%	45.4%	11.4%	41.7%	100.0%
	% within FourCluster Solution	3.4%	80.3%	60.6%	86.4%	60.3%
	% of Total	.9%	27.4%	6.9%	25.2%	60.3%
Total	Count	147	198	66	169	580
	Expected Count	147.0	198.0	66.0	169.0	580.0
	% within TwoCluster Solution	25.3%	34.1%	11.4%	29.1%	100.0%
	% within FourCluster Solution	100.0%	100.0%	100.0%	100.0%	100.0%
	% of Total	25.3%	34.1%	11.4%	29.1%	100.0%

Each subscript letter denotes a subset of FourClusterSolution categories whose column proportions do not differ significantly from each other at the .05 level.

Usage of cell phones. A one-way ANOVA found that cluster membership was a significant predictor of whether a respondent used their phone for work (utilitarian) purposes or to listen to music (hedonic). Due to the non-normal distribution of these 2 items, the Kruskal-Wallis tests were used, as the non-parametric equivalent of univariate ANOVAs. Results of the Kruskal-Wallis tests showed that the differences in hedonic consumption between clusters were statistically significant ($p = .001$), however the differences in utilitarian consumption were not ($p = .070$). Post-hoc pair-wise analyses with p -values adjusted for family-wise error rate showed that hedonic consumption of cell phones is significantly higher ($p = .001$) among Worldly Social Leisure Seekers (mean=2.91, $SD=.10$) compared to Optimistic Risk Takers (mean=2.41, $SD=.08$).

Discussion

The results from our data analysis suggests that distinct lifestyle customer segments exist within subsistence marketplaces. Additionally, examination of the cluster membership points to a distinct difference between Traditional Strugglers and the other 3 clusters. The significantly lower purchase price and monthly expenditure on cell phones suggests that the Traditional Strugglers differ from the other clusters on a financial level. This finding highlights the impact of financial resources, within subsistence marketplaces, possibly corresponding to differences between “extreme,” versus more stable forms of poverty.

On the other hand, the lack of statistical difference on these financial characteristics between the other 3 clusters, though not conclusive, suggests that the lifestyle differences may be more appropriate in distinguishing between those clusters. Further examination of the differences between clusters points in cell phone usage and acquisition characteristics point to the value of lifestyle segmentation. The differences between the other 3 clusters on the likelihood that the cell phone is used for hedonic purposes (i.e., listening to music) suggests that there are differences in cell phone usage, beyond those associated with financial resources. Though not presented in the analysis above, for length purposes, significant differences between the clusters emerged on a variety of factors, including the sources of information (e.g., formal marketing efforts vs. word of mouth) used in choosing a cell phone, the key attributes preferred in a cell phone (e.g., voice quality, internet connection quality, screen size, durability), as well as the overall satisfaction with their cell phone.

The implication is that meaningful segments exist within subsistence marketplaces, and that these segments differ not only along traditional segmentation bases (e.g., financial resources), and also along lifestyle dimensions. These results offer a number of potential implications for both marketers and policy makers. Certainly, the differences in the adoption and use of cell phones between clusters suggest that a deeper understanding of consumer preferences is important for cell phones and other products. This represents an evolution from early attempts in the subsistence marketplaces, which often revolved around smaller packaging for lower prices, to address the income-related factors that distinguished subsistence marketplaces from those in developed economies. This work extends the more recent attempts to push for a more nuanced view of subsistence consumers, not just for product consumption, but also for the adoption of different services, ideas, and habits that could facilitate efforts for improvement of life circumstances in subsistence marketplaces.

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Examining Relationship between Corporate Performance and Risk Disclosure: Panel Data Investigation

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Abstract: The study aims to examine the relationship between corporate performance and risk disclosure of Indian listed Business Today top 500 non-financial companies. The methodology adopted to analyse risk disclosure in the annual reports narratives have been automated content analysis. Further panel data regression has been applied to analyse the relationship between corporate performance and risk disclosure controlling the effect of firm level corporate governance in the form of board characteristics and firm characteristics. The findings revealed that more risk disclosure in the annual reports of Indian companies has negative impact on the firm performance contrary to the theoretical underpinning by Signalling theory. It manifests that it does not always hold true that companies which disclose more risk information are more effective at managing risk as witnessed in the Indian context but it denotes that firms which disclose more information are transparent by depicting true position to the stakeholders so that market does not penalize them for hiding the actual position of the company.

Keywords: Risk, Corporate governance, Disclosure

Introduction

With the increasing complexity in business organizations, stakeholders' need for information has become more insightful, where society and standard setters look for high level of information disclosure especially from publically traded companies. The instant collapses of corporate giants with biased persona of being highly transparent and low riskiness gave blow to the investor's

confidence thus prompting towards comprehensive disclosure. As a result narrative risk disclosure gained momentum in periodic reports by national GAAPS or code of best practice in corporate governance worldwide (Moumen et al. 2015). The developed nations like US, UK, Germany, Canada, Finland have already adopted mandatory risk disclosure accounting standard, however outweighing the focus on financial risk

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disclosure in the form of accounting standards such as IAS 32: Financial Instruments Presentation and IAS 39: Financial Instruments Recognition and Measurement now in a new look as IFRS 7: Financial Instruments disclosure. A broader set of risk disclosure in the annual reports is driven to comply with mandatory provision and discretionary risk disclosure is made as per ease of a company.

The growing essence of risk disclosure in the annual reports has been sensitized by investors as it *guides in deciding trading volume and simultaneously enhances investor's protection by creating accountability* (Liu, 2006). Risk disclosure will aid in narrowing down the informational gap between managers and stakeholders about different business threats and opportunities. Additionally, it will lower down the risk perception of a firm and will assist in predicting future firm performance. On the other hand managers of a firm are also benefitted by such disclosure by signaling their effectiveness in identifying and managing risk thus demarcating them from those managers who handle risk less effectively (Elshandidy et al. 2013). Risk reporting propels risk management process involving risk identification, measurement and control resulting in *elaborative risk reporting which increases the firm value* (Razek, 2014). *The manager's who are vigilant at reporting risk will have edge over their counterparts who do not report risk since investors perceive them to be responsive towards such risk with the notion of efficient risk handling.*

The theoretical perspective behind risk disclosure and firm performance is underpinned by the Signaling theory by Akerlof (1970). It has been emphasised that companies with high quality of risk management should signal their advantage to the marketplace which may result in reassessing the value of company and will lead to informed decisions by investors. *Simultaneously, from the company's point of view it helps in obtaining more investment and reduces cost of raising capital* (Razak, 2014).

The massive importance of risk disclosure has motivated prior researchers to study risk disclosure in both developed and developing nations. In the Eurasian continent involving countries in Europe like UK (Linsley and Shrives, 2006; Abraham and Cox, 2007; Elshandidy et al. 2013) Italy (Allini and Rossi et al. 2012; Allini et al. 2016) Portugal (Oliveira et al. 2011) Spain (Dominguez and Gamez, 2014 and Madrigal et al. 2015) Sweden (Johanson and Thornberg, 2011) and in Asian countries involving Malaysia (Amran et al. 2009; Ismail et al. 2012; Ali and Taylor, 2014) Japan (Mohobbot, 2005) UAE (Hassan, 2009) research efforts have been channelized towards analyzing risk disclosure. Nevertheless, African countries involving South Africa (Ntim et al. 2011) and Egypt (Mokhtar and Mellet, 2013 and Marzouk, 2016) have also contributed in enriching understanding about risk disclosure practices. The effort of the prior researchers across diverse continents has been towards measuring the extent of risk disclosure in the annual reports narratives and in identifying drivers propelling such disclosure. The relationship of risk disclosure in

the annual reports and performance of company is an area which needs strenuous efforts to support the theoretical underpinning by Signalling theory. Attempts have started heading in this direction as researchers (Ismail et al. 2012; Oluwagbemiga, 2014; Jankensgard et al., 2014; Eddah (2014) and Azim and Abdelmioniem, 2015) have analysed relationship between risk disclosure and firm value or firm performance although at primeval level. Additionally, Institute of Chartered Accountants in England and Wales, 1998 issued a *discussion document "Financial Reporting of Risk- Proposals for a Statement of Business Risk"* which emphasized on voluntary risk disclosure on the premise that businesses have no choice but to operate in a world where risk exists and should focus on minimizing downside risk. It argues that it is vital to recognize the fact that these risks are taken on behalf of stakeholders to generate value addition. Stakeholders should be provided adequate risk information as they have crucial interest in understanding the risk position of the company (Linsley and Shrives, 2000).

Jankensgard et al. (2014) documented puzzling results in light of basic assumption of literature on voluntary disclosure that more disclosure reduces information asymmetry and leads to lower cost of capital. The present study strives to narrow down the ambiguity of results linking risk disclosure and firm performance in a new setting. Thirdly, this is a longitudinal study answering the call of Ismail et al. (2012) involving six year period i.e. 2009 to 2014 aiming to analyse post global financial crisis period and throwing light on relationship between risk disclosure and firm performance. Fourthly, it attempts to widen the knowledge in the Indian context with respect to risk disclosure by the corporations in the absence of mandatory implementation of accounting standard on risk disclosure i.e. accounting standard on financial risk disclosure. Lastly, the method of automated content analysis has been adopted overcoming the limitations of manual content analysis method as suggested by Razek (2014).

This study is structured in five sections. After introduction, the second section reviews prior corporate performance and risk disclosure literature along with hypothesis development for this study. The third section sheds lights on research methodology including sample selection and measurement of the variables adopted in the study. Section five assimilates the discussion on the findings of the study and finally the last section draws conclusion with implications of the findings.

Literature Review and Hypotheses Development

The myriad apprehensions based on the premise of corporate scams, existence of inherent information asymmetry in the capital market, signaling effectiveness, lowering the cost of raising capital together has directed a strand of research towards analysing the relationship between risk disclosure and firm performance at the international level. Although the research effort in this direction is not extensive, yet few researchers

have made an attempt to test this relation empirically compiled in Table 1. Some studies have reported a positive link between risk disclosure and firm performance in Malaysian, Nigerian and Egyptian listed companies' context

(Ismail et al. 2012; Oluwagbemiga, 2014; Azim and Abdelmioniem, 2015) contrarily, Jankensgard et al. (2014) found a negative relation between the two. Simultaneously, Razek (2014) and Eddah (2014) did not find a conclusive evidence to support the link between risk disclosure and firm performance. The reasons attributed for such inconclusive results could be small sample size, adoption of different methods for analysing risk disclosure especially manual coding in content analysis or survey method, different proxies for capturing firm performance or lack of longitudinally analysing risk disclosure.

The theoretical cornerstone manifests a direct linkage between risk disclosure and firm performance but the inconclusive empirical evidence steers the research towards the need to further study this relationship. The essence of relationship between risk disclosure and firm performance lies in the Signalling theory which propounds positive relation between risk disclosure and firm performance. Signalling theory revolves around dealing with the problems of information asymmetry in a social setting. It emphasises that the information asymmetry should be reduced if the party having more information send signals to other interested parties. The dissemination of signals is based on the presumption that it is favorable for a signaler having good quality product to transmit signal so as to demarcate the quality of its product in comparison to its peers. In the absence of these signals, the firm with quality product incurs an opportunity loss because its superior quality is not perceived by the investor which stops a firm from fetching high market price for its product. The more extensive is risk reporting more robust is risk management system which assists manager to take well informed decision leading to competitive advantage and increased firm value. The companies that are better at risk management will have higher level of relative profitability that will signal their superior risk management ability to the market in the form of risk disclosure (Razek, 2014). The effect of this information revelation can be witnessed in the performance of a firm. Based on this theoretical support the study hypothesizes:

H₁: There is a significant relationship between risk disclosure in the annual reports and firm performance of Indian listed companies.

Research Methods

Sample selection and data collection

The prime objective of this study involves examining the relationship between firm performance and risk disclosure of Indian listed companies. Business Today top 500 list of companies in the year 2014 have been analysed representing the best report of business topography of newly

Table 1. Studies on relationship between Firm performance and risk disclosure at international level.

Author	Country	Sample size	Period	Risk disclosure	Performance variable	Technique	Relation
Ismail et al. (2012)	Malaysia	164 Co	2006	Content analysis using sentence count	Share Price	Multiple regression	+
			2009		Tobin Q		+
			2006				+
			2009				Ins
Razek (2014)	Egypt	37 Co	2013	Content analysis using sentence count	ROA (Return onAssets) ROE (Return onEquity) EPS (Earning Per share)	Pearson Correlation	Ins Ins Ins
Oluwagb emiga (2014)	Nigeria	258 managers	NA	Survey method	Mean score using survey method	Ordinary least square regression	+
Jankensgard etal. (2014)	Sweden	114 Co	2009	Content analysis using disclosure index	Tobin Q	Multiple regression	-
Eddah (2014)	Nairobi	All listed	NA Co		ROE(Return on Equity) ROA(Return on Assets) Share Price Net Profit margin	Multiple regression	Ins Ins Ins ins
Azim and Abdelmi oniem (2015)	Egypt	6 Co	2012	Content analysis using disclosure index	Tobin Q	Multiple regression	+

Note: NA-Not available and Ins-insignificant, Co-companies

liberalized India. ¹The final sample comprises 319 non-financial companies relating to the time period 2009-2014 (six years) after excluding the financial firms since they fall under different prouncement following prior studies (Said Mokhtar and Mellet, 2013; Ntim et al., 2013 and Elshandidy and Neri; 2015) and firms for which complete time series data was not available. The annual reports of the companies have been extracted in combination from two different sources i.e. Capitaline database and Money control website for analysing risk disclosure. The data source for the variables such as firm performance, board characteristics and firm characteristics have been taken from Ace Equity and Prowess data base.

Variable Measurement

Dependent variable: Financial Performance of Business today top 500 non-financial companies have been taken as a dependent variable. Firm's financial performance has been captured using two accounting measures i.e. ROA and ROE and one market based measure price to book value. Both kinds of measures have been widely employed in the prior empirical literature. Morck et al. (1998) applies market based measure of financial performance as it reflects value added of intangible factors (Hermalin and Weisbach, 2003) whereas studies (Weisbach, 1988; Hermalin and Weisbach, 1991; Mehran 1995; Khanna and Palepu, 2000) employ accounting based measure. Accounting based measures of performance have tendency for historical, backward and inward looking focus. They depictise many factors including past successes of advice from board to management and are traditional backbone of corporate performance measures (Kiel and Nicholson, 2003). Based on the performance literature this study uses combination of both measures for comprehensively capturing financial performance of firm. Prior studies have proxied firm performance using Return on assets (Weisbach, 1988; Hermalin and Weisbach, 1991; Mehran, 1995; Khanna and Palepu 2000; Brown and Caylor, 2009; Sanda et al. 2010); Return on Equity (Brown and Caylor, 2009; Sanda et al. 2010) and Price to book value (Soana, 2011). Return on assets have been measured using net profits after tax divided by total assets of the firm whereas return on equity is calculated as profits after tax divided by common *stockholder's equity expressed in percentage* and price to book value which is close price as on year end to book value per share of the company.

Independent Variable: The extent of risk disclosure in the annual reports of companies has been taken as independent variable i.e. Total risk disclosure which is aggregation of positive risk and negative risk keywords depicting risk both as an opportunity as well as threat.

To analyse the extent of risk disclosure in the annual reports prior studies have applied content analysis which can be conducted either manually followed by prior risk disclosure literature (Lajili and Zeghal, 2005; Mohobbot, 2005; Linsley and Shrivs, 2006; Amran et al. 2009; Dobler et

al. 2011; Shammari 2014; Ali and Taylor, 2014) or by adopting automated content analysis following studies (Elshandidy et al. 2013; 2014; Elshandidy and Neri, 2015; Allini et al. 2016). Prior studies have adopted sentence as a coding unit using (Amran et al., 2009; Dobler et al. 2011; Ismail et al. 2011; Ntim et al. 2013). Milne and Adler (1999) convincingly contend that sentence is a reliable unit of analysis but do recognize the fact that words can be counted with greater degree of exactness than sentences which are more prone to error. Deegan and Rankin (1996) and Gray et al. (1995) highlights that in quantitative content analysis the quantity of disclosure within each category highlights the importance of that category and it is easy to scan database for specific word. According to Milne and Adler (1999) words add accuracy in measurement.

This study adopts automated content analysis in line with risk disclosure literature (Elshandidy et al. 2013; 2014; Elshandidy and Neri, 2015; Allini et al. 2016) and word as a coding unit of analysis in accord with Arnold et al. (2006); Abraham and Cox (2007); Li (2010); Campbell et al. (2014) and Nelson and Pritchard (2016) using Nvivo (10) software. Further in congruence with prior studies (Mohobbot, 2006; Abraham and Cox, 2007; Amran et al. 2009; Oliveira et al. 2011; Ntim et al. 2011; Rajab and Schachler, 2009; Mokhtar and Mellet, 2013; Allini et al. 2016) this study adopts Linsley and Shrives (2006) extensive definition of risk disclosure which is as follows:

"Disclosures have been judged to be risk disclosure if the reader is informed about any opportunity, or prospect, or of any hazard, danger, harm threat, or exposure, that has impacted upon the company or may impact upon the company in the future or the management of any such opportunity, prospect, hazard, harm threat exposure".

Steps involved in automated content analysis: The disclosure of risk information in annual reports involved three steps: The study compiled a comprehensive list of risk related keywords from following key sources: prior review of literature of risk disclosure studies compiled in Table 2. Secondly, the Roget Thesaurus has been used to identify synonyms of words identified in literature. Thirdly, annual reports were studied thoroughly for finding out the words which are indicative of risk. After carefully scrutinising all the sources total of 78 words appeared to be indicative of risk. The task did not end here, we text search the annual reports of 30 listed companies using Nvivo (10) software. The word that appeared less than 5 times i.e. frequency less than 5 was eliminated and finally a list of 39 words were finally decided. These words were categorized into three category positive, negative and statistical risk keywords as adopted in Elshandidy (2011). Following specific instructions from Nvivo (10) software the study identified risk related keywords in the complete annual report document along with their stemmed words with suffix ly, es, s, ing. All scores were cross checked to confirm reliability of the score calculated; it involved counting the scores of individual word in PDF

document and then summing together all the scores for each category of risk positive; negative and statistical. Later the scores calculated by Nvivo (10) software and word count from PDF document were matched to ensure reliability.

Control Variables

For analyzing the relationship between risk disclosure and firm performance it is pertinent to control the effect of firm level corporate governance in the form of board characteristics and firm specific characteristics. The recent global financial crisis has reinforced the significance of good corporate governance practices and structures. It is well recognized that corporate governance structures play a pivotal role in enhancing firm performance and stability in long run (Erickson et al. 2005; Ehikioya, 2009, Iwasaki, 2008; Cho and Kim, 2007).

Firm Performance is expected to be influenced by board size. As agency theory put forth a perspective that larger board is more likely to be vigilant towards agency problems as greater number of people will be responsible for reviewing *management's actions*. Board size as a corporate governance variable is frequently investigated for its impact on enterprise performance (Sanda et al. 2010). Board size is proxied using total number of directors on the board.

Agency theory argues for separation of role of CEO and chairman of board for establishing *effectiveness and monitoring* (Finkelstein and D' Aveni, 1994). Consistent with this view Rectner and Dalton (1991) found that firms with separate roles outperform in contrast to firms with combined roles. CEO duality is proxied using dummy variable 1 if same person is CEO and chairman of the board, 0 otherwise. Gender diversity is a crucial corporate governance element *which will enhance firm's performance* (Carter et al., 2003 and Campbell and Vera, 2008). Gender diversity in the boardrooms is associated with board independence leading to enhanced monitoring (Fama and Jensen, 1983). For this study, it is proxied using proportion of women directors on the board.

Lipton and Lorsch (1992) propound that frequency of board meetings are likely to result in superior performance. Board activity is proxied using number of meetings of the board conducted annually. Wu et al. (2009) supports insider directorship on corporate board's *positive* effect on firm performance whereas Agency theory (Jensen, 1983) recommends boards should have majority of outside directors preferably independent directors for better monitoring which propel better firm performance. Abdullah (2004) discern positive effect of board independence on firm performance. Insider directorship is controlled in the study using proportion of executive directors on the board and board independence is captured by proportion of independent non- executive directors on the board.

Firm Characteristics

Prior corporate performance literature controls for various firm level characteristics: the study controls firm size since it affects performance of a firm in several ways. Dominant features of large firms involve diverse capabilities and ability to exploit economies of scale. These characteristics allow large firms to generate superior performance than small firms (Penrose, 1959). To account for firm size market capitalisation is introduced as a control variable. The liquidity position of firm involves the ability of firm to manage working capital and acquire substantial quantity of cash balances relative to current liability which depicts superior capability *which is reflected in greater profits (Majumdar, 1997)*. Firm's liquidity has been proxied using current ratio.

High growth firms have documented superior performance in prior studies (Barbosa and Louri, 2005; Kuntluru et al. 2008; Chandrapala and Knapkova, 2013). Firm growth is proxied using profits after tax growth (expressed in percentage) i.e. difference in the earnings in the period $t1$ and $t0$ to earnings in the year $t0$. Debt in the capital structure puts pressure on the firm as payment of interest and principle are obligations. The excess debts can increase financial distress costs and decrease firm value. Leverage in capital structure has been proxied using debt equity ratio i.e. total debt to equity. Following Garg (2007) level of firm risk has been controlled in the study *using beta i.e. covariance of company's return relative to market index (BSE-500)*.

Coles et al. (2001) argues that firms in industries where there is growth opportunity, concentrated competitors, or where markets are stable, have higher profits than industries that are in decline. Industry of a company is proxied in the study using dummy variable i.e. assigned the value 1 if firm belongs to particular industry, 0 otherwise. In order to control industry effect 14 industry categories have been made. Along with board and firm characteristics, past firm performance has been controlled using previous year lag of firm performance i.e. one year lag ROA, ROE, price to book value, conforming with studies (Thomson and Rose, 2004 and Joon Han et al. 2016). Similarly lag of risk disclosure was introduced as control variable following disclosure studies (Li and Yang, 2012; Kolahgar et al. 2016; Gaulin, 2017).

Empirical Model

For testing the relationship between firm performance and risk disclosure along with controlling the effect of firm level corporate governance and firm characteristics, Panel data regression is applied using Random effect model. Equations 1 show the random effect model that considers for bias in risk disclosure caused by random variations across firms and across industries over 6 year period under analysis. Green (1997) endorses that panel data allows researchers to capture both time series and cross sectional relations. Hsiao (1986) supports application of random model

[illegible]

Note: : denotes *that* risk keyword is adopted from the study which has this symbol. These words along with their stemmed words are adopted in the study (ing, s, es, ly).

in Panel regression stating “when inferences will be made about population of effects from which those in the data are considered to be random”. That is what has been proposed through this study and random effect model is applied.

$\beta_1 - \beta_{14}$ are slopes of the variables taken in the model respectively. α_i is the intercept of firm i , while u_{it} is the error term of for firm i in the year t . Error term in the random model represents both between firm error (u_{it}) and within firm error (ϵ_{it}).

$$(ROA/ROE/Pricetobookvalue)_{it} = \beta_1 Total Risk Disclosure_{it} + \beta_2 Board_Size_{it} + \beta_3 Log_Boardmeetings_{it} + \beta_4 Proportion of Female directors_{it} + \beta_5 Proportion of Independent Non Exedirectors_{it} + \beta_6 Proportion of Executive directors_{it} + \beta_7 CeoDuality_{it} + \beta_8 Marketcapitalisation_{it} + \beta_9 CurrentRatio_{it} + \beta_{10} LogDebt/Equity_{it} + \beta_{11} PATgrowth_{it} + \beta_{12} SystemmaticRisk(Beta)_{it} + \beta_{13} Previousyearlag_{it} + \beta_{14} Industry_{it} + \alpha_i + u_{it} + \epsilon_{it}$$

(Equation 1)

Table 3: Descriptive statistics

Variables	Unit of measurement	N	Mean	Median	Maximum	Minimum	Std. deviation
Total Risk	No of words	1908	589.23	522	2796	11	320.36
Positive Risk	No of words	1908	374.44	327	2069	0	220.08
Negative Risk	No of words	1908	214.78	195	822	0	113.14
Corporate governance board characteristics							
Boardsize	Count	1908	10.5	10	20	4	3.24
Board Meetings	Count	1908	4.5	4	18	4	1.02
Proportion of female on the board	Count	1908	0.05	0	0.40	0	0.07
Proportion of independent directors non executive directors on board	Count	1908	0.43	0.44	0.90	0.05	0.14
Proportion of executive directors on board	Count	1908	0.27	0.27	0.80	0.05	0.13
Market capitalisation	Rupees (crores)	1908	15025.57	3359.66	498890	4.77	38225.80
ROA	In Percentage	1908	8.56	7.05	129.55	-237.24	11.96
PAT growth	In percentage	1908	17.74	12.35	6243.22	-7293.95	401.72
Current ratio	Ratio	1908	2.25	1.53	96.58	0.00	3.66
Debt to equity ratio	Ratio	1908	0.64	0.39	28.20	0	1.04
Beta (BSE-500)	Ratio	1908	0.90	0.80	37.97	-0.28	0.98

Panel Regression Results*Table: 4 Relationship between Firm Performance and Total risk disclosure*

<i>Dependent Variable!</i>	Model 1		Model 2		Model 3	
	GLS Regression Model ROA		GLS Regression Model ROE		GLS Regression Model Price to book Value	
	Coefficient	z-value	Coefficient	z-value	Coefficient	z-value
Independent Variable						
Total Risk	-.002	-2.47**	-.0157	0.07*	-0.000	-1.93*
Control variable						
Board Size	-.0217	-0.30	.029	0.06	-.249	-3.20***
Log boardmeeting	4.541	1.90*	12.37	2.06**	1.50	1.32
Proportion of female on board	5.490	0.95	-7.722	-0.30	10.15	1.87*
Proportion of independent directors on board	1.202	0.61	1.918	0.14	-3.145	-1.65*
Proportion of executive directors on board	1.135	0.54	12.18	1.29	-.098	-0.06
Ceo duality	-.774	-1.16	-4.844	-1.35	.121	0.24
<i>Firm size</i>	<i>0.000</i>	<i>4.19***</i>	<i>.000</i>	<i>2.98***</i>	<i>.000</i>	<i>3.23***</i>
Liquidity	0.517	0.42	-.152	-0.98	-.066	-1.68*
Leverage (Log debt to equity)	-0.068	-1.73*	.044	0.21	-.065	-1.35
Firm growth	.005	2.77**	.017	2.93**	.000	1.21
Level of firm risk	-.671	-1.73*	-2.43	-1.51	.226	1.60
Lag L.1 Total risk	-.000	-0.47	.006	0.69	-.001	-1.55
<i>Lag L.1ROA</i>	<i>.466</i>	<i>7.15***</i>				
Lag L. ROE			.404	5.95***		
Lag L. Price to Book Value					.455	5.63***
Chemical industry	2.607	2.44**	6.065	1.89*	3.214	3.80***
Electric Equipments industry	1.496	1.44	-2.246	-0.28	1.722	3.36***
Pharmaceutical industry	1.840	1.59	5.106	0.75	3.836	2.11**

Contd...

<i>Contd...</i>						
Metals and Non-metals industry	-.466	-0.64	-.087	-0.04	.633	1.35
Computer Programming industry	1.944	2.00**	5.781	1.48	1.335	1.82*
Crude and Petroleum industry	-.494	-0.49	-2.492	-0.95	-1.053	-1.86*
Food and beverages industry	.423	0.37	.328	0.10	2.21	2.98**
Real estate activity industry	-.981	-1.11	-.975	-0.44	-.365	-0.65
Rubber and Plastic industry	.775	0.80	2.350	0.97	.975	2.03**
Manufacture of textiles industry	-1.298	-0.66	1.530	0.46	3.003	1.85*
Motor vehicles industry	1.908	1.13	-6.953	-0.56	2.265	2.38**
Architectural industry	.559	0.63	2.667	1.18	1.624	1.73*
Transportation industry	.371	0.39	-.384	-0.16	1.538	1.58
Intercept	-2.718	-0.57	-5.833	-0.51	2.995	1.29
R-square=	0.38%		16%		27%	
Waldchi2 prob>chi	807.10***		673.10***		464.99***	
Obsevation=	1908		1908		1908	

Note: Significant at *.10, **.05, ***0.01 level (two-tailed)

Results and Discussion

Descriptive Discussion

Table 3 shows the main descriptive statistics of the variables adopted in this study. The results pertain to the years 2009 to 2014, it has been ascertained that risk disclosure in the annual reports of Indian listed companies have been found to be on an average 589 words on voluntary basis wherein the maximum disclosure has been 2796 words and minimum disclosure with 11 risk keywords with huge standard deviation of 320.36. It depicts some companies are aggressively reporting risk whereas on the other side some are reluctant to disclosure risk. On further probing it has been revealed that positive risk disclosure outweighed negative risk disclosure. It manifest risk is predesigned more as an opportunity than threat having a mean score of 374 and 214 approximately for positive and negative risk keywords. Among the board characteristics average size of Indian boards has been found to be 10 with 43% proportion of independent non-executive members and 27% proportion of executive

members respectively. The proportion of female on the Indian board on an average is 5% which depicts a very low representation. The mean number of board meetings has been 4 approximately with maximum of 20 and minimum of 4 board meetings.

Multivariate Regressions Results

Model 1 in Table 4 determines the relationship between firm performance (using Return on assets as a dependent variable) and risk disclosure, along with controlling the effect of corporate governance components such as board characteristics and firm level characteristics. It has been revealed that risk disclosure in the annual reports has negative impact on the performance of companies which is significant at 5% level ($p\text{-value } 0.01 < 0.05$) although the magnitude of effect is very negligible. It leads to the acceptance of H_1 i.e. there exist a significant relationship between risk disclosure and firm performance. The direction of relationship has been found to be negative. Although these findings are contrary to the expectation of Signalling theory that reckons positive effect of risk disclosure on firm performance. However these findings are in agreement with financial risk disclosure in Swedish firms and their relationship with firm value (Jankensguard et al. 2014). The potential explanations in the Indian context follows: Firstly, it will not always hold true as theorized by signaling theory that better risk disclosing firms are better at risk management rather it manifests that such firms try to project a true picture of company to stakeholders about the risk surrounding them so that stakeholders understand the actual position of the company and does not penalize it for *concealing it's true position*. Acher (1998) cited in Linsley and Shrives (2000) argues to avoid reporting on risk that is commercially *too sensitive especially "boilerplate disclosures" as it would give a misleading view of a company's risk. The readers of annual report do not know whether they are seeing the actual position of company and drawing correct conclusions based upon information contained in the statement.* He argues it is not the long list of risks which is important to the user. The information that company has verified system that identifies and manages risk is of immense use for a reader (Linsley and Shrives, 2000). Secondly, the present analysis corresponds to the period immediately post global financial crisis which shows negative impact of risk disclosure on the *firm's performance*. *Thirdly, in contrast to other information, risk disclosure is a very sensitive disclosure which should be carefully and clearly stated in the annual reports.*

Among the board characteristics, board activity depicts a significantly positive relation with firm performance at 10% significance level ($p\text{-value } 0.06 < 0.10$). It implies that frequent board meetings brings in better monitoring as directors will get reports about the companies actual situation (Gabrielsson and Winlund, 2000) which will embark positive effect on firm performance as evident in the Indian context.

The coefficient of board size has been found to be negative although insignificant which is in accord with the alternative view by agency theory that brings to light the large boards ignites the problem of communication and coordination. Further, larger boards are associated with greater level of conflict (Goodstein et al. 1994). The dual position of CEO failed to effect corporate performance in the Indian scenario coinciding with the findings of prior studies (Daily and Dalton, 1994; Vafeas and Theodoron, 1998; Elsayed, 2007; Jackling and Johl, 2009). Other corporate governance prime components gender diversity, board independence, insider directorship have been ineffective in bringing about any effect on performance of Indian companies. Interestingly among the firm characteristics firm size and firm growth have highly significant positive effect on firm performance at 1% level of significance (p -value $0.00 < 0.01$). These findings concur with the findings of Majumdar (1997) and Chandrapala and Knapkova (2013) with respect to larger firms and high growth firms (Chandrapala and Knapkova, 2013) projecting better performance. It is apparent that larger firms enjoy economies of scale leading to curtailing the cost of production which leads to enhanced firm performance (Chandrapala and Knapkova, 2013). Similarly, high growth firms portray better performance as they try to capture every opportunity for accelerating their growth, the results of which is evident through their outshining performance. Contrastingly, level of firm risk and leverage have negative effect on firm performance at 10 % significance level (p -value of $0.08 < 0.10$) in line with Jackling and Johl (2009). It implies explicitly that excess debt in the capital structure of the firm aggravates the financial distress and overburdens the company with the cost which lowers down the performance of the company. These finding corresponds with prior studies with respect to *negative effect of debt in capital structure on firm's performance* (Chibber and Majumdar, 1999; Jackling and Johl, 2009 and Chandrapala and Knapkova, 2013).

Firm's liquidity failed to discern any impact concurring with the findings of studies (Majumdar, 1997 and Chandrapala and Knapkova, 2013). Interestingly past performance captured using *lagged ROA magnificently impacted current year's performance highly significant at 1% (p -value $0.00 < 0.01$)* which is in sync with the findings of Jackling and Johl (2009) it entails that *past year's performance embarks positive and magnificent effect on current performance of the company*. *Past year's risk disclosure failed to discern any effect on firm performance although* observed with the negative coefficient. It denotes that prior risk disclosure information is already absorbed by the market so it is no more imperative to effect current performance of the company. Among the various industry categories, chemical industry and computer programming industry exhibit better performances in contrast to electric gas industry as the benchmark. All the variables in the model account for 38 percent variation in firm performance. Similarly, Model 2 determines the relationship between firm performance by employing alternative proxy i.e. ROE (Return on Equity) as a dependent variable with Total risk disclosure (as independent

variable). The results in Model 2 are almost identical to Model 1. This model accounts for 16 percent variation in firm performance.

Firm performance has been proxied using market based measure of performance i.e. Price to book value in Model 3. The result reveal similar negative relation between total risk disclosure *and firm's performance although the magnitude of effect is not very high at 10% significance level* (p- value $0.05 < 0.10$). Interestingly, in Model 3 among the board characteristics board size has negatively significant effect on firm performance at 1% (p- value $0.00 < 0.01$). It demonstrates that smaller board portrays better performance in contrast to larger boards concurring with the findings of prior performance studies (Yermack, 1996; Eisenberg et al. 1998; Ghosh 2006; Kota and Tomar, 2010). Large boards suffer from the problem of accountability where individual board members take advantage of the opportunity that their inefficiencies will not come to light in such a situation (Dwivedi and Jain, 2005).

Gender diversity on the board discerns positive impact on firm's performance akin with the findings of Campbell and Minguez Vera (2007). It proclaims that female directors are not mere tokens; they can add value by bringing along new ideas and different perspectives thus widening the horizon (Adams and Ferreira (2009). Contrarily, board independence exerts negative effect on firm performance in Indian context at 10% significance level (p-value $0.09 < 0.10$) concurring with the findings of Weir and Laing (2001) which unfolds inverse relation between board independence and firm performance in UK companies listed on London Stock exchange.

Large firms projected better performance at 1% level (p value. $0.00 < 0.01$) whereas *negative relationship has been revealed between liquidity and firm's performance in accord with the findings of Abeywardhana (2016).* The level of firm risk, leverage and growth firm did not generate any impact on performance of company. A striking revelation appeared up from the industry categories where chemicals, pharmaceutical, computer programming, food and beverages, textile, motor vehicle, architectural, rubber plastic, electric-equipment projected better performance in comparison electric gas industry as the benchmark. Crude and petroleum industry showed low performance than electric gas industry. Akin to the finding of Model 1 and

2 past year's performance positively effects current year's performance at 1% (p-value $0.00 < 0.01$) whereas past total risk disclosure did not recognise any effect on firm performance. The overall effect of all the variables on firm performance accounts for 27 percent variation.

Conclusion and Limitations

The present study aims to find out the relationship between firm performance and risk disclosure in Indian listed BT-500 non-financial

companies. In this attempt the study focuses on risk disclosure in the annual reports narratives simultaneously controlling the effect of board and firm characteristics to study its impact on firm performance. The findings discern a negative relationship between firm performance and risk disclosure which is discordant to the theoretical underpinning by Signalling theory. It suggests that as risk disclosure has negative impact on firm's performance so managers should cautiously disclose risk in the annual by illustrating the actual position of the company explicitly. It does not support to condemn disclosing risk information but companies should prevent boiler plate disclosures that negatively impacts investor's psychology. The study has implication for managers in developing countries such as in the Indian context to be vigilant in disclosing risk information. It is not about in striving towards transparency managers overload the annual report with risk which are of general nature. The investor's psychology and ability should be carefully studied before dispelling risk information. The disclosure should be in clear and in simple language so that it is decoded in the intended manner.

The research contributes by providing basic understanding on the relationship between firm performance and risk disclosure in the India scenario. It brings into open the factual effect of risk disclosure and firm performance and contributes in widening the knowledge in the Indian context where these two research lines have not been linked till date. However the study has certain limitations. The presented study analysed the quantity of risk disclosure and its impact on firm performance whereas future studies can also explore quality of risk disclosure for comprehensive view to check the combine effect on firm performance. Studies can be channelized in future towards cross country comparisons of risk disclosure and its relationship with the firm performance for deeper insights.

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Retail Consumer Behaviour of Floriculture Industry in Eastern India

DEBASISH BISWAS, ARUNANGSHU GIRI AND DEBABRATA MITRA

Abstract: Floriculture industry is one of the largest industries in India where India has an immense potentiality concerning to expansion of the product range and various commercial activities. These activities consist of flower trading, supplying saplings, greens and ornamental plants, landscaping in real estate market, floral designing and custom made products in weddings and festivities, extracting essential oils, natural dye from flowers and preparing ingredients in pharmaceutical industry. In India, mainly fresh flowers are exported from Karnataka, Maharashtra and dried flowers from Tamil Nadu and West Bengal. Although Indian floriculture products are exported to European, Japanese and Australian markets but International market is highly competitive due to the presence of African countries, and Asian neighbours in this segment. Several initiatives for marketing and growth of floriculture sector have been already taken by the Government. However, more dynamic strategies are to be adopted by the Government along with the private organizations and research institutions in order to fulfill domestic as well as international demands of this sector. This paper examines the retail consumer behaviour of floriculture industry in eastern India.

Key Words: Floriculture industry, Retail consumer behaviour, Conceptual model, Deliberate strategies, Eastern India.

Introduction

Floriculture is the major segment of horticulture concerned with commercial production, marketing, and sale of bedding plants, cut flowers, potted flowering plants, foliage plants, flower arrangements, and noncommercial home gardening. Floriculture is an emerging area with great potential both in the domestic as well as foreign market. It is now very prosperous industry in Asian countries including India. Floriculture is one of the booming industries in our country. It has huge potentiality to generate rural employment as well as to earn foreign exchange. It is now one of the important commercial crops in India.

It is now being used as important raw materials in multifarious manufacturing industries for the production of perfumes, medicines and confectionaries. In the recent decade, this industry has shown significant progress. It is not restricted to as normal agricultural products made by

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few rural families. Now different farmers are growing and selling their products beyond the national frontier and earn foreign earnings. These flowers are now reaching a far distance due to the availability of airfreight and advanced cooling system. Continuous demand and much higher return in comparison to other agricultural products, farmers are showing their full interest to this rosy sector. The demand of this sector has been increased due to rapid urbanization, advanced technology, infrastructural development, hotel and tourism industry, temples, rising per capital income, changes in life styles, etc.

Literature Review

Consumption and demand of flowers are rising over the world. There are 140 countries growing flowers. However, European countries have developed their flora business very early but they could not produce enough quantity. However, new production centres have been developing in Asian countries. Even though, Latin America and African countries have increased their production of flowers. Recently, India and other Asian countries have emerged as development centres of floriculture.

There has been a rapid growth in demand and consumption of floriculture products in recent decades. Cultivation and consumption of flowers have been part of tradition. Several countries like Netherlands, Italy, Germany and Japan have strong tradition of growing and consuming flowers. The expansions in area and production of flowers in non-traditional regions have been one of the noticeable features. Recently, new production centres are developing in Latin America, Africa and Asia to meet the increasing demand of importing countries and to expand their domestic market. Columbia, Chile, Kenya, Rhodesia, Morocco, South Africa, Israel, India, China and Shrilanka are now the new floriculture centres. The floriculture market has concentrated in Western Europe, North America and Japan. Western Europe accounts for half of the world's cut flower production and consumption of the product. The new markets have also emerged in Europe Poland, Hungary, Slovakia and Ireland. The mostly preferred cut flowers in the international market are roses, tulip, chrysanthemum, gerbera, orchids and gypsophilla.

However, a very few studies have been conducted on floriculture industry throughout the globe. Miller (1983) performed an extensive sub-sector analysis for the fresh cut-flower industry in the U.S. by analyzing the structure, conduct and performance of the existing conditions of the industry in an attempt to predict future trends. Miller observed that there were special calendar occasions when the demand for flowers was substantially higher and other non-calendar occasions where the demand was substantially lower. He also determined that the demand for flower arrangements was inelastic, meaning that consumers are not highly responsive to changes in price of floral products.

Tilburg (1984) analyzed a panel of cut flower and potted plant consumers in the Netherlands to relate aspects of consumer behaviour to marketing variables and demographic characteristics of households. He identified three market segments: the first segment consisted of 44 percent of the households and was sensitive to prices but insensitive to national advertisements; the second segment consisted of 40 percent of the households, and was insensitive to both prices and advertisements; and the third segment, with 13 percent, was sensitive to both prices and advertising.

Behe (1989) analyzed consumer floral purchasing behaviour of Pennsylvanians at the retail level. She recommended three ways to segment retail flower markets: by product, volume of purchase, and by location of the purchase. Behe et al. (1992a) carried out an analysis of consumer purchases of floral products in Ohio supermarkets using principal components analysis that yielded 34 independent factors accounting for 64% of the total variance affecting floral purchases. These factors were grouped into five main categories, including, product, consumer, store, use (gift), and location. Behe et al. (1992b) followed up on her previous study and applied cluster analysis to identify the most important factors affecting floral buying decisions by market segments.

Becker (1993) found that the differences on the types of retail outlets were based on the types of products sold, custom design and other in-store services, delivery options and convenience. Rimal (1998) analyzed the effects of generic and brand promotions on sales of fresh cut-flowers at the retail level in the U.S. Girapunthong (2002) analyzed the demand drivers for fresh cut-flowers and their substitutes in the U.S. Girapunthong and found that all direct price effect coefficients with the seasonal and actual variables were statistically significant and changes in the relative prices had a significant impact on flower market shares among fresh cutflowers, potted flowering plants, and dry/artificial flowers.

Ward (2004) found that about 87 percent of the increase in demand for the promotional programs is from the increased number of transactions per buyer. Ward found that the demographic group that responded the most to the promotional program were female buyers that purchase flowers for self-use. Yue and Behe (2008) analyzed consumer preferences for different floral retail outlets. They used a consumer panel data collected by the American Floral Endowment from 1992 to 2005 were used to evaluate consumers' choice of different floral retail outlets among box stores, traditional freestanding floral outlets, general retailer, other stores, and direct-to-consumer channels. Palma and Ward (2010) concluded that demand drivers for ornamental consumption was driven by the entry of new buyers rather than repeat buying customers increasing their number of transactions.

From the literature reviewed it is evident that there have been a limited studies conducted on the retail consumer behaviour of floriculture industry

in eastern India. It is also evident that in the study location there have been fewer studies conducted in the floriculture sector. Undoubtedly these studies have contributed in their own way but they have also left certain gaps that need to be addressed.

Objectives

The objectives are as follows:

- To explore the determinants which have a profound influence on customer satisfaction in the selected floriculture markets located in eastern part of India.
- To find out the degree of influence of the determinants on customer satisfaction.

Hypotheses

H₁: Features of the Product' positively influence the 'Customer Purchase Intention.

H₂: Features of the Store' negatively influence the 'Customer Purchase Intention.

H₃: Features of the Sales Associate' negatively influence the 'Customer Purchase Intention.

H₄: Customer Purchase Intention' positively influences the 'Customer Satisfaction.

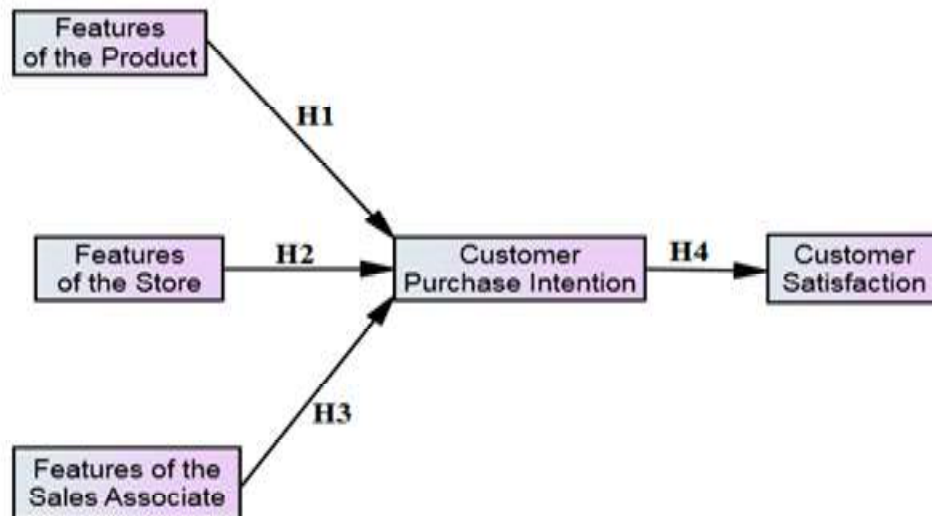


Figure 1: Hypothesized Research Model Establishment on Customer Satisfaction in Flower Industry

Research Methodology

Sources of Data

We have adopted convenience sampling technique for the selection of 3 metropolitan cities mainly Kolkata, Bhubaneswar and Patna in Eastern India. After that, responses from 196 respondents were finally collected through simple random sampling from three metropolitan cities for this study. In this study, hypothesized research model (Figure 1) has been established with the help of both secondary and primary data. It was developed from literature review as well as interviews of academic experts in flower industry. A structure questionnaire was prepared with related variables for survey. Constructs and related variables were extracted directly from literature review and few probable variables were added after discussion with the field expert. 5 point Likert scale (5: Strongly Agree, 4: Agree, 3: Neutral, 2: Disagree and 1: Strongly Disagree) has been used for measuring the responses of consumers related with flower industry.

Analysis and Results

Structure equation modeling has been used here for developing the model and establishing the hypotheses by the help of AMOS 20.0 software. Validity and model fitness have been judged through measurement and structural model. Exploratory Factor Analysis (EFA) by the help of SPSS-21 describes the questionnaire validation through data reduction method.

Kaiser-Meyer-Olkin (KMO) statistics, predicts if data are likely to factor well, based on correlation and partial correlation. There is a KMO statistic for each individual variable, and their sum is the KMO overall statistic. KMO varies from 0 to 1.0 and KMO overall should be 0.60 or higher to proceed with factor analysis. In our study, we got the KMO of .775 which is quite logical to proceed for factor analysis. In this study, KMO and Bartlett's Test shows the appropriateness of Exploratory Factor Analysis (EFA). The result is shown below:

Cronbach's alpha is designed as a measure of internal consistency; that whether all items within the instrument measure the same thing. Alpha is measured on the same scale as a Pearson r (correlation coefficient) and typically varies between 0 and 1. The closer the alpha is to 1.00, the greater the internal consistency of items in the instrument being assessed. In our study, the value of alpha is .712 which is highly desirable. Cronbach's alpha for all items are greater than 0.70 show the satisfactory range of reliability.

Through the result of factor analysis, we can explain the total variance and the proportionate variance of each factor in our study. Variables with factor loading of above 0.5 have created 5 different factors which are extracted from Rotated Component Matrix. These factors explain total 82.329 % of the variations (Table 1).

Table 1: Result of factor analysis - rotated component matrix (a)

Variables/ Items	Features of the store	Features of the Product	Customer satisfaction	Customer purchase intension	Features of the sales associates
q5	.909	-.086	-.049	-.085	.260
q7	.865	-.119	-.065	.001	.216
q6	.853	-.040	-.045	-.283	.019
q4	.835	-.116	-.073	-.105	.370
q8	.781	-.080	-.024	-.315	-.120
q11	-.091	.923	.142	.165	-.035
q14	-.028	.855	.183	.042	-.041
q13	-.090	.825	.006	.237	-.049
q12	-.167	.786	.291	.155	-.016
q17	.008	.160	.892	.084	.037
q16	-.122	.164	.882	.144	-.060
q15	-.057	.173	.870	.163	-.037
q1	-.178	.191	.183	.879	-.089
q3	-.217	.171	.090	.829	-.114
q2	-.177	.206	.180	.770	-.205
q10	.172	.006	.039	-.228	.894
q9	.272	-.103	-.082	-.103	.894
% of Variance Explained	22.862	18.394	15.090	14.575	11.408
Cronbach's alpha	0.928	0.903	0.895	0.883	0.897

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 6 iterations.

Analysis

This is very powerful multivariate technique to express interdependence between the variables through a path diagram. We conducted Confirmatory Factor Analysis (CFA) on the basis of the result of exploratory factor analysis by using software called analysis of moment structure (AMOS version 7). We have used CFA to determine the goodness of fit between hypothesized model & sample data.

Table 2: Fit Indices of Confirmatory factor analysis for structural model

Fit Index	Acceptable Threshold Levels	Structural Model Values
χ^2/df (Chi-Square/Degree of Freedom)	Values less than 3	0.087
RMSEA (Root Mean-Square Error of Approximation)	Values less than 0.06	0.001
GFI (Goodness of Fit Index)	Values greater than 0.90	0.999
AGFI (Adjusted Goodness of Fit Index)	Values greater than 0.90	0.997
NFI (Normed Fit Index)	Values greater than 0.90	0.999
CFI (Comparative Fit Index)	Values greater than 0.90	1.000

Then, the fitness indexes were checked as follows and hypotheses were tested. Confirmatory Factor Analysis (CFA) was performed for emphasizing on testing how well defined variables represent factors.

Here the fit indices (Table 2) of Structural model (Figure 2) indicate the acceptable range and prove a good model fit.

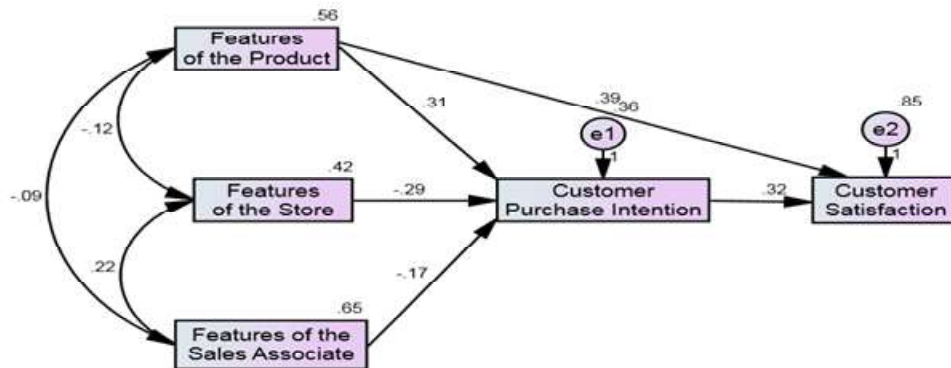


Figure 2: Path Diagram of Hypothesized Structural Model on Customer Satisfaction in Flower Industry

Table 3: Squared correlations between factors in measurement model

Factors	Features of the Product	Customer Purchase Intension	Features of the Store	Features of the Sales Associates	Customer Satisfaction
Features of the Product	0.785				
Customer Intention	Purchase	0.283	0.832		
Features of the Store	-0.147	-0.298	0.756		

Contd...

Contd...

Features of the Sales Associates	-0.074	-0.260	0.272	0.844	
Customer Satisfaction	0.292	0.284	-0.167	-0.097	0.872

*Diagonal elements are Average Variance Extracted (AVE).

Table 4: Measurement model results

Factors	Variables	Standardized Regression Estimate	Construct Reliability (CR)	Average Variance Extracted (AVE)	Maximum Shared Variance (MSV)	Average Shared Variance (ASV)
Features of the Product	q11	0.844	0.865	0.616	0.085	0.048
	q12	0.786				
	q13	0.731				
	q14	0.774				
Customer Purchase Intention	q1	0.867	0.871	0.693	0.089	0.079
	q2	0.812				
	q3	0.817				
Features of the Store	q4	0.749	0.869	0.571	0.089	0.053
	q5	0.794				
	q6	0.768				
	q7	0.734				
	q8	0.733				
Features of the Sales Associates	q9	0.818	0.832	0.712	0.074	0.039
	q10	0.869				
Customer Satisfaction	q15	0.868	0.905	0.760	0.085	0.051
	q16	0.879				
	q17	0.868				

Higher Standardized Regression Estimates which are more than 0.7 show higher reliability of variables. Construct Reliabilities (More than 0.7) indicates the internal consistency among the variables. As per Hair et al. (2010) & Field (2009) the following conditions (1. AVE > 0.5; 2. CR > AVE; 3. MSV < AVE; 4. ASV < AVE) prove the convergent and discriminant validity in Measurement model. Here, AVE values are also greater than corresponding squared inter-construct correlation (SIC), so it proves discriminant validity (Table 4 & Table 5).

Table 5: Path analysis of structural model

Measurement Path	Hypothesis	Estimate	S.E.	C.R.	P-Value	Assessment
Customer Purchase Intension ← Features of the Store	H2	-.293	.074	-3.956	***	Supported

Contd...

Contd...

Customer Purchase Intension	←	Features of the Product	H1	.306	.059	5.203	***	Supported
Customer Purchase Intention	←	Features of the Sales Associates	H3	-.167	.059	-2.851	.004	Supported
Customer Satisfaction	←	Customer Purchase Intention	H4	.324	.101	3.211	.001	Supported
Customer Satisfaction	←	Features of the Product	New	.391	.096	4.060	***	Supported

*Significant Regression co-efficient (P<0.01)

Path Analysis for Hypotheses Testing and Research Findings (Table 6):

H₁: 'Features of the Product' positively influence the Customer Purchase Intention.

Structural model supports this hypothesis. The path coefficient is significant (p<0.01) statistically and it has the expected positive sign (+0.306) which means 'Features of the Product' positively influences the 'Customer Purchase Intention'. It implies that if the quality product is available at fair price then customers will show their purchase intension in the retail market in floriculture industry.

H₂: 'Features of the Store' negatively influence the Customer Purchase Intention.

The P-value for the path co-efficient from 'Features of the Store'to 'Customer Purchase Intention' is negative (-0.293) and significant (p<0.01), indicating that 'Features of the Store' negatively influences the 'Customer Purchase Intention'.Therefore hypothesis is supported. If the store hours, delivery time of the store, decoration facilitates, etc are not taken care of then customers will not be willing to purchase the products from the retail market.

H₃: 'Features of the Sales Associate' negatively influence the Customer Purchase Intention.

The P-value for the path co-efficient from 'Features of the Sales Associate'to 'Customer Purchase Intention' is negative (-0.167) and significant (p<0.01), indicating that 'Features of the Sales Associate' negatively influences the 'Customer Purchase Intention'.Therefore hypothesis is supported. If sufficient and skilled associates are scare in the market then customers will not be motivated towards the retail floriculture market.

H₄: 'Customer Purchase Intention' positively influences the Customer Satisfaction.

Structural model supports this hypothesis. The path coefficient is significant ($p < 0.01$) statistically and it has the expected positive sign (+0.324) which means 'Customer Purchase Intention' positively influences the 'Customer Satisfaction'. There is a direct proportional relationship between purchase intention and customer satisfaction. If customers are not satisfied with the market then they will not show their willingness toward purchasing the floriculture produce from the retail market.

Findings

This study gives on light on possible influence of customer purchase intention which ultimately leads to customer satisfaction. The result shows that features of the Product' positively influences the 'Customer Purchase Intention' but 'Features of the Store' and 'Features of the Sales Associate' negatively influences the 'Customer Purchase Intention'. The study confirms that customer purchase intention is a significant determinant of customer satisfaction in the floriculture industry in the Eastern part of our country. It has been observed that features of the product directly influences the customer satisfaction in the retail market of this industry.

Conclusions

The customer satisfaction is the ultimate motto of any organization. The customer with optimum level of satisfaction mobilizes and generates goodwill to the business. The customer satisfaction is highly dependent upon features of the product, features of the stores and sales associates.

So, in a nutshell, we may assert that the organization has to pay more attention on delivering qualitative product at a reasonable price. Retailers have to focus on proper maintenance of stores in respect of convenient store hours, prompt delivery, decoration facility, etc. This sector has to give emphasis on deployment of adequate and skilled sales associate in order to draw the attention of existing and potential retail consumers. All these things will satisfy the retail consumers and they will be highly motivated to purchase the floriculture products from the retailers.

Future Scope

There are some limitations of the study that could be addressed in future research. Due to the exploratory nature of the study, only three factors deemed to be the most important in influencing consumer purchase Intention' has been included. Another limitation of this study is that it only focuses on the floriculture segment. Further study may be carried on using this methodology for multifarious segments to confirm the model to ensure the model identified for customer satisfaction. Finally, further study may be addressed to the customer satisfaction issues on all other typology

of segments in horticulture industry. We have only observed the customers' behaviour in the Eastern part of our country. It can be also extended to other parts of our country to predict the behaviour of retail consumer behaviour.

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Annexure: 1

Factors	Questions on different Items
Customer Purchase Intention	q ₁ : You will select flower retail stores for regular uses. q ₂ : You will select flower retail stores for occasions or events. q ₃ : You will recommend others to select the flower retail stores for their uses.
Features of the Store	q ₄ : Store hours are convenient for the customer. q ₅ : Stores maintain proper delivery time. q ₆ : Stores provide offers for bulk purchase / occasions. q ₇ : Stores provide assistance of Associated Facilities like Decoration. q ₈ : Stores use technologies (Smart Phone Apps etc.) for increasing sales.
Features of the Sales Associates	q ₉ : Sufficient sales associates are available. q ₁₀ : Knowledgeable and skilled sales associates are available.
Features of the Product	q ₁₁ : Quality flower is available. q ₁₂ : Flower price is fare. q ₁₃ : Variety of flowers are available q ₁₄ : Sufficient stock is available.
Customer Satisfaction	q ₁₅ : You are satisfied with retail flower service. q ₁₆ : Flower retailers are reliable. q ₁₇ : Flower retailers provide customized product.

Cash to Cash Less Economy : Internet Shopping Adoption Practices of Consumer in Tiruchirappalli City

R. RAMACHANDRAN

Abstract : The major objective of the study is to analyse the internet shopping adoption of consumers in Tiruchirappalli city. It has been observed that perceived usefulness and perceived ease of use play significant role in the acceptance of internet shopping.

Keywords: Internet Shopping, Cashless Shopping, Consumers, Demographic Variables, Information Technology.

Introduction

Internet shopping has been growing significantly all over the world. In tune with the global growth, India has been also witnessing growth in the Internet shopping. This provides opportunities as well as challenges. The study of adoption practices of consumers may provide important insights to the marketers.

Review of Literature

Author	Methodology	Remarks
Zuroni and Ling (2014)	Multivariate analysis	E-commerce experience, product perception and customer service have significant relationship with attitude towards e-commerce purchases through online shopping.
Dahiya Richa (2014)	Impact of demographic factors of consumers on online shopping behavior on a sample size of 580 respondents.	Females shop more online as compared to men.
Hamit Turan (2015)	Research on internet shopping behavior of Turkish consumers by comparing two competing models namely e-TAM and TPB. The data collected from 350 respondents.	TPB has provided better fit indices, than e-TAM. Turkish customers are highly affected and influenced by immediate friends and families.

Contd...

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Al-Swidi, Seed and Arfan (2015)	Research study attempted on online purchasing intention among MBA students. It is basically descriptive study focused on social orientation, personal values and attitudes towards online shopping among 136 MBA students.	Experience intensity time needed to navigate and search for information are increasing.
Hui (2016)	Descriptive study on online shopping behaviour with 285 respondents. Bivariate and Multivariate techniques adopted.	Positive shopping experience increased the level of purchasing satisfaction and facilitates shop more specific product.
Dabholkar and Sheng (2016)	Consumer participation in using online recommendation agents with the effects of satisfaction, trust and purchase intention on 116 students from US University.	All the variables are having an impact on recommendation agent; the financial risk having moderating effects on consumer participation in recommendation agents.
Chuanlin and Hsipenglu (2016)	Why users accept or reject a website and also how user acceptance is affected by the features provided by the website. The TAM model was tested among 135 users.	Perceived usefulness of a website is significantly affected by quality of the information provided by the website and the amount of time that the user spends on waiting for the response from the web.

There are limited studies on Cashless transactions and thus this study focusses on Internet Shopping Adoption.

Objective

The prime objective of the study is to examine adoption of internet shopping in Tiruchirappalli City.

Methodology

This is a descriptive study. Primary data has been collected through questionnaire and personal interviews from 612 respondents in Tiruchirappalli.

Construction of the instrument: The constructs are: Perceived behavioural control, Perceived ease of use, Perceived usefulness, Perceived risk, Subjective norm, Website factors, Trust, Attitude, Intention, Adoption.

Perceived behavioral control: There are six items. Four items are from Jaeki Song and Fatemen Mariam Zahedi (2001), Two items are from Panicos Geiorguades et al. (2011).

Perceived ease of use: There are nine items. Five items from Lei-da Chen, et al. (2002), four items from Fred D. Davis (1993).

Perceived usefulness: Based on Lei-da Chen, et al. (2002), Fred D. Davis (1993), and Panicos Georgiades et al. (2011) studies, the items have been taken.

Perceived risk: Based on Yu-Je-Lee, et al. (2010), and Jarvenpaa and A. Todd (1996), 10 items are taken.

Trust: Items were taken from David Gafen, et al. (2003), Harison McKnighta, et al. (2002), Grazidi and Sirkka L. Jarvenpaa (2000), Harrison McKnighta, et al (2002), Yasmin Hassan and Nik Fadrizam Akimin (2010).

Subjective norms: Based on TakKee HUI and David WAN (2004), Jaeki Song and Fatemen Mariam (2001) the items are taken.

Attitude: Three items are taken from Grazidi and Sirkka L. Jarvenpaa (2000), and four items from Terry L. Childers, et al. (2001).

Intention to buy: Based on Harrison Mc Knighta, et al. (2002), Kwek Choon Ling (2010), Anol Bhattacharjee (2001), the items are taken.

Website factors: The items are taken from Adam P Vrechopoulos (2001), Vellido et al. (2000), Alfredo, Ahasanul Haqueetal (2009),

Adoption: Five items from Craig Van Slyke, et al. (2002), nine items from Sirkka L. Jarvenpaa and Peter A. Todd Reviewed (1996), three from Craig Van Slyke, et al. (2002), and three from Joseph Richards and Dong Shen (2006) have been taken.

Confirmatory Factor Analysis

The co-generic measures for adoption scale were relative advantage, Compatibility, Observability, Complexity and Trial ability. The indicators (relative advantage 5, compatibility 5, observability 4, complexity 3 and trial ability 3). The result of CFA is presented in Table 2. All fitting indices are in the acceptable range. For improvement of the overall model fit three poorly fitting items COM4, OBS1 and TRI3 were deleted. CFA was further re-estimated to assess whether the re-specified model fits the data. The new model shows improvement and fits the data.

It has been observed that three observed indicators loaded in to perceived behavioral control; five observed indicators are loaded into Perceived ease of use; six observed indicators loaded into Perceived usefulness; six observed indicators are loaded into Perceived risk; seven observed indicators loaded into trust; five observed indicators loaded into Subjective norms, seven observed indicators loaded into Attitude; six observed indicators loaded into Intention to buy; six observed indicators loaded into Website factors and seventeen observed indicators loaded into Adoption. The results are presented in Table 1. All indicators were found statistically significant.

Table 1: Confirmatory factor analysis for overall constructs

Factor/Constructs/Items	Items Loading	Construct Reliability	AVE
Factor 1: Perceived Behavioural control			
PBC1	0.597	0.752	0.306
PBC2	0.624		
PBC3	0.710		
PBC4	0.681		
PBC5	0.339		
PBC6	0.502		
Factor 2: Perceived Risk			
PR1	0.538	0.828	0.450
PR2	0.710		
PR3	0.714		
PR4	0.675		
PR5	0.741		
PR6	0.697		
PR7	0.699		
PR8	0.568		
Factor 3: Trust			
TR1	0.656	0.91	0.337
TR2	0.663		
TR3	0.347		
TR4	0.689		
TR5	0.616		
TR6	0.556		
TR7	0.651		
TR8	0.720		
TR9	0.599		
TR10	0.406		
TR11	0.290		
TR12	0.571		
Factor 4: Subjective norm			
SN1	0.426	0.849	0.366
SN2	0.495		
SN3	0.637		
SN4	0.746		
SN5	0.744		
SN6	0.739		
SN7	0.269		

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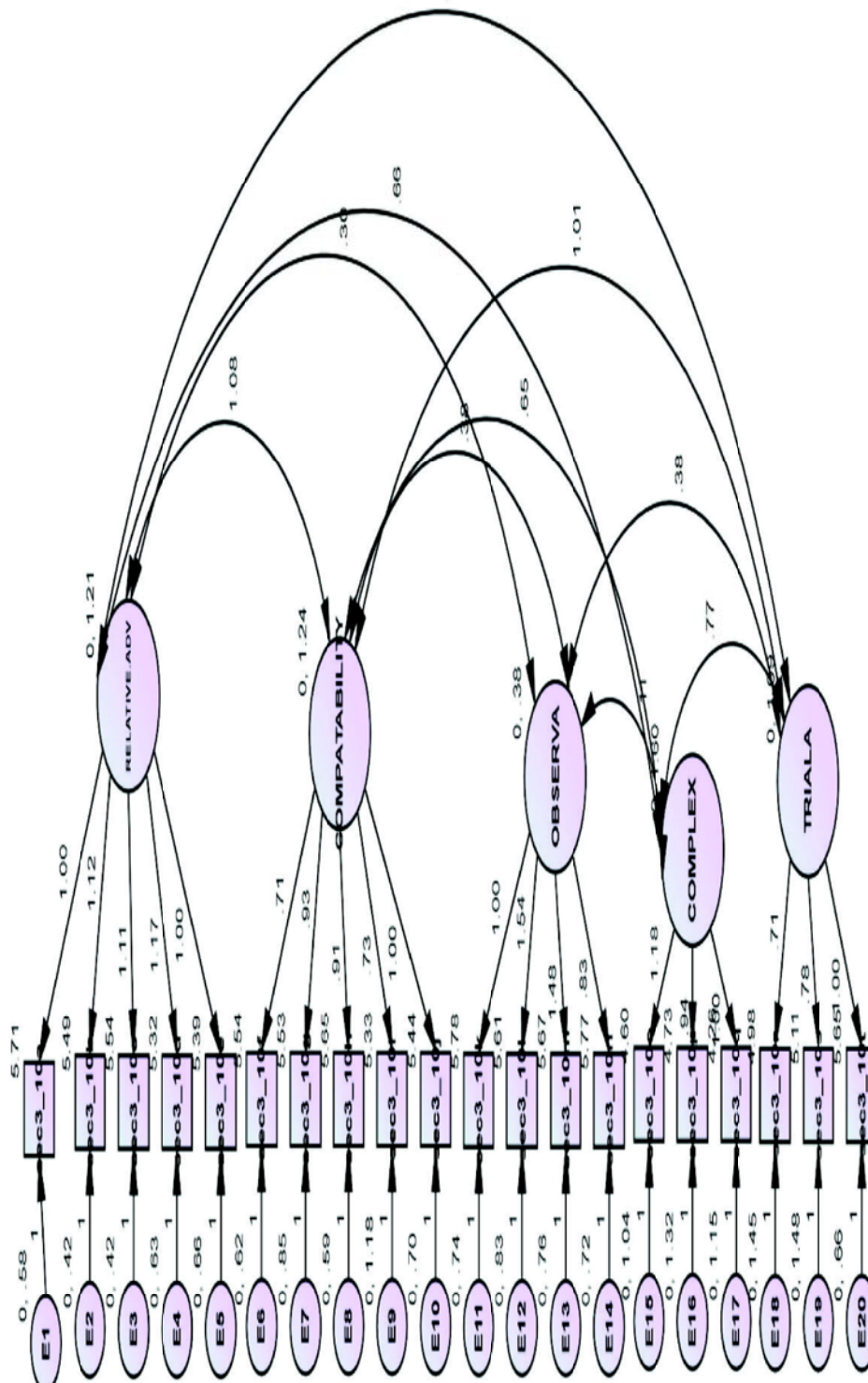


Figure - 1: Confirmatory Factor Analysis for Adoption Practices

Factor 5: Website factor

WF1	0.536	0.910	0.377
WF2	0.582		
WF3	0.602		
WF4	0.662		
WF5	0.626		
WF6	0.650		
WF7	0.534		
WF8	0.614		
WF9	0.686		

Factor 6: Perceived ease of use

PEOU1	0.661	0.826	0.310
PEOU2	0.691		
PEOU3	0.702		
PEOU4	0.568		
PEOU5	0.642		
PEOU6	0.577		
PEOU7	0.161		
PEOU8	0.041		
PEOU9	0.541		

Factor 7: Perceived usefulness

PU1	0.485	0.903	0.370
PU2	0.648		
PU3	0.487		
PU4	0.584		
PU5	0.669		
PU6	0.598		
PU7	0.706		
PU8	0.474		
PU9	0.661		
PU10	0.562		
PU11	0.610		

Factor 8: Attitude

Atti1	0.661	0.934	0.542
Atti2	0.667		
Atti3	0.711		
Atti4	0.783		
Atti5	0.792		
Atti6	0.736		
Atti7	0.792		

 Contd...

Factor 9: Intention

Int1	0.678	0.914	0.512
Int2	0.732		
Int3	0.730		
Int4	0.749		
Int5	0.680		
Int6	0.717		

Factor 10: Adoption

Relative advantage	0.750	0.865	0.435
Compatability	0.639		
Observability	0.608		
Complexity	0.743		
Trialability	0.555		

Source: Primary data.

Table 2 shows the results and demonstrates that all of the fit indices improved significantly and produced a model that fitted the data. All models and re-specified models have at least a moderately acceptable fit. There has been evidence of the unidimensionality, convergent validity and reliability. The measurement characteristics are adequate to enter the second stage of SEM.

Table - 2: Confirmatory factor analysis (CFA) fitting indices

FittingIndices	PBC	PR	Trust	SN	WF	PEU	PU	Atti	Int	adopt
GFI Near 0.90	0.979	0.948	0.869	0.914	0.936	0.881	0.899	0.930	0.977	0.841
RMSEA <0.08	0.072	0.063	0.064	0.051	0.061	0.070	0.049	0.036	0.072	0.032
AGFI Near 0.90	0.957	0.911	0.814	0.840	0.896	0.809	0.852	0.869	0.952	0.793
NFI Near 0.90	0.943	0.928	0.761	0.855	0.895	0.715	0.822	0.931	0.971	0.725
CFI Near 0.90	0.957	0.939	0.778	0.863	0.912	0.727	0.839	0.937	0.978	0.749

Source: Primary data.

Conclusion

The understanding of the adoption of internet shopping is vital in the changing information technology context. From the profile of internet shopper, e-marketers may devise marketing strategy.

Research on internet shopping adoption in India is still in a nascent stage; therefore a lot more remains to be studied and analysed. Some avenues for continuing study in the existing field may be cross country as well as cross cultural adoption study.

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Compulsive Buying Behaviour and Luxury Brand Consumption

ASHISH PAREEK, ADIT JHA AND DEEPIKA UPADHAYAYA

Abstract: The present study has tried to identify factors which affect compulsive buying behaviour. Researchers have put in effort to explore the impact of materialism, demographic factors, and abuse of credit card on compulsive buying behaviour. Researchers have also tried to identify the relationship between compulsive buying behaviour and luxury brand consumption. The result of the study has exhibited positive relationship between, materialism and compulsive buying behaviour. Extensive use of credit cards by young Indian consumers has affected compulsive buying behaviour significantly. Most important result of the research explained that compulsive buyers have higher tendency to purchase luxury products.

Introduction

Compulsive buying behaviour is known as an uncontrollable urge to buy. Buying is a normal phenomenon for consumers but, excessive buying is seen as a mental problem and known as Compulsive Buying Disorder (Sen, 2016). Research on compulsive buying is not new and studied from several years. Most of the research on compulsive buying came from the west, less evidence has been found in the Indian context. Researchers found that compulsive buying is directly associated with the, negative feeling of oneself (Faber, O'Guinn & Krych, 1987); materialism, status consumption (Manchanda 2015; De Sarbo & Edwards, 1996); demographic factors (Mishra et.al., 2014); credit card abuse or increasing use or excessive use of plastic money and changing life style (Sen, 2016). Previous studies have found that person who has low self-esteem and, negative thoughts about one-self, exhibited more compulsive buying behavior. Shopping gives them immediate relief and change in self-esteem.

The nuclear family structure is one of the most important factors of growing spending of Indian families. Nuclear family has been defined as the single person, couple with or without children. Research showed that nuclear families spend more on beauty products, health care, leisure, fashion apparels. Consumers belong to nuclear family differ in purchasing style of their parents. They like to use credit cards, shop in luxury malls, purchase expensive brands. "Gen I" "I" referred for, India, Independence,

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and Individuality. "Gen I" spend more than their parents (Mall et al. 2012; Singhi et. al. 2017). Consumers of Gen "I" earn well and spend well on them-selves. These important factors of Indian economy have boosted the spending on various products and services.

Literature Review

Materialism

Materialism referred to neglecting spiritual matters and owing goods and, has been explained on many grounds. Richins and Dawson (1992) explain and materialism on the basis of three aspects, acquisition centrality, acquisition as the pursuit of happiness and possession defined success. According to Richins and Dawson (1992), purchasing and possessing the material goods are the central aim of life, it shows the life style of an individual; acquisition of material goods is one of the way to convey happiness and satisfaction. Belk (1985) explained materialism on the basis of possessiveness, non-generosity and envy. Materialistic person value material objects in the life more than the social relations (Belk, 1983).

Demographic Factors

According to Schiffman and Kanuk (1999) demographic variables shows the ongoing trends and shopping patterns.

Gender

Research shows that female shoppers exhibit more compulsive shopping behavior than male shoppers. Female shoppers are more emotionally attach to the shopping and they have positive attitude toward buying and men have negative attitude toward shopping (Dittmar, 2005). Kuruvilla, Joshi & Shah (2009) found significant shopping behavior of female in fashion and footwear brands; male shopper spend more money and time in shopping. Faber & O'Guinn (1987) revealed that women usually purchase for fashion and accessories; while male tend to spend on cars and electronics; for women, looks are important and for men expertise and wealth is more important. Richa (2012) revealed that female shop 3-4 times in a month while male shop 1-2 times in a month.

Age

Young buyers exhibit more compulsive buying than buyers in old age (Dittmar, 2005). Research conducted by Kyrios et.al (2004) revealed that buyers in United States whose age is between 31-39 year exhibits more compulsive buying behavior.

Income and Occupation

Consumer with lower household income (82%), middle level income (80%) and high level income (74%) take time to find best prices for the products

(Singhal, 2013). Some research shows that income is inversely related to compulsive buying behavior (Koren et.al, 2006).

Social Class

According to Kanuk and Schiffman (1999) social class is defined “as the division of members of a society into a hierarchy of distinct status classes, so member of each class have relatively the same status and other people have more or less status”. In India social class has classified by economic status such as affluent class, middle class, the relatively poorer class and BPL class. Indian affluent consumer had annual income over Rs. 10 Lakh per annum (Ramaswamy and Namakumari, 2004). Recent reports has classified Indian social class in five segments as, elite class, affluent class, aspirers, next billion, and strugglers (Singhi, Jain & Sanghi 2017).

Table 1: Indian Social Class and Annual Income

S.No.	Social Class	Annual Income (Lakh Rs.)
1	Elite Class	More than 20.1 Lakh
2	Affluent Class	10.01 Lakh to 20.0 Lakh
3	Aspirers	5.6 Lakh to 10.0 Lakh
4	Next Billion	1.50 Lakh to 5.5 Lakh
5	Strugglers	Less than 1.49 Lakh

Source: BCG, report “The New Indian: The Many Facets of a Changing Consumer” 2017. <https://www.bcg.com/en-in/publications/2017/marketing-sales-globalization-new-indian-changing-consumer.aspx>

Abuse of Credit Card

Report says that total 24.51 million credit cards in operation and 668.1 million debit cards are in operation in year 2016 (Media Nama, 2016). Study shows that abuse of credit card has increased compulsive buying behavior and high priced product selection (Robert and Jones, 2001). Study based on Turkish consumers exhibited that majority of consumers (70%) uses credit cards while purchasing (Ergin, 2010). Young Indians revealed that new Indian generation “gen I” uses credit cards more comfortably than their parents. Present study will try to examine relationship between credit card uses and compulsive buying behavior (Mall et.al. 2012).

Compulsive Buying Behavior

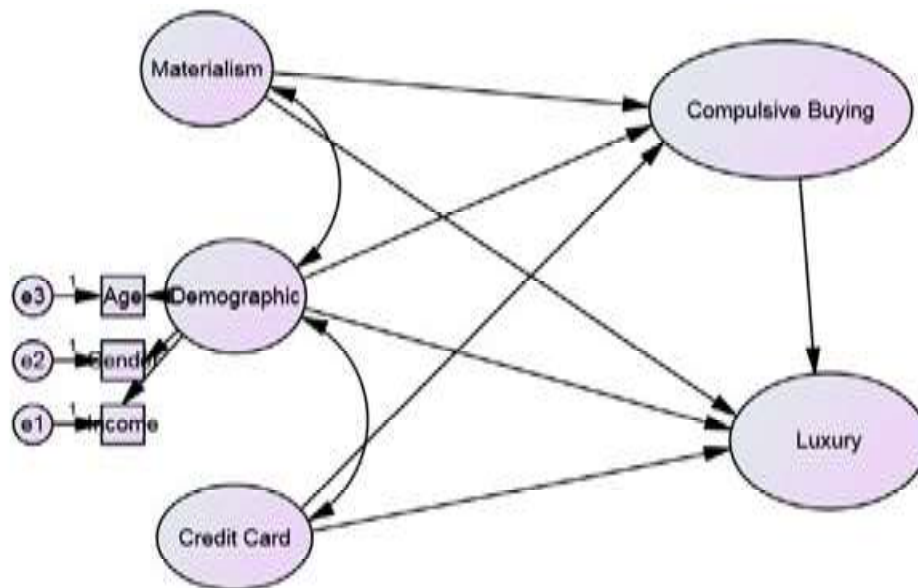
Faber, O’Guinn & Krych (1987) defined compulsive buying as a response to an uncontrollable drive or desire to obtain, buy or experience a feeling substance, or activity that leads individuals to repetitively engage in a behavior that will ultimately cause harm to the individual and others. Compulsive buying is seen as a Compulsive Buying Disorder (CBD)

in clinical research which arises through negative feeling of individual like low self-esteem, stress, anxiety (DeSarbo and Edwards, 1996). Compulsive buying exhibits unnecessary purchase but it gives immediate satisfaction to the compulsive buyers (Faber & Guinn, 1988). Some study shows that compulsive buying is positively related to credit card abuses, approval seeking and, materialism (Park and Burn, 2005; Jorman et.al., 2010, Ergin 2010).

Objectives

- To examine impact of materialism on compulsive buying behavior
- To analyse impact of demographic factors on compulsive buying behavior
- To assess impact of credit card abuse on compulsive buying behavior
- To examine impact of compulsive buying on intention toward purchasing luxury brands.

Proposed Model



Proposed Model: Factor affecting compulsive buying behaviour and luxury brand consumption

Hypotheses

Several studies (DeSarbo & Edwards 1996; O'Guinn and Faber, 1989; Rindfleisch, Burrougha and Denton, 1997) have demonstrated that materialism and compulsive buying behavior is positively associated. These studies came from the west and fewer evidences were found in

India. Study conducted on 140 software professionals in India (Delhi and Bangalore) by Mishra et.al. (2014) shows, that materialism is directly related to compulsive buying behavior. According to Manchanda (2015) materialism and compulsive buying is positively related and, high level of materialism leads to high level of compulsive buying. Study based on demographic factors show that female enjoy shopping more than male (Park and Burns, 2005) and they demonstrated compulsive buying behavior more than male buyers (Koran et.al. 2006; Ergin, 2010). Dittmar & Kapur (2011), exhibited that young buyers are more compulsive than old age buyer. Study conducted by Leite & Silva (2015) shows no relationship between income, occupation and compulsive buying.

H₁: There is positive relationship between materialism and compulsive buying behavior.

H₂ (a): Female tends to shop more compulsively than male buyers.

H₂ (b): Young buyers exhibit more compulsive buying than old age buyers.

H₂ (c): Income and occupation has a positive relation to compulsive buying behavior.

H₂ (d): Social class has a positive relation with compulsive buying behavior.

H₃: Abuse of credit card directly affects to compulsive buying behavior.

H₄: Compulsive buying behavior has positive relation with intention toward purchasing luxury brands.

Research Methodology

The sample was of 565 respondents both male and female. The sample was drawn from Jaipur, Udaipur, Ahmadabad, Gurugram and Delhi. Quota sampling was used for data collection. Survey Method was used and questionnaire was administered to collect data. Respondents age was between 15-45 years (both male and female). Questionnaire was divided into two parts; Part A and Part B. Part A was designed to capture demographic details of respondents. Part B of the questionnaire was divided in four broad categories namely, Materialism, Credit Card Use, Compulsive Buying and, Luxury Brand Consumption. Total number of items was 22.

Data Collection

Researcher has distributed 627 questionnaires, and 565 questionnaires were usable for further analysis. For online responses researcher has developed questionnaire on google forms and mailed the link to 50 candidates. Out of 50 mailed questionnaire, 18 (36%) were usable for the analysis remaining data was collected from various shopping malls. The survey was conducted in five cities of North-Western region of India namely Delhi, Gurugram, Ahmedabad, Jaipur and Udaipur. 34% of respondents came from Delhi, 24% from Gurugram, 15.1% from Udaipur, 13.4% from Ahmedabad, 11.1% from Jaipur and rest of the respondents came from NCR region. While examining social class and income group researcher

found that 5.6% respondents of Delhi were associated with Elite class, 33.96% of respondents were associated with Affluent class, 32.07% respondents were associated with Aspirers and rest of the respondents belong to other social classes and income group. 11.11% respondents of Gurugram were associated with Elite class, 24.69 from Affluent class, 25.92% from aspirers class, 16.04% from next billion class and rest of the respondents were associated with strugglers.

Most of the respondents from Udaipur, Jaipur, and Ahmedabad fall in two income groups Aspirers and Affluent. 25.1% of total respondent's fall in Aspirer's class which is associated with income group of 5.6 lakh to 10.0 lakh per annum; followed by Affluent class which is associated with income group of 10.1 lakh to 20.0 lakh per annum, and 5% of the respondents were associated with Elite club with the income group of more than 20.0 lakh per annum.

For exploring real time shopping experience survey was conducted in various shopping malls of five cities. Total responses of 565 respondents resulted in response rate of 90%. Out of these responses 70% were male 30% were female respondents. Mean age of the respondents was 30. Respondents have various academic areas from secondary to PhD. Respondents were from different working fields like 30% of the respondents came from private jobs; 15% came from IT sector.

Table 2: Demographic Profile

Gender	
Male	70%
Female	30%
Age (Mean age 30)	
16-20 years	14.3%
21-25 years	19.2%
26-30 years	26.9%
31-35 years	17.4%
36-40 years	7.9%
41-45 years	14.3%
Social Class	
Job seekers	11.1%
Strugglers	8.3%
Next Billion	21.7%
Aspirers	25.1%
Affluent Class	23.1%
Elite Class	5.4%
Income Group (Lakh Rs/ Annum)	
Students	11.1%
Less than 1.49	8.3%

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Between 1.50-5.5	21.7%
Between 5.6-10.0	25.1%
Between 10.0-20.0	23.1%
More than 20	5.4%

Results

Established scales were used for the analysis of various constructs. Scale developed by Rinchin & Dawson (1992) was used for measuring Materialism; scale developed by Robert and Jones was used for measuring Credit Card Abuse; scale developed by Faber & O'Guinn measured Compulsive Buying Behaviour. Research questions of luxury brand consumption were developed by experts of the subject area. All items were measured on five point Likert scale ranging 1 (Strongly Disagree) and 5 (Strongly Agree). Cronbach alpha was used for reliability assessment of all scale items. Initially the reliability score of scale items was lower than the threshold value of 0.75. For increasing reliability of the scale researcher has deleted items from the scale by using Corrected Item of Total Correlation (CITC). After deleting items from each scale alpha found close to minimum value or more.

Table 3: Cronbach Alpha

Variable Name scale items	Alpha	Variable Name scale items. (After using CITC)	Alpha
Materialism, 6	0.387	Materialism, 5	0.637
Credit card Abuse, 6	0.600	Credit card Abuse, 4	0.805
Compulsive Buying, 5	0.731	Compulsive Buying, 3	0.75
Luxury brand Consumption, 5	0.470	Luxury Brand Consumption, 4	0.869

Materialism

Materialism was measured by five items. Bartlett's test of sphericity $\chi^2(5) = 197.850$, $p < .000$. The value of KMO= 0.71 which shows the factorability of data; one factor with an eigenvalue greater than one found (2.06) which explained 41% of the total variance. Scree plot shows the same result as eigenvalue. A CFA conducted for the five items of materialism to validate the model fit (CFI= .998, IFI=.998, NFI=.988, RMSEA= 0.023) all measure was close to 1 and CFEA was less than 0.05.

Credit Card Abuse

Credit card Abuse was measured by four items. Bartlett's test of sphericity $\chi^2(4) = 531.15$, $p < .000$. The value of KMO= 0.70 which exhibited the factorability of data; according to Kaiser Criteria one factor with an eigenvalue greater than 1.0 was found (2.52) which explained 63.19% of the total variance. Scree plot shows the same result as eigenvalue. A CFA was conducted for the four items of credit card abuse to validate the model fit (GFI=.932, CFI=.911, IFI=.912, NFI=.909) all measure was close to 1.

Compulsive Buying Behaviour

Compulsive buying behaviour was measured by four items. Bartlett's test of sphericity $\chi^2(3) = 264.50$, $p < .000$. Value of KMO was satisfactory for the compulsive buying behaviour the value of KMO= 0.680 exhibited the factorability of data; according to Kaiser criterion one factor with an eigenvalue greater than 1.0 emerged (2.026) which explained 67.53% of the total variance. Scree plot shows the same result as eigenvalue. Communality analysis shows that all factors was greater than 0.40. A CFA conducted for the three items of compulsive buying behaviour to validate the model fit (CFI=.935, IFI=.937, NFI=.904) all measure was close to 1 which indicate good model fit.

Luxury brand Consumption

Luxury brand consumption was measured by four items. Bartlett's test of sphericity $\chi^2(4) = 693.81$, $p < .000$. Value of KMO= 0.825 which shows the factorability of data; according to Kaiser criterion one factor with an eigenvalue greater than 1.0 emerged (2.52) which explained 63.196 % of the total variance. Scree plot shows the same result as eigenvalue. Communality analysis shows that all factors was greater than 0.40. A CFA conducted for the four items of luxury brand consumption to validate the model fit (GFI= .998, CFI= 1.00, IFI= 1.00, NFI=.998) all measure was close to 1 which indicate good model fit. The value of RMR (0.11) and RMSEA (.000) was indicating perfect fit of the model.

Relationship between materialism and compulsive buying

Materialism was measured by five scale items and compulsive buying behaviour was measured by three scale items. Positive correlation was found between materialism and compulsive buying behaviour. Person with achievement orientation buy more things even they cannot afford them ($r=.19$, $p=.01$). Significant relationship was found between "I like a lot of luxury in my life" and "I buy things even I cannot afford them ($r=.264$, $p=0.01$).

Thus the hypothesis H_1 was supported.

Relationship between materialism and luxury buying consumption

Significant relationship was found (1) between materialism and luxury buying consumption ($r=0.54$) research shows that person with high level of materialism tend to buy more of luxury products; (2) correlation of ($r=0.558$) was found between "I like a lot of luxury in my life" and "I like to purchase luxury products to show my status in society."

Relationship between demographic factors and compulsive buying

Hypothesis (H_2 a) assumes that female respondents exhibited more compulsive buying behaviour than male respondents. The research shows that 37% of female candidates shop 4 days within a week. 65% of male candidate said that they shop ones in a week.

Thus the hypothesis H_2 was supported.

Hypothesis (H_2 b) was related to buying behaviour and age. This is assumed that young respondents exhibit more compulsive buying behaviour than old age respondents. Result of the research shows that people age group ranging from (16-25) had more compulsive buyer with respect to age group ranging from (26-35) and older.

Hypothesis (H_2 c; H_2 d) was related to the relationship between income, social class and compulsive buying behaviour. For the research five income groups and five social classes were adapted from recent report of BCG (2017). Respondents without any job identified as job seekers.

Table 4: Classification of social class and annual income

S.No.	Social Class	Annual Income (Lakh Rs.)
1	Elite Class	More than 20.1 Lakh
2	Affluent Class	10.01 Lakh to 20.0 Lakh
3	Aspirers	5.6 Lakh to 10.0 Lakh
4	Next Billion	1.50 Lakh to 5.5 Lakh
5	Strugglers	Less than 1.49 Lakh

Researcher did not found any significant relationship between income level, social class and compulsive buying behaviour. Hence, H_2 c and H_2 d are not supported. Research shows that social class of aspirers (5.6 - 10.0 lakh) and affluent class (10.01-20.0 lakh) have greater tendency to purchase things which they cannot afford.

Relationship between demographic factors and luxury brand consumption

Researcher found significant relationship between gender and importance of luxury consumption.

- 1) Luxury products were important to the 59% of the female respondents while 51% of male respondents agree that luxury products are important for them ($r=.108$, $\chi^2= 6.46$, $df= 4$, $p< .169$);
- 2) 48% of female respondents responded that they only search for luxury products whenever they visit to the shopping mall, while 45% of male candidate look for luxury products while shopping ($\chi^2= 3.47$, $df=4$, $p<0.40$);
- 3) 59% of female respondents were purchasing luxury products to show their status in the society; while 36% of male respondents were of the view that they used luxury products to show their status ($\chi^2=11.55$, $df=4$, $p<0.021$, $r=0.315$).

Research found positive correlation between income and luxury brand consumption ($r=.335$). 71% elite class respondents (income more than 20

lakh) agreed that they purchase luxury brands every time, followed by 67% of affluent class (10.01 to 20.0) respondent's and 46% of aspirers (5.6 to 10.0 lakh) purchase luxury brands whenever they shop.

Relationship between credit card abuse and compulsive buying

Credit card abuse was measured by six construct initially, after analyzing Cronbach alpha two items were deleted from the credit card measure. Researcher found

- 1) No significant relationship between number of credit card and frequency of shopping ($\chi^2 = 50.52$, $df=20$, $p<.000$, $r=.113$);
- 2) There was a significant relationship between the number of cards use and buying unaffordable things ($\chi^2 = 44.54$, $df=20$, $p<.001$, $r=.14$);
- 3) Researcher found that person with credit card purchase more than their requirement ($r=.32$).

Hypothesis H_3 was supported

Relationship between credit card abuse and luxury buying behaviour

Positive correlation was found between credit card use and luxury brand consumption. Person using credit card tend to purchase more of luxury items ($r=.426$, $p<.00$), respondents with more than two credit cards tend to purchase more of luxury products. Researcher found strong correlation between two variables ($r=.58$). 79% of respondent who own three credit cards make payments only through credit cards while purchasing luxury brands.

75% of respondents who own more than four credit card like to purchase luxury products only through their credit cards.

Relationship between compulsive buying behaviour and luxury brand consumption

Significant relation was found between compulsive buying behaviour and luxury brand consumption ($r=.14$, $\chi^2=19.92$, $df=16$, $p<.223$). Result suggests that

- 1) Respondents who shop more than 4 days (63%) within a week exhibited more preference toward luxury brand consumption;
- 2) A positive correlation was found between buying unaffordable things and luxury brand consumption ($r=.321$, $p<.00$);
- 3) Significant relationship was found between compulsive buying and purchasing products for status ($r=.31$).

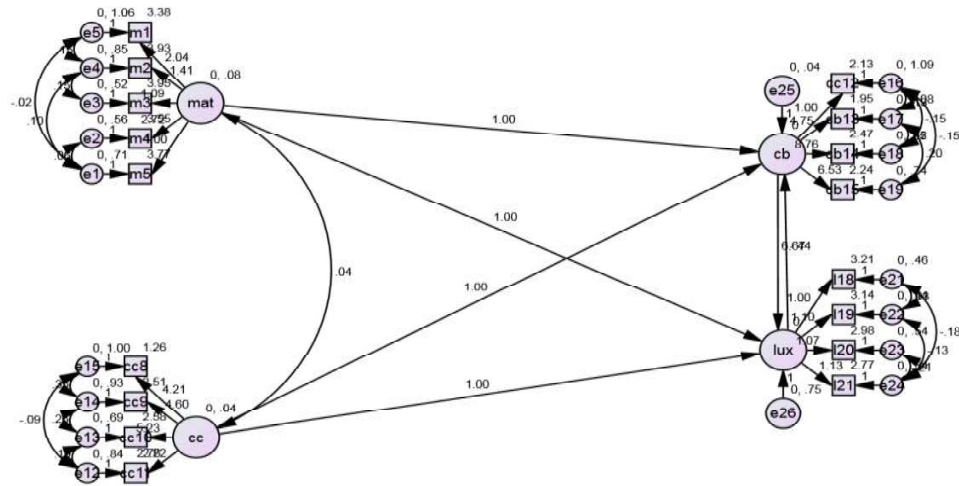
Thus the hypothesis H_4 was supported.

Structural Model

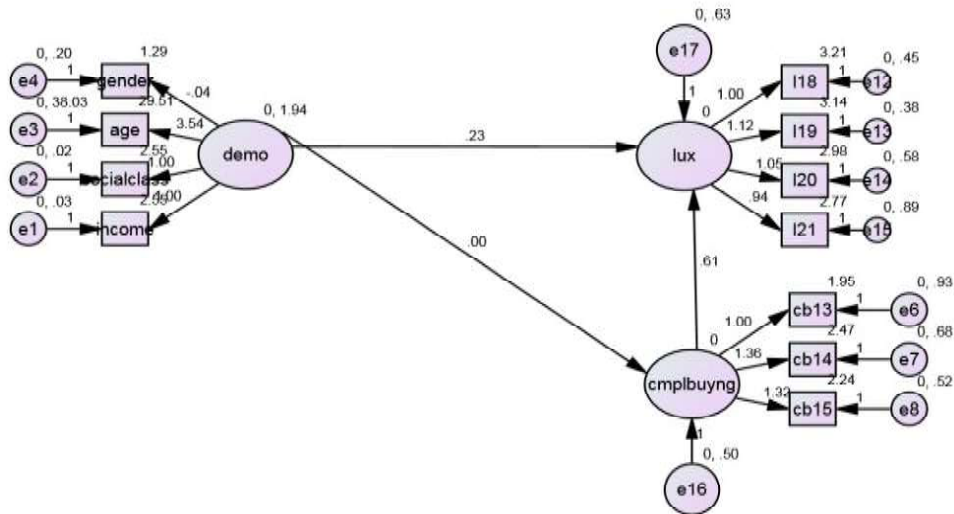
Confirmatory Factor Analysis (CFA) on the all the variables in the structural model was conducted. This measurement model included materialism,

compulsive buying, luxury brand consumption and credit card abuse. Demographic factors were tested separately with each variable.

Relationship among materialism, compulsive buying behaviour, credit card abuse and luxury brand consumption was found significant. Structural model resulted in significant fit: $\chi^2=237.72$, $df=97$, $p=.000$, CFI=0.94, IFI=.94, NFI=.90, RMSEA=.06.



Path model 1: Structural model of materialism, credit card abuse, compulsive buying and luxury brand consumption



Path model 2: Structural model of Demographic factors, compulsive buying behaviour and luxury brand consumption

A CFA was conducted among demographic variables, compulsive buying behaviour and luxury brand consumption. Result indicated that data has well fitted in the model NFI=.932, IFI=.947, TLI=.914, CFI=.94, chi square= 177.731, df=41, $p < .000$

Discussion and Implications

Present study exhibited shopping behaviour of Indian consumers. The relationship among demographic factors, materialism, credit card abuse, compulsive buying behaviour, and luxury brand consumption was studied. It was found that as in other nationalities, Indian female shoppers tend to buy more than male shoppers. Research shows that 64% of male respondents shop once in a week or they do not like to shop. Female shoppers like to purchase luxury products more than male shoppers. Study found that Indian consumers associate material possession with hard work and achievement. They admire those people who own expensive products like luxury cars, homes. Brand managers of luxury products can promote their products as a symbol of achievement, and success. They can provide special range of products for female segment. Research revealed that young Indian consumers with rising income (Elite class, Affluent class and Aspirers), prefer luxury brands.

Motivation behind purchasing luxury brands in Indian context is to show status to the society. Companies and managers can cater this psychology to promote luxury products. Although Indian consumers have positive purchase intention toward luxury products but they also want their culture fused with the western luxury brands. Brand managers and companies can include Indian traditional look in their products and brands. Researchers also found lack of pure luxury showrooms or shopping malls in five Indian cities. Only one pure luxury mall DLF Emporio was available in Delhi. Retailers can think to come up with new luxury malls in non-metro cities like Jaipur and Ahmedabad.

Limitation and Future Research

The study was limited to five cities of India. In future researchers can study other region of the country with different variables. For the study only impact of credit card was analyzed debit cards was excluded from the study, future studies can analyze both credit card and debit card uses with special reference to luxury purchase intention.

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Financial Efficiency and Shareholder Value Maximization in Indian Textile Industry An Application of Data Envelopment Analysis and Tobit Regression

JATIN GOYAL

Abstract: The present study attempts to carry out an in depth analysis into the financial efficiency levels of 171 companies based on cross-sectional data of 2015-16 using DEA approach. The DEA results highlight that the financial efficiency of companies in Indian Textile industry is only 69.70% and the level of financial inefficiency is a whopping 30.30%. Therefore, there is a huge scope for improvement in financial efficiency in the industry. In order to devise a more focused strategy to remove this inefficiency, tobit regression has been run with financial efficiency scores from DEA as a dependent variable. The results of tobit regression revealed that firm size, marketing intensity, technological advancements, R&D, credit rating had a positive and significant impact while firm age, export intensity and sales growth had a negative and significant impact on financial efficiency scores. The findings hold an important place in the wake of the overwhelming contribution of Indian Textile industry to India's economy and the need for maximizing the shareholder's value so as to make it attractive for the investors globally. The inferences bear strong implications for the managers in their attempt to chalk out a focused approach to enhance financial efficiency in the Indian textile industry.

Keywords: Financial Efficiency; DEA; Tobit Regression; Shareholder Value, Textile Industry, India.

JEL Classification: C14, C67, D61, G32, L67.

Introduction

Indian textiles industry is one of the oldest manufacturing industries of India. The industry considerably contributes to India's industrial production, Gross Domestic Product (GDP) and export earnings. As per IBEF (2016) Report, the Indian textile industry contributes around 14 per cent to overall Index of Industrial Production (IIP), 5 percent to India's Gross Domestic Product (GDP) and 13 percent to India's total exports. The underlying strength of the Indian textile industry is its sturdy manufacturing base of broad range of fibres and yarns from natural fibres like cotton, jute, silk and wool to synthetic and man-made fibres like polyester, viscose, nylon and acrylic. According to UN Comtrade (2014) data, India was announced as the world's second largest exporter of textiles

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and clothing in the world and Indian textiles industry was found to have the highest loom capacity (including hand looms) with 63 percent of the world's market share. The Government of India has allowed 100 percent FDI in the Indian textiles industry under the automatic route. Besides, due to industry's labour intensive characteristics, it is also one of the considerable sources of employment generation in India.

The Indian textile industry has two broad divisions viz. the unorganized sector and organized sector. The unorganized sector operates through conventional techniques and includes handloom, handicrafts and sericulture segments. On the other hand, the organized sector operates through modern techniques and includes spinning, apparel and readymade garments segments. Although, all the industries are directly or indirectly based on agriculture, yet the close association of the textile industry to agriculture (65 percent of the raw material consumed being cotton) makes the Indian textiles industry distinctive in comparison to the other industries.

However, things have changed in recent years. The Indian textiles industry has experienced cataclysm as many textiles companies are getting out of the business. Countries such as Bangladesh and Vietnam have surpassed India in terms of apparel and garment exports. Although, free trade with ASEAN countries and planned agreement with European Union helped Indian textile industry to boost the exports, nevertheless as per industry reports, India's textile exports declined marginally in 2015-16 to \$36.26 billion from \$37.14 billion from the year 2014-15. In apparel clothing, Bangladesh's exports to the US grew by a whopping 12 percent in 2015 whereas Vietnam did even well as its exports rose by 14 percent. India, on the other hand, saw its exports grow just by 8 percent (TEXPROCIL, 2016). Lost trade deals also resulted into the poor financial position of industry. Given the immense importance of the industry, it is pertinent that the Indian textiles industry can not be ignored over time.

In order to achieve the above mentioned objectives, a non-parametric linear programming based frontier technique named data envelopment analysis (DEA) has been utilized coupled with Tobit regression over its proximate rival stochastic frontier analysis (SFA) due to its inherent advantage of having no need of functional relationship between inputs and outputs or a priori specification of weights of inputs and outputs (Chandra, Cooper, Li, & Rahman, 1998). Further, the popularity of DEA also takes an edge over SFA due to its capability of taking multiple inputs and outputs simultaneously for calculating the relative efficiency and come up with a scalar measure of overall performance. While statistical procedures are based on central tendencies, the DEA is a methodology directed at the frontier and involves a process of extremities. Another advantage of using DEA is its ability to investigate the changes in efficiency resulting from input saving and to assess whether the reasons for such changes are improvements in scale (scale efficiency) or in management practices (pure technical efficiency) (Topuz, Darrat, & Shelor, 2005).

Efficiency estimates in DEA & SFA differ according to their sensitivity to analytical approach and modeling assumptions. Since, SFA requires an assumption about the form of production function (e.g. Cobb-Douglas or Translog) and distribution of random error, hence, any resultant efficiency score will be partially dependent on how accurately the chosen functional form represents the true production relationship i.e. the relationship between inputs and outputs (Kumar & Arora, 2011).

Since the mid 1980's, DEA has become increasingly popular in measuring efficiency of different industries. Originally, DEA was developed to measure the relative efficiency of non-profit organizations involved in public programs such as local authority departments, educational institutions, hospitals, public utilities and other similar instances. Now a days, DEA has become increasingly popular in measuring efficiency of profit making organizations as well. Many researchers are using DEA to benchmark the performance of different financial institutions like banks, insurance companies and mutual funds etc. A number of DEA applications have also been found in the domain of manufacturing and service sector. Besides this, DEA has been used to compare the efficiencies of nations too.

Review of Literature

Notwithstanding, a substantial body of literature exists that have analyzed and studied the technical efficiencies of textile industries all over the world using either the DEA or SFA. One of the earlier studies conducted by Pitt and Lee (1981) identified the sources of technical inefficiency (TIE) in the Indonesian weaving industry using Cobb-Douglas functional form of SFA. The mean efficiency scores of the Indonesian weaving industry were found to be between 60 and 70 percent. An investigation of the sources of inefficiency revealed that three firm characteristics viz. age, size and ownership played an important role to influence the efficiency scores amongst different firms. Chandra, Cooper, Li and Rahman (1998) used DEA to evaluate the performance of 29 Canadian textile companies for the year 1994. The results showed that most of the Canadian textile companies did not perform well and there were large gaps in the efficiency scores of sample companies. Jaforullah (1999) used translog and Cobb-Douglas production models of SFA to estimate the technical efficiency of Bangladesh's handloom textile industry. It was found that the technical efficiency of the industry in producing cloth was only 41 percent. In India, Bhandari and Maiti (2007) also used translog functional form of SFA to measure the technical efficiency of Indian textile industry and found that technical efficiency in the public sector firms was lower than private sector firms. The empirical results pointed out an inverse relationship between firm's age and technical efficiency scores, due to which the mean technical efficiency scores were found to be higher for the newer firms as compared to old firms' mean. Subsequently, Bhandari and Ray (2007) measured the levels of technical efficiency in the Indian textile industry using DEA. Besides meta-frontier, they also used the group-frontier production

function to examine how locational, proprietary and organizational characteristics of a firm affect its performance. It was found that the average cost of production in textile industry could be lowered by approximately 40 percent through appropriately changing the input mix and consolidating the smaller companies into larger entities.

In 2015, Jorge-Moreno and Carrasco applied Cobb-Douglas functional form of SFA to evaluate the technical efficiency and its determinants in Spanish textile industry during the period of 2002-09. The results showed that the effects of trade liberalization and exemption of tariffs on imports from the Asian countries led the Spanish textile industry to confront inefficiency. Although larger firms were found to have greater market knowledge, reputation and economies of scale, yet these firms were more inefficient as compared to small firms. Recently, Goyal, Kaur and Aggarwal (2017) used BCC and CCR models of DEA to highlight the inefficiencies existing in the Indian textiles industry and pointed out that if these inefficiencies were removed, the Indian textile industry can increase its exports by a whopping 72.58 percent.

Majority of the studies on the efficiency of textiles industry have been conducted outside India and that too using SFA technique. Further, all the studies have focused only on operating parameters of firm efficiency ignoring the financial aspects. Thus, it can be clearly observed that empirical studies for evaluating financial efficiency with reference to the Indian textiles industry are scant for non-parametric technique i.e. DEA. Since, many researchers have highlighted the superiority of DEA model in measuring the overall performance (Chandra, Cooper, Li & Rahman, 1998; Kumar & Gulati, 2009; Kumar & Arora, 2011; Kumar, 2011) the present study seeks to fill such gaps and intends to enrich the available literature concerning the measurement of financial efficiency of Indian textiles industry using DEA methodology.

Methodological Framework

Technical Efficiency and its Measurement

In economic terms, the technical efficiency (TE) of a company is defined as producing maximum output(s) using given level of input(s) or utilizing minimum input(s) for producing given level of output(s). The concept of technical efficiency reflects the producer's ability to avoid the waste of resources given the constraints faced by all companies within a group. The first theoretical discussion related to the measurement of technical efficiency exists in the ideas of Farrell (1957), who sketched upon the work of Debreu (1951) and Koopmans (1951) to define a simple measure of productive efficiency to account for multiple inputs. In this approach, Farrell decomposed the productive efficiency into technical and allocative efficiency. He defined technical efficiency as ability of a company to maximize outputs from a set of given inputs and allocative efficiency as an ability of a company to use these inputs in optimal proportions, given their respective prices.

The DEA Approach and its Extension to Directional Distance Models

We can transform the Farrell's idea of measuring efficiency to obtain the mathematical programs that many consider it as synonym with the DEA approach and usually refer to as mathematical programming approach to efficiency analysis. DEA is a linear programming technique that maps out non-parametric surface frontiers (isoquants) over the sample to measure the efficiency level of each decision making unit (DMU) relative to the frontier (Topuz, Darrat & Shelor, 2005). Since the inception of DEA methodology, numerous mathematical programming models have been proposed in DEA literature (Charnes, Cooper, Lewin & Seiford, 2013; Zhu, 2014). Essentially, these DEA models seek to establish which of the n DMUs determine the envelopment surface, or efficiency frontier. The production frontier is empirically constructed using mathematical programming methods from observed input-output data of sample companies. Efficiency of DMUs is then measured in terms of how far they are from the production frontier.

The concept of TE got wide attention only after the seminal paper of Charnes, Cooper, & Rhodes (1978), who developed a linear programming based mathematical technique viz. Data Envelopment Analysis (DEA) for measuring the relative TE of similar units referred to as decision making units (DMUs). The model proposed by Charnes, Cooper and Rhodes (Known as the CCR model) was based on the assumptions of constant returns-to-scale (CRS). CCR model was further expanded by Banker, Charnes, & Cooper (1984) to embrace variable returns-to-scale (VRS). This model later on got recognition as BCC model. Various other DEA models have been developed to use either the input or output orientation, and these models emphasize proportional reduction of excessive inputs (input slacks) or proportional augmentation of lacking outputs (output slacks) (Ozcan, 2008). However, in the present study, we used directional distance function based DEA efficiency model which reduces the input consumption with simultaneous increase in outputs (Chambers, Chung & Fare, 1998; Ray, 2008).

To illustrate the CCR model, consider n DMUs, $j = 1, 2, \dots, n$. The units are homogeneous with the same types of inputs and outputs. Assume there are m inputs, $i = 1, 2, \dots, m$ and s outputs, $r = 1, 2, \dots, s$. Let x_{ij} and y_{rj} denote, respectively, the input and output vectors for the j^{th} DMU. Thus, x_{ij} is a $(m \times 1)$ column vector and y_{rj} is a $(s \times 1)$ column vector. Moreover, $X = (x_{1j}, x_{2j}, \dots, x_{mj})$ is the $(m \times n)$ input matrix and $Y = (y_{1j}, y_{2j}, \dots, y_{sj})$ is the $(s \times n)$ output matrix. The CCR model assigns weights to each input and output, and then assesses the efficiency of a given DMU by the ratio of the aggregate weighted output to the aggregate weighted input. The weights assigned must be non-negative. Also, they must restrict each DMU from receiving a ratio (of the weighted output to the weighted input) that is greater than 1. Mathematically, the corresponding optimization problem while we evaluate the efficiency of the DMU k using directional distance function, we solve for the following linear programming problem (LPP):

$$\text{Maximize } \alpha \quad [1]$$

$$\text{Subject to: } \sum_{j=1}^N \lambda_j x_{ij} + \beta x_{ik} \leq x_{ij}$$

$$\sum_{j=1}^N \lambda_j y_{rj} - \beta y_{rk} \geq y_{rk}$$

$$\lambda_j \geq 0; \beta = \text{free}$$

Where, λ is a $(n \times 1)$ column vector; θ is a scalar and is the efficiency score of j^{th} DMU; $i = 1, 2, \dots, m$ (Counter for inputs); $r = 1, 2, \dots, s$ (Counter for outputs); $j = 1, 2, \dots, n$ (Counter for companies); x_{ij} = amount of input i used by DMU j ; y_{rj} = amount of output r produced by DMU j ; and k represents the DMU whose efficiency is to be evaluated.

We denote $TE_{CRS} = (1 - \beta) = \theta$, the overall technical efficiency (OTE) score measured by the directional distance function based CCR method. Let θ_k^* denotes the solution to equation (7) then obviously $\theta_k^* \leq 1$. If $\theta_k^* = 1$, it indicates a CCR technically efficient DMU, if $\theta_k^* < 1$, it indicates CCR technically inefficient. Here it is worthwhile to note that the above linear programming problem must be solved n times, once for each DMU in the sample. A value of θ is then obtained for each DMU.

The CRS assumption is appropriate in cases where all DMUs operate at an optimal scale. However, there might exist some DMUs which do not operate at an optimal scale due to certain constraints. Therefore, one needs to use the VRS model of DEA, where overall technical efficiency (OTE) can be decomposed into pure technical efficiency (PTE) and scale efficiency (SE). The PTE provides a measure of managerial efficiency which can be interpreted as management's capacity to convert the inputs into outputs. Likewise, SE measure provides us with the indication whether the DMU under consideration is operating at optimal scale size or not. The VRS model incorporates the dual of CRS model, with an extra convexity constraint $\sum_{j=1}^N \lambda_j = 1$ into problem, which essentially ensures that an inefficient DMU is only benchmarked against DMU of similar size. The corresponding optimization problem to directional distance function based BCC model can be written as follows:

$$\text{MaXimize } \beta \quad [2]$$

$$\text{Subject to: } \sum_{j=1}^N x_{ij} + \beta x_{ik} \leq x_{ik}$$

$$\sum_{j=1}^N \lambda_j y_{rj} - \beta y_{rk} \geq y_{rk}$$

$$\lambda_j \geq 0; \beta = \text{free}$$

We denote $TE_{VRS} = (1 - \beta) = \mu$ the pure technical efficiency (PTE) score measured by the directional distance function based BCC method. It is worthwhile to mention that BCC model measures the PTE, whereas CCR model measures both PTE and SE. Clearly, TE_{CRS} to TE_{VRS} , hence by using TE_{CRS}^k and TE_{VRS}^k measures, we derive a measure of SE as a ratio of TE_{CRS}^k to TE_{VRS}^k given as:

$$SE^k = \delta_k = \frac{TE_{CRS}^k}{TE_{VRS}^k} = \frac{\theta_k}{\mu_k} = OTE/PTE$$

Tobit/ Censored Regression

Generally, efficiency analysis is conducted in two stages (Coelli, Rao, O'Donnell, & Battese, 2005). In the first stage, DEA is applied on key input-output variables to estimate the OTE, PTE and SE scores. Second stage analysis seeks to relate the estimated efficiency scores to the number of background and environmental variables which explain the variation in the efficiency scores (Luoma, Järviö, Suoniemi & Hjerppe, 1996; Fethi, Jackson & Weyman-Jones, 2000; Chilingirian, 1995; Tripathy, Yadav & Sharma, 2012). Tobit regression model is commonly applied for this purpose to identify the factors affecting these efficiency scores which are usually referred to as determinants of efficiency. Since, value of the dependent variable i.e. TE lies between 0 and 1, the conventional OLS regression method cannot be applied here. If OLS method is applied in such case, then the parameter estimates will be biased.

Tobit regression assumes that the data are truncated, or censored, above or below certain values. The usual way of handling this problem is to use a limited dependent variable model, and in this case, the Tobit model is most appropriate method. The standard Tobit regression model is given as:

$$y = \begin{cases} y^* & 0 \leq y^* \leq 1 \\ 0 & y^* < 0 \\ 1 & 1 < y^* \end{cases} \quad [4]$$

$$y^* = \beta_j x_i + \varepsilon_i$$

Where:

y is a dependent variable representing efficiency score.

y^* is a latent (unobservable) variable.

β_i is the vector of parameters to be estimated and determines the relationship between independent variables and latent variable.

x_i is the vector of explanatory variables, discussed in section 3.6

ε_t is independently distributed error term assumed to be normally distributed with zero mean and constant variance.

In the above model, efficiency is taken as a dependent variable. A negative value of a coefficient implies that an increase in its value would reduce the value of efficiency. Alternatively, it can be said that the variable has negative impact on the efficiency improvement. In this study, we only used the overall technical efficiency (OTE) as dependent variable.

Data and Sample

The empirical analysis in this study is confined to the cross-sectional firm level data on selected input and output variables for the year 2015-16. All the data relating to the input and output variables was culled out from the Prowess database of Centre for Monitoring Indian Economy (CMIE). Initially, we considered the entire list of companies listed on BSE to have a momentary look for the purpose of checking the availability of data. The companies with incomplete financial information were then excluded. The filtered sample size provided us with the data of 171 textile companies. Since our sample includes most of the market leaders on the top and also the companies which are struggling to make ends at the bottom, we truly believe that our sample is representative enough to include all kinds of companies. We used software R (*Benchmarking*, *ucminf* and *lpSolveAPI* packages) to perform the empirical analysis.

Selection of Input and output variables

The foremost task for the computation of technical efficiency using DEA is to specify a set of input & output variables. Since an organization's performance is a complex phenomenon requiring more than a single criterion, recent studies have argued that a multi-factor performance measurement model may be used (Zhu, 2000). So far our choice of input and output variables is concerned, we referred to various natural choices amongst various researchers (Kakani, Saha & Reddy, 2001; Tehrani, Mehragan & Golkani, 2012; Dastgir, Momeni, Daneshvar & Sarokolaei, 2012)

In the present study, our choice of inputs is governed by the fact that three major elements of financial performance viz. Liquidity, Solvency and Profitability have been considered. Two key ratios for each indicator have been taken. The final input variables which have been considered are (i) Current Ratio, (ii) Quick Ratio, (iii) Debt-equity Ratio, (iv) Interest Coverage Ratio, (v) Return-on-Assets and (vi) Return-on-Equity. In view of the fact that we have used directional distance function based DEA models, the inverse of the Current Ratio, Quick Ratio, Interest Coverage Ratio, Return-on-Assets and Return-on-Equity has been taken. This is because any reduction in the inverse of these ratios signifies the potential improvement over previous levels. This is called double optimization of inputs.

While making the choice of output variables, we found Tobin's Q ratio and market value to book value ratio as widely accepted proxies for

measuring firm value amongst various researchers. (Wernerfelt & Montgomery, 1988; Beaver & Ryan, 1993; Fama & French 1995; Kakani, Saha & Reddy, 2001). Likewise, following the same pattern, we used (i) Tobin's Q Ratio and (ii) Market Value to Book Value Ratio as two outputs.

Since, the DEA efficiency scores depend heavily on the size of the sample, the number and choice of input and output variables chosen, some discussion on the adequacy of sample size is justified here. The size of the sample utilized in the present study is consistent with the various rules of thumb available in the DEA literature. Cooper, Seiford, and Tone (2007) provides two such rules that together can be expressed as: $n \geq \{m \times s\}$ or $n \geq \{3(m + s)\}$, $\forall n$ = number of DMUs, m = number of inputs, s = number of outputs. The first rule of thumb states that sample size should be greater than equal to product of inputs and outputs. While the second rule states that number of observation in the data set should be at least three times the sum of number of input and output variables. Given $m=6$ and $s=2$ in our study, the sample size $n = 171$ used in the present study exceeds the desirable size as suggested by the above mentioned rules of thumb to obtain sufficient discriminatory power.

Determinants of Efficiency

Researchers have used a number of background or explanatory variables in the Tobit model to estimate the factors which determine the efficiency (Dess & Robinson, 1984; Burki & Terrell, 1998; Kakani, Saha & Reddy, 2001; Yu & Ramanathan, 2009; Faruq & Yi, 2010; Tripathy, Yadav & Sharma, 2012; Panwar, 2012). Taking into account the characteristics of the Indian textile industry and following the literature, the following explanatory variables have been considered in this study:

- a) Age: With age, firms gain the experience. They learn from their weaknesses and failures; their workers become more trained and specialized; their market and customer networks improve; and consequently their productive efficiency also improves. Therefore, it is hypothesized that the older firms have a higher level of efficiency.
- b) Size: It is expected that large sized firms would be more efficient than the small and medium sized firms because of their better access to resources, greater market power and economies of scale. In this study, we have taken the log of market capitalization of a company to define its size.
- c) Export Intensity: Export intensity, which is measured as a ratio of value of exports to the total sales turnover of a company, is expected to be positively associated with the firm's efficiency.
- d) Marketing Intensity: Marketing intensity, which is measured as a ratio of total expenses on marketing to the total sales turnover of a company, is expected to be positively associated with the firm's efficiency. The companies which spend more on marketing are usually considered better as compared to their other counterparts. Focused

marketing strategies create a solid brand image for the company.

- e) **Technological Advancements:** Technological advancements (measured through Capital-labour ratio) indicates whether the production process is labour intensive or capital intensive. For developing country like India, where labour is available in abundance and capital is a scare input, comparative advantage may be in the production of labour intensive products. However, keeping in view the worldwide technological advancements in textile, a high capital-labour ratio is expected to improve the level of efficiency in the Indian textile industry.
- f) **Sales Growth:** Since, a high-growth firm can be expected to have a higher future profit stream, growth should have a positive influence on efficiency of a firm. Consistent sales growth is a key for maintaining adequate cash flows at the disposal of a company, which in turn also influences the liquidity of a firm. In this study, we have used a CAGR of sales based on last 5 year data.
- g) **Credit Rating:** It is expected that a credit rated company is likely to have easy access to financial institutions to get short term and long term credit. Credit rated companies usually do have better liquidity position. It is hypothesized that a credit rated companies would have relatively better efficiency than the non-credit rated firm. In this study, we have used a dummy for credit rating (credit rated firm = 1, 0 otherwise) to know whether there is a significant difference in the efficiency of credit rated and non-credit rated textile companies.
- h) **R&D Intensity:** R&D intensity is expected to have positive impact on the firm's efficiency level. It is measured as a ratio of R&D investment to the sales turnover. Investment on R&D activities helps to create innovation and generate new cost-effective production technology, which can improve the production efficiency. Therefore, it is hypothesized that an increase in the R&D intensity improves the firm efficiency.
- i) **Ownership Structure:** Foreign companies usually do have easy capital access at lower cost as opposed to Indian companies. They have better business strategies along with worldwide exposure. Therefore, it is hypothesized that foreign companies would have relatively better efficiency as compared to Indian companies. In this study, we have used a dummy for ownership structure (Foreign Companies = 1, 0 otherwise) to know whether there is a significant difference in the efficiency of Indian textile companies based on ownership structure.

Thus, the Tobit model used in this study may be specified as:

$$y^* = \alpha + \beta_1 AGE + \beta_2 SIZ + \beta_3 EI + \beta_4 MI + \beta_5 TA + \beta_6 SC + \beta_7 CR + \beta_8 RD + \beta_9 OS + \varepsilon_t [5]$$

Figure 1 shows the DEA model created for the evaluation of financial efficiency with the key objective of shareholder value maximization and enlists the various determinants of efficiency based upon the literature review.

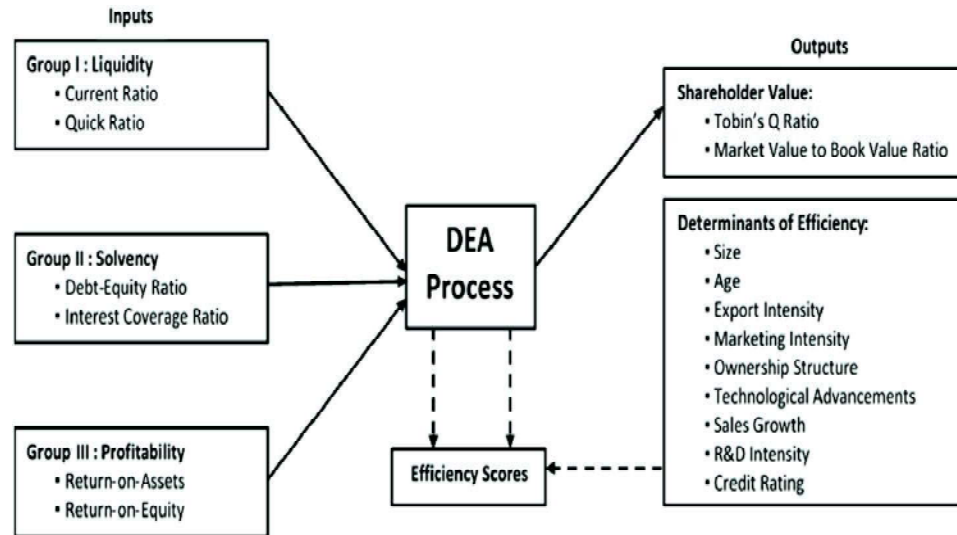


Figure 1: DEA model for the evaluation of financial efficiency and its determinants

Findings

The summary statistics and frequency distribution of overall technical efficiency (OTE) scores, pure technical efficiency (PTE) scores and scale efficiency (SE) scores of all the 171 companies of Indian textile industry for the year 2015-16 have been presented in Table 1. The mean of OTE scores is 0.6970 indicating that the overall technical inefficiency (OTIE) in the Indian textile industry is 30.30 percent. Since we have used the directional distance function based DEA model, it represents that on an average the Indian textile companies have the potential to decrease inputs along with a simultaneous increase in outputs by 30.30 percent. The underlying reason behind such inefficiency may be the selection of sub-optimal scale size or inefficiency due to poor management of the companies.

The OTE scores obtained through CCR model can be decomposed into two mutually exclusive non-additive components viz. pure technical efficiency (PTE) and scale efficiency (SE). It can be done by using the BCC model upon the same data. The results obtained through BCC model gives us the measure of PTE, which is devoid of scale effect. If there is a difference in scores for a particular company, it indicates that there exists scale inefficiency (SIE). In DEA literature, the DMUs getting OTE scores equal to 1 are referred to as 'globally technical efficient' and DMUs getting PTE scores equal to 1 but OTE scores not equal to 1 are called 'locally technical efficient'. It is significant to note VRS assumption based BCC model forms a convex hull of intersecting planes which envelope the data points more tightly than the CRS conical hull and thus provides technical efficiency scores (i.e. PTE) which are greater than or equal to those obtained

using the CCR model (i.e. OTE) (Coelli, 1996). Figure 2 shows the layout of frontier under both CRS and VRS based technology assumptions.

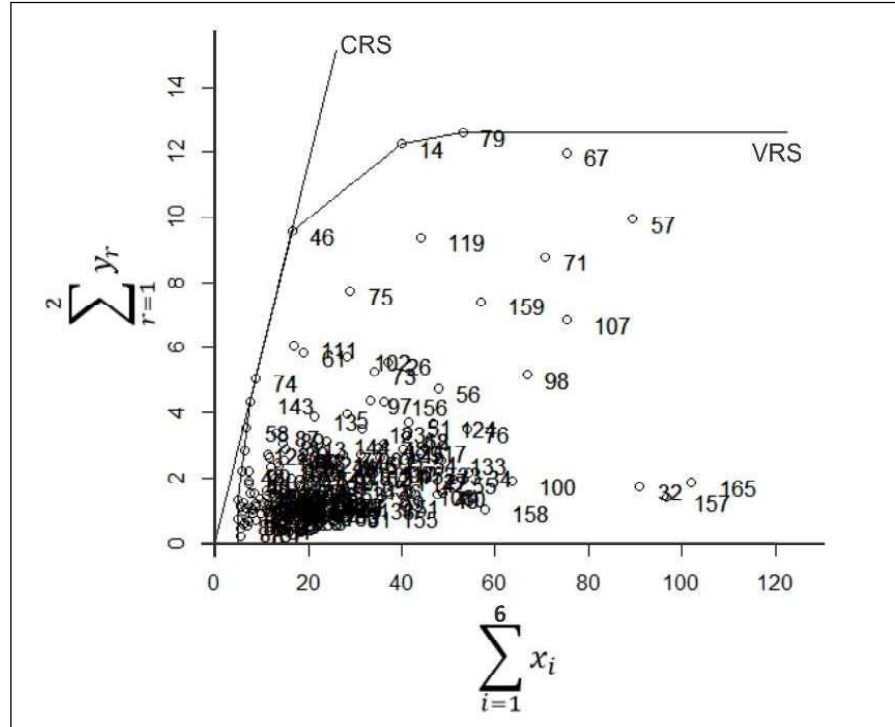


Figure 2: Layout of Frontier

Projected by the authors with the use of software R. Table 1 further reveals that out of 171 companies included in the sample, only 47 companies

(i.e. 27.49 percent) have acquired the status of locally technical efficient since they attained PTE score equal to 1. The mean value of PTE scores is 0.8494 indicating that the extent of pure technical inefficiency (PTIE) in the Indian textile industry is 15.06 percent. The results outline that 15.06 percentage points of 30.30 percent of overall technical inefficiency (OTIE) as identified above in the Indian textile industry are primarily attributed to managerial inefficiency. Out of these 47 companies, 21 companies are also relatively efficient under CRS with OTE score equal to 1 i.e. they are globally as well as locally technical efficient. Further, for remaining 26 companies it may be stated that they are locally technical efficient but globally inefficient. The OTIE in these 26 companies is caused due to failure to operate at most productive scale size (MPSS). In other words, the technical inefficiency in these companies is not due to managerial incapability to effectively allocate the resources but rather inappropriate choice of the scale size.

So far the SE scores are concerned, the value of SE score of 1 implies that the particular company is operating at MPSS i.e. optimal scale size. On the contrary, a value of SE score < 1 implies that company is experiencing inefficiency because it is not operating at its optimal scale size. In our analysis, the mean value of SE scores is 0.8169 indicating that the average level of SIE in the Indian textile industry is about 18.31 percent.

In Table 1, it can also be observed that out of 171 companies included in the sample, only 21 companies (12.28 percent) have attained SE score equal to 1 and are operating at MPSS. Thus, it portrays that the remaining 150 (87.72 percent) companies are operating with some degree of SIE, albeit of different magnitude. It was also found that 96 out of 171 companies have got the SE score more than 0.8 and are operating either at MPSS or near to MPSS.

Table 1: Frequency distribution and descriptive statistics of OTE, PTE and SE scores of Indian textiles industry

Frequency Distribution						
Efficiency Scores Range	OTE		PTE		SE	
	No. of Companies	Percentage	No. of Companies	Percentage	No. of Companies	Percentage
Score < 0.4	8	4.68	0	0.00	2	1.17
0.4 ≤ Score < 0.5	14	8.19	0	0.00	4	2.34
0.5 ≤ Score < 0.6	40	23.39	14	8.19	8	4.68
0.6 ≤ Score < 0.7	41	23.98	18	10.53	22	12.87
0.7 ≤ Score < 0.8	22	12.87	38	22.22	39	22.81
0.8 ≤ Score < 0.9	16	9.36	30	17.54	52	30.41
0.9 ≤ Score < 1	9	5.26	24	14.04	23	13.45
Score = 1	21	12.28	47	27.49	21	12.28
Total	171	100	171	100	171	100
Mean	0.6970		0.8494		0.8169	
Descriptive statistics						
	Minimum	First quartile	Median	Third quartile	Maximum	Standard deviation
OTE	0.3608	0.5586	0.6560	0.8248	1	0.1758
PTE	0.5360	0.7399	0.8397	1	1	0.1357
SE	0.3608	0.7268	0.8286	0.9095	1	0.1276

Source: Author's Calculations.

Table 2 shows the results of the Tobit regression model. We use the overall technical efficiency (OTE) as dependent variable and firm Age, Size, Export Intensity, Marketing Intensity, Technological Advancements, Sales Growth, Credit Rating, R&D Intensity and Ownership Structure as independent variables. Out of nine variables included in the model, eight variables turned out to be statistically significant. The firm size, marketing intensity, technological advancements, R&D and credit rating have a positive and significant impact while firm age, export intensity and sales growth have a negative and significant impact on financial efficiency scores. Ownership structure has positive influence on efficiency of firm, but its value is not significant at the appropriate level of significance. The overall likelihood-ratio χ^2 value is significant at 1% level of significance, implying that the set of independent variables considered together satisfactorily explain the variations in the dependent variable.

Table 2: Tobit Regression results

No. of Observations = 171			
LR χ^2 = 52.92***			
Pseudo R^2 = 0.9303			
Log Likelihood = -1.9810178			
Variables	Symbol	Coefficient	Standard Error
Age	AGE	-0.0542*	0.0299196
Size	SIZ	0.0529***	0.0095537
Export Intensity	EI	-0.1429**	0.0629322
Marketing Intensity	MI	0.9449*	0.4991285
Technological Advancements	TA	0.0007**	0.0003452
Sales Growth	SG	-0.0014**	0.0006167
Credit Rating	CR	0.0770**	0.0351346
R&D Intensity	RD	0.9133***	0.0338129
Ownership Structure	OS	0.0424	0.0416498
Constant	α	0.2480**	0.1115712

Observation Summary:

0 Left-Censored Observations

150 Unsensored Observations

21 Right-Sensored Observations at $OTE \geq 1$

Note: ***, **, and * indicate levels of significance at 1%, 5%, and 10%, respectively.

Source: Author's Calculations.

The coefficient values indicate that in order to improve financial efficiency the companies should focus more on marketing and R&D intensity. The small sized companies should think to increase the size of operations as it positively influences the financial efficiency. The results also indicate

that technological advancements and credit rating do increase the financial efficiency. Therefore, the companies should deploy more capital intensive techniques. Maintaining high credit rating is of utmost importance as it positively influences the liquidity and solvency. In our analysis, we find that age and export intensity are negatively related with financial efficiency. One possible reason for this may be that old firms tend to make themselves inflexible and unable to adapt to the changes in the environment. Further, for export intensive companies it is apparent that if the demand in global market declines, it adversely affects the performance.

Conclusions

The results indicate that OTE scores for the Indian textile companies range from 0.3608 to 1, with mean value of 0.6970. It indicates that on an average the Indian textile companies have the potential to decrease inputs along with a simultaneous increase in outputs by 30.30 percent. Out of 171 textiles companies included in the sample, only 21 companies (i.e. 12.28 percent) have been found to be globally efficient with OTE score equal to one in. It shows that these companies are creating maximum value for its shareholders.

PTE results indicate that out of 171 companies included in the sample, only 47 companies (i.e. 27.49 percent) have acquired the status of locally technical efficient since they attained PTE score equal to 1. The mean value of PTE scores is 0.8494 indicating that the extent of pure technical inefficiency (PTIE) in the Indian textile industry is 15.06 percent. The results outline that 15.06 percentage points of 30.30 percent of overall technical inefficiency (OTIE) as identified above in the Indian textile industry are primarily attributed to managerial inefficiency. Out of these 47 companies, 21 companies are also relatively efficient under CRS with OTE score equal to 1 i.e. they are globally as well as locally technical efficient. Further, for remaining 26 companies it may be stated that they are locally technical efficient but globally inefficient. The OTIE in these 26 companies is caused due to failure to operate at most productive scale size (MPSS). In other words, the technical inefficiency in these companies is not due to managerial incapability to effectively allocate the resources but rather inappropriate choice of the scale size.

The second stage of the analysis involving a Tobit estimation identifies the important determinants of the financial efficiency of Indian textile companies. Out of nine variables included in the model, eight variables turned out to be statistically significant. The firm size, marketing intensity, technological advancements, R&D and credit rating has a positive and significant impact while firm age, export intensity and sales growth has a negative and significant impact on financial efficiency scores. Ownership structure has positive influence on efficiency of firm, but its value is not significant at the appropriate level of significance. The coefficient values indicate that in order to improve financial efficiency the

companies should focus more on marketing and R&D intensity. The small sized companies should think to increase the size of operations as it positively influences the financial efficiency. The results also indicate that technological advancements and credit rating do increase the financial efficiency. Therefore, the companies should deploy more capital intensive techniques. Maintaining high credit rating is of utmost importance as it positively influences the liquidity and solvency. In our analysis, we find that age and export intensity are negatively related with financial efficiency. One possible reason for this may be that old firms tend to make themselves inflexible and unable to adapt to the changes in the environment. Further, for export intensive companies it is apparent that if the demand in global market declines, it adversely affects the performance.

In sum, DEA results clearly witness that there exists a substantial room for the improvement of financial efficiency in Indian textile industry. Given the importance of this industry for the Indian economy, it is imperative that efforts should be taken to increase the efficiency of companies whose performance is sub-optimal. There is a need to take concrete steps to eliminate the managerial inefficiencies in the process of resource utilization and correcting the scale of operations. Looking carefully into the root causes of inefficiency and can help the Indian textile industry to create more value for its shareholders.

The possible limitation of this study is that our findings are based on the analysis of cross-sectional data only. One can use panel data to analyze the inter-temporal variations in financial efficiency of Indian textile companies, Malmquist Productivity Index (MPI) to analyze the total factor productivity (TFP) growth or meta-frontier to study the technology gaps within the sub-sectors of Indian textile industry. The future research could extend our work in various directions not considered in this study. However, we also keep that as our future research agenda for the time being.

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Corporate Governance Disclosure Practices in Pharma and FMCG Sector Companies

MEENU MAHESHWARI

Abstract: The main objectives of the study is to construct Corporate Governance Disclosure index and to make comparative analysis of Corporate Governance Disclosure Practices by using index score among the sampled companies. The study reveals that degree of Corporate Governance Disclosure Practices is excellent in all sampled companies. All Pharma and FMCG Sector companies included in BSE SENSEX fulfilled almost mandatory requirements in all sub-indices prepared as per SEBI (Listing Obligations and Disclosure Requirements) Regulations 2015. Findings also show that FMCG sector secure more score in comparison to pharma sector. The ITC Ltd. scored the highest score 96 in Corporate Governance Index.

Keywords: Corporate Governance, SEBI, Companies Act 2013, BSE SENSEX, SEBI's Regulation 2015.

Introduction

Corporate Governance has become an important policy issue in both developed and developing countries. Corporate Governance is a system by which business corporations are directed and controlled. It aims at attaining accountability, transparency, independence and fairness in the business. According to SEBI, 2003, Corporate Governance is about ethical conduct in business. Corporate Governance deals with conducting the affairs of a company such that there is fairness to all stakeholders and that its actions benefit the greatest number of stakeholders. It is about openness, integrity and accountability. Present Corporate Governance norms for all listed companies are regulated by the Companies Act 2013. In India there is the regulatory body of the security market, therefore a listed company is also bound to comply with the requirements of the listing agreement. Now, SEBI notified on 2/9/2015 in the extraordinary Gazette of India the Listing Obligation and Disclosure Requirements Regulations, 2015 (LODR). So, all the listed companies are now governed by (LODR) Regulations, 2015. Further, it is also necessary to mention here that every listed company should comply with the stricter provisions of Companies Act, 2013 and SEBI (Listing Obligation and Disclosure Requirement) Regulations, 2015.

Review of Literature

Rajharia and Sharma (2014) advocated that major key issues in Corporate Governance in India are managing the dominant shareholders and the promoters. Their study showed that in India MNCs have better records of Corporate Governance compliance in its prescribed form. Muhammad et al. (2016) showed the effect of Corporate Governance practices on firms' performance in Pakistan and studied three variable of Corporate Governance such as board size, board composition, CEO duality and Audit Committee of 80 non- financial firms listed on Karachi Stock Exchange Pakistan during 2010-2014 and found that board size and audit committee are positively related to the firms performance and CEO duality and Board Composition are negatively related to the firm performance. Gurarda et al. (2016) estimated the determinants of Corporate Governance rating for 22 publicly traded Turkish companies with a focus on ownership structure. Their results show that company earnings, financial risk and firm size positively influence the Corporate Governance Rating. They also found that family ownership has a negative and foreign ownership has a positive impact on Corporate Governance Rating score. Thapar and Sharma (2017) highlighted the importance and need of Corporate Governance in India and discussed the important case laws which contributed immensely in the emergence of Corporate Governance in India. Authors revealed that the corporate practices in India emphasize the functions of audit and finances that have legal, moral and ethical implications for the business and it has impact on the shareholders.

Objectives of the Study

The main objectives of the study are:

- Analyse Corporate Governance Disclosure Practices in Indian Corporate Pharma and FMCG sector companies.
- To construct Corporate Governance Disclosure Index on the basis of Mandatory and non- Mandatory requirement issued by SEBI in SEBI.
- To make comparative analysis of Corporate Governance Disclosure Practices by using index score among the sampled companies.

Hypothesis

Following hypotheses have been formulated to test whether these four companies show compliance with SEBI (Listing Obligation and Disclosure Requirements) Regulations 2015 practices.

H₀: CIPLA Ltd., SPIL, HUL and ITC LTD do not show compliance with SEBI (Listing Obligation and Disclosure Requirements) Regulations 2015 practices in year 2016-17.

Research Methodology

The research focuses on comparative analysis of Corporate Governance Disclosure Practices between two Pharma Sector and two FMCG Sector Companies listed in BSE SENSEX for the financial year 2016-17. For this purpose company's performance has been measured against certain governance parameter. The research has been undertaken to assess the level of compliance to key governance parameter in these companies in tune with mandatory and non- mandatory requirements under the Companies Act 2013 and the SEBI (Listing Obligations and Disclosure Requirements) Regulations 2015. To evaluate how much these companies are following governance standards, a 100 point Index consisting of 18 parameter with their sub parameters has been framed, whereby an appropriate weightage in terms of points has been awarded for governance parameters according to their importance. These key governance parameters and the criterion for evaluation of governance are based on various researches, Companies Act 2013, SEBI (Listing Obligations and Disclosure Requirements) Regulations 2015 and model suggested by S.C. Das . After determining total scores of the companies given in table 2 companies will be graded on a five-point scale as given below in Table 1.

Table 1: Score result

Score	Remarks
90-100	Excellent
75-89	Very Good
60-74	Good
50-59	Satisfactory
0-49	Bad

Sample Size and Collection of Data

The sample comprises two pharma sector companies and two FMCG sector companies included in BSE SENSEX. The year 2016-17 has been taken as the study period. This study is based on the secondary data only. All data and informations have been collected from annual reports of companys' website, journals and magazines etc.

Table 2: Criterion for evaluation of governance standard of pharmacy and FMCG companies for the financial year 2016-17

Sl. No.	Governance Parameters	Points	Total score	Cipla Ltd.	SPIL	HUL	ITC Ltd.
1)	Statement of Company's Philosophy on Code of Governance	1	1	1	1	1	1
2)	Composition of the board and BOD meetings held.		5				
i)	Not less than 50% of the Board of Directors comprising of non-executive directors.	1		1	1	1	1

Contd...

Contd..

ii) At least one woman director.	1	1	1	1	1
iii) Where Chairman is Non-Executive Director-At least 1/3 of the board comprise Independent Director where Chairman is Executive-At least ½ of the board comprise Independent Director.	1	1	1	1	1
iv) At least four BOD meetings in a year.					
v) Attendance record of BOD meetings.					
3) Chairman and CEO Duality	5				
i) Promoter Executive Chairman-cum-MD/CEO	1	-	-	-	-
ii) Non-Promoter Executive Chairman-cum-MD/CEO	1	-	-	-	-
iii) Promoter Non-Executive Chairman	3	3	-	-	-
iv) Non-Promoter Non-Executive Chairman	4	-	4	4	4
v) Non-Executive Independent Chairman	5	-	-	-	-
4) Disclosure of tenure & age limit of directors	2	2	2	2	2
5) Disclosures regarding to Independent Director (ID)	6				
i) Definition of ID.	1	1	1	1	1
ii) Familiarization program to ID & Details of such training imparted to be disclosed in the annual report.	1	1	1	1	1
iii) Separate meeting of the ID.	1	1	1	1	1
iv) Selection criteria the terms and condition of appointment shall be disclosed on the website of the company.	1	1	1	1	1
v) Formal letter of appointment of ID.	1	1	1	1	1
vi) Limit of No. of Directorship for ID (If whole time director then three or If not whole time director then seven)	1	1	1	1	1
6) Disclosure of :	2				
i) Remuneration policy	1	1	1	1	1
ii) Remuneration of directors	1	1	1	1	1
7) Directorship and Committees' Membership/Chairmanship of directors across all companies	2	2	2	2	2

Contd...

Contd...

8) Code of Conduct	2				
i) Information on Code of Conduct	1	1	1	1	1
ii) Affirmation of compliance	1	1	1	1	1
9) Post board meeting follow up system & compliances of the Board procedure.	2	2	-	-	2
10) Board Committees :					
A) Audit Committee :	8				
i) Transparency in composition of the committee.(Qualified and Independent)	1	1	1	1	1
ii) Compliance of minimum requirement of No. of Independent Directors in the committee. (Minimum three director and 2/3 of the member should be ID)	1	1	1	1	1
iii) Compliance of minimum requirement of the number of committee meetings. (At least four times).	1	1	1	1	1
iv) Information about literacy & financial expertise of the committee.Information about participation of Head of Finance, Statutory Auditors, Chief Internal Auditors, and other invitees in the committee meetings.	1	1	1	1	1
v) Disclosure of audit committee charter & terms of reference.	2	2	2	2	2
vi) Disclosure of Committee report	1	1	1	1	1
B) Nomination And Remuneration Committee	6				
i) Formation of the committee	1	1	1	1	1
ii) Information about number of committee meetings.	1	1	1	1	1
iii) Compliance of minimum requirement of No. of Non-Executive Directors in the committee. (At least 3 members)	1	1	1	1	1
iv) Compliance of the provisions of independent director as chairman of the committee	1	1	1	1	1
v) Information about participation of meetings.	1	1	1	1	1
vi) Disclosure of Committee report.	1	1	1	1	1

Contd...

Contd...

C) Shareholders' /Stakeholders' Relationship Committee :	5				
i) Transparency in composition of the committee	1	1	1	1	1
ii) Information about nature of complaint & queries received and disposed-item wise.	1	1	1	1	1
iii) Information about number of committee meetings	1	1	1	1	1
iv) Information about action taken and investors/shareholder survey	1	1	1	1	1
v) Disclosure of Committee report	1	1	1	1	1
D) Risk Management Committee	2				
i) Formation of committee	1	1	1	1	1
ii) Disclosure of committee charter report	1	1	1	1	1
E) Additional committee	4				
i) Health and Safety & Environment Committee	1	–	–	–	–
ii) CSR and Sustainable Development Committee	1	1	1	1	1
iii) Investment Committee	1	1	–	1	1
iv) Other Committee	1	–	–	1	1
11) Disclosure and Transparency :	24				
i) Significant related party transaction having potential conflict with the interest of the company	2	2	2	2	2
ii) Non-compliance related to capital market matters during the last 3 years.	2	2	2	2	2
iii) Board disclosure-Risk Management	2	2	2	2	2
iv) Information to the board on Risk Management	2	2	2	2	2
v) Publishing of Risk Management Report	1	1	1	1	1
vi) Management Discuss and Analysis	2	2	2	2	2
vii) Information to Shareholders-	1	1	1	1	1
• Appointment of new director/ re-appointmentof retiring directors	1	1	1	1	1
• Quarterly results & presentation	1	1	1	1	1
• Share-Transfers	1	1	1	1	1
• Directors' responsibility statement	1	1	1	1	1
viii) Shareholder right	2	2	2	2	2
ix) Audit Qualification	2	2	2	2	2

Contd...

Contd..

x) Training of board members	2		2	2	2	2
xi) Evaluation of non-executive directors	2		2	2	2	2
xii) Resignation of Director with reason	1		1	1	1	1
12)General Body Meetings :		3				
i) Location and time of General Meetings held in last 3 years	1		1	1	1	1
ii) Details of Special Resolution passed in the last 3 AGM	1		1	1	1	1
iii) Details of resolution passed last year through Postal Ballot including the name of conducting official and voting procedure	1		1	1	1	1
13)Means of Communication and General Shareholder Information	2	2	2	2	2	2
14)Whistle-Blower Policy & Vigil Mechanism	2	2	2	2	2	2
15)CEO/CFO certification	2	2	2	2	2	2
16)Compliance of Corporate Governance and Auditors' Certificate :						
i) Clean certificate from auditors	5	5	5	5	5	5
17)Code for prevention of insider trading practices	5	5	5	5	5	5
18)Disclosure of stakeholders' interest :		5				
i) Environment, Health & Safety measures (EHS)	1		1	-	1	1
ii) Human Resource Development initiative (HRD)	1		1	-	1	1
iii) Corporate Social Responsibility (CSR)	1		1	1	1	1
iv) Industrial Relation (IR)	1		-	-	-	-
v) Disclosures of policies on EHS, HRD, CSR, & IR	1		1	-	-	-
Total	100	100	93	90	94	96

Following observations have been extracted from the Table 2:

- All companies have their own philosophy on code of governance.
- All the four companies have separate post of Chairman and MD/CEO. In Cipla Ltd. the Chairman is NED Promoter. While in SPIL, HUL and ITC Ltd. the Chairman is Non Promoter NED.
- The Board of Director of all sampled companies is duly constituted with proper balance of Executive Director, Non-Executive Director and Independent Director as per SEBI's Regulation 2015.
- According to SEBI's Regulations Company's BOD should meet minimum four times with maximum gap of 120 days. All four companies also comply it.

- Companies disclose tenure and age limit of Board member according to SEBI's Regulations in their respective annual report.
- All sampled companies gave detail of the training program for ID in their respective annual reports.
- Only ITC Ltd. have post board meeting follow up system and compliances of the board procedure.
- Companies disclose their director's remunerations as per SEBI's Regulation. Also all companies have Remuneration policy towards the Director's remuneration.
- All companies comply mandatory requirements of statutory committee like Audit Committee, Stakeholders' Relationship Committee, Remuneration Committee, Risk Management Committee and Corporate Social Responsibility Committee.
- All companies framed policy towards the related party transactions and insider trading.
- Companies inform their shareholders regarding the appointment of new director, quarterly result of the company and directors, responsibility statement.
- Companies give detail about AGM and detail of special resolution passed in the 3 AGM. They also inform their stakeholders with venue.
- All companies have an auditor's certificate to comply with corporate governance.
- All Companies have adopted an insider trading policy to regulate, monitor and report trading by insiders.

Suggestions

According to Index table Cipla got 93, SPIL got 90, HUL got 94 score and ITC got 96. It shows that, all the company's scores are excellent, but to bring full marks, the company should adopt the following suggestions-

- Company should appoint Non-Executive Director as well as ID Chairman.
- Cipla Ltd., SPIL and HUL should have post board meeting follow up system and compliances of the board procedure.
- All company should constitute Health and Safety & environment Committee as well as Investment Committee to get more Score.
- All Companies should disclose the policy for stakeholders' interest like Environment, Health and Safety measures, Human Resources Development initiative, Corporate Social Responsibility and Industrial Relation.

**Comparison of Pharma and FMCG Sector Companies with SEBI
(Listing Obligation and Disclosure Requirements) Regulations
2015 for 2016-17**

For the eighteen parameters with their sub –parts of SEBI (Listing Obligation and Disclosure Requirements) Regulations 2015 practices scores have been obtained for all the four companies CIPLA Ltd., SPIL, HUL and ITC Ltd., on the basis of their fulfillment of requirements.

Using IBM SPSS22 Wilcoxon signed rank-test has been applied to test whether these four companies show compliance with SEBI (Listing Obligation and Disclosure Requirements) Regulations 2015 practices.

Table 3: Wilcoxon signed rank-test results

Pair	SEBI (Listing Obligation and Disclosure Requirements) Regulations 2015 practices v/s Score of	Z	p-value
1	CIPLA Ltd.	-0.749	0.454
2	SPIL	-0.061	0.952
3	HUL	-0.749	0.454
4	ITC Ltd.	-0.513	0.608

From the above Table 3, it is concluded, that p-value for all the Pharma and FMCG sector companies is greater than 0.05. This implies that at 5% level of significance, all the four Pharmacy companies' shows compliance with SEBI (Listing Obligation and Disclosure Requirements) Regulations 2015 practices in year 2016-17.

Conclusion

It is concluded, that p-value for all the Pharma and FMCG sector companies is greater than 0.05. This implies that at 5% level of significance, all the four Pharmacy companies' shows compliance with SEBI (Listing Obligation and Disclosure Requirements) Regulations 2015 practices in year 2016-17. All Pharma and FMCG Sector companies included in BSE SENSEX fulfilled almost mandatory requirements in all sub-indices of the SEBI (Listing Obligations and Disclosure Requirements) Regulations 2015. Findings also show that FMCG sector secure more score in comparison to pharma sector. The ITC Ltd. scored the highest score i.e. 96 in Corporate Governance Index. The suggestions reveal that good legislation and a market environment that is free from corruptions are essential for Corporate Governance disclosure to be efficient. There should be a provision of penalty in case of non-compliance of mandatory governance practices.

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Book Review

The Future of Indian Economy Past Reforms and Challenges Ahead

Edited by Yashwant Sinha, Former Finance Minister
and Vinay Kumar Srivastava

Rupa Publication, 2017, price 795/- pages 361

The economic reforms were initiated by Government of India in the year 1991 at the time when country faced a major economic crisis related to slowdown of economy, external debt and foreign exchange. The book covers the events related to economic reforms process.

The book comprises 18 chapters and divided into three parts. The first part of the book focuses on revisiting pre and Post liberalization and experts have contributed their experiences in different spheres of the economy. The Second part discusses the Fiscal reforms and their implications on different aspects of the economy. The third part is about reforms and challenges in the public sector enterprises covering why has disinvestment taken place in the country and what were the hurdles of the economy during the year 1991 to 2016.

The book covers contribution of renowned policymakers, politicians, academicians, industrialist's, eminent economist and bureaucrats. They contributed their views on India's economic liberalization process and critically highlighted the success and failure of the economy and also identified the future challenges.

In the beginning Mr. Deepak Nayyar discussed that economic liberalization was shaped mostly by the economic problems rather than economic priorities of the people. He further advocated that the highest priorities should be given to the ordinary man so that liberalization can improve their well being.

Mr. Yashvant Sinha and Dr. Vinay K. Srivastava in their Introduction chapter wrote about historical overview of economic reforms. The chapter emphasized on different aspects of economic reforms during three consecutive governments. The editors argued that even after twenty five years, economic reforms are not widely accepted by the people or across the politician's spectrum. They have elaborated the reasons for the same. They have also suggested some key issues which are to be considered on priorities for making the reforms widely acceptable.

Book Review

The chapter contributed by U.K. Sinha on the theme of 25 years of securities market highlighted the important legislation and regulatory body for proper functioning of security market in India. He described the important phenomenon of security market from 1991 to 2015. At the end of chapter important suggestions were also made regarding spot and derivative market in India. C. Rangrajan reflected his experience on the theme of monetary and banking sectors. He elaborated about the institutional framework, financial inclusion, exchange rate, inflation etc. Mr. Sanjay Baru presented an indepth insight into the situation of economic crisis. Mr. Jagdish Prasad and Vinay K. Srivastava discussed about disinvestment as well as provided pros and cons of disinvestment.

This book may be useful for students, academicians and professionals.

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