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# Microstructure Change and the Effective Trading System: The Nigerian Experience

## By Kehinde James Sunday, Ishmael Omah & Moruf Oladimeji

*Lagos State University*

*Abstract -* The Nigerian stock market have operated using the call-over system since inception, however, the call over system of trading was effective in handling the for few market transaction of the time. The emergence of a large trading facility as a result of the privatisation and the commercialisation of the hitherto government stock made the system feeble and unable to handle large transaction in the market, thus, necessitating the macrostructure change to the Automated Trading System (ATS) in 1999. Survey method using structured questionnaire was adopted for the study. It was revealed that the ATS was an effective trading system. The system brings about an efficient settlement system and foster new trading opportunities. It was recommended that to reduce human interference in the market further internationalisation of the market should be encouraged.

*Keywords :* Automated Trading System, microstructure, stock market.

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MICROSTRUCTURE CHANGE ANDTHE EFFECTIVE TRADINGSYSTEMTHENIGERIAN EXPERIENCE

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# Microstructure Change and the Effective Trading System: The Nigerian Experience

Kehinde James Sunday[α], Ishmael Omah[σ] & Moruf Oladimeji[ρ]

*Abstract* - The Nigerian stock market have operated using the call-over system since inception, however, the call over system of trading was effective in handling the for few market transaction of the time. The emergence of a large trading facility as a result of the privatisation and the commercialisation of the hitherto government stock made the system feeble and unable to handle large transaction in the market, thus, necessitating the macrostructure change to the Automated Trading System (ATS) in 1999. Survey method using structured questionnaire was adopted for the study. It was revealed that the ATS was an effective trading system. The system brings about an efficient settlement system and foster new trading opportunities. It was recommended that to reduce human interference in the market further internationalisation of the market should be encouraged.

*Keywords :* *Automated Trading System, microstructure, stock market.*

## I. INTRODUCTION

The trading system in the Nigeria capital market over decades have been done using the call-over or the manual system of trading with it attendant problem of low trading pattern and the system slow transaction system the completion of transaction was also very slow and the system can only handle few activities the call-over system was adjudged to be efficient to the extent of it installed capacity but in the instance of internalisation growth and high liquid market the call over become weak this necessitate the introduction of the automated trading system which in effect bring about a microstructure change in the stock market. The purpose of any microstructure change is to enhance growth in the stock market, to improve the trading system and to improve on the liquidity of the market (murinde, 2006). The objective of this study therefore is to evaluate the effect of the microstructure change (from manual trading system to the automated trading system) on the trading effectiveness in the Nigerian stock market from 1999 to 2011. the question is do microstructure change in the stock of any value in the growth and effective trading system in the stock market.

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Murinde (2006) proposes a theoretical microstructure characteristic model for analyzing institutional changes in the stock market, like the change from the manual trading system to the automated trading system which, is the focus of this study.

The model is based on the importance of examining the micro structure characteristics for the periods before and after the reforms, the institutional changes basically, involved changes in trading system from the manual to the computerized system or the Automated Trading System. It also captures changes in regulation system and expansion in brokerage houses, theoretically different responses are expected in microstructure characteristics as a result of institutional reforms or changes. This could be theoretically summarized in the following table.

*Table 1 :* Microstructure characteristics of the stock market

| | Efficiency | Volatility | Liquidity |
|---|---|---|---|
| 1. changes in trading system | | | |
| (a) call to open outcry floor trading | high | low | high |
| (b)call auction to continuous trading (i.e automated trading) | high | low | high |
| 2. Establishment of market regulation | high | low | high |
| 3. Entry of foreign investors | high | low | high |

*Source : Murinde(2006) Capital market; Roles and challenges.*

Murinde (2006) theoretically expects efficient trading system to emanate from institutional reform (i.e changes from the manual trading system to electronic or the automated trading system). He also expects efficient pricing system or equitable stock pricing system. Moreover, he expects higher (or positive) market liquidity with institutional changes in the stock market.

Conceptually, Murinde (2006) measured market turnover as responsiveness of market capitalization to changes in the number of quoted firms and volume of stock traded.

Furthermore he expects a significant positive relationship between stock market size and liquidity. To ensure market efficiency, the stock market must provide

a vast information exchange, which efficiently reduces transaction costs (Green, Maggioni and Murinde, 2000).

Popovic(2004), states that the growth effect of the automated trading system can be measured by the market liquidity and stock turnover. Market liquidity measures the ease of trade.  Stock Market turnover measures the speed and rate of trade.

Hudak (2005) theoretically opines that the Automated Trading System will enhance automated decision process, discipline, higher consistency in trade result, and automated monitor of trends. He further posits that the automated trading system may not work perfectly using historical data. This is   because historical data produce prices of stock based on past events and trading activity. However, daily price is a function of current market impulse. The buy and sell signals may not be realized due to some other reasons (such as low liquidity, viability etc).To realize the trade, difference in  the ATS signalled price and the available realistic information about the firm must move trade in some  direction, that is, either up or down. Hudak (2005) is of the opinion that an inefficient stock market exists where ATS signal price and the realistic information about the firm are not positively correlated. He argued that an efficient Stock market is that market in which every security (Stock) price equals to its investment value. (i.e. NPV(Net Present Value) of Stock =IV (investment value of stock) at all times (Hudak 2005, Davis Raul 2006, Kulikowski,2006 and  Ricker, 2006).

The foregoing  relationship  can also be implied by the 'fishers separation theorem' which states that the marginal rate of return on investment (stock) equals the market rate (market price of stock) at equilibrium (this implies an   efficient market position (Murinde, 2006).

The stock exchange of Mauritius (2004) has identified the operational advantages derivable from the application of the automated trading system (ATS) which includes electronic matching of orders, internet trading facilities, enhancing internationalization of the stock market. Others are multiple prices for an order, quick order execution prices and volume levels available in real time. Also included are improved market data or information, online report of prices, higher volume of trade   and   index,   online   corporate   reporting, transparency of dealings and fairness in establishing order priority. Conceptually, the automated trading system will also ensure automatic monitor and friendly stock market.

The shift in the trading system from a call-over to an automated trading system is expected to increase market   liquidity   and   enhance   transparency,   thus reducing micro structure costs and volatility (Pageno and Roell, 1996).

Murinde (2006) conducted a study on micro structure theory of the African capital markets in 1999 and discovered that with institutional changes market efficiency improved in NSE (Nigerian Stock Exchange),

NSC (Nairobi stock exchange) , JSE (Johannesburg stock exchange)  and market liquidity also improved, while volatility reduced.

This research is aimed at studying the effects of micro structure characteristics on the institutional change in the Nigerian stock exchange. These microstructure characteristics include market liquidity and market efficiency. The work also studies market turnover, and equitable stock pricing as Oladejo(1999) contends that with institutional changes (for example from call-over system to automated trading system) efficient market system    and  equitable stock pricing should be attained.

## II.    Research Method

The study made use of the survey techniques as most of the variables were rather behavioural; hence, a structured questionnaire was used having twelve related   questions   to   the   effectiveness   of   the microstructure change to the Automated Trading System in the stock market. Tree hundred of this questionnaire was distributed of which two hundred and fifty were collected and only two hundred and twenty five were usable. The questionnaire were distributed to various market players which include brokers, registrars, investors, market analyst, and accountants in the market using the judgmental sampling techniques   since the total populations of the market players cannot be determined. The chi-square method of analysis was equally adopted for the analysis.

*List and key to variables used*

A1:    Effectiveness of the ATS over call-cover system.
A2:    Effectiveness   of   the   ATS   in   the internationalization of the Nigerian capital market.
A3:    Effectiveness of the ATS in equitable allocation of share in the stock market.
A4:    Effectiveness   of   the   ATS   over   human manipulation or factor
A5:    Effectiveness   of   the   ATS   in   enhancing transparency of the stock market.
A6:    Effectiveness of the ATS on improvement to the settlement system reducing delivery time.
A7:    Effectiveness of the ATS on improved quality of brokerage services in stock market.
A8:    Effectiveness of the ATS in continuous trading system in the stock market.
A9:    effectiveness of the ATS on surveillance system in the stock market.
A10:    Effectiveness of the ATS in generating new trading opportunities in the stock market.
A11:    Effectiveness   of   the   ATS   in   encouraging merging    account    between    lenders, and their clients. stockbroking firms
A12:    Effectiveness of the ATS in enhancing lending.

*Table 2 :* Mean Ranking

|  | Mean | Ranking |
|---|---|---|
| A1 (effective trading system | 5.5955 | 1 |
| A6 (effective settlement system) | 5.3955 | 2 |
| A2 (effective internationalization) | 5.2455 | 3 |
| A9 (Effectiveness of the ATS in enhancing effective surveillance service) | 5.0818 | 4 |
| A5 (stock market transparency) | 5.0636 | 5 |
| A 7 (Average brokerage system) | 4.9955 | 6 |
| A3 (equitable allocation system) | 4.9045 | 7 |
| A8 (Effectiveness of the ATS in enhancing continuous trading system | 4.7636 | 8 |
| A10 (new trading opportunities) | 4.6636 | 9 |
| A12 (it does not enhance lending) | 4.6318 | 10 |
| A11 (merging account is not encourage) | 4.600 | 11 |
| A4 (it has not stop human manipulation) | 4.0591 | 12 |

*Source: Field survey analysis (2012)*

a) *Descriptive Statistics*

The mean ranking in table2 revealed the effect of the microstructure change on the effectiveness of the Trading System in the stock market. Generally, most of the variables were averagely agreed on by the respondents (i.e. market participants). It can be seen from table1 that the microstructure change (to Automated Trading System) provoke effective and efficient trading system than the call over system (A1 = 5.37) A1 is most agreed, while the automated trading system (ATS) is effectively free of all human manipulation (A13, mean = 4.05) was least agreed, it was a very low extent variables.

Table 2 also show that the Automated Trading System has brought great improvement to the settlement system reducing delivery time (A6), the ATS is also shown to be effective in the internationalization of the Nigerian stock market (A2), Also the study shows that the ATS has brought about effective surveillance system in the stock market (A9) It also revealed that the ATS fosters efficiency and transparency of the stock market (A5) As their mean were almost in the same range with the ATS considered a more efficient trading system than the call over system (A1)

Oladejo(1999) noted that the use of computer assisted markets surveillance techniques, and the ability of the Automated Trading System to provide accurate audit of all transactions greatly facilitate the increasing demands for all stocks in the exchange and ensure integrity of the market operation. Also, the design of the ATS had taken into account, the need for optimum flexibility to allow the exchange surveillance unit to be proactive in ensuring integrity of the markets. The Automated Trading System is not effectively free of all human manipulation because, just as Ojo(2000) said, there is no difference between pricing of securities in the call over trading system and the ATS. The microstructure change efficiency theory by Murinde(2006) is justified here with most of the variable having average mean (i.e. mean > 0.5) therefore; there exist efficient stock market with introduction of the ATS. Thus the micro structure variable of efficiently is positive (+).

# III. TEST OF HYPOTHESIS ONE USING CHI-SQUARE

*Table 3 :* Chi-Square test

| The effectiveness of the ATS on the Nigerian Stock Market | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  | NEA | VLE | LE | AVT | HET | VHE | TOTAL | $\overline{X^2}$ Cal | $\overline{X^2}$ Crt 0.05 | df | P | Decision Accept |
| 1 | 12 | 8 | 5 | 11 | 12 | 52 |  | 92.12 | 11.07 | 5 | 0.0 | H1 |
| 2 | 18 | 7 | 11 | 5 | 54 | 54 |  | 107.6 | 11.07 | 5 | 0.0 | H1 |
| 3 | 7 | 24 | 19 | 15 | 6 | 29 |  | 25.28 | 11.07 | 5 | 0.0 | H1 |
| 4 | 9 | 26 | 5 | 16 | 6 | 38 |  | 51.08 | 11.07 | 5 | 0.0 | H1 |
| 5 | 14 | 23 | 10 | 15 | 10 | 28 |  | 16.04 | 11.07 | 5 | 0.0 | H1 |
| 6 | 8 | 9 | 8 | 18 | 10 | 47 |  | 70.52 | 11.07 | 5 | 0.0 | H1 |
| 7 | 6 | 7 | 6 | 30 | 7 | 44 |  | 80.36 | 11.07 | 5 | 0.0 | H1 |
| 8 | 4 | 19 | 9 | 10 | 7 | 51 |  | 92.48 | 11.07 | 5 | 0.0 | H1 |
| 9 | 16 | 19 | 5 | 6 | 7 | 47 |  | 76.016 | 11.07 | 5 | 0.0 | H1 |
| 10 | 15 | 24 | 11 | 9 | 8 | 33 |  | 29.36 | 11.07 | 5 | 0.0 | H1 |
| 11 | 13 | 18 | 8 | 8 | 5 | 48 |  | 77.0 | 11.07 | 5 | 0.0 | H1 |
| 12 | 1 | 2 | 6 | 32 | 14 | 45 |  | 97.16 | 11.07 | 5 | 0.0 | H1 |

*Source: Field survey analysis (2012)*

## IV. INTERPRETATION AND DISCUSSION OF FINDINGS

Since the X2 calculated values in all the questions asked is greater than X2 critical  value of 11.07 at 0.05 significant levels. Also using the Friedman chi-square which produced X2 calculated value of 185.873 which is also greater than x2 critical value of 11.07 at 0.05 significant levels, the alternative hypothesis is accepted and the null hypothesis rejected. Thus, it therefore means that the introduction of the ATS to the Nigerian stock bring about effectiveness of the trading system. To a large extent, this findings further confirmed the assertion of Oladejo(1999) and Murinde(2006).

## V. CONCLUSION AND RECOMMENDATION

The following are the conclusions that could be drawn from this study.

The ATS is an effective trading mechanism but has been grossly underutilized.

The activities of strong individuals and institutional   investors have not allowed for equitable Stock Pricing System. It is also revealing that an efficient settlement system and effective surveillance service were achieved with the introduction of the ATS.

The ATS has been subjected to human manipulation   hence making the system biased. It was discovered from the study that the information content of the stock price  is low ,that is, most stock price or value traded at the Nigerian Stock Exchange were not truly reflective of the intrinsic (internal)information  about the firm  this supports the assertion of Murinde (2006) that in  some African countries (e.g. in Zimbabwe) institutional change have not improved intrinsic informational content of the price of Stock traded. It is recommended that the  system should encourage true transparency by eliminating human manipulation of the system, this, can be attained by expanding the scope of trading to regional and international boundaries.

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# In Search of Academic Excellence By Becoming An Effective Leader: A Study of Academic Leadership in Higher Education

By Ireen Akhter & Sharif Mahmudul Haque

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*Abstract -* From the beginning of time, leadership has been one of the most sought after feature in human civilization. A strong leader makes the difference between simple existence and excellence. They inspired others, create vision among the followers, communicate what they want to communicate, show openness, and listen what their followers want to say. These people not only create actual value in others, but also change the society in a holistic way. Now, it is becoming a passion to get an authentic, effective leader in higher educational sector, where students do not want to see their teacher as a teacher only rather they ask for something more.

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Ireen Akhter [α] & Sharif Mahmudul Haque [σ]

*Abstract -* From the beginning of time, leadership has been one of the most sought after feature in human civilization. A strong leader makes the difference between simple existence and excellence. They inspired others, create vision among the followers, communicate what they want to communicate, show openness, and listen what their followers want to say. These people not only create actual value in others, but also change the society in a holistic way. Now, it is becoming a passion to get an authentic, effective leader in higher educational sector, where students do not want to see their teacher as a teacher only rather they ask for something more.

The objective of this research was to identify a number of attributes/qualities of a teacher perceived as most important by students at tertiary level. These attributes/qualities will make him a leader of a group of followers, a group of students, which then make him an excellent teacher. Data of 280 students were assimilated to come to the findings. The authors found 15 most important qualities identified by students among 111 qualities identified by the authors, which should be poses by all teachers to be a good leader. As leadership is not science, part of social science, there is further scope for research in private tertiary level, as well as other educational sector to make it more authenticate.

*Keywords : Academic Leader, Leadership, Qualities, Attributes.*

## I. INTRODUCTION

From the beginning of time, leadership has been one of the most sought after feature in human civilization. Human beings seek dynamic, revolutionary, confident, and passionate leaders. A strong leader makes the difference between simple existence and excellence. A capable leader carries a nation to unimaginable heights (Akhter, et al. 2005).

Education is essential for the future of society, and our role in this future is that of competent leaders of education (Dale, 2011). Now, it is becoming a passion to get an effective leader in education sector. And it is becoming more and more important in tertiary education where students do not want to see their teachers as a teacher only rather they ask for something more. When

a student enter in higher education at the age of 18 s/he desire to have good person(s) besides them who will act not only as a teacher but also as a leader, as a mentor. Sometimes they will give feeling of their parents as some of them stay away from their parents. Buchen (2000) argues that the only leadership that will make a difference is that of teachers. Today, an increasing number of colleges and universities worry about students' development of values and habits of mind. Whether designated leaders or not, they develop a sense of personal commitment, move beyond themselves to relationships with others in ways that galvanize their commitment to a common purpose (Larry and Jon, 2008). This article mainly tried to find out the most important qualities of a teacher by which s/he is consider as an excellent teacher as well as an effective, authentic leader to her/his followers, a group of students, who again become a leader in her or his own areas in future.

## II. OBJECTIVES

To gain knowledge about the leadership qualities of an effective teacher at tertiary level. In particular, to find out the leadership qualities/traits those are most important for a teacher from in the eyes of students besides excellence in teaching, which will make him an effective leader. In specific, to find out-

- a list of qualities, which are normally posses by leaders.
- a list of leadership qualities, which are most important for an effective teacher.

## III. RESEARCH METHODOLOGY

### a) Data Collection Method

This is mostly an explorative study. Both primary and secondary data have been used for the purpose of this study. The authors first prepare a list of qualities (111) normally posses by leaders. This list (Table 2) was developed after rigorous exploration of different books, journals, publications, and web based papers. Then with the help of academicians, the author listed 30 (Annexure-II) most important and related qualities of a teacher at tertiary level from those 111 qualities. In this case the authors conducted a focus group discussion with few faculty members of tertiary level. To collect

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primary data, a group of students (280) were asked to identify 15 most important qualities (from those 30 qualities) which should be posses by academicians when they perform their regular activities. For the purpose of this research, the study only focused on the leadership qualities of a teacher.

b) *Sampling Plan and Sample Size*

Sampling Plan and Sample Size: A stratified random sampling survey was adopted for selecting students from different institutes\departments at masters' level. It is assume that the result will be more accurate as the students of master's level are quite mature and stable. 280 students were selected randomly from the following 7 institutes/departments of Jahangirnagar University:

*Table 1 :* Name of Institute/Departments and number of students interviewed:

| Sl. | Institutes/ Departments | Students Interviewed | % of Sample |
|---|---|---|---|
| i. | Anthropology | 40 | 14.29 |
| ii. | Archeology | 40 | 14.29 |
| iii. | Economics | 40 | 14.29 |
| iv. | Geography and Environment | 40 | 14.29 |
| v. | Govt. and Politics | 40 | 14.29 |
| vi. | Institute of Business Administration | 40 | 14.29 |
| vii. | Statistics | 40 | 14.29 |
| | TOTAL | 280 | 100.0 |

## IV. LITERATURE REVIEW

a) *What is Leadership*

The desire to understand, defines, and explains the essence of leadership has interested researchers and scholars for most of the twentieth century. Though thousands of studies have been published in the last several decades alone, the term "leadership" did not come into usage until the late 19th Century. The words "lead" and "leader" have a much longer history, however, they usually referred only to authority figures (Curtis, 1998). The topic of breakthrough leadership was the subject of the first special issue in the Harvard Business Review's seventy-nine year history (Bowmen & Garten, 2008). Today, scholars discuss the basic nature of leadership in terms of the "interaction" among the people involved in the process: both leaders and followers (Rost, 1991). In truth, leadership exists as part of a duality: Leaders forge and sustain relationships with followers (Goffee & Jones, 2001) who intend real changes that reflect their mutual purposes (Curtis, 1998)

and the essence of leadership is not the leader, but the relationship (Rost, 1993). Rost's (1991) contemporary definition is composed of four basic components, each of which must be present if a particular relationship is to be called leadership. (1) if it is based on multidirectional influence, not based on authority; (2) both leaders and followers are doing leadership; (3) leaders and followers intend real changes; and (4) the changes reflect their mutual purposes.

Leadership is an important dimension of management whose presence and existence depends on several skills of a group of people (Bennett and Anderson, 2003). Leadership excellence requires being in touch with one's mental, emotional, physical, and spiritual aspects including one's values, talents, personality, and self-image (Nahavandi, 2000), passions (Vicere & Fulmer, 1997), intellect, competencies, personal aspirations, and family and community life (McCauley, Moxley, & Velsor, 1998). Effective leaders understand themselves, learn to set personal goals, and work to achieve those goals through their self-selected plans and abilities (Kouzes & Posner, 1993).

b) *What should be hold by a Leader*

Leadership is a process to develop one as a leader. This is happen by personal development which discovers who we are, as well as what skills we possess (Bennis, 1989). Not all leadership roles are fixed. Someone might act as a mentor one week and then assume the role of innovator with a unique proposal the following week (Gabriel, 2005). Authentic leaders are more agile in their behavior, more effective in decision making, clearer about motivations and expectations of others, and more flexible in adjusting to new situations (Lee & King, 2001). Again, authentic leaders see themselves as stewards of the assets they inherit and servants of all their stakeholders (George, 2003).

Certain skills are necessary in order to remain authentic as a leader which makes them more flexible and confident in their approaches to goal achievement (Lee & King, 2001). Like skills traits are also important for leadership. According to Davis and Newstrom (2003) some common leadership traits are: visionary, experts and knowledgeable, mentors, patient, organizer, charisma, thinkers, listeners, sensors, good communicator, and self–confidence.

Kouzes and Posner (2007) developed a survey name 'The leadership practices inventory' that asked people which, of a list are common characteristics of leaders. The results of the study showed that people preferred characteristics, such as honest, forward-looking, competent, inspiring, intelligent, fair-minded, broad-minded, supportive, straightforward, dependable, cooperative, determined, imaginative, ambitious, courageous, caring, mature, loyal, self-controlled, and independent.

In recent years the new competencies of leadership such as sense making, ability to deliver, inter organizational representation, has been known as one of the effective leadership qualities. It is composed of four dimensions: ideal influence, inspirational motivation, intellectual stimulation and individualized consideration (Storey, 2004). Now, a good number of educational institutes giving increasing importance on leadership learning. A recent study by Howe and Freeman (1997) shows that an increasing number of institutions of higher learning are now offering programs that prepare students for leadership.

### c) What qualities should be hold by a Teacher

Much has been written over the years about the centrality and importance of 'academic leadership' to the success of higher education (Committee of Inquiry into Higher Education Management, 1995). Although the options for leadership are varied, there are a number of qualities that leaders have in common. Many of these characteristics are seen in effective teachers, which might be why people gravitate toward them and why they seek leadership positions. In some texts (e.g., Leaming, 1998; Gmelch & Miskin, 1993; Hecht, et al., 1999) the term 'academic leadership' has been used to describe a collection of tasks or functions performed by individuals appointed to formal positions of responsibility within universities. In other texts, the term is used to describe the qualities or characteristics of particular individuals who are recognized by others as being academic leaders (e.g., Fisher & Koch, 1996; Ramsden, 1998). In yet others, the term is used to describe anyone who holds an academic appointment. In such texts (e.g., Trowler, 1998; Taylor, 1999), all academics are considered to be academic leaders as they are assumed to be at the forefront of their discipline, and active in the definition of future directions and strategies within their academic programs and research.

During a brainstorming exercise in the Department of Education at Winona State, faculty members identified more than fifty discrete roles and leadership demands central to key aspects of the Department's daily operations (Bowman, 2002). Rice (2003) in a meta-analysis focused on empirical studies of teacher quality and qualifications, and found five broad categories of teacher attributes that appear to contribute to teacher quality: (i) experience, (ii) preparation programs and degrees, (iii) type of certification, (iv) coursework taken in preparation for the profession, and (v) teachers' own test scores. Cruickshank, Jenkins & Metcalf (2003) when define effective teaching include caring, supportive, concerned about the welfare of students, knowledgeable about their subject matter, able to get along with parents and genuinely excited about the work that they do.

According to Gabriel (2005) the following are some common traits found in the teachers: principled,

honest and ethical, organized, perceptive, empathetic and supportive, altruistic, accessible, resourceful, fair, accepting, vulnerable, forward-thinking, global, decisive and incisive, and intelligent. Glenda (2008) in his writing Characteristics of a good teacher identified seven characteristics to have to be a good teacher. These are communicates knowledge, flexibility and tolerance, sense of detachment, creativity and humor, listener, patient yet firm, and set good example. According to Alex Landis (2011), the important twelve characteristics of a teachers are love what they do, good communicators, admirable, positive reinforcement, fair & just, leadership, committed, understanding, compassion & caring, confidence, prepared, professionalism.

Teaching is a career that provides challenges, excitement, personal reward and a chance to encourage and support others to achieve their goals. John Hattie (2003) identified five major dimensions of excellent teachers. Expert teachers: (i) can identify essential representations of their subject; (ii) can guide learning through classroom interactions; (iii) can monitor learning and provide feedback; (iv) can attend to affective attributes; and (v) can influence student outcomes. Different authors define academic leadership within different outlook. In this article the scope of academic leadership will be strictly relate with the people who is directly relate with teaching profession in tertiary level.

## IV. Findings and Analysis

First, from the secondary survey the authors identified thirty most important qualities of a teacher which are also important for a leader. Secondly, the authors asked respondents to identify 15 most important qualities of a teacher from those 30 qualities identified by authors, to come to conclusion. Interestingly, nine qualities (Table-3) have been supported by 100% of respondents in the sample.

Besides those nine qualities identified by students as most important qualities, students preference against other six qualities (Table-4) have been ranked. 65.71% students prefer knowledge (Table-4) as 10th quality of a teacher. Other five qualities among first fifteen are integrity, confidence, accessibility, patience, and dedication. Here, patience and accessibility got same importance (42.86).

The other 15 qualities depending on the preference of the respondents have been ranked (Table-5). Creativeness, discipline, dynamism, flexibility, organizing, insightfulness and responsibility scored lowest in this ranking. Accessibility and patience (42.86) got same ranking (13). Determination, involvement, and personality (28.57) got same ranking (17). Flexibility and insightfulness (17.14) got same ranking (21). And Dynamism and organizing (14.29) got same ranking (22). Details have been included in Annexure-II.

Students look for certain qualities/traits in teachers. When a student enters into a tertiary level, s/he

perceives his/her teacher as more than a teacher. It varies with the type of educational institute and the subject s/he studies. Definitely students of science discipline perceive their teacher in different ways than students of arts discipline.

*Table 2 :* 111 qualities of leaders

| Sl | Qualities | Sl. | Qualities | Sl. | Qualities | Sl. | Qualities |
|---|---|---|---|---|---|---|---|
| 1 | Accessibility | 29 | Dignify | 57 | Inspiration | 85 | Punctiliousness |
| 2 | Adventure | 30 | Diplomat | 58 | Integrity | 86 | Punctuality |
| 3 | Affection | 31 | Discipline | 59 | Intelligence | 87 | Quietness |
| 4 | Altruism | 32 | Diversity | 60 | Interaction | 88 | Realism |
| 5 | Ambition | 33 | Dynamism | 61 | Interest | 89 | Regularity |
| 6 | Aspiration | 34 | Efficiency | 62 | Intransigence | 90 | Reliability |
| 7 | Calmness | 35 | Empathy | 63 | Invincibility | 91 | Reliance |
| 8 | Candour | 36 | Energy | 64 | Involvement | 92 | Resource |
| 9 | Care | 37 | Enthusiasm | 65 | Judgment | 93 | Respect |
| 10 | Charisma | 38 | Experience | 66 | Kind | 94 | Responsibility |
| 11 | Cheerfulness | 39 | Extrovertness | 67 | Knowledge | 95 | Revolution |
| 12 | Communication | 40 | Faith | 68 | Listen | 96 | Rightness |
| 13 | Compassion | 41 | Flexibility | 69 | Loyalty | 97 | Riskiness |
| 14 | Competence | 42 | Focus | 70 | Maturity | 98 | Robot |
| 15 | Comprehension | 43 | Friend | 71 | Modesty | 99 | Sensible |
| 16 | Confidence | 44 | Frugality | 72 | Motivation | 100 | Seriousness |
| 17 | Conformity | 45 | Generousity | 73 | Optimism | 101 | Sincerity |
| 18 | Consciousness | 46 | Global | 74 | Orator | 102 | Spirituality |
| 19 | Consideration | 47 | Grate | 75 | Organizing | 103 | Support |
| 20 | Constructiveness | 48 | Hard-work | 76 | Passion | 104 | Sympathy |
| 21 | Cooperation | 49 | Honesty & Trustworthy | 77 | Patience | 105 | System |
| 22 | Courage | 50 | Humanism | 78 | Persistence | 106 | Thoughtfulness |
| 23 | Courtesy | 51 | Humbleness | 79 | Personality | 107 | Thrift |
| 24 | Creativeness | 52 | Humour | 80 | Persuation | 108 | Tolerance |
| 25 | Dedication | 53 | Imagination | 81 | Planning | 109 | Toughness |
| 26 | Deliberation | 54 | Independence | 82 | Politeness | 110 | Unpretentiousness |
| 27 | Determination | 55 | Innovation | 83 | Positiveness | 111 | Vision |
| 28 | Devotion | 56 | Insightfulness | 84 | Practicality | | |

*Table 3 :* Most important qualities of a teacher

| Sl | Criteria | No. of respondents | Percentage (%) | Quality Accepted by All |
|---|---|---|---|---|
| 1 | Communication | 280 | 100.00 | √ |
| 2 | Competency | 280 | 100.00 | √ |
| 3 | Honest & trustworthy | 280 | 100.00 | √ |
| 4 | Humanism | 280 | 100.00 | √ |
| 5 | Intelligence | 280 | 100.00 | √ |
| 6 | Judgment | 280 | 100.00 | √ |
| 7 | Motivation | 280 | 100.00 | √ |
| 8 | Support | 280 | 100.00 | √ |
| 9 | Vision | 280 | 100.00 | √ |

*n=280*

*Table 4 :* Other Important Qualities of a Teacher (40%<S<100%)

| Sl | Criteria | No. of respondents | Percentage (%) | Ranking of other qualities |
|---|---|---|---|---|
| 10 | Accessibility | 120 | 42.86 | 13 |
| 11 | Confidence | 128 | 45.71 | 12 |
| 12 | Dedication | 112 | 40.00 | 14 |
| 13 | Integrity | 136 | 48.57 | 11 |
| 14 | Knowledge | 184 | 65.71% | 10 |
| 15 | Patience | 120 | 42.86 | 13 |

*n=280, S=Students*

*Table 5 :* Other Important Qualities of a Teacher (20%<S<40%)

| Rank | Criteria | No. of respondents | (%) | Sl. |
|------|----------|--------------------|-----|-----|
| 15 | Global | 104 | 37.19 | 20 |
| 16 | Resourcefulness | 96 | 34.29 | 23 |
| 17 | Determination, Involvement, & Personality | 80 | 28.57 | 16, 21, 22 |
| 18 | Devotion | 72 | 25.71 | 17 |
| 19 | Empathy | 64 | 25.71 | 19 |
| 20 | Diplomat | 56 | 20 | 18 |
| Other Important Qualities of a Teacher (0%<S<20%) | | | | |
| 21 | Flexibility, & Insightfulness | 48 | 17.14 | 27, 28 |
| 22 | Dynamism, & Organizing | 40 | 14.29 | 26, 29 |
| 23 | Discipline | 32 | 11.43 | 25 |
| 24 | Responsibility | 24 | 8.57 | 30 |
| 25 | Creativeness | 16 | 5.71 | 24 |

n=280, S=Students

However, there are some traits or qualities which are common to all. For example, honesty, humanity, intelligent, etc. Students of all discipline in the sample identified nine most important qualities, for which they are 100 percent agreed. The most important fifteen qualities identified by respondents are discussed below:

Communication: Good communication skills are a must for a teacher. This skill involves speaking, listening and watching. With regard to speaking, the teacher has to be able to deliver the subject in a voice manner that will generate interest and response from the student. At the time of listening students should give the opportunity to construct questions they may wish to ask or to give an opinion. And by watching students, good teachers will be able to notice if any are being left behind in the learning process, or if confusion is arising (Lines, 2008).

Competency: Competency is the total package of one's ability to conduct his/her task in an effective and efficient manner. Competent teachers encourage active learning. By staying active in an array of professional, legal, ethical, political and policy activities related to the subject being taught, students learn to be professionals in the broadest meaning of the term (Rodgers, et. al. 1997).

Honesty and trustworthy: People want leaders who are honest, whose words are dependable, who are open, who are not always hiding the true reality of a situation from those they lead and who are genuine (Millard, 2008). In higher educational sector students want to have not only a teacher but an honest mentor. Because the sensitivity of the beneficiaries and the lead players in higher education system considering the nature of their tasks, calls for more attention to be paid to the observation of moral and human coeds (Noorshahi & Sarkhabi, 2010).

Humanism: People behave according to certain principles of human nature and human needs are an important part of human nature. Values, beliefs, and customs differ from country to country and even within group to group, but in general, all people have a few basic needs. In educational sector when it consider about a teacher it must about qualities which is not non-human in nature. As a leader, a teacher need to interact with his/her students and to understand and motivate them, to know human nature is must. However, human nature is the common qualities of all human beings.

Intelligence: Intelligence is the ability to learn and apply what has been learned. To develop intelligence one need to commit to continual learning–both formally and informally (Suryavanshi, 2011). Robert Sternberg (1997) adds further that it involves the ability to adapt to the environment, or modify the environment, or seek out and create new environments. Different researchers have identified different components of intelligence. Sternberg (2000) focuses on just three main components: practical intelligence, experiential intelligence, and componential intelligence.

Judgment: Unlike decision-making, judgment is a continuous process, from inception to execution (Hoeffner, 2008). Unlike leaders, teacher's judgment plays a crucial role. Judgment about right and wrong is sometimes related with the future of students (Tichy and Bennis, 2007). That's why a teacher's behavior must be consistent, which can be achieved through setting applying equality. Teachers should treat their students equally, yet giving them the individual attention they need (Landis, 2008).

Motivation (inspiring): The inspirational leader understands that, while money is a motivator, so are praise, recognition, rewards and noticing an individual's contribution to a successful attempt (Heathfield, 2012). Good teachers try to motivate students by working within their own incentive system. Teachers who know their students' likes, dislikes, problems and personal issues are more likely to be able to "push the right button" and motivate students to learn (Rodgers, et. al., 1997).

Support: A supportive leader assists others emotionally, socially, and instructionally, and forges connections with them (Gabriel, 2005). The 6th century B.C. Chinese philosopher Laozi suggested that enlightened leadership is service, not selfishness. The leader places] the well-being of all above the well-being of self alone (Millard, 2008). Cruickshank, Jenkins, &

Metcalf (2003) reported that effective teachers are supportive of students in multiple ways and help to meet their needs for belonging and success.

Vision: Actually, the whole point of leadership is figuring out where to go from where we are now. When people do not consider their leader forward-looking, that leader is usually suffering from one of two possible problems: The leader doesn't have a forward-looking vision, or the leader is unwilling or scared to share the vision with others (Suryavanshi, 2011). Students need to know that a teacher has a strong vision for the future and a strong plan for going forward.

Knowledge: Knowledge brings respect. When a teacher is knowledgeable, his students will have a high respect and esteem for him. This is because they already know that their leader is capable of providing solution to their problems. They will see him as the brain behind the success. It may be reverse when a teacher knows little and it may lead to lack of respect.

Integrity: Integrity is the integration of outward actions and inner values. A teacher of integrity can be trusted because he or she never changes direction from inner values. A person of integrity acts as a powerful model for people to copy thus builds an effective cultural values (Bennis, 1989). Honest dealings, predictable reactions, well-controlled emotions, and an absence of tantrums and harsh outbursts are all signs of integrity.

Confidence: In order to lead and set direction a leader needs to appear confident as a person and in the leadership role. A teacher can't teach without confidence. Students won't believe in a teacher that first doesn't believe in there-self. Great teachers are confident that they know how to teach, and in what they are teaching (Landis, 2008).

Accessibility: Accessibility requires an intention to be available to others, whether holding regular office hours, having a public presence in a community, or simply regularly returning phone calls and emails. These types of leaders are transparent and reveal themselves without inhibition. Teachers obviously should be accessible during contract hours. But because the nature of the job demands that teachers often take their work home, they should be accessible after hours as well (Gabriel, 2005).

Patience: Teachers need to be patient, but they also need to be firm. Patience is a part of being firm. If a teacher does not remain firm on some set boundaries in the classroom, students usually retaliate through behaviors. Patience comes in giving students time to absorb the reality of boundaries. Firmness is in correcting the student through reminders (Glenda 2008).

Dedication: Dedication means spending whatever time and energy on a task is required to get the job done (Bennis, 1989). There is no doubt that a great teacher is dedicated. They go above and beyond the time requirements of a typical teacher, and are willing to help students whenever they need it. They are very dedicated to the curriculum they teach, and continue learning in the hopes of becoming even better teachers.

## VI.    CONCLUSION

Excellence in teaching is expected by everyone. However, excellence in teaching is not just good technique. People give importance on different attributes/qualities of a teacher to be excellent depending on their own judgment. This judgment varies from person to person, country to countries. It depends on persons own values, norms, customs, ethics, culture, etc. These attributes are sometimes same regardless of countries boundary. These attributes/qualities make a teacher a leader. Bennis (2002) contends that "leadership is not a science. It's not a recipe. It's not the five rules about this or the six effective habits of that. It is an art". It is mainly part of social science. It is important for a teacher to act as a leader, as a mentor and in doing so the required qualities do not need to be of magnificence or not about doing something out of world. It should be noted that teachers are actually of the students, by the students and for the students.

The insights about the fifteen characteristics revealed by the study are mere indication of a 'profile of preference of trait/qualities', perceived by students of different discipline. We tried to portray that. The degree of importance of qualities sometimes varies depending on the discipline (science, arts, and business). At the same time, there are many external factors which influence the teachers and create discrepancy between the teachers' desired/ expected behavior and overt behavior. For example, the administrative complexity of the institution; resource, time and support available to the teacher; explicit teaching policy of the institution and a lot more things can be addressed. However, common qualities are common to everyone. Teacher's qualities not always depending on teachers' own state of art. Situational factors are also play an important role here. As a teacher it is of utmost importance that one tunes her/his leadership skills and **find the best** style of teaching for the students they are teaching.

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# Are Our Universities a Prey to Defensive Communication Climate: A Comparative Study of Public and Private Sector?

By Munazza Ambreen & Prof. Dr. Rehana Masrur

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*Abstract -* The present study aimed to analyze the pervasiveness of defensive communication climate in higher education institutions in Pakistan. In this regard an attempt was made to investigate the six elements of defensive communication climate in the higher education institutions in Pakistan. The study also taken into account the differences between public and private sector institutions, with regard to extent up to which defensive communication climate prevails in these institutions. For the present study 5 public and 3 private sector universities located in Rawalpindi and Islamabad were selected as the sample clusters. From the selected universities 20% of the faculty members of each department were taken as respondents / sample. For collection of data adapted form of Communication Climate Inventory and informal Interviews were used. Data analysis revealed that on the whole there was a considerable extent of defensive communication climate in public sector universities.

AREOURUNIVERSITIESAPREY TODEFENSIVE COMMUNICATION CLIMATEACOMPARATIVE STUDY OF PUBLIC AND PRIVATE SECTOR?

Strictly as per the compliance and regulations of:

# Are Our Universities a Prey to Defensive Communication Climate: A Comparative Study of Public and Private Sector?

Munazza Ambreen[α] & Prof. Dr. Rehana Masrur [σ]

*Abstract* - The present study aimed to analyze the pervasiveness of defensive communication climate in higher education institutions in Pakistan. In this regard an attempt was made to investigate the six elements of defensive communication climate in the higher education institutions in Pakistan. The study also taken into account the differences between public and private sector institutions, with regard to extent up to which defensive communication climate prevails in these institutions. For the present study 5 public and 3 private sector universities located in Rawalpindi and Islamabad were selected as the sample clusters. From the selected universities 20% of the faculty members of each department were taken as respondents / sample. For collection of data adapted form of Communication Climate Inventory and informal Interviews were used. Data analysis revealed that on the whole there was a considerable extent of defensive communication climate in public sector universities. But very interestingly some of the elements of defensive communication climate for example neutrality, strategy and evaluation were present to a significant extent in private sector universities as well. Majority of the respondents pointed out that elimination of defensive communication climate was crucial for assuring quality in the higher education institution. Therefore no- defensive communication climate be established, strengthened and maintained to gear efforts towards quality assurance and enhancement. It was suggested that seminars and forums be organized to discuss the issue and action oriented research be conducted to find out the factors creating defensive communication climate.

*Keywords :* *Communication Climate, Manager, Higher Education Institutions, Public and Private Sector.*

## I. Introduction

Communication plays very critical role in an organization. It works as life blood and not only the success but even survival of an organization is not possible if no communication occurs in the organization ( Zalabak, 2002, Bovee, Thill and Schantzman, 2003, Hynes, 2005). Tim and Detienne (1995) argued that communication breathes life into managerial functions and managers spend 90 % of their workday in communicating. In an organization all the communication events as perceived by the members of the organization create communication climate. Communication climate plays a pivotal role in determining the effectiveness of an organization and for pro-motive and positive interaction among members of an organization it is important to create an effective communication climate Rutenbeck (2006). This critical but invisible phenomenon is not easy to be defined. Zalabak(2002) defines communication climate as when communication occurs between mangers and employees or between employees, individuals evaluate this communication, develop beliefs about it, and these collective beliefs, expectations and values regarding communication are called communications climate. According to him communication climate is a subjective reaction to organization members' perception of communication events. Organizational climate and communication climate are not the same things rather communication climate is the part of organizational climate Guzley (1992). Allder (2006) describes communication climate from another angle when he argues that it is emotional "atmosphere" between speaker and audience -created by the way the speaker addresses his audience and vice versa. Buchholz (2001) defines communication climate as the internal environment of information exchange among people through an organization's formal and informal networks. He adds that if the information flow is free there is an open communication climate in the organization and communication climate is closed when information is blocked.

According to Jack Gibb as cited in Beck (1999) communication climate lies on a continuum from defensive to supportive. According to him in a defensive climate the speaker intimidates the listener which ultimately results in cautious and withdrawn of the listener.

Gibb expanded his discussion about climates with the help of six polarities of defensive communication climate that are: Evaluation; Control; Neutrality; Strategy; Superiority and Certainty (Beck, 1999, Wood, 2007).

Pervasiveness of defensive communication climate is a threat for any organization because this sort of communication climate results in lack of interaction between manager and employees and among the

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employees themselves which ultimately leads towards an ineffective; unsupportive and non cooperative organizational culture. Guffey (1997) believes that closed or defensive communication climate acts as a powerful communication barrier, in this type of communication climate employees receive little organizational news and they feel devalued. Buchholz (2001) supports theses views and further argues that defensive communication climate is undesirable as it results in lost business, damaged reputations and general unhappiness.  He argues that research evidence shows that an absence of defensive communication climate enhances human relationships, resulting in increased morale and productivity. Zalabak (2001) also supports the notion that communication climate affects the employees and resultantly the organization in many ways by arguing that it is closely tied to morale, job satisfaction and actual organizational effectiveness.

As presently, we are living in an era where knowledge has become the key driver of social, economic and political development. No nation can dream to march forward without creation, utilization and diffusion of knowledge. (Rahman, 2008; Hussain, 2008). Higher education institutions are mainly responsible for this task and quality higher education is the solo incubator for knowledge economy and socio-economic progress. As a result the institutions of higher education across the world are striving to achieve or improve quality. In order to develop a quality culture in higher education and to improve the standards of quality in academic activities, Higher Education Commission Pakistan has developed procedures and guidelines for quality assurance in the higher education institutions and the variables considered for this process are students, faculty staff, governance, infrastructure, facilities and funding. In this context the communication events of the organization and particularly communication climate also play a significant role. Sufficient empirical support is available to prove that supportive communication climate leads towards many positive organizational outcomes. A study on 'communications climate, job satisfaction and organizational commitment' conducted by Trombetta (1998) found a positive relationship between communication climate and job satisfaction. A significant correlation was found between communication climate and organizational commitment. Costigan and Schmeidler (2001) studied the elements and impacts of supportive and defensive communication climate and argued that communication climate in any organization is a key determinant of its effectiveness. Organization with prevalence of defensive communication climate would result in demoralization of the employees and communication barriers. It is therefore necessary that organizations should take necessary considerations to judge if any element of

defensive communication climate exists in the organization so that the same can be addressed and steps can be taken to stop the prevalence of the defensive communication climate.  The present study is an attempt in this regard which aims to explore the pervasiveness of defensive communication climate in higher education institutions in Pakistan.

## II. OBJECTIVES OF THE STUDY

The study was designed to achieve the following objectives
i.   To investigate the pervasiveness of communication climate in the higher education institutions.
ii.  To measure the difference between defensive communication climates of public and private sector universities of Pakistan.
iii. To highlight the perceived antecedents and consequences of defensive communication climate with special reference to institutions of higher education in Pakistan.

## III. NULL HYPOTHESIS

In order to achieve objective no 2 and 3 following null hypotheses were constructed

1.  There is no significant difference between mean scores of the faculty of the public and private sector universities on evaluation dimension of defensive communication climate in the organization.
2.  No significant difference is there between mean scores of the faculty of the public and private sector universities on Control dimension of defensive communication climate in the organization.
3.  There is no significant difference between mean scores of the faculty of the public and private sector universities on Neutrality dimension of defensive communication climate in the organization.
4.  No significant difference is found between the mean scores of the faculty of the public and private sector universities on Superiority dimension of defensive communication climate in the organization.
5.  There is no significant difference between mean scores of the faculty of the public and private sector universities on Strategy dimension of defensive communication climate in the organization.
6.  Mean scores of the faculty of the public and private sector universities on Certainty dimension of defensive communication climate in the organization do not differ significantly.

## IV. METHODOLOGY

Population of the study comprised of all the public and private sector universities of Pakistan. For selection of representative sample cluster random sampling technique was used and 5 public and 3 private sector universities located in Rawalpindi and Islamabad were selected. From these selected

universities 20% faculty members. Two instruments for data collection were used, adapted form of communication climate inventory, developed by Costigan and Schmeildler in 1984, and informal interviews. Reliability coefficient of the adapted inventory was found to be .822 which indicated that the instrument was quite reliable.

Data were collected through personal visits of the researcher to sample universities. For interpretation of data, both descriptive and inferential statistics were used. In order to compare the views of faculty members from public and private sector universities, t-test for independent samples was used.

## V. FINDINGS AND CONCLUSIONS

In order to compare the perceptions of the faculty members from high ranked and low ranked universities t test was used. The result of the data is shown in the following table:

*Table 1* : Significance of difference between mean scores of faculty members from public and private sector universities regarding different dimensions of defensive communication climate

| Statements | Respondents | N | Mean | S.D | $SE_D$ | t | p |
|---|---|---|---|---|---|---|---|
| Evaluation | Group A | 91 | 2.57 | .69 | .18 | .669 | >.05 |
|  | Group B | 74 | 2.69 | .71 | | | |
| Control | Group A | 91 | 4.07 | .49 | .52 | 3.38 | <.05 |
|  | Group B | 74 | 3.83 | .44 | | | |
| Neutrality | Group A | 91 | 2.16 | .84 | .22 | 1.79 | <.05 |
|  | Group B | 74 | 1.77 | .81 | | | |
| Strategy | Group A | 91 | 3.91 | 1.29 | .13 | .573 | >.05 |
|  | Group B | 74 | 3.70 | 1.28 | | | |
| Superiority | Group A | 91 | 3.85 | .44 | .04 | 6.10 | <.05 |
|  | Group B | 74 | 3.46 | .35 | | | |
| Certainty | Group A | 91 | 3.90 | .44 | .06 | 2.03 | <.05 |
|  | Group B | 74 | 3.73 | .63 | | | |

df= 163    Critical value at 0.05=1.64

Group A : faculty members from Public sector Universities
Group B : faculty members from Private sector Universities

The table indicates that there was no significant difference found between the views of the faculty members of public and private sector universities on evaluation dimension of the defensive communication climate. Whereas perceptions of the faculty members of public and private sector universities were found to be significantly different on control, superiority and certainty dimensions of the defensive communication climate within the organization. A non significant difference between the views of faculty members of public and private sector universities was found on the strategy dimension of the defensive communication climate.

The above findings indicate that null hypothesis no 1 and 5 were accepted whereas null hypothesis no 2, 3, 4 and 6 were rejected in favor of faculty members of the public sector universities.

### a) Conclusions

Based upon the data collected through Communication climate inventory and informal interviews following conclusions were drawn.

- Both in public and private sector universities managers tend to focus upon evaluation more than description. This means that employees are judged, and questioned frequently by the manager as a result they feel reluctant to disclose their ideas and information.

- Communication climate in public sector universities was found control oriented which is characterized by manipulating others and imposing the manager's point of view upon employees.

- Academic managers of the public sector universities were found to be more neutral and less empathetic in their communication. Neutral massages shows lack of interest regard and care. (Gibb 1961; Beck 1999; Wood 2007) and the employees fee devalued which ultimately leads towards negative feelings about the managers in particular and the employees in general.

- Both in public and private sector universities, the faculty members believed that strategic massages were common in the communication patterns which refer to deceiving or misleading behavior.
- Public sector universities were found to be more inclined towards a communication climate characterized by superior-inferior nature. A defensive communication climate is created when manager conveys the massage that he/she is more knowledgeable, important, intelligent and superior than the other persons involved in the dialogue. This makes the employees reluctant to self disclosure resulting in defensive communication climate.
- Communication climate of the public sector universities were found to have certainty as a more prevailing element as compared to private sector universities. When certainty is there in communication massages, the managers tend to believe that they are always right, they have low tolerance for ideas that disagree with theirs. (Beck, 1999)

## VI.    RECOMMENDATIONS

On the basis of conclusions following recommendations were made:

- Action oriented research be conducted to identify the factors contributing towards the establishment of defensive communication climate in higher education institutions.
- Seminars and workshops be organized to highlight the significance of communication climate and the ways to foster non-defensive communication climate in all organizations in general and in higher education institutions in particular.
- Attention be given to other communication factors for example usefulness of communication technologies, new communication channels and communication styles of the managers and employees of higher education institutions.
- Skills required for non-defensive communication climate be taught to the managers of higher education and opportunities be given to practice these skills.

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# Competitve Advantage of Investment Avenue in Reliance Money

By Er. Vipin Mittal

*Indus Institute of Engineering & Technology*

*Abstract -* This report does a Comparative Analysis of different Financial Products of the Reliance Money company with its nearest competitor and develops a Hypothesis for the same to check if there is any advantage of Investment Avenue in Reliance Money.

1. Equity : In Equity Trading, the nearest competitor of Reliance Money is ICICI. The methodology employed for comparison is Factorial Design (Two-way ANOVA) under Statistical Hypothesis.

Here, the Null Hypothesis (H01) is accepted which states that Profits generated using Tips & Techniques of Reliance Money in equity market are equal to the profits generated using Tips & Techniques of ICICI Securities. It signifies an excellent performance of the company in this competitive market.

*GJMBR-B Classification :* FOR Code: 150205 JEL Code: G31



COMPETITVEADVANTAGEOFINVESTMENTAVENUEINRELIANCEMONEY

*Strictly as per the compliance and regulations of:*

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*Abstract -* This report does a Comparative Analysis of different Financial Products of the Reliance Money company with its nearest competitor and develops a Hypothesis for the same to check if there is any advantage of Investment Avenue in Reliance Money.

1. *Equity : In Equity Trading, the nearest competitor of Reliance Money is ICICI. The methodology employed for comparison is Factorial Design (Two-way ANOVA) under Statistical Hypothesis.*

   *Here, the Null Hypothesis (H01) is accepted which states that Profits generated using Tips & Techniques of Reliance Money in equity market are equal to the profits generated using Tips & Techniques of ICICI Securities. It signifies an excellent performance of the company in this competitive market.*

2. *Mutual Funds : In Mutual Funds, the nearest competitor of Reliance is ICICI Prudential. The methodology employed for comparison is Factorial Design (Two-way ANOVA) under Statistical Hypothesis.*

   *Here the Null Hypothesis (H02) is accepted which states that Returns from investment in Mutual Funds of Reliance Securities is greater than the returns from investment in Mutual Funds of ICICI Prudential in fluctuating market scenario.*

   *Also using Multiple Regression, we find out that Sharpe ratio is the most important parameter for observing Expected Returns. Higher the Sharpe Ratio, Better would be the expected returns.*

   *Thus, for sure Reliance Money enjoys a competitive advantage over its rivals as it provides cheap & superior services to its investors in addition to customer satisfaction and better returns.*

3. *Insurance : In Insurance schemes, the nearest competitors of Reliance are TATA and LIC. The methodology employed for comparison is Chi-Square Test of Independence under Statistical Hypothesis.*

   *Here, the Null Hypothesis (H01) is accepted which states that Investment tendency of customers in Insurance is independent of company. A Low value of Contingency Coefficient (C=0.0000575) which measures the strength of Association further verifies the Independence.*

   *When Product Differentiation is taken into account, the result is again the same.*

## I. Introduction

Whether it's retiring early, saving for children's education, paying off a loan or to live a secured and satisfied life everyone has dreams they can achieve by investing their savings. However, the question that arises is that, should one leave his money tucked away in the bank or plough it into the stock market where the potential for higher returns is greater but the chances of losing money is higher? Deciding where to invest depends on one`s attitude towards risk (one`s capacity to take risk and one`s tolerance towards risk) and the investment horizon and non-availability of guaranteed-return investment products.

This report does a Comparative Analysis of different Financial Products of the Reliance Money with its nearest competitor and develops a Hypothesis for the same to check if there is any advantage of Investment Avenue in Reliance Money.

The Descriptive Research Methodology was used for Data collection purpose which included Personal Interviewing, Telephonic Interviewing, Survey Methods Combinations and Closed-Response Questionnaires. Some Survey Errors like Non-response errors due to Refusals, Inaccuracy in Response and Interviewer Error were also observed. E- Data providing services like Custom Search Service, Agents & Free Information Providers also helped a lot in gathering information.

Financial Products & Services in R-Money can be broadly segmented into three domains namely Equity, Insurance (Life Insurance & General Insurance) and Mutual Funds.

## II. Equity Investments

Equity shares represent ownership capital. As an equity shareholder, you have an ownership stake in the company. This essentially means that you have a residual interest in income and wealth. Perhaps, the most romantic among various investment avenues, equity shares are classified into the following broad categories by stock market analysts:

Blue chip shares, Growth shares, Income shares, Cyclical shares, Speculative shares.

The equities held by private individuals are often held via mutual funds or other forms of pooled investment vehicle, many of which have quoted prices that are listed in financial newspapers or magazines; the mutual funds are typically managed by prominent fund management firms (e.g. Schroder's, Fidelity Investments or the Vanguard Group). Such holdings allow individual investors to obtain the diversification of the fund(s) and to obtain the skill of the professional fund managers in charge of the fund(s). An alternative, usually employed by large private investors and pension funds, is to hold shares directly; in the institutional environment many

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clients who own portfolios have what are called segregated funds as opposed to, or in addition to, the pooled e.g. mutual fund alternative.

a)  *Stock Market*

A stock market or equity market is a public market (a loose network of economic transactions not a physical facility or discrete entity) for the trading of company stock and derivatives at an agreed price; these are securities listed on a stock exchange as well as those only traded privately.

Participants in the stock market range from small individual stock investors to large hedge fund traders, who can be based anywhere. Their orders usually end up with a professional at a stock exchange, who executes the order.

Some exchanges are physical locations where transactions are carried out on a trading floor, by a method known as open outcry. This type of auction is used in stock exchanges and commodity exchanges where traders may enter "verbal" bids and offers simultaneously. The other type of stock exchange is a virtual kind, composed of a network of computers where trades are made electronically via traders.

The purpose of a stock exchange is to facilitate the exchange of securities between buyers and sellers, thus providing a marketplace (virtual or real). The exchanges provide real-time trading information on the listed securities, facilitating price discovery.. Nevertheless, it is the responsibility of policymakers to design systems and policies that minimize such risks and mitigate their impact.

## III.  Mutual Funds

Although A mutual fund represents a vehicle for collective investment. When you participate in a scheme of a mutual fund, you become a part-owner of the investments held under that scheme. The most important characteristic of a mutual fund is that the contributors and the beneficiaries of the fund are the same class of people, namely the investors. The term "MUTUAL" means that investors contribute to the pool, and also benefit from the pool.

The money held in the trust is divided into shares of equal value called "UNITS". Investors become "unit-holders" and are allocated units based on the amount of their investment. The income earned through these investments and the capital appreciation realized is shared by its unit holders in proportion to the number of units owned by them.

Investments in securities are spread across a wide cross-section of industries and sectors and thus the risk is reduced. Diversification reduces the risk because all stocks may not move in the same direction in the same proportion at the same time. Mutual fund issues units to the investors in accordance with quantum of money invested by them. Investors of mutual funds are known as unit holders.

Thus a mutual fund is the most suitable investment for the common man as it offers an opportunity to invest in a diversified, professionally managed basket of securities at a relatively low cost.

## IV.  Life Insurance

Life insurance or life assurance is a contract between the policy owner and the insurer, where the insurer agrees to pay a designated beneficiary a sum of money upon the occurrence of the insured individual's or individuals' death or other event, such as terminal illness or critical illness. In return, the policy owner agrees to pay a stipulated amount at regular intervals or in lump sums.

Life policies are legal contracts and the terms of the contract describe the limitations of the insured events. Specific exclusions are often written into the contract to limit the liability of the insurer; for example claims relating to suicide, fraud, war, riot and civil commotion.

Special provisions may apply, such as suicide clauses wherein the policy becomes null if the insured commits suicide within a specified time. Any misrepresentations by the insured on the application are also grounds for nullification.

The face amount on the policy is the initial amount that the policy will pay at the death of the insured or when the policy matures, although the actual death benefit can provide for greater or lesser than the face amount. The policy matures when the insured dies or reaches a specified age (such as 100 years old).

## V.  General Insurance

Asian Insurance other than 'Life Insurance' falls under the category of General Insurance. General Insurance comprises of insurance of property against fire, burglary etc, personal insurance such as Accident and Health Insurance, and liability insurance which covers legal liabilities. There are also other covers such as Errors and Omissions insurance for professionals, credit insurance etc.

Non-life insurance companies have products that cover property against Fire and allied perils, flood storm and inundation, earthquake and so on. There are products that cover property against burglary, theft etc. The non-life companies also offer policies covering machinery against breakdown, there are policies that cover the hull of ships and so on. A Marine Cargo policy covers goods in transit including by sea, air and road. Further, insurance of motor vehicles against damages and theft forms a major chunk of non-life insurance business.

In respect of insurance of property, it is important that the cover is taken for the actual value of the property to avoid being imposed a penalty should there be a claim. Where a property is undervalued for the purposes of insurance, the insured will have to bear

a ratable proportion of the loss. For instance if the value of a property is Rs.100 and it is insured for Rs.50/-, in the event of a loss to the extent of say Rs.50/-, the maximum claim amount payable would be Rs.25/- ( 50% of the loss being borne by the insured for underinsuring the property by 50% ). This concept is quite often not understood by most insured.

Personal insurance covers include policies for Accident, Health etc. Products offering Personal Accident cover are benefit policies. Health insurance covers offered by non-life insurers are mainly hospitalization covers either on reimbursement or cashless basis. The cashless service is offered through Third Party Administrators who have arrangements with various service providers, i.e., hospitals. The Third Party Administrators also provide service for reimbursement claims. Sometimes the insurers themselves process reimbursement claims.

Accident and health insurance policies are available for individuals as well as groups. A group could be a group of employees of an organization or holders of credit cards or deposit holders in a bank etc. Normally when a group is covered, insurers offer group discounts.

Liability insurance covers such as Motor Third Party Liability Insurance, Workmen's Compensation Policy etc offer cover against legal liabilities that may arise under the respective statutes— Motor Vehicles Act, The Workmen's Compensation Act etc. Some of the covers such as the foregoing (Motor Third Party and Workmen's Compensation policy) are compulsory by statute. Liability Insurance not compulsory by statute is also gaining popularity these days. Many industries insure against Public liability.

There are liability covers available for Products as well. There are general insurance products that are in the nature of package policies offering a combination of the covers mentioned above. For instance, there are package policies available for householders, shop keepers and also for professionals such as doctors, chartered accountants etc. Apart from offering standard covers, insurers also offer customized or tailor-made ones.

Suitable general Insurance covers are necessary for every family. It is important to protect one's property, which one might have acquired from one's hard earned income. A loss or damage to one's property can leave one shattered. Losses created by catastrophes such as the tsunami, earthquakes, cyclones etc have left many homeless and penniless. Such losses can be devastating but insurance could help mitigate them. Property can be covered, so also the people against Personal Accident. A Health Insurance policy can provide financial relief to a person undergoing medical treatment whether due to a disease or an injury.

It is important for proposers to read and understand the terms and conditions of a policy before they enter into an insurance contract. The proposal form needs to be filled in completely and correctly by a proposer to ensure that the cover is adequate and the right one.

## VI.  FINDINGS & OBSERVATIONS

### a) Equity

In Equity Trading, the nearest competitor of Reliance Money is ICICI. In order to check which company provides the better trading platform, we did a Hypothesis Testing of the same. Here we took the database of those customers who were having their DMAT accounts with both the companies. The sample size taken was 697. The methodology employed for comparison is Factorial Design (Two-way ANOVA) under Statistical Hypothesis. The required Hypothesis Statements are:

H01: Profits generated using Tips & Techniques of Reliance Money in equity market are equal to the profits generated using Tips & Techniques of ICICI Securities.

Ha1: Profits generated using Tips & Techniques of Reliance Money in equity        market are not equal to the profits generated using Tips & Techniques of ICICI Securities.

H02: All Means of Investment-range/month are equal.

Ha2: Not all means are equal.

H03: There is no interaction effect.

Ha3: Interaction effect is present.

The observed ANOVA table is:

| Source | Sum of Square | df | Mean Square | Fcal | Fcritical(FINV) |
|---|---|---|---|---|---|
| SST | 4448061700 | 1 | 4448061700 | 0.000542484738225765 | 3.848345832 |
| SSB | 3.30724E+13 | 20 | 1.46536E+13 | 1.78715252876778 | 1.57831309 |
| SSI | 1.45E+13 | 20 | 723929702802.21 | 0.088290325495825 | 1.57831309 |
| SSE | 1.11E+16 | 1352 | 8199422742375.58 | | |
| Total | 1.11332E+16 | 1393 | | | |

## Findings

i. The observed F value for interaction effect is 0.0883. Because this value is less than the critical table value (1.578), no significant interaction effects are evident. Thus it is possible to examine the main effects.

ii. The critical value of F at 0.05% significance level is 3.85 for H01 which is more than the observed F value (1.07); so we accept the NULL Hypothesis (H01). Thus, Profits generated using Tips & Techniques of Reliance Money in equity market are equal to the profits generated using Tips & Techniques of ICICI Securities.

iii. The critical value of F at 0.05% significance level is 1.56 for H02 which is less than the observed F value (398.11); so we reject the NULL Hypothesis (H02).

Thus Reliance Money provides satisfactory Tips & Techniques and thus generates acceptable revenue for its customers which is atleast equal to the competitors.

The approximately equal value in profits for the customers of both companies confirms the hypothesis.

## b) Mutual Funds

In Mutual Funds, the nearest competitor of Reliance is ICICI Prudential. Since there are a large number of funds, we broadly classify them into 3 types namely Equity funds, Debt Funds & Liquid Funds. The returns for 1, 3 & 5 years are taken with January 2011 as the calculating month. Entire database including returns is provided on the homepages of the two companies. The methodology employed for comparison is Factorial Design (Two-way ANOVA) under Statistical Hypothesis. The required Hypothesis Statements are:

H01: Returns of both companies are equal i.e. $\mu$reliance = $\mu$icici

Ha1: Returns of both companies are not equal i.e. $\mu$reliance ≠ $\mu$icici

H02: Returns in Mutual Funds of Reliance Securities is greater than returns in Mutual Funds of ICICI Securities in fluctuating market scenario.

Ha2: Returns in Mutual Funds of Reliance Securities is less than returns in Mutual Funds of ICICI Securities in fluctuating market scenario.

H03: There is no interaction effect.

Ha3: Interaction effect is present.

The observed ANOVA table is:

| ANOVA | | | | | | |
|---|---|---|---|---|---|---|
| Source of Variation | SS | df | MS | F | P-value | F crit |
| Sample | 4876.343 | 2 | 2438.171 | 4.980449 | 0.0266187 | 3.885293835 |
| Columns | 347.7607 | 1 | 347.7607 | 0.71037 | 0.4158044 | 4.747225336 |
| Interaction | 762.8562 | 2 | 381.4281 | 0.779143 | 0.4806831 | 3.885293835 |
| Within | 5874.582 | 12 | 489.5485 | | | |
| | | | | | | |
| Total | 11861.54 | 17 | | | | |

The observed REGRESSION table is:

| Regression Statistics BETA | | Regression Statistics SHARPE RATIO | | Regression Statistics TREYNOR RATIO | |
|---|---|---|---|---|---|
| Multiple R | 0.04198231 | Multiple R | 0.944832252 | Multiple R | 0.935106768 |
| R Square | 0.001762514 | R Square | 0.892707985 | R Square | 0.874424668 |
| Adjusted R Square | -0.060627329 | Adjusted R Squ | 0.886002234 | Adjusted R Square | 0.866576209 |
| Standard Error | 0.146338081 | Standard Error | 0.047976009 | Standard Error | 0.051903015 |
| Observations | 18 | Observations | 18 | Observations | 18 |

| SUMMARY OUTPUT | MULTIPLE REGRESSION | | | | |
|---|---|---|---|---|---|
| | | | | | |
| Regression Statistics | | | | | |
| Multiple R | 0.996151967 | | | | |
| R Square | 0.992318742 | | | | |
| Adjusted R Square | 0.988128964 | | | | |
| Standard Error | 0.015481757 | | | | |
| Observations | 18 | | | | |
| | | | | | |
| ANOVA | | | | | |
| | df | SS | MS | F | Significance F |
| Regression | 6 | 0.340605779 | 0.05676763 | 236.8428381 | 5.63844E-11 |
| Residual | 11 | 0.002636533 | 0.000239685 | | |
| Total | 17 | 0.343242312 | | | |
| | | | | | |
| | Coefficients | Standard Error | t Stat | P-value | Lower 95% |
| Intercept | -0.189711452 | 0.052374172 | -3.622232945 | 0.004010765 | -0.304986228 |
| Beta | 0.188904085 | 0.101203952 | 1.866568265 | 0.088826179 | -0.033844311 |
| S.D. | 0.034658274 | 0.011544286 | 3.002201566 | 0.012032401 | 0.009249471 |
| R Squared | -0.088197771 | 0.056434464 | -1.562835276 | 0.146384321 | -0.212409187 |
| Sharpe Ratio | 5.109169028 | 1.161834591 | 4.397501216 | 0.001067617 | 2.551988336 |
| Treynor Ratio | -0.128843611 | 0.199649878 | -0.645347807 | 0.53193187 | -0.568270029 |
| P.T. Ratio | -0.004430398 | 0.003581746 | -1.236938034 | 0.241866989 | -0.012313768 |

*Findings*

i. The observed F value for interaction effect is 0.779143. Because this value is less than the critical table value (3.885294), no significant interaction effects are evident. Thus it is possible to examine the main effects.

ii. The critical value of F at 0.05% significance level is 3.885294 for H01 which is less than the observed F value (4.980449); so we reject the NULL Hypothesis (H01). Thus, Returns are not equal for both the companies.

iii. The critical value of F at 0.05% significance level is 4.747225 for H02 which is more than the observed F value (0.71037); so we accept the NULL Hypothesis (H02). Thus, Returns in Mutual Funds of reliance Securities are greater than returns in Mutual Funds of ICICI Securities in fluctuating market scenario. Thus returns given by the Mutual Funds of Reliance are better than that given by ICICI.

iv. On comparing different Volatility Parameters with Returns, it is found that Correlation Coefficient is approximately equal to zero for $\beta$, S.D. and Portfolio Turnover Ratio. It implies that there is no correlation between returns and these figures. Also Returns are highly positively correlated with Sharpe Ratio and Treynor Ratio. This fact is further verified by R2 value (Coefficient of determination).

v. The high value of R square (0.99) for multiple regression signifies high positive correlation between Returns and variables.

vi. The Regression equation is:

Returns

$= -0.1897 + 0.1889x_1 + 0.0347x_2 - 0.0882x_3 + 5.1092 \quad x_4 - 0.1288x_5 - 0.0044x_5$

Here we see that Sharpe Ratio is the most important parameter for determining Expected Returns.

*c) Insurance*

In Insurance schemes, the nearest competitors of Reliance are TATA and LIC. It was being observed that the choice of the Insurance Scheme by the customers is not dependent on the company. Each company was having some unique products. So in order to check if the investment in Insurance Schemes is independent of company, we did Hypothetical Testing. We observed that a total of 154 policies were being sold by R-Money in the month of January 2010 and the customers invested in Reliance, TATA & LIC policies. The methodology employed for comparison is Chi-Square Test of Independence under Statistical Hypothesis.

The required Hypothesis Statements are:

H01: Investment tendency of customers in Insurance policies is independent of company.

Ha1: Investment tendency of customers in Insurance policies is dependent of company.

The observed Chi-square distribution is:

| CHI OBSERVED 0.000713772 | Degrees of freedom 6 | CHI Table (0.05,6) 12.6 |
|---|---|---|
| | | |
| **Contingency Coefficient Value Calculation** | | |
| chi square | 5.09470973549914E-07 | |
| chi square + n=154 | 154.000000509471 | |
| value1 | 3.3082530640549E-09 | |
| C | 0.0000575174153109726 | |

The observed Chi-square distribution after considering product differentiation is:

| CHI OBSERVED 0.71672218 | Degrees of freedom 20 | CHI Table (0.05,20) 31.41 |
|---|---|---|
| **Contingency Coefficient Value Calculation** | | |
| chi square | 0.513690683630525 | |
| chi square + n=154 | 154.513690683631 | |
| value1 | 0.00332456419465324 | |
| C | 0.0576590339379116 | |

*Findings*

i. Here in first snapshot, the Critical value of Chi variable is 12.6 at 0.05 significance level which is more than the observed value (0.000713772). Thus, the NULL Hypothesis is accepted. Thus, tendency of customers in Insurance policies is independent of company.

ii. The Low value of Contingency Coefficient (C=0.00005751742), which measures the strength of Association, further verifies the independence.

iii. When Product Differentiation is taken into account, the critical value of Chi Variable is 31.41 at 0.05 significance level which is again more than the observed value (0.7167). Thus, again as shown in 2nd snapshot, we can say that the tendency of customers in Insurance is still independent of company.

Thus, customers are indifferent for the company. All they need is just a good policy meeting their requirements.

Thus, overall we can say that *Reliance Money enjoys a competitive advantage over its rivals as it provides cheap and superior services to its investors in addition to customer satisfaction and better returns.*

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# How Behavioral Aspects Affect Market Efficiency- Evidence from KSE 100 Index

By Asif Sanaullah, Dr. Syed M. Amir Shah, Muhammad Ather, Ejaz Ali & Rehan Aslam

*National Defense University Islamabad.*

*Abstract -* Study of behavioral finance has been the focus of many researchers. Various researches as well as empirical analyses have been conducted in different stock markets of the world in order to verify the seasonal anomalies and to observe behavioral patterns of investors by which they earn abnormal returns. This research attempted to find anomalous behavior in two different sets of data. The first data set includes period of thirteen years from 1997 to 2010 and the second set of data consists of 11 years excluding the years of market crash 2005 & 2008. Both data sets have been tested by different data analysis tools, which reveal that some of anomalous behavior e.g. Turn of the Month (ToM) effect exists in KSE in first data set whereas the second data set is free from such anomalies.

HOWBEHAVIORALASPECTSAFFECTMARKETEFFICIENCY-EVIDENCEFROMKSE100INDEX

*Strictly as per the compliance and regulations of:*

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Asif Sanaullah[α], Dr. Syed M. Amir Shah[σ], Muhammad Ather[ρ], Ejaz Ali[ω] & Rehan Aslam[¥]

*Abstract* - Study of behavioral finance has been the focus of many researchers. Various researches as well as empirical analyses have been conducted in different stock markets of the world in order to verify the seasonal anomalies and to observe behavioral patterns of investors by which they earn abnormal returns. This research attempted to find anomalous behavior in two different sets of data. The first data set includes period of thirteen years from 1997 to 2010 and the second set of data consists of 11 years excluding the years of market crash 2005 & 2008. Both data sets have been tested by different data analysis tools, which reveal that some of anomalous behavior e.g. Turn of the Month (ToM) effect exists in KSE in first data set whereas the second data set is free from such anomalies.

## I. INTRODUCTION

Behavioral finance deals with psychological traits and factors on the part of people who operate as investors, analysts, portfolio managers who may earn abnormal returns from capital market through prediction of observed patterns. This shows the anomalous behavior existing in capital market.

Concept of efficient market was developed in 1950 and it was published for the first time in 1970. Efficient market hypothesis was tested by using capital asset pricing model. Results revealed that there are many systematic deviations from the theoretical base which was important for market to be called as efficient. This deviation helps investor to get abnormal returns by using simple trading strategies. These deviations were then named as anomalies.

According to Olsen (1998), the aim of studying behavioral finance is to make clear understanding regarding different financial decisions as well as decision processes and the impact of psychological factors of investors or analysts on the systematic decision process.

It is acknowledged that currently there is no unified theory of behavioral finance. However the emphasis has to identify anomalies in different portfolios that can be classified through different psychological behaviors in individual or groups or indicating examples when it is able to identify abnormal return by taking advantage of the prejudice of investors/ analysts or portfolio managers.

Capital market efficiency is referred to as how much the security prices reflect all above information under the following assumptions.

i) Large number of profit maximizing participants analyzes and value securities

ii) New information regarding securities comes to the market in random fashion

iii) Profit maximizing investors adjust security prices rapidly to reflect the effect of new information.

iv) The expected return implicit in the current price of the security should reflect its risk.

Fama (1970) tried to conceptualize the market efficiency theory and organize the growing empirical evidence. He further divided market hypothesis into three sub categories.

i) Weak form: Market in which current price reflects the historical sequence of prices. In nutshell knowing past price patterns will not help you to improve forecast of future price.

ii) Semi Strong form: Annual reports News item and public announcement etc reflect current price of stock in a stock market.

iii) Strong form: Current price fully reflects all information that is public and private.

Apart from the above forms of market efficiency, there are some other factors which may lead to inefficiency of capital markets due to some observed behavior of investors. They may predict the anomalous behavior & observed patterns of stock market and earn abnormal returns which are against the credibility & reliability of market efficiency. This anomalous behavior can be judged in capital markets by analyzing day of the week effect/ weekend effect, January effect, turn of the month effect, occurrence of unexpected events and intraday effect. It is crystal clear that presence of anomalies cause inefficiency of capital market. There are certain factors of these anomalies by which investors earn abnormal returns in a stock market.

January effect in calendar anomalies is due to smaller capitalization stocks in very first week of first month of the year. Turn of the month effect is also an apparent anomaly existing in various stock markets which causes inefficiency of capital market. This happens at the end of every month and start of next month due to cash withdrawals on account of payments of salaries, interest on debts, pensions and principal

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amount etc. Moreover, weekend or day of the week effect advocates too the anomalous behaviors of capital markets leading to inefficiency. DoW anomaly occurs due to the misquoting of price etc.

*Calendar Anomalies*

Anomalies that are associated to a specific period of time in equity markets are called calendar anomalies. There are number of anomalies which remain the area of interest of behavioral finance researchers. In this paper we attempt to find three forms of anomalies and these are, day of the week (DoW) effect, turn of the month (ToM) effect and January effect for Karachi stock market 100 index.

a) *Day of the week (DoW) Effect*

To find out day of the week effect, we use the regression analysis equation in this paper. The day of the week effect is a calendar anomaly which affect the efficiency of capital market. Chandra (2006) examined the existence of day of the week effect in Asia pacific equity markets and observed the stock behavior for some days of the week consistently differs from each other. This effect has important implications for the markets and investors who actively trade in the market. Day of the week effect depicts the behavior of stock market that the returns vary in different day of the week. Kamal & Nasir (2005) in their study referred many researchers' studies and figured out few reasons about the observed behavior regarding weekend effect. Errors in measurement along with the adverse information of price as well as the settlement of the stock market procedure with dividend patterns are some points mentioned in their research for the day of the week effect.

b) *Turn of the Month (ToM) effect*

For Turn of the month effect (TOM), last working day of previous month and first three working days of next month's are considered as turn of the month effect. Remaining days of month are considered as Rest of the month (ROM) as followed by zafar, shah and urooj 2009. Hensel and Ziemba (1996) elaborated turn of the month effect in their research paper. According to them substantial cash flows happen in capital markets at the end of every month as well as start of the new month which affect the efficiency of market due to withdrawal of salaries, payments of principle amount, pension and dividends as well as interest on debts.

c) *January effect*

January effect refers to increase in stock prices during the month of January. It is generally linked to an increase in buying which follows the drop in price typically happens in December when investors seeking to create tax losses to off-set capital gains from a sell-offs. It is also termed as "year-end-effect".

## II. OBJECTIVE OF THE STUDY

The basic aim of this study is to

1. Find various anomalous behaviors in terms of day of the week effect, turn of the month effect and January effect in Karachi Stock Exchange 100 index.
2. Compare two sets of data including and excluding market crash years (2005 & 2008) on account of verifying the effects. Our KSE data has been divided into two sets. First data comprises of thirteen years starting from July 1997 to December 2010. Second set of data consists of 11 years excluding two years in which KSE equity market crashed (2005 & 2008). Various statistical tools are applied to verify the existence of calendar anomalies in Karachi stock exchange 100 index.

## III. LITERATURE REVIEW

Impact of various calendar anomalies has remained an integral part of many researchers' to study turn of the month effect, day of the week effect & January effect in stock markets. Presence of Turn of the Month in stock market of 18 countries in 1970 has been proved. (Agarwal & Tandon, 1994).

Kamal & Nasir( 2005) conducted research to analyze the day of the week effect, end of the month effect for pre 9/11 and post 9/11 in Karachi Stock Exchange Index. They found that there exists calendar anomaly in pre 9/11 era as the data is non-stationary and it does not follow the random walk which shows the inefficiency of market.

Zafar, Shah & Urooj, (2009). Anomalies in KSE have been found during the period of 1991- 2007. Study proved that Turn of the Month exists for some particular period i.e. 1991, 1993, 2002, 2005 and the whole period of 1991-2007 in Karachi Stock Exchange after studying the data for the period of November 1991-2007.Study revealed that due to the presence of anomalies capital investors have to behave in different manners which are against the principles of market efficiency. Selling of shares start at the end of month and therefore investors look for positive change in upcoming month. Anomalies will lead investors in a conscious position and the situation ask them to manage such behavior of market.

Day of the week effect also tells story of anomaly in a stock market (Zhang & Li, 2006) discuss return of Monday as well as of Tuesday as the lowest for the week and Friday as the highest in terms of return. Increase in window length for a stock market shows more stability in the day of week effect. Study reveals that variation found in empirical evidence from Istanbul Security Exchange in day of week effect from January 1988 to August 1994. Chinese stock market exhibits significant January effect on small firms return which shows positive return of the month of January. Strong

anomalous behavior in the form of Turn of the month effect exists in Chinese market till 1997 at the significant level 5%.

Different statistical methods, tools and assumptions show different statistical result for a particular set of data like Karachi stock exchange. Shahid, Akbar(2009) study shows that day of the week effect is no more existing phenomena for Karachi Stock Market. They divided data into three groups and none of the group shows any indication of the presence of day of the week effect. Furthermore the study concluded that weekend's days do not show any abnormal or significant returns to the investor and the data does not exhibit any monthly effect.

Number of studies on the day of the week effect by researchers conducted on different equity markets of South Asia. Chahdra (2006) conducted research to study day of the week effect in the correlation of Asia specific markets. According to the research , Australia, Japan, and Korea market, the day of the week effect was an absent phenomena. Furthermore research concluded that consistent day of the week effect in the return and correlation was not present in markets of Asia specific.

It has been noted that January effect affect small firms because of reason like tax loss selling. Phenomena for efficient market is that it should have random walk then a stationary walk, this name January has been used because average monthly returns for small firms remain consistently higher than any other month of the year.

Kamal and Nasir (2005) conducted research on KSE and validate that Monday returns are lower and high variance than any other day. Furthermore the study revealed that seasonality across day of the week effect and confirm presence of highest Friday return and low Monday return in pre 9/11 data set for Karachi Stock Exchange market.

## IV. Methodology

### a) Data

The data set used in this paper contains daily stock market index data from 07/02/1997 to 31/12/2010 obtained from KSE 100 Index. Data regarding daily closing values of Karachi stock exchange (KSE 100 Index) has been obtained from yahoo finance for this analysis. The total number of observations in first period is 3281 and.2784 in second set of data.

### b) Model

The natural logarithmic returns of the series for Karachi stock exchange are used in this analysis. Daly stock index return is calculated by using this model.

*Returns Formula*

$$Rt = 100* \ln(Pt/ Pt-1)$$

Where
  $Rt$ = return on the day't'
  $Ln$ = Natural log
  $Pt$ = Index at time't'
  $P t-1$ = Index at time't-1'

*Regression Equation*

$$Rt = \beta_0 + \beta_1 D_{2t} + \varepsilon_t$$

Where
  $Rt$ = return on the day't'
  $Dit$ = dummy variable for the TOM,
  $Bi$ = coefficient for the mean return
  $\varepsilon t$ = Error term

### c) Augmented Dickey Fuller Test

In order to test the Augmented Dickey Fuller unit root Test following hypothesis is formed.

$$H_0 \quad : \delta \, (p-1) = 0 \text{ or } p = 1$$
$$H_A \quad : \delta \, (p-1) < 0 \text{ or } p < 1$$

The augmented dickey fuller (ADF) unit root test is given as

$$\Delta y_t = \beta_1 + \beta_2 + \delta \, y_{t-1} + \alpha i \, \Sigma^m_t{=}1 \, \Delta y_{t-1} + \varepsilon_t ..........\, (1)$$

To find the time series data with unit root test we apply following model

$$Yt = pY t-1 + \mu_t \text{-----------------------------------------------} (1)$$
$$\Delta yt = (p-1) yt-1 + \mu_t \text{---------------------------------------} (2)$$
Or
$$\Delta yt = \delta \, yt-1 + \mu_t \text{---------------------------------------------} (3)$$

With the data for Karachi stock exchange we applied Augmented Dickey fuller test if the estimated/calculated value is greater than critical value then we can say that unit root does exist in the data and we reject null hypothesis and data series is non stationary.

i.   *Augmented Dickey Fuller (ADF) Test Analysis*

| ADF Test Statistic | 0.774410 | 1%  Critical Value* | -2.5664 |
|---|---|---|---|
| | | 5%  Critical Value | -1.9394 |
| | | 10% Critical Value | -1.6157 |

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RESEARCH)
Method: Least Squares
Date: 06/13/11   Time: 16:41
Sample(adjusted): 7 3281
Included observations: 3275 after adjusting endpoints

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| RESEARCH(-1) | 0.000199 | 0.000257 | 0.774410 | 0.4387 |
| D(RESEARCH(-1)) | 0.129405 | 0.017489 | 7.399261 | 0.0000 |
| D(RESEARCH(-2)) | 0.022336 | 0.017636 | 1.266478 | 0.2054 |
| D(RESEARCH(-3)) | 0.016650 | 0.017637 | 0.944078 | 0.3452 |
| D(RESEARCH(-4)) | 0.021149 | 0.017495 | 1.208836 | 0.2268 |

| R-squared | 0.018850 | Mean dependent var | 3.138049 |
|---|---|---|---|
| Adjusted R-squared | 0.017650 | S.D. dependent var | 107.5924 |
| S.E. of regression | 106.6387 | Akaike info criterion | 12.17830 |
| Sum squared resid | 37185823 | Schwarz criterion | 12.18760 |
| Log likelihood | -19936.96 | F-statistic | 15.70634 |
| Durbin-Watson stat | 1.999839 | Prob(F-statistic) | 0.000000 |

Since the computed ADF test-statistics (0.74410) is less than the critical values --"tau"   at 1% Critical Value (2.5664), 5%   Critical Value (1.9394) and 10% Critical Value (1.6157) respectively, we cannot reject Ho. We may conclude that our Index series has a unit root problem and the Index series is a non-stationary series.

The ADF test suggests that our data of daily index starting from July 1997 to December 2010 is non-stationary so we can say that market is weak form inefficient at above levels of significance.

## V.   DATA ANALYSIS

*Descriptive Statistic*

Table : I Descriptive statistic for market return, turn of the month effect, January effect and day of the week effect

Analysis:- The return means, of market return (MR), turn of the month (ToM), January Effect and Day of the week effect (DoW) for the period from 1997 to 2010 are 0.0611, 0.197256, 0.07621 and 0.1896 respectively. This shows that Turn of the month effect in KSE 100 index is significant at 95 % level of significance.

| Market Return | | Turn of the Month | | January Effect | | Day of the week | |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| Mean | 0.061143081 | Mean | 0.197256098 | Mean | 0.076219512 | Mean | 0.189634146 |
| Standard Error | 0.030500498 | Standard Error | 0.006949171 | Standard Error | 0.004633901 | Standard Error | 0.006845862 |
| Median | 0.12257973 | Median | 0 | Median | 0 | Median | 0 |
| Mode | 0 | Mode | 0 | Mode | 0 | Mode | 0 |
| Standard Deviation | 1.7468027 | Standard Deviation | 0.397987965 | Standard Deviation | 0.265389471 | Standard Deviation | 0.392071298 |
| Sample Variance | 3.051319671 | Sample Variance | 0.158394421 | Sample Variance | 0.070431571 | Sample Variance | 0.153719903 |
| Kurtosis | 4.995969921 | Kurtosis | 0.317591723 | Kurtosis | 8.216857314 | Kurtosis | 0.50992814 |
| Skewness | -0.364892329 | Skewness | 1.522300378 | Skewness | 3.19559813 | Skewness | 1.584177256 |
| Range | 25.9755196 | Range | 1 | Range | 1 | Range | 1 |
| Minimum | -13.21329014 | Minimum | 0 | Minimum | 0 | Minimum | 0 |
| Maximum | 12.76222946 | Maximum | 1 | Maximum | 1 | Maximum | 1 |
| Sum | 200.5493046 | Sum | 647 | Sum | 250 | Sum | 622 |
| Count | 3280 | Count | 3280 | Count | 3280 | Count | 3280 |
| Confidence Level(95.0%) | 0.059801951 | Confidence Level(95.0%) | 0.013625154 | Confidence Level(95.0%) | 0.009085633 | Confidence Level(95.0%) | 0.013422597 |

Table II: Descriptive statistic for market return, turn of the month effect, January effect and day of the week effect (excluding 2005 & 2008)

Analysis :- In second data set after excluding crash market years 2005 & 2008 return means of market, turn of the month, January effect and day of the week effect has been decreased. The statistic shows 0.0720, 0.19827586, 0.07507, 0.18893 means for market return, turn of the month effect and day of the week effect respectively.

| Market Return | | Turn of The month | | January Effect | | Day of the week effect | |
|---|---|---|---|---|---|---|---|
| Mean | 0.072036388 | Mean | 0.198275862 | Mean | 0.075071839 | Mean | 0.188936782 |
| Standard Error | 0.048291416 | Standard Error | 0.00755772 | Standard Error | 0.004995005 | Standard Error | 0.007420429 |
| Median | 0.157568319 | Median | 0 | Median | 0 | Median | 0 |
| Mode | 0 | Mode | 0 | Mode | 0 | Mode | 0 |
| Standard Deviation | 2.54803013 | Standard Deviation | 0.398772697 | Standard Deviation | 0.263554564 | Standard Deviation | 0.391528718 |
| Sample Variance | 6.492457543 | Sample Variance | 0.159019664 | Sample Variance | 0.069461008 | Sample Variance | 0.153294737 |
| Kurtosis | 560.2623635 | Kurtosis | 0.29347129 | Kurtosis | 8.41900635 | Kurtosis | 0.528828864 |
| Skewness | -13.64986444 | Skewness | 1.51435167 | Skewness | 3.226911639 | Skewness | 1.590109894 |
| Range | 131.7527093 | Range | 1 | Range | 1 | Range | 1 |
| Minimum | -88.780667 | Minimum | 0 | Minimum | 0 | Minimum | 0 |
| Maximum | 42.97204227 | Maximum | 1 | Maximum | 1 | Maximum | 1 |
| Sum | 200.5493046 | Sum | 552 | Sum | 209 | Sum | 526 |
| Count | 2784 | Count | 2784 | Count | 2784 | Count | 2784 |
| Confidence Level(95.0%) | 0.094690616 | Confidence Level(95.0%) | 0.014819304 | Confidence Level(95.0%) | 0.009794289 | Confidence Level(95.0%) | 0.014550101 |

*a) Turn of the Month (ToM) Effect*

Analysis :- The result shows that t value of coefficient is 2.45788 and p value of coefficient is 0.014027 hence anomaly for turn of the month exists. We may also conclude that market is inefficient and the investors can earn abnormal profits in the very first week of every month due to observed anomalous behavior of KSE 100 index.

Table a (i)

| SUMMARY OUTPUT FOR THE TURN OF THE MONTH EFFECT | | | | |
|---|---|---|---|---|
| *Regression Statistics* | | | | |
| Multiple R | 0.042890158 | | | |
| R Square | 0.001839566 | | | |
| Adjusted R Square | 0.001535063 | | | |
| Standard Error | 1.745461459 | | | |
| F | 6.041209367 | | | |
| *Significance F* | 0.014027104 | | | |
| Observations | 3280 | | | |
| | Coefficients | Standard Error | t Stat | P-value |
| Intercept | 0.024009913 | 0.034016125 | 0.705839171 | 0.480338318 |
| D2 | 0.188248515 | 0.076589567 | 2.457887175 | 0.014027104 |

Analysis :- t-value coefficient for this set of data is 0.73603 and P-value coefficient is 0.46177 which is less than 2 and for that reason we may conclude that turn of the month for the second set of data which exclude the crash period year of 2005 and 2008 of Karachi stock market, turn of the month in this period of time does not exist.

Table a (ii) Excluding 2005 & 2008

| SUMMARY OUTPUT FOR TURN OF THE MONTH EFFECT EXCLUDING 2005 & 2008 | | | | |
|---|---|---|---|---|
| *Regression Statistics* | | | | |
| Multiple R | 0.013953265 | | | |
| R Square | 0.000194694 | | | |
| Adjusted R Square | -0.00016469 | | | |
| Standard Error | 2.548239939 | | | |
| *F* | 0.541743104 | | | |
| *Significance F* | 0.461773277 | | | |
| Observations | 2784 | | | |
| | | | | |
| | Coefficients | Standard Error | t Stat | P-value |
| Intercept | 0.054358725 | 0.053937799 | 1.007803918 | 0.31363625 |
| D2 | 0.089156907 | 0.121131836 | 0.736031999 | 0.461773277 |

## b) *January Effect*

Analysis :- The result of January effect shows that coefficient t-value of is 1.503187078 and coefficient of p-value is 0.132887138 which are less than 2.0 hence we may conclude that January effect does not exist in Karachi stock exchange. It means that the abnormal returns in January are no more existing phenomena for Karachi stock market 100 indexes and market is efficient in this regard. Dummy values (1) have been assigned to the month of January of every year.

Table b (i)

| SUMMARY OUTPUT FOR TURN OF THE MONTH EFFECT EXCLUDING 2005 & 2008 | | | | |
|---|---|---|---|---|
| *Regression Statistics* | | | | |
| Multiple R | 0.013953265 | | | |
| R Square | 0.000194694 | | | |
| Adjusted R Square | -0.00016469 | | | |
| Standard Error | 2.548239939 | | | |
| *F* | 0.541743104 | | | |
| *Significance F* | 0.461773277 | | | |
| Observations | 2784 | | | |
| | | | | |
| | Coefficients | Standard Error | t Stat | P-value |
| Intercept | 0.054358725 | 0.053937799 | 1.007803918 | 0.31363625 |
| D2 | 0.089156907 | 0.121131836 | 0.736031999 | 0.461773277 |

Analysis :- The result for January effect shows coefficient of t value -1.5575 and coefficient of p-value 0.1194 are less than 2.0 which clearly reveal that this anomalous behavior does not exist in this data and investor cannot get abnormal return from this January effect.

Table b (ii) Excluding 2005 & 2008

| SUMMARY OUTPUT FOR JANUARY EFFECT | | | | |
|---|---|---|---|---|
| *Regression Statistics* | | | | |
| Multiple R | 0.029516956 | | | |
| R Square | 0.000871251 | | | |
| Adjusted R Square | 0.00051211 | | | |
| Standard Error | 2.54737761 | | | |
| F | 2.425932968 | | | |
| *Significance F* | 0.119455915 | | | |
| Observations | 2784 | | | |
| | | | | |
| | Coefficients | Standard Error | t Stat | P-value |
| Intercept | 0.093459504 | 0.050200115 | 1.861738848 | 0.06274528 |
| D2 | -0.285368204 | 0.183217175 | -1.557540679 | 0.119455915 |

## c) Weekend Effect

Analysis :- This analysis shows that coefficient of t-value is 0.528238829 and coefficient of p-value is 0.115498574 which are less than 2.0 so we may conclude that weekend effect does not exist and market is said to be efficient. Anomaly in the form of weekend effect is no more existing phenomena for equity market of Karachi. Investors in this equity market cannot get abnormal returns on trading in week days which means that information reflects prices of the stock.

### Table c (i)

| SUMMARY OUTPUT FOR WEEKEND EFFECT | | | | |
|---|---|---|---|---|
| *Regression Statistics* | | | | |
| Multiple R | 0.009225871 | | | |
| R Square | 8.51167E-05 | | | |
| Adjusted R Square | -0.000219921 | | | |
| Standard Error | 1.746994769 | | | |
| F | 0.27903626 | | | |
| *Significance F* | 0.597369341 | | | |
| Observations | 3280 | | | |
| | | | | |
| | Coefficients | Standard Error | t Stat | P-value |
| Intercept | 0.053348321 | 0.033885517 | 1.574369409 | 0.115498574 |
| D2 | 0.041104197 | 0.07781366 | 0.528238829 | 0.597369341 |

Analysis :- The analysis shows that coefficient of t-value is -0.226195885 and coefficient of p-value is 0.821065688 which are less than 2.0 so we may conclude that weekend effect does not exist and investors cannot get abnormal returns on trading in week days which means that information reflects prices of the stock.

### Table c (ii) Excluding 2005 & 2008

| SUMMARY OUTPUT FOR WEEKEND EFFECT EXCLUDING 2005 & 2008 | | | | |
|---|---|---|---|---|
| *Regression Statistics* | | | | |
| Multiple R | 0.004288468 | | | |
| R Square | 1.8391E-05 | | | |
| Adjusted R Square | -0.000341056 | | | |
| Standard Error | 2.548464604 | | | |
| F | 0.051164578 | | | |
| *Significance F* | 0.821065688 | | | |
| Observations | 2784 | | | |
| | | | | |
| | Coefficients | Standard Error | t Stat | P-value |
| Intercept | 0.07730941 | 0.053631092 | 1.441503573 | 0.149555018 |
| D2 | -0.027908923 | 0.123383868 | -0.226195885 | 0.821065688 |

## VI. Conclusion

Karachi Stock Exchange (KSE) 100 index being the largest equity market in Pakistan has been tested in this study in order to find out as to whether this market shows anomalous behavior or otherwise. KSE data has been divided into two sets. First data comprises of thirteen years starting from July 1997 to December 2010. Second set of data consists of 11 years excluding two years in which KSE equity market crashed (2005 & 2008).

A statistical test has been applied on both data sets. Results revealed that turn of the month exists in Karachi Stock Exchange in first data set only, while January effect and day of the week effect are no more existing phenomena for Karachi stock exchange market in both sets of data. In order to get abnormal return from the equity market, investors try to sell stock at the end of every month due to hoping for receiving good news regarding new and positive changes at the start of next month. Existence of weekend effect in foreign stock markets is due to weekly payment of salaries whereas in Pakistan these are paid on monthly basis, therefore, this effect has also not been proved in KSE.

The presence of Turn of the Month (ToM) effect in KSE 100 index in first data set is a challenge to the theory of market efficiency which is not a good sign. Government should take preventive measures to control over these anomalies through better administration. Extraneous factors like different political & dictatorship regimes and their economic policies might have affected the data set which may also be analyzed in case of Pakistan's equity market in future.

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# Assessing and Testing the Capital Asset Pricing Model (CAPM): A Study Involving KSE-Pakistan

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*Abstract -* The current research study tests the CAPM, (Capital Asset Pricing Model) in Pakistan's stock market, Karachi Stock Exchange KSE. Capital Asset Pricing Model explains the links present between risk and return in efficient markets. Therefore the current study has focused on the calculation of Beta of ten companies registered on KSE, and actual and expected returns have been compared. The data analysis revealed the limited applicability of CAPM to the KSE, 100-index. Further studies may be conducted to check the applicability of the model, by taking a large sample of companies, especially in Pakistani stock exchanges.

*GJMBR-B Classification :* *FOR Code:150205 JEL Code: E22, G11, G12*

ASSESSINGANDTESTINGTHECAPITALASSETPRICINGMODELCAPMASTUDYINVOLVINGKSE-PAKISTAN

*Strictly as per the compliance and regulations of:*

# Assessing and Testing the Capital Asset Pricing Model (CAPM): A Study Involving KSE-Pakistan

Muhammad Ibrahim Khan[α], Maria Gul[σ], Noorul Mudassar Khan[ρ], Bilal Nawaz[ω] & Sanaullah[¥]

*Abstract* - The current research study tests the CAPM, (Capital Asset Pricing Model) in Pakistan's stock market, Karachi Stock Exchange KSE. Capital Asset Pricing Model explains the links present between risk and return in efficient markets. Therefore the current study has focused on the calculation of Beta of ten companies registered on KSE, and actual and expected returns have been compared. The data analysis revealed the limited applicability of CAPM to the KSE, 100-index. Further studies may be conducted to check the applicability of the model, by taking a large sample of companies, especially in Pakistani stock exchanges.

## I. Introduction

The Capital Asset Pricing Model (CAPM) gives an easy, yet a significant explanation of the relationship existing between risk and return in efficient markets (Laubscher, 2002).The capital Asset Pricing Model (CAPM) has effectively contributed to the finance theory by changing the way of thinking of academicians and investors (Harrington, 1993). But still, besides being widely tested, some scholars have acknowledged (Lau & Quay, 1974) the capital asset pricing Model (CAPM), while others (Eatzaz & Attiya, 2008), (Hanif, 2009) have criticized it.

Many scholars and researchers contributed to the development of CAPM, but the initial development is attributed to the work of Sharpe (1964), by Bradfield, Barr and Affleck-Graves (1988). Later on, Lintner (1965) and Black (1972) also, contributed to the improvement and enhancement of capital asset pricing model (CAPM).

This research study is concerned with Pakistani companies, listed in KSE, covering five years period from (2006 to 2010). The study, basically aims to investigate and test the validity of the capital asset pricing model (CAPM), in Pakistani context, with special reference to Karachi Stock Exchange (KSE).

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The methodology used for this study, was to find out the expected returns using CAPM by calculating beta (β) through Slope, using Microsoft excel, version 2003. Similarly, the actual and expected returns were compared. Findings and results of this research study advocated the accuracy of CAPM, but for a very small period, and for merely a few companies. A total of ten companies were observed for period of five years (2006-2010) each, and out of these results very few supported CAPM, whereas, most of the results did not support the CAPM, resulting in the inapplicability of CAPM in Pakistani institutions. The results of this study thus supported and were found to be in line with the findings of Eatzaz and Attiya, (2008) and Hanif, (2009) in Pakistani context, Hui and Christopher, (2008) Japan and USA, Groenewold and Fraser (1997) Australia, Quo and Perron, (2005), United States.

The study has been divided into sections, i.e. the section two is concerned with literature review, and methodology is explained in section three, whereas the section four gives the results and section five focuses on conclusions.

## II. Literature Review

In today's world, the investors are interested in high returns for their investments, even if the investment is done in riskier securities or business projects. For this purpose, the investors constantly try to find out and calculate the risk existing behind their investments, and thus they use different models for their calculations. The capital asset pricing model (CAPM), in this regard has been widely used by the investors or finance managers, for finding out the risk and return of their investments (Jagannathan & Wang, 1993).

It has been stated by Blume (1993) that the CAPM provides a model, explaining the equilibrium risk/return relationship, also, that the CAPM is based on the concept, that there is a linear relationship between the systematic risk (non-diversifiable), measured by beta and the expected returns. This linear relationship is described by security market line (SML), which compares the systematic risk of a share and the return, along with the risk of the market and risk-free rate of return (Watson and Head, 1998).

Like other models, the CAPM too, has some assumptions (Van Horne, 2006). Higher the risk (systematic risk), higher will be the return; unsystematic

risk can be minimized almost completely, through diversification of the portfolio; investors are to be compensated for the systematic risk of the securities, that can't be diversified away (Lau & Quay, 1974). The systematic risk is measured by beta (β), which is in positive correlation with return. The CAPM, uses beta for finding out the risk, and also uses beta for determining the expected returns (O' Brien and Srivastava, 1995).

Beta enables us to find out the fluctuations in price of a share, along with determining the relative movement of share portfolio to the market portfolio (Jones, 1998). After the enhancement of the CAPM, the use of beta has been noticed to increase, especially in investment community for finding out risk (Blume, 1993). Many researchers have tried to test the validity of CAPM, in different setups, and also were able to give different results with significant empirical evidence.

The CAPM model was tested in Japanese setup, by applying the model to Tokyo stock market, where the results supported the model, and the investors were compensated for the systematic risk (Lau &Quay,1974).

Similarly, this model was applied to the Swedish stock market by Bjorn and Hordahl, (1998), and proved that their results showed a difference from international evidence regarding CAPM.

The results of Bossaert et al (1999), as cited in Levy et al (2000), initially, did support the CAPM, but later on the statistical tests, discarded the model, due to either market thinness or time constraints. Further experiments by Levy, Levy and Solomon (2000), using microscopic simulation (computer –based study), led them to give results, supporting the CAPM.

The CAPM, was tested with reference to US securities from S&P 500 index by Gomez and Zapatro, (2003), whereby their results supported the two Beta model, also, the researchers came up with same results, supporting the CAPM in UK, most probably due to the similarities in both US and UK setups.

In South African context, the researchers Keogh, (1994), found the fluctuations in beta, negatively affecting the significance of beta and CAPM, especially in South Africa. Whereas, the results provided by Bradfield, Barr and Affleck-Graves's study (1988) supported the CAPM, and declared it to be a useful model, in the context of JSE.

The validity of CAPM was also brought to test in Greek stock markets, by Grigoris and Stravos (2006), where the results of their study didn't support the concept of high risk and high return. For the sake of further investigation and testing, the CAPM, was tested in two different setups, US and Japan, at the same time, where the results showed the inability of CAPM to explain returns when applied to the stock markets of both countries (Hui and Christopher, 2008).

Similarly, to test the validity of CAPM, different studies have been conducted in Pakistan, which involved KSE, Karachi Stock Exchange by Eatzaz and Attiya, (2008), where the results of their study supported the traditional CAPM in explaining the risk and return relationship, but their results were satisfying only for few years. Later on, another study conducted by Hanif, (2009), showed the in applicability of the CAPM, in his study, which had taken the tobacco industry into account for four years of time.

The capital asset pricing model has been criticized on many grounds, i.e. the investigating power of CAPM, has been found low, as it depends on a single beta for decision and uses market returns for calculation of returns (Hanif and Bhatti, 2010). Watson and Head, (1998) and Harrington, (1987), have considered the many assumptions of CAPM, to be the reason for the shortcomings of this model, and thus have considered them unrealistic and impractical. Whereas, Moyer et al, (2001) and Reilly and Brown, (1997) have declared the CAPM has somehow fulfilled many of itsassumptions, and the generally, the unrealistic assumptions do not have any prominent negative effect on its applicability. Some researchers considers CAPM as unable to consider all the factors that affect the returns, which then made them to develop a multi-factor model, i.e. Arbitrage Pricing Theory (APT), which was put forward by Ross, (1976), as cited in Laubscher (2001). But the relationship of risk and return has still kept the model of CAPM, very helpful to the investors and is still considered for research studies, especially in analysis of risk and return.

## III.  Research Methodology

The research question for this study is that, whether CAPM provides valid, precise and correct results, when taken into account for study involving the KSE-Pakistan, and does it prove to be helpful to the investors, while pricing the securities and assessing the risk? This study has primarily focused on the calculation of Beta of ten different companies for finding the expected return and then by comparing it to the actual return, for testing the CAPM for its validity. The KSE website proved very efficient, as it provided with the list of companies and its symbols. It also helped in providing the secondary data for the analysis. The sample taken for this study is not covering all the companies listed at KSE, as only ten (10) companies have been considered for this study. Early studies have been conducted Eatzaz and Attiya, (2008) and Hanif and Bhatti (2010) with different number of companies and different time period, but this study has covered the five years of period from (2006-2010), which has not been covered in other studies involving KSE- Pakistan. Additionally, this study has taken into account companies, that are different from the companies studied in previous studies. The data analysis tool, used for this study is the MS excel (2003). The formula used for finding out the required rate of return is given as;

$$Rj = Rf + \beta(Rm - Rf)$$

Where

$Rj$ = Required rate of return on security j

$Rf$ = Risk free rate of return

$\beta$ = Beta of the security( measure of systematic risk)

$Rm$ = Average return on market portfolio.

The stock price or the share prices of the companies, considered for this study, have been taken from the website of KSE. Then the return was calculated by taking the closing prices, subtracting the closing price from the opening price and dividing it by the opening price. Similarly, the formula was applied to the market index, for calculating the returns. Beta was calculated by applying slope $\beta$ = slope(y,x), where the 'y' represents the company returns and 'x' represents the market returns. The risk free rate used in the analysis was the rate of national saving certificate, taken from the website of state bank of Pakistan.

## IV. Findings And Results

After the collection and analysis of data of five years period for ten different companies, the results showed a very limited applicability of CAPM, to the KSE (100-index). The table I shows the companies that showed a slight difference in their expected and actual returns, providing with the limited applicability of CAPM.

| S No | Company Name | Year | Beta $(\beta)$ | Expected return (By CAPM) | Actual Return | Difference | Undervalued/ overvalued |
|---|---|---|---|---|---|---|---|
| 1 | (LUCK) | 2009 | 1.551 | 0.931 | 0.971 | 0.040 | Under valued |
| 2 | (FCCL) | 2009 | -0.090 | 0.074 | 0.097 | 0.023 | Under valued |

## V. Discussion

By comparing the results of this study with previous research findings, it has been clearly viewed that in certain years, the difference between expected and actual return is less, whereas, in most of the results the difference is witnessed to be high. Similarly, the table I, shows the results of CAPM, showing the slight difference between actual and expected return, but the beta values are different (i.e. aggressive, defensive), rejecting the results of Huang (2000), where he declared that, CAPM is applicable in lower risk securities and not in the high risk securities. This study authenticates the results and findings of Eatzaz and Attiya (2008), Hanif and Bhatti (2010), concluding the inapplicability of CAPM to the stock markets of Pakistan. The table II gives the total results, including the results with higher differences in expected and actual returns. Thus the comparison of the results of this study with previous studies has shown that CAPM, fails to give accurate results most of the time.

| S No | Company Name | Year | Beta $(\beta)$ | Expected return (By CAPM) | Actual Return | Difference | Undervalued/ overvalued |
|---|---|---|---|---|---|---|---|
| 1 | DG Khan Cement (DHKC) | 2006 | 1.293 | -0.278 | -0.645 | -0.368 | Over valued |
| | | 2007 | 1.238 | 0.105 | 0.352 | 0.2471 | Under valued |
| | | 2008 | 1.048 | -0.870 | -1.347 | 0.0644 | Under valued |
| | | 2009 | 1.088 | 0.692 | 0.323 | 0.3237 | Under valued |
| | | 2010 | 1.865 | 0.391 | 0.078 | -0.313 | Over valued |
| 2 | Oil and Gas (OGDC) | 2006 | 1.560 | 0.506 | -0.026 | -0.532 | Over valued |
| | | 2007 | 0.945 | 0.302 | -0.020 | -0.322 | Over valued |
| | | 2008 | 1.076 | 0.908 | -0.750 | -1.657 | Over valued |
| | | 2009 | 1.417 | 0.862 | 1.058 | 0.196 | Under valued |
| | | 2010 | 0.649 | 0.214 | 0.440 | 0.225 | Under valued |
| 3 | (ACPL) | 2006 | 0.673 | 0.254 | -0.204 | -0.458 | Over valued |
| | | 2007 | 0.669 | 0.488 | 0.283 | -0.206 | Over valued |
| | | 2008 | 0.821 | -0.564 | -0.863 | -0.299 | Over valued |
| | | 2009 | 2.225 | 1.278 | 0.789 | -0.490 | Over valued |
| | | 2010 | 0.991 | 0.264 | 0.165 | -0.099 | Over valued |
| 4 | (LUCK) | 2006 | 1.183 | -0.183 | -0.463 | -0.279 | Over valued |
| | | 2007 | 1.834 | -0.297 | 0.741 | 1.037 | Under valued |
| | | 2008 | 1.385 | -1.322 | -1.132 | 0.190 | Under valued |
| | | 2009 | 1.551 | 0.931 | 0.971 | 0.040 | Under valued |
| | | 2010 | 1.110 | 0.281 | 0.119 | -0.163 | Over valued |

| 5 | (CHCC) | 2006 | 0.076 | 0.767 | -0.919 | -1.686 | Over valued |
| | | 2007 | 0.855 | 0.363 | -0.078 | -0.441 | Over valued |
| | | 2008 | 0.887 | -0.653 | -1.123 | -0.470 | Over valued |
| | | 2009 | 0.708 | 0.523 | -0.073 | -0.596 | Over valued |
| | | 2010 | 0.442 | 0.185 | -0.251 | -0.436 | Over valued |
| 6 | (DCL) | 2006 | 1.075 | -0.090 | -0.550 | -0.460 | Over valued |
| | | 2007 | 2.319 | -0.623 | 0.568 | 1.191 | Under valued |
| | | 2008 | 1.587 | -1.595 | -1.142 | 0.454 | Under valued |
| | | 2009 | 3.767 | 2.072 | 0.485 | -1.588 | Over valued |
| | | 2010 | 2.031 | 0.415 | 0.095 | -0.320 | Over valued |
| 7 | (KOHC) | 2006 | 0.402 | 0.487 | -0.864 | -1.351 | Over valued |
| | | 2007 | 0.637 | 0.509 | 0.670 | 0.160 | Under valued |
| | | 2008 | 0.711 | -0.416 | -1.014 | -0.598 | Over valued |
| | | 2009 | 3.155 | 1.757 | 0.221 | -1.536 | Over valued |
| | | 2010 | 0.287 | 0.162 | 0.038 | -0.124 | Over valued |
| 8 | (GLPL) | 2006 | 0.164 | 0.691 | -0.646 | -1.338 | Over valued |
| | | 2007 | 0.578 | 0.549 | 0.137 | -0.411 | Over valued |
| | | 2008 | -0.133 | 0.719 | -0.119 | -0.838 | Over valued |
| | | 2009 | -0.780 | -0.270 | -0.623 | -0.352 | Over valued |
| | | 2010 | 0.689 | 0.220 | 0.032 | -0.188 | Over valued |
| 9 | (ATRL) | 2006 | -0.065 | 0.887 | -0.857 | -1.744 | Over valued |
| | | 2007 | 1.681 | -0.193 | 1.450 | 1.643 | Under valued |
| | | 2008 | 1.245 | -1.134 | -1.319 | -0.186 | Over valued |
| | | 2009 | 2.088 | 1.207 | 1.465 | 0.258 | Under valued |
| | | 2010 | 1.795 | 0.381 | 0.207 | -0.174 | Over valued |
| 10 | (FCCL) | 2006 | 1.140 | -0.146 | -0.430 | -0.285 | Over valued |
| | | 2007 | 1.165 | 0.153 | -0.005 | -0.159 | Over valued |
| | | 2008 | 0.775 | -0.503 | -1.144 | -0.641 | Over valued |
| | | 2009 | -0.090 | 0.074 | 0.097 | 0.023 | Under valued |
| | | 2010 | 1.182 | 0.292 | -0.169 | -0.462 | Over valued |

## VI. Conclusion

The basic aim of this study was to check the applicability of CAPM to KSE- Pakistan, (Karachi Stock Exchange), whether it gives accurate results. After the analysis of ten different companies listed on KSE, for the period of five years (2006-2010), it was found that the Capital Asset Pricing Model, (CAPM), failed to give accurate results. Though very slight evidence was seen, regarding the applicability of CAPM, but it was only in traces. These findings help in concluding that CAPM is not fully applicable to the KSE-Pakistan. A strong rejection has been seen, regarding the acceptance and applicability of CAPM (Levy, 1997). Even though significant evidence has been put forward against the use of CAPM, still it remains a good tool for finding out the cost of capital, investment performance evaluation, and studies of efficient market events (Moyer et al, 2001; Campbell et al, 1997). CAPM has provided knowledge, about the capital market and market conditions (Karnosky, 1993).

In short, CAPM is not an effective model to measure risk and required return, and investors, therefore may not depend or rely on it in their investment decisions. Future studies, may consider a detailed comparison of results from CAPM for KSE-Pakistan, and other stock markets of developing and developed states. These studies may also consider the use of more sophisticated tools (i.e. GARCH), and models like the multifactor models, Arbitrage Pricing Theory (APT). It is suggested that in future studies, CAPM should be tested individually and along with the multi-factor model (APT), for the better understanding of the risk/return relationship and pricing mechanisms.

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# Financial Analysis Review and Performance of Paper and Board Industry in Pakistan Economy Since 2001 To 2010

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*GJMBR-A Classification : FOR Code: 150202 JEL Code: G32, D92*

FINANCIAL ANALYSIS REVIEW ANDPERFORMANCEOFPAPERANDBOARD INDUSTRYINPAKISTANECONOMY SINCE2001 TO2010

*Strictly as per the compliance and regulations of:*

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Yasir Hassan[α], Kashif-ud-din[σ] & Abdul Munam Jamil Paracha[ρ], Muhammad Waqas[ρ], Ali Raza Khan[ρ], Sohaib Ahmed[ρ], Umair Saddique[ρ], Asad Abbas[ρ], Muhammad Waqas Rehmani[ρ]

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## I. Introduction

The word "paper" is consequential from the name of the thin plant papyrus, which grows plentifully along the Nile River in Egypt. Muslims took the craft of Papermaking from Central Asia in 751, and by 793 there were many mills in operation in various Arab countries. Baghdad was considered to be the paper-making capital of the world from the 9th to 12th century AD, until the city was destroyed by Mongol invasion in the early 13th century, and by another invasion in the 15th Century. Attendance records of these paper mills still remain in existence.

Paper was initially disfavored by the Christian Church as a manifestation of Muslim efforts to dominate trade and culture. Efforts were made for hundreds of years to boycott its use. Finally, in 1221 AD, a decree by Holy Roman Emperor Frederick II declared all official documents written on paper to be invalid. Due to great demand paper the use of paper became fashionable in Europe by the late 13th Century, and by the 14th century there were paper mills in several parts of Europe. The invention of the printing press in 1450 greatly increased the demand for paper in Europe. Supplies continued to be imported from Islamic countries till the 16th Century, until Europe became self-sufficient in paper production.

The advent of Industrial Revolution in Europe provided paper to the masses in sufficient quantity and low prices.

In china discovery of paper as we know it today is certified to Tsai Lun. He was respected as a patron saint of papermaking. It is said that Tsai Lun experiment with different resources and developed the art crushing the fiber of plants until each strand was divided. These separated fibers were mix with water and dipped into a huge vat. Then this layer of fiber was dried out and the product that was produced was paper. The paper was thin, flexible and strong and had a fine flat surface. The process of manufacture paper was kept a undisclosed within China till the 3rd century.

When the Moors of North Africa attacked Spain and Portugal they took the paper production method with them and paper making finally found its way to Europe in the 12th century. Charles Fenerty of Halifax finished the first paper from wood soft tissue (newsprint) in 1838. Charles Fenerty was serving a local paper mill maintain a sufficient supply of rags to create paper, when he succeed in making paper from timber pulp. He ignored to patent his invention and others did copyright papermaking process based on wood fiber.

In 1856, Englishmen, Healey and Allen, established a copyright for the first uneven paper. The paper was utilized to line men's tall hat. American, Robert Gear quickly made-up the corrugated cardboard box in 1870. On December 20, 1871, Albert Jones of New York NY original a stronger grooved paper (cardboard) applies as a ship material for bottles and glass lantern.

In 1874, G. Smyth builds the primary single sided uneven board-making instrument. Also in 1874, Oliver Long enhanced upon the Jones copyright and invented a lined corrugated cardboard.

(The first recorded historical place to grocery paper bags was completed in 1630. The use of paper sacks only really in progress to get off at some stage in the Industrial Revolution: between 1700 and 1800.)

With the passage of time there have been lots of changes in 'Paper Industry'. No doubt, in every country of the world it is a very important sector because today paper is used almost in each and every field of life

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as educational and non-educational, formal and casual, personal and social. Paper is used at every inch of our daily life i.e. for books, notebooks, diaries, newspapers, magazines, letter pads, different types of cards, raping papers, binding sheets, envelopes, bags for carrying grocery etc.

Different industries are very important but mostly they are field bound or it can be said that their scope revolves around some specific area. But paper industry has a vast scope having the reason that it is involved in every walk of life. Paper industry is a very active sector that also plays a vital role in the economy of a country.

Being a new and separate state, at the time of independence Pakistan was under developed.
Because of this reason Pakistan had no paper and paper board industrialized unit. The needs regarding paper were met through imports.

In 1952, first paper unit was established. Its production capacity was 500 tons per annum. Then additional units were put up in Punjab, Khyber Pakhtunkhwa and Sindh, producing a range of grades of paper, using local and imported unrefined materials. But due to poorly deliberate growth in the 80's and 90's, many of the units are lying closed from that occasion.

At present, in Pakistan there are about 100 units in the planned and unorganized sectors. Collectively, these units have a set up capability of 650 thousand tons per annum. The units in planned sector have a capability of 20 to 300 tons per day. The organized sectors have 575 thousand tons production capability from 26 paper manufacturing units. These units manufacture Writing, Printing Paper, Wrapping, Packing Paper, White duplex coated, Un-coated board, Chip Board and other board.

In Punjab, about 70 percent of the paper mills are located, in Sindh 20 percent and 10 percent in Khyber Pakhtunkhwa. Punjab has a vast concentration due to availability of abundant underground water and wheat straw used as primary raw material. Only a few mills have a capacity of more than 100 tons per day. Whereas, majority of the mills have low production capacities. Production capacity of these units ranges between 1500-88000 tons on annual basis.

## II. LITERATURE REVIEW

One of the serious problems facing the forest industry in coming decades will be the great demand for wood as raw material. In order to meet the increased demand for pulp, fiber and particle board, the supply of fiber raw material must be increased. One method of solving the problem would be to use the tree more effectively. Only 60-65 % of the total biomass of the tree is utilized today. Whole-tree utilization would mean an additional quantity of approximately 35 million solid cubic meters over bark. Short-term supply of wood in

reserve is also available due to neglected thinning and cleaning. (Nilsson, Wernius, 1976)[1]

A number of investigations have been carried out (Nihlgard, 1972; Nykvist, 1971; Tamm, 1969)[2] [3] [4] on the distribution of the biomass of the tree. A Finnish investigation (Hakkila, 1972)[5] gives the following figures:

| | |
|---|---|
| Stem wood, harvested, bark excl. | 57 % |
| Bark from stem wood | 6 % |
| Wood from logging residue, bark incl. | 6 % |
| Branches, incl. bark and needles | 19 % |
| Stumps and roots bark incl. | 12% |

In Sweden, (Nykvist, 1971)[3] among others has obtained approximately the same figures as a result of his investigations. This indicates that the following distribution of the bio mass of pine and spruce may be taken as an average:

| | |
|---|---|
| Stem wood including bark | 65 % |
| Branches and top incl. needles and bark | 20 % |
| Stumps and roots | 15 % |

(Blosser, 1980)[6] Describe some of the problems and challenges facing the forest products industry as a result of environmental regulations and paying attention on in formational and personnel wants. (Gould, 1980)[7] Analyzed the environmental legislation of the past decade and noted that industry and government cooperation will streamline regulation in the 1980s. Early control efforts were reviewed and it was noted that an adversary approach was taken. The costs of compliance to consumers were discussed and the trends of future regulations were examined.

With steady development of pulping and papermaking processes, a larger proportion of mill effluents will become occasional or accidental discharges. Measures suggested by (Nilsson and Ahlgren, 1972)[8] to prevent these for both economic and cologne reasons included (a) the construction of comparatively large collection tanks ( 100 to 1,000 cu m ) for gradual release of collected spillage not including disturbance to the overall operation; (b) collection and recirculation of leakage, spillage, and overruns; (c) installation of an alarm system to register high discharge levels; and (d) correct dimensioning of bottlenecks, such as screen room and evaporation plants.

The principal purpose of a study by (Myers,244)[9] were to establish the typical composition of wastepaper in household trash and to provide some insight into the ability and willingness of individuals to divide wastepaper from household trash. Every day wastepaper discards averaged 0.53 lb/person (0.24 kg/person) and consisted of 47 percent newspapers, 13 percent magazines, 12 percent tough papers, and 28 per cent all other papers mixed. Nearly all volunteers

were willing to participate in an identical 14-day household wastepaper partition in the future, but 13 percent were not willing to do so on a permanent basis, and 12 percent would contribute in a permanent separate collection .

The weakened condition of book and the speed with which library collections are deteriorating concern all librarians. Many know that alum has been used by papermaker for many years to precipitate rosin sizes and that hydrogen ions derived from alum* are a major cause of paper deterioration. Most librarians may not appreciate that other sources provide a sufficient number of hydrogen ions to destroy paper and that alum was used intentionally for hundreds of years to preserve paper. Storage conditions, particularly excessive book stack temperatures, can destroy otherwise permanent papers (Smith 1969)[10].

## III. METHODOLOGY

Two types of tests are applied; first one was for observing the performance of Paper and Board industry over the years and second method for considering that which variable is more contributing for increasing the sales and Total Assets. In this study ANOVA is used for comparing the means of different variable from year 2001 to 2010. Multiple linear regressions can be help for predicting sales (dependent variable) and profit after tax (dependent variable) by considering paid-up capital, no. Of share, equity, profit before tax and total assets (explanatory/independent) variables.

## IV. EMPIRICAL RESULTS

A histogram is one of the basic quality tools. It is used to graphically summarize and show the distribution and variation of a process data set.
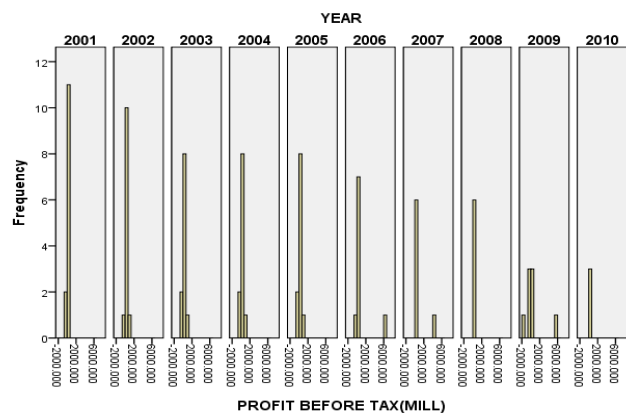


This graph clearly indicates that profit gain by companies before tax was maximum in year 2001 and year 2002 is on second number. Amazingly it is declining and in year 2009 and 2010 it has the minimum mean value.
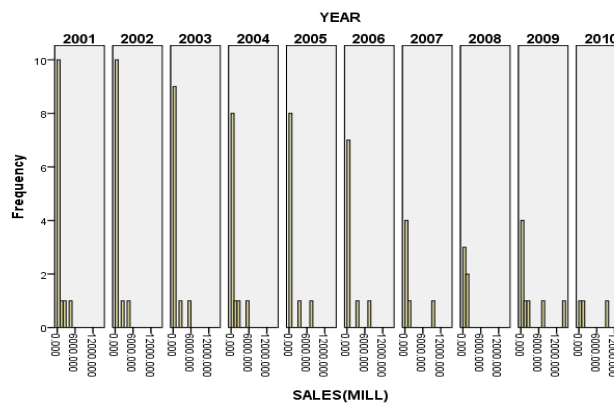


Sales graph is showing an interesting picture, as it is discussed before that profit before tax was minimum in 2001 but the average sales are maximum in 2001 and 2002. Now the point is this whether it is due to high financial bank charges other taxes or may be wrongly quoted Values.
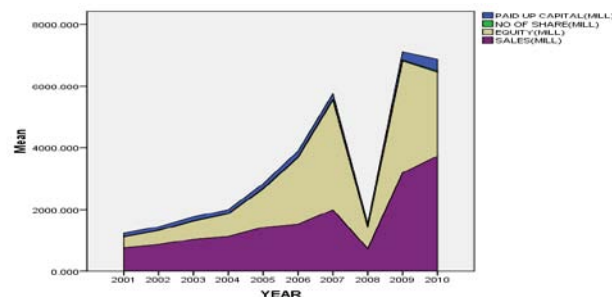


The line chart shows sales is slightly increasing from 2001 to 2007 then 2008 it is less than 2001. Then suddenly it increase in 2009 and 2010 and reached at highest point. Paid-up-Capital, No. of Share and Equity also behave same as Sales.
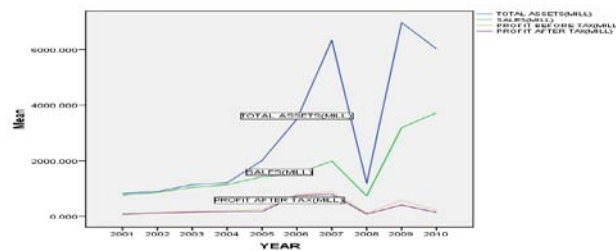


In 2001 the mean value of Total Asset was nearly 100 million and from 2004 to 2007 it increase, suddenly in year 2008 it rapidly decline but in the year 2009 the story was same as like 2004 to 2007. Profit before tax and profit after tax almost have the same trends.
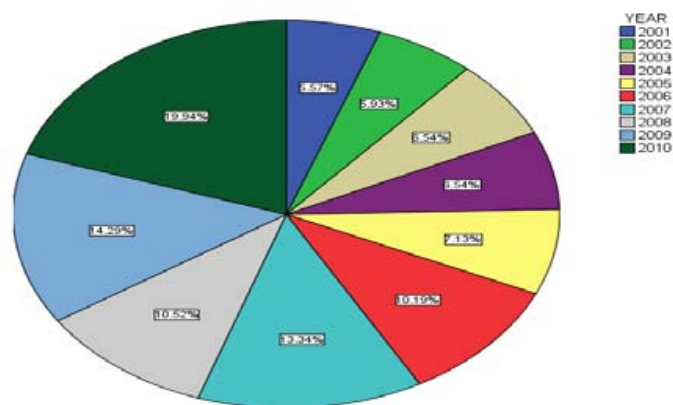
The pie chart show the paid-up capital is increasing from 2001 to 2003 it remain constant in 2004 than it increase from 2005 to 2010 and it would approx. 15% increase from 2001 to 2010.

|  |  |  | Year | Mean | S.D | CV |
|---|---|---|---|---|---|---|
|  |  |  | 2001 | 107.686 | 136.510 | 126.767 |
|  |  |  | 2002 | 114.493 | 139.915 | 122.204 |
|  |  |  | 2003 | 126.360 | 142.250 | 112.576 |
|  |  |  | 2004 | 126.360 | 142.250 | 112.576 |
| Paid-up-Capital(Rs. in millions) |  |  | 2005 | 137.635 | 191.204 | 138.922 |
|  |  |  | 2006 | 196.937 | 260.067 | 132.056 |
|  |  |  | 2007 | 257.618 | 286.381 | 111.165 |
|  |  |  | 2008 | 203.239 | 250.994 | 123.497 |
|  |  |  | 2009 | 276.107 | 313.376 | 113.498 |
|  |  |  | 2010 | 385.278 | 273.883 | 71.087 |
| Total |  |  |  | 1931.711 | 2136.830 | 1164.346 |
|  |  |  | 2001 | 11.673 | 13.413 | 114.912 |
|  |  |  | 2002 | 12.429 | 13.689 | 110.140 |
|  |  |  | 2003 | 13.536 | 13.937 | 102.962 |
|  |  |  | 2004 | 13.536 | 13.937 | 102.962 |
| No. of Shares |  |  | 2005 | 14.588 | 18.877 | 129.399 |
|  |  |  | 2006 | 16.386 | 24.590 | 150.068 |
|  |  |  | 2007 | 26.190 | 28.315 | 108.112 |
|  |  |  | 2008 | 12.494 | 21.735 | 173.960 |
|  |  |  | 2009 | 27.986 | 31.058 | 110.977 |
|  |  |  | 2010 | 38.528 | 27.388 | 71.087 |
| Total |  |  |  | 187.345 | 206.939 | 1174.579 |
|  |  |  | 2001 | 355.966 | 688.350 | 193.375 |
|  |  |  | 2002 | 453.578 | 805.054 | 177.490 |
|  |  |  | 2003 | 582.929 | 956.087 | 164.014 |
|  |  |  | 2004 | 724.319 | 1218.237 | 168.191 |
| Equity(MILL) |  |  | 2005 | 1125.346 | 2185.503 | 194.207 |
|  |  |  | 2006 | 2148.513 | 4200.306 | 195.498 |
|  |  |  | 2007 | 3553.646 | 6595.070 | 185.586 |
|  |  |  | 2008 | 696.593 | 1055.159 | 151.474 |
|  |  |  | 2009 | 3615.946 | 7552.159 | 208.857 |
|  |  |  | 2010 | 2728.469 | 1943.526 | 71.231 |

| Total | | 15985.306 | 27199.452 | 1709.924 |
|---|---|---|---|---|
| | 2001 | 827.892 | 1594.325 | 192.576 |
| | 2002 | 893.368 | 1608.133 | 180.008 |
| | 2003 | 1139.186 | 1729.145 | 151.788 |
| | 2004 | 1206.428 | 1818.712 | 150.752 |
| Total Assets(MILL) | 2005 | 1827.088 | 3212.619 | 175.833 |
| | 2006 | 3497.792 | 6918.704 | 197.802 |
| | 2007 | 6337.890 | 12153.732 | 191.763 |
| | 2008 | 1188.206 | 1127.138 | 94.860 |
| | 2009 | 6970.821 | 11641.955 | 167.010 |
| | 2010 | 6027.939 | 5839.149 | 96.868 |
| Total | | 29916.611 | 47643.612 | 1599.260 |

As we know that coefficient of variation is applied for checking the consistency, the table show that PAID-UP CAPITAL, NO. OF SHARE, EQUITY is showing consistency in 2010 While TOTAL ASSET is consistence in 2008.

| | Year | Mean | S.D | CV |
|---|---|---|---|---|
| | 2001 | 762.411 | 1210.009 | 158.708 |
| | 2002 | 866.072 | 1291.447 | 149.115 |
| | 2003 | 1042.674 | 1527.230 | 146.472 |
| | 2004 | 1133.743 | 1693.022 | 149.330 |
| Sales(MILL) | 2005 | 1424.354 | 2059.147 | 144.567 |
| | 2006 | 1529.419 | 2441.252 | 159.620 |
| | 2007 | 1989.853 | 3173.641 | 159.491 |
| | 2008 | 730.802 | 658.202 | 90.066 |
| | 2009 | 3188.778 | 4654.403 | 145.962 |
| | 2010 | 3725.616 | 4239.740 | 113.800 |
| Total | | 16393.724 | 22948.091 | 1417.131 |
| | 2001 | 92.386 | 165.224 | 178.841 |
| | 2002 | 1745.927 | 505.580 | 28.958 |
| | 2003 | 195.834 | 308.411 | 157.486 |
| | 2004 | 198.035 | 343.679 | 173.545 |
| Profit Before Tax | 2005 | 217.915 | 380.108 | 174.429 |
| | 2006 | 798.813 | 1967.557 | 246.310 |
| | 2007 | 773.785 | 1581.685 | 204.409 |
| | 2008 | 111.650 | 166.891 | 149.477 |
| | 2009 | 574.558 | 2044.560 | 355.849 |
| | 2010 | 214.304 | 216.475 | 101.013 |
| Total | | 4923.207 | 7680.171 | 1770.318 |
| | 2001 | 72.980 | 137.251 | 188.067 |
| | 2002 | 115.354 | 201.640 | 174.802 |
| Profit After Tax | 2003 | 151.168 | 248.979 | 164.704 |
| | 2004 | 169.206 | 277.222 | 163.837 |
| | 2005 | 157.965 | 286.456 | 181.342 |
| | 2006 | 751.498 | 1895.512 | 252.231 |

| | 2007 | 691.969 | 1486.383 | 214.805 |
|---|---|---|---|---|
| | 2008 | 71.344 | 103.594 | 145.204 |
| | 2009 | 411.735 | 1431.105 | 347.579 |
| | 2010 | 142.146 | 145.648 | 102.464 |
| Total | | 2735.363 | 6213.790 | 1935.034 |

SALES showing consistency in year 2008 because the value of CV=90.066 which is minimum value as compare to other. While the 2002 and 2010 are the years in which the PROFIT BEFORE TAX and PROFIT AFTER TAX respectively showing consistency.

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| Sales | Regression | 509347450.6 | 6 | 84891241.8 | 229.718 | .000$^a$ |
| | Residual | 29933182.09 | 81 | 369545.458 | | |
| | Total | 539280632.7 | 87 | | | |
| Paid-up-Capital(MILL) | Regression | 3782034.564 | 6 | 630339.094 | 1927.678 | .000$^b$ |
| | Residual | 26486.515 | 81 | 326.994 | | |
| | Total | 3808521.08 | 87 | | | |
| No. of Shares(MILL) | Regression | 3782034.564 | 6 | 630339.094 | 1927.678 | .000$^c$ |
| | Residual | 26486.515 | 81 | 326.994 | | |
| | Total | 3808521.08 | 87 | | | |
| Equity(MILL) | Regression | 1062476062 | 6 | 177079344 | 367.274 | .000$^d$ |
| | Residual | 39053799.79 | 81 | 482145.676 | | |
| | Total | 1101529862 | 87 | | | |
| Total Assets(MILL) | Regression | 3103080927 | 6 | 517180155 | 678.149 | .000$^e$ |
| | Residual | 61773394.51 | 81 | 762634.5 | | |
| | Total | 3164854322 | 87 | | | |
| Bank Financial Charges(MILL) | Regression | 4129288.851 | 6 | 688214.809 | 122.571 | .000$^f$ |
| | Residual | 454801.545 | 81 | 5614.834 | | |
| | Total | 4584090.396 | 87 | | | |
| Profit After Tax(MILL) | Regression | 66194172.81 | 6 | 11032362.1 | 146.738 | .000$^g$ |
| | Residual | 6089912.465 | 81 | 75184.105 | | |
| | Total | 72284085.28 | 87 | | | |

## V. HYPOTHESIS

i. *Sales*

$H_0$: $\mu 2001 = \mu 2002 = \mu 2003 = \mu 2004 = \mu 2005 = \mu 2006 = \mu 2007 = \mu 2008 = \mu 2009 = \mu 2010$

$H_1$: At least one mean is significantly different

ii. *Profit After Tax*

$H_0$: $\mu 2001 = \mu 2002 = \mu 2003 = \mu 2004 = \mu 2005 = \mu 2006 = \mu 2007 = \mu 2008 = \mu 2009 = \mu 2010$

$H_1$: At least one mean is significantly different

Since the p-value is less than 0.05 for sales, it means the null hypothesis will be rejected in the favor of alternative hypothesis. Similarly No. Of Share, Total Asset, Bamk/Financial Charges, Profit After Tax And Paid-Up Capital and Equity showing no differences in their means since 2001 to 2010.

ANOVA[d]

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 66194172.814 | 6 | 11032362.136 | 146.738 | .000[a] |
| | Residual | 6089912.465 | 81 | 75184.105 | | |
| | Total | 72284085.279 | 87 | | | |
| 2 | Regression | 66190799.602 | 5 | 13238159.920 | 178.152 | .000[b] |
| | Residual | 6093285.677 | 82 | 74308.362 | | |
| | Total | 72284085.279 | 87 | | | |
| 3 | Regression | 66058616.646 | 4 | 16514654.161 | 220.179 | .000[c] |
| | Residual | 6225468.633 | 83 | 75005.646 | | |
| | Total | 72284085.279 | 87 | | | |

$Pat = b_0 + b_1$ Bank)/Financial Charges $+ b_2$ Equity $+ b_3$ Sales $+ b_4$ Total Asset $+ b_5$ Paid-Up Capital $+ b_6$ No. Of Share

Profit After Tax (PAT) is considered as a dependent variable while Bank) / Financial Charges, Equity, Sales, Total Asset, Paid-Up Capital and No. of Share are independent/explanatory variables.

Coefficients[a]

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| | (Constant) | -10.813 | 38.616 | | -.280 | .780 |
| | BANK/FINANCIAL CHARGES(MILL) | -2.880 | .224 | -.725 | -12.851 | .000 |
| | SALES(MILL) | .122 | .048 | .332 | 2.536 | .013 |
| | TOTAL ASSETS(MILL) | .186 | .012 | 1.232 | 15.006 | .000 |
| | PAID UP CAPITAL(MILL) | -.969 | .343 | -.222 | -2.825 | .006 |

Profit after Tax (dependent) and Bank/Financial Charges, Equity, Sales, Total Asset, Paid-Up

Capital and No. of Share are independent/explanatory variables but with the help of backward method Profit After Tax is best described by (Bank) / Financial Charges and Paid-Up Capital Now the modal can be written as:

$PAT = b_0 + b_1$ (Bank)/Financial Charges $+ b_2$ Paid-up Capital

$PAT = -10.813 + -2.880$(Bank)/Financial Charges $+ -.969$Paid-up Capital

Model shows that Bank) / Financial Charges and Paid-up Capital has positive impact on Profit after Tax.

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| | (Constant) | 510.352 | 99.954 | | 5.106 | 0.000 |
| | EQUITY(MILL) | 0.414 | 0.032 | 0.592 | 12.76 | 0.000 |
| | BANK/FINANCIAL CHARGES(MILL) | 4.975 | 0.503 | 0.459 | 9.884 | 0.000 |

Sales (dependent variable) and Paid-Up Capital, No. Of Share, Equity, Total Asset and (Bank)/Financial Charges are consider as explanatory variables again backward method is applied and it shows that Equity and (BANK)/Financial Charges is best described the total Sales.

Modal can be written as:

Sales $= b_0 + b_1$ EQUITY $+ b_2$ (Bank)/Financial Charges

Sales $= 510.352 + 0.414$Equity $+ 4.975$ (Bank)/Financial Charges

Auto correlation is also finding between profit after tax and bank/financial charges

| x | y | Ŷ | y - Ŷ | e² | e | et-et-1 |
|---|---|---|---|---|---|---|
| -14.968 | 0.000 | -10.813 | 10.813 | 116.92097 | | |
| 0.301 | 2.084 | -16.81492 | 18.899 | 357.16918 | 10.813 | 346.356 |
| -7.254 | 0.000 | -10.813 | 10.813 | 116.92097 | 18.899 | 98.022 |
| 11.393 | 0.007 | -10.83316 | 10.840 | 117.50907 | 10.813 | 106.696 |
| 144.522 | 54.352 | -167.34676 | 221.699 | 49150.34 | 10.840 | 49139.500 |
| 16.128 | 9.835 | -39.1378 | 48.973 | 2398.3351 | 221.699 | 2176.636 |
| 2.749 | 69.334 | -210.49492 | 279.829 | 78304.224 | 48.973 | 78255.252 |
| 0.243 | 0.298 | -11.67124 | 11.969 | 143.26271 | 279.829 | -136.566 |
| 10.236 | 8.088 | -34.10644 | 42.194 | 1780.3708 | 11.969 | 1768.402 |
| 424.879 | 267.049 | -779.91412 | 1046.963 | 1096131.8 | 42.194 | 1096089.580 |
| 6.547 | 0.296 | -11.66548 | 11.961 | 143.077 | 1046.963 | -903.886 |
| 20.049 | 20.619 | -70.19572 | 90.815 | 8247.3134 | 11.961 | 8235.352 |
| 333.912 | 0.300 | -11.677 | 11.977 | 143.44853 | 90.815 | 52.634 |
| 0.859 | 1.838 | -16.10644 | 17.944 | 322.00293 | 11.977 | 310.026 |
| 0.217 | 0.023 | -10.87924 | 10.902 | 118.85884 | 17.944 | 100.914 |
| -5.767 | 0.525 | -12.325 | 12.850 | 165.1225 | 10.902 | 154.220 |
| 215.737 | 34.613 | -110.49844 | 145.111 | 21057.33 | 12.850 | 21044.480 |
| 10.136 | 9.961 | -39.50068 | 49.462 | 2446.4578 | 145.111 | 2301.346 |
| 17.439 | 49.596 | -153.64948 | 203.245 | 41308.725 | 49.462 | 41259.263 |
| -1.657 | 0.658 | -12.70804 | 13.366 | 178.65103 | 203.245 | -24.594 |
| 13.989 | 6.766 | -30.29908 | 37.065 | 1373.8202 | 13.366 | 1360.454 |
| 655.372 | 176.800 | -519.997 | 696.797 | 485526.06 | 37.065 | 485488.994 |
| 13.227 | 1.548 | -15.27124 | 16.819 | 282.88683 | 696.797 | -413.910 |
| 55.222 | 8.170 | -34.3426 | 42.513 | 1807.3212 | 16.819 | 1790.502 |
| 409.468 | 3.508 | -20.91604 | 24.424 | 596.53373 | 42.513 | 554.021 |
| 0.143 | 0.000 | -10.813 | 10.813 | 116.92097 | 24.424 | 92.497 |
| -10.334 | 4.436 | -23.58868 | 28.025 | 785.38269 | 10.813 | 774.570 |
| 270.822 | 31.189 | -100.63732 | 131.826 | 17378.179 | 28.025 | 17350.154 |
| 75.224 | 0.397 | -11.95636 | 12.353 | 152.6055 | 131.826 | 20.779 |
| -20.592 | 54.906 | -168.94228 | 223.848 | 50108.052 | 12.353 | 50095.699 |
| -13.622 | 0.944 | -13.53172 | 14.476 | 209.54647 | 223.848 | -14.302 |
| 22.450 | 9.106 | -37.03828 | 46.144 | 2129.2946 | 14.476 | 2114.819 |
| 813.513 | 151.308 | -446.58004 | 597.888 | 357470.11 | 46.144 | 357423.964 |
| 79.025 | 2.998 | -19.44724 | 22.445 | 503.7888 | 597.888 | -94.099 |
| 16.424 | 1.057 | -13.85716 | 14.914 | 222.43217 | 22.445 | 199.987 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 429.791 | 41.791 | -131.17108 | 172.962 | 29915.881 | 14.914 | 29900.967 |
| -1.016 | 0.116 | -11.14708 | 11.263 | 126.85697 | 172.962 | -46.105 |
| -6.345 | 3.592 | -21.15796 | 24.750 | 612.56052 | 11.263 | 601.297 |
| 255.621 | 22.586 | -75.86068 | 98.447 | 9691.7488 | 24.750 | 9666.999 |
| 42.477 | 0.526 | -12.32788 | 12.854 | 165.22223 | 98.447 | 66.776 |
| 98.994 | 45.511 | -141.88324 | 187.394 | 35116.414 | 12.854 | 35103.560 |
| 14.619 | 0.440 | -12.0802 | 12.520 | 156.75541 | 187.394 | -30.638 |
| 21.566 | 3.536 | -20.99668 | 24.533 | 601.85239 | 12.520 | 589.332 |
| 963.202 | 139.008 | -411.15604 | 550.164 | 302680.47 | 24.533 | 302655.938 |
| 18.708 | 1.240 | -14.3842 | 15.624 | 244.11563 | 550.164 | -306.048 |
| 65.896 | 2.678 | -18.52564 | 21.204 | 449.59435 | 15.624 | 433.970 |
| 387.546 | 2.332 | -17.52916 | 19.861 | 394.46568 | 21.204 | 373.262 |
| -0.273 | 0.112 | -11.13556 | 11.248 | 126.50761 | 19.861 | 106.646 |
| -6.206 | 3.758 | -21.6346 | 25.392 | 644.75874 | 11.248 | 633.511 |
| 237.309 | 22.016 | -74.21908 | 96.235 | 9261.1906 | 25.392 | 9235.799 |
| 32.705 | 1.171 | -14.18548 | 15.356 | 235.82148 | 96.235 | 139.586 |
| 69.346 | 13.863 | -50.738728 | 64.602 | 4173.3962 | 15.356 | 4158.040 |
| 3.899 | 0.486 | -12.21124 | 12.697 | 161.20721 | 64.602 | 96.605 |
| 20.096 | 11.186 | -43.029544 | 54.216 | 2939.3577 | 12.697 | 2926.661 |
| 1015.364 | 185.529 | -545.13652 | 730.666 | 533872.1 | 54.216 | 533817.886 |
| 24.205 | 0.491 | -12.22708 | 12.718 | 161.74956 | 730.666 | -568.916 |
| 59.429 | 4.296 | -23.18548 | 27.481 | 755.23174 | 12.718 | 742.514 |
| 281.742 | 0.107 | -11.12116 | 11.228 | 126.07158 | 27.481 | 98.590 |
| 0.226 | 0.000 | -10.813 | 10.813 | 116.92097 | 11.228 | 105.693 |
| -4.877 | 3.325 | -20.388136 | 23.713 | 562.29859 | 10.813 | 551.486 |
| 203.859 | 78.071 | -235.65748 | 313.728 | 98425.559 | 23.713 | 98401.846 |
| 8.306 | 15.203 | -54.59764 | 69.801 | 4872.1293 | 313.728 | 4558.401 |
| 0.747 | 1.200 | -14.268136 | 15.468 | 239.25395 | 69.801 | 169.453 |
| 27.526 | 24.005 | -79.9474 | 103.952 | 10806.101 | 15.468 | 10790.634 |
| 6100.780 | 78.909 | -238.07092 | 316.980 | 100476.27 | 103.952 | 100372.317 |
| 31.297 | 0.289 | -11.645032 | 11.934 | 142.41873 | 316.980 | -174.561 |
| 395.618 | 0.170 | -11.3026 | 11.473 | 131.62055 | 11.934 | 119.687 |
| 0.484 | 0.098 | -11.09524 | 11.193 | 125.28862 | 11.473 | 113.816 |
| 83.458 | 27.808 | -90.90004 | 118.708 | 14091.599 | 11.193 | 14080.406 |
| 79.576 | 25.962 | -85.584424 | 111.547 | 12442.672 | 118.708 | 12323.964 |
| 29.358 | 367.378 | -1068.8616 | 1436.240 | 2062784.3 | 111.547 | 2062672.757 |
| 4325.948 | 2.252 | -17.299624 | 19.552 | 382.27773 | 1436.240 | -1053.962 |
| 27.735 | 0.126 | -11.17588 | 11.302 | 127.73249 | 19.552 | 108.181 |
| 297.223 | 0.000 | -10.813 | 10.813 | 116.92097 | 11.302 | 105.619 |
| 0.613 | 0.000 | -10.813 | 10.813 | 116.92097 | 10.813 | 106.108 |
| 28.151 | 0.000 | -10.813 | 10.813 | 116.92097 | 10.813 | 106.108 |
| 71.166 | 48.391 | -150.17908 | 198.570 | 39430.077 | 10.813 | 39419.264 |
| 6.952 | 29.395 | -95.471752 | 124.867 | 15591.806 | 198.570 | 15393.236 |
| 23.760 | 2.510 | -18.04036 | 20.550 | 422.29675 | 124.867 | 297.430 |

| | | | | | | |
|---|---|---|---|---|---|---|
| 297.421 | 0.527 | -12.33076 | 12.858 | 165.32199 | 20.550 | 144.772 |
| 0.528 | 0.026 | -10.88788 | 10.914 | 119.11278 | 12.858 | 106.255 |
| -1054.144 | 1300.208 | -3755.412 | 5055.620 | 25559294 | 10.914 | 25559283.075 |
| -35.211 | 176.748 | -519.84724 | 696.595 | 485244.93 | 5055.620 | 480189.308 |
| -7.390 | 0.000 | -10.813 | 10.813 | 116.92097 | 696.595 | -579.674 |
| -37.346 | 67.605 | -205.5154 | 273.120 | 74594.753 | 10.813 | 74583.940 |
| 4063.924 | 1278.433 | -3692.7 | 4971.133 | 24712164 | 273.120 | 24711890.581 |
| 31.362 | 3.048 | -19.59124 | 22.639 | 512.53519 | 4971.133 | -4458.598 |
| 332.155 | 1.787 | -15.95956 | 17.747 | 314.94039 | 22.639 | 292.301 |
| 42.316 | 1141.099 | -3297.1781 | 4438.277 | 19698304 | 17.747 | 19698286.047 |
| 36.030 | 2.632 | -18.393736 | 21.026 | 442.08998 | 4438.277 | -3996.187 |
| 348.091 | 1.875 | -16.213 | 18.088 | 327.17574 | 21.026 | 306.150 |
| Sum | | | | 76047145 | | 76022129.844 |

$$d = \frac{\sum(e_t - e_{t-1})2}{\sum(e_t)2}$$

$$d = 0.999671$$

So according to Durbin-Watson table Ho is accepted which means there is no correlation between Profit after tax and Bank Financial Charges.

## VI. CONCLUSION

This study show that their sales is decreasing so Profit before tax and profit after tax slightly decrease from 2001 to 2010 this is because huge quantity of paper and paperboard was coming illegally into Pakistan from Afghanistan and other border countries that affect the Pakistan industry. For that purpose immediately remedial action must have to take to save the paper and paperboard industry of Pakistan. Following steps take to save paper and board industry:

- The government should boost competitiveness by bringing the prices low down International prices.
- Duty should be reduced on the imported raw material (including wood pulp, chem. waste paper, plant and machinery).
- Due to current flood many mills face very losses so government has to announce interest free loans for them for rehabilitation.
- Withdrawal of 15 per cent Excise Duty on locally produced paper and board.

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# Role of Packaging on Consumer Buying Behavior–Patan District

By Mr. Mitul M. Deliya & Dr. Bhaveshkumar Parmar

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*Abstract -* The aim of this article is to get the A study to point towards role of packaging on consumer buying behavior. The basic purpose of this it is to find out how such factors are behind the success of packaging. The purpose of this research is to know the relationship between independent variable and dependent variables. The research is based in Patan District of Gujarat (India). The packaging is the most important factor. The consumer buying behavior is dependent on the packaging and on its features. Packaging elements like Packaging color. Background Image, Packaging Material, Font Style, Design of wrapper, Printed Information and Innovation is taken as predictors. Due to increasing self-service and changing consumers' lifestyle the interest in package as a tool of sales promotion and stimulator of impulsive buying behavior is growing increasingly. So package performs an important role in marketing communications, especially in the point of sale and could be treated as one of the most important factors influencing consumer's purchase decision.

ROLEOFPACKAGING ON CONSUMERBUYINGBEHAVIORPATAN DISTRICT

*Strictly as per the compliance and regulations of:*

# Role of Packaging on Consumer Buying Behavior – Patan District

Mr. Mitul M. Deliya[α] & Dr. Bhaveshkumar Parmar[σ]

*Abstract -* The aim of this article is to get the A study to point towards role of packaging on consumer buying behavior. The basic purpose of this it is to find out how such factors are behind the success of packaging. The purpose of this research is to know the relationship between independent variable and dependent variables. The research is based in Patan District of Gujarat (India). The packaging is the most important factor. The consumer buying behavior is dependent on the packaging and on its features. Packaging elements like Packaging color. Background Image, Packaging Material, Font Style, Design of wrapper, Printed Information and Innovation is taken as predictors. Due to increasing self-service and changing consumers' lifestyle the interest in package as a tool of sales promotion and stimulator of impulsive buying behavior is growing increasingly. So package performs an important role in marketing communications, especially in the point of sale and could be treated as one of the most important factors influencing consumer's purchase decision.

*Keywords :* *Consumer Behavior, Packaging.*

## I. INTRODUCTION

In nowadays competitive environment the role of package has changed due to increasing self-service and changing consumers' lifestyle. Firms' interest in package as a tool of sales promotion is growing increasingly. Package becomes an ultimate selling proposition stimulating impulsive buying behavior, increasing market share and reducing promotional costs.

According to Rundh (2005) package attracts consumer's attention to particular brand, enhances its image, and influences consumer's perceptions about product. Also package imparts unique value to products (Underwood, Klein & Burke, 2001; Silayoi & Speece, 2004), works as a tool for differentiation, i.e. helps consumers to choose the product from wide range of similar products, stimulates customers buying behavior (Wells, Farley & Armstrong, 2007). Thus package performs an important role in marketing communications and could be treated as one of the most important factors influencing consumer's purchase decision. In this context, seeking to maximize the effectiveness of package in a buying place, the researches of package, its elements and their impact on consumer's buying behavior became a relevant issue.

Literature analysis on question under investigation has shown that there is no agreement on classification of package elements as well as on research methods of package impact on consumer's purchase decision. Some of researchers try to investigate all possible elements of package and their impact on consumer's purchase decision (Silayoi & Speece, 2004; Silayoi & Speece, 2007; Butkeviciene, Stravinskiene & Rutelione, 2008), while others concentrates on separate elements of package and their impact on consumer buying behavior (e.g., Vila & Ampuero, 2007; Madden, Hewett & Roth, 2000; Underwood et al., 2001; Bloch, 1995). Moreover some researchers investigate impact of package and its elements on consumer's overall purchase decision (e.g., Underwood et al., 2001), while others – on every stage of consumer's decision making process (e.g., Butkeviciene et al., 2008). Furthermore the abundance of scientific literature on this issue do not provide unanimous answer concerning impact of package elements on consumer's buying behavior: diversity of the results in this area depends not only on research models constructed and methods employed, but on the context of the research too. All above mentioned confirms the necessity to investigate this issue in more detail. In the light of these problematic aspects, research problem could be formulated as following question: what elements of a package have an ultimate effect on consumer purchase decision?

*The aim of this paper* – basing on theoretical analysis of package elements and their impact on consumer's purchase decision empirically reveal the elements having the ultimate effect on consumer choice in a case of different products.

## II. KEY TERMS DEFINED

### a) Consumer Buying Behavior

Process by which individuals search for, select, purchase, use, and dispose of goods and services, in satisfaction of their needs and wants.

### b) Packaging

Packaging can be defined quite simply as an extrinsic element of the product. Packaging is the container for a product.

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## III. LITERATURE REVIEW

Rita Kuvykaite (2009) has descriptive research. According to Rita package attracts consumer's attention to particular brand, enhances its image, and influences consumer's perceptions about product. Also package imparts unique value to products (Underwood, Klein & Burke, 2001; Silayoi & Speece, 2004), works as a tool for differentiation, i.e. helps consumers to choose the product from wide range of similar products, stimulates customers buying behavior (Wells, Farley & Armstrong, 2007). Thus package performs an important role in marketing communications and could be treated as one of the most important factors influencing consumer's purchase of package, its elements and their impact on consumer's buying behavior became a relevant issue. He basing on theoretical analysis of package elements and their impact on consumer's purchase decision empirically reveal the elements having the ultimate effect on consumer choice. Research methods that Rita used is systematic and comparative analysis of scientific literature; empirical research There are six variables that must be taken into Consideration by producer and designers when creating efficient package: form, size, color, graphics, Material and flavor. Similarly, Kotler (2003) distinguishes six elements that according to him must be evaluated when employing packaging decisions: size, form, material, color, text and brand. The research result of Rita shows the impact of package elements on consumers purchase decisions can be stronger. He conclude that Package could be treated as one of most valuable tool in today's marketing communications, necessitating more detail analysis of its elements and an impact of those elements on consumers buying behavior. The impact of package and its elements on consumer's purchase decision can be revealed by analyzing an importance of its separate elements for consumer's choice.

Bed Nath Sharma Dec. 2008 studied New Consumer Products Branding, Packaging and Labeling in Nepal. This paper focuses on existing practice of branding, packaging and labeling of new products in consumer product manufacturing units. The study method was Descriptive presentation of facts collected through questionnaire survey concerned with different section of consumer new products (soap, biscuit, noodles, cigarettes and The study further investigates the new consumer product packaging and labeling status in manufacturing units. They are aware about the value of packaging and labeling. Majority of the consumer products 84.37% (27 out of 32 responses) are using product label as a simple tag attached to the product or an elaborately designed graphic that is part of the package.

Alice Louw (2006) has studied The Power of Packaging the people belonged to Age 20-30 years old University graduates were taken for research.20

respondents were asked to rank 5 water bottles in terms of their overall appeal. Following this, they were given a questionnaire and asked to rate each of the bottles on 20 statements related their packaging. For the remaining 20 respondents, the order of the process was switched: they rated the bottles first and then ranked them. The statements ranged from functional attributes (e.g. easy to drink from, right size) to more emotive, non-functional attributes (e.g. I like the colors, high quality). For both groups there was a clear winner and a clear loser in terms of the rankings. However, although the top brand chosen was consistent in both groups, the worst brand differed. The group that ranked the bottles first showed more variance in terms of their responses (Variance 1.33) than the second group who rated the attributes first (variance 0.89). This Packaging plays an important role in the marketing context. His research results that right packaging can help a brand carve a unique position in the marketplace and in the minds on consumers.

John Th Gersen (2000) worked on The Ethical Consumer. Moral Norms and Packaging Choice published in Journal of Consumer Policy Kluwer Academic Publishers. Printed in the Netherlands. The paper presents a study of a case with these two characteristics: Danish consumers' choice presents a study of a case with these two characteristics: Danish consumers' choice of environment-friendly packaging. With regard to this case, the evidence supports the claim. A majority of Danish consumers have developed personal norms about choosing environment-friendly packaging and the personal norm is a significant predictor of their (self-reported) propensity to choose environment-friendly packaging in the supermarket.

Renaud LUNARDO 2007 has a great research on the influence of label on wine consumption. its effects on young consumers' perception of authenticity and purchasing behavior The main objective of the paper is to identify the effects of authenticity on purchase behavior. They used a repertory grid (RG) approach as a methodological framework in order to know which pattern of features is better at inducing purchase. All the relationships between authenticity provided by the label of bottles and consumer behavior attributes (performance risk, perceived price and purchase intentions) have all been tested by using linear regressions. This study was intended to provide a more complete understanding of the influence of the authenticity perceive from the label of bottled wine. As an attempt to extend the research on the influence label of bottled wine can have on consumers' decisions of buying, the current it is clear from these findings is the major role played by labels.

L Renaud 2007 worked on The Influence of Eco-Labeling on Consumer Behavior. The main objective of this study was to assess the relative importance of the labeling in Packaging compared to other product

attributes (like brand, price, etc.) for consumers' buying decisions. The methodological approach that they chose was discrete choice analysis, which is particularly powerful for this kind of analysis. Further this study attempts to analyze if the importance of the labeling and packaging differs between product groups. They surveyed a total of 302 customers; Two thirds of the interviews were conducted in the German-speaking. The Variables chose within this study are , present mood, time, buying purpose With regard to sustainability marketing, Time. The most important result of analysis is the significant willingness to pay for Packaging energy efficient products.

Adelina Broadbridge & Henry Morgan (2007), consumer buying behavior and perception toward retail and brand baby products. A two-stage research methodology consisting of both qualitative and quantitative research techniques was adopted. The population was defined as 'parents of children under the age of five who use baby care products'.

Both the qualitative and quantitative research showed that respondents adopted similar risk reduction strategies in their purchase of baby care products. This research investigated consumer perceptions and buying behavior of baby care products. The results of the primary research indicated that consumers need to feel confident with the product in terms of reliability and performance and packaging.

Bytyqi Hysen*, Vegara Mensur (2008) have research on analysis of consumer buying behavior in regard to dairy products in kosovo. This survey was carried out by the Department of Livestock and Veterinary Sciences, Agriculture Faculty of Prishtina, Kasovo during 2007. Interviews of 304 respondents were conducted in super-markets (677) and mini-markets (397) and later 23 interviews were completed in green market mainly for Sharri cheese and curd. To study the reasons for choosing milk products upon supply, a coding approach from 1- 5 was used (1 = very important; 2 = highly important; 3 = average; 4 = less important; 5 = not important). Perception of consumers about dairy products was assessed using different variables i.e. habits, trust, price, quality, package, age of consumer, origin of product, type of shop, brand and gender of consumer. It was conclusion after analysis that the packaging has great effect on the purchase of dairy products.

Rita Kuvykaite1, Aistė Dovaliene2, Laura Navickiene3 (2009) worked on impact of package elements on consumer purchase decision economics & management. Material are the most important visual elements for purchasing both milk (size and material 3.80) and washing-powder (resp.: 3.87 and 3.41); whereas, in this case form, color and graphic could be treated as unimportant elements of package. When analyzing importance of verbal elements, it could be stated that product information (4.24 for milk and 4.06

for washing-powder) and country-of-origin (resp.: 4.22 and 3.88) are the most important elements. Furthermore its worth to add, that producer and brand couldn't be underestimated too, because the importance of both of these elements is treated by customers above the average. Comparing the impact of visual and verbal elements of package on consumer's purchase decision it could be stated that verbal elements are more important than visual ones, when purchasing both milk and washing-powder. According to the research model developed the impact of package's elements on consumer's purchase decision depending on time pressure, consumer's involvement level and individual characteristics were analyzed.

H Ahasanul ,(K Ali 2009) measured the Factors Influencing Buying Behavior of Piracy Impact to Malaysian. A structured questionnaire was used to collect data whereby it was served as primary data to answer the research questions and objectives planning to find out the factors that plays a vital role about consumers perception towards pirated products. It can be identified that the dependent variable is consumer perception on piracy. Where else the independent variables would be divided to social influence, personality/believe, culture, and the economy. These are the factors that could influence consumers' perception on piracy thereby supporting out dependent variable. Social influence would include susceptibility, which means an individual might purchase a pirated product merely because his/ her friend or family members bought the product and introduced it to them.

Ulrich R. Orth (2009) worked on Packaging Design as resource for the construction of Brand Identity. A thorough review of the literature on packaging design reveals that there are no meaningful guidelines for developing holistic packaging design, Shapes, Finishes, Sizes, Images, Typography, Colors, Impressions, Purchase Intention, and Brand. This research was conducted by collecting information and data in four stages. First, a review of the branding literature determined a list of strategically relevant brand impressions for wine. Second, appropriate wine packaging design elements were identified and a sample of real and representative designs was selected. Third, professionals in the design and advertising industry rated wine packaging designs on the previously identified design elements. This research aimed at generating guidelines for managing strategic brand impressions, namely brand identity created by the wine packaging design

Kriti Bardhan Gupta (2009) has study on Consumer Behavior for Food Products in India. primary data was collected from 326 respondents in Uttar Pradesh and National Capital Region The relative importance of various food purchasing criteria was estimated for four different food categories, food and vegetables; milk and milk products; food grains and

pulses; and processed foods on 1-5 scale, The present study explored the consumer behavior for food products in India from different perspectives. People accepted the fact that their food habits get affected with the shifting to a new region but many basic buying and consumption behavior do not change. Some of the changes in buying and consumption behavior of relocated people, which were observed after their settlement to a new region, were not significantly different from the level of changes in behavior of non-moving people. However, compared to the last 10 years, people have started preferring more healthy foods and are willing to try out new dishes. They tend to learn cooking and eating new food items after relocation without discontinuing their traditional food items. There is also influence of children on the type of food items that they eat.

This paper has shown that impulse buying is indeed a relevant factor in CE retailing, thus justifying the use of sales packaging. However, optimization is still important. From an economical and environmental perspective it is very costly to apply sales packaging (with additional material use and transport volume) to products that do not need them, or to apply them in an ineffective way. Economical costs and environmental impact can be expressed in a single score, indicating the packs performance. To allow proper management of the pack design the sales performance should be expressed in as simple a way as possible, preferably also a single score. As calculating the sales performance is impossible a test will need to be used. The pressure from time-to-market in the CE industry, demands that the test be relatively simple.

S Nuntasaree and Dr. E Barry (2008) published a paper with subject of a model of male and consumer behavior in buying skin care products in Thailand.. The conceptual model of male consumer behavior in buying skin care products beliefs in product attributes Quality, Price, Brand, Packaging, Advertising, Promotion, Salesperson, Distribution. This study used a quantitative research method. A convenience sample with a shopping mall-intercept technique was employed for the sampling method. The closed-ended questionnaire developed from standard questions of relevant literature was chosen as a research instrument. The Statistical Package for the Social Sciences program (SPSS) version 15.0 was used in this study with a 0.05 level of significance for all of the statistical assessments. The data set was screened and examined for incorrect data entry, missing values, normality and outliers.

Several studies have investigated issues such as packages as a means of attracting the attention of consumers (Underwood et al., 2001; Garber et al., 2000; Goldberg et al, 1999; Schoormans & Robben, 1997). Other studies researched packages as a means of communication as well as a means of communicating brand and product meaning (Underwood & Klein, 2002; Garber et al., 2000, Schoormans & Robben, 1997; Gordonet al., 1994; Homer & Gauntt, 1992; Rigaux-Bricmont, 1981; McDaniel & Baker,1977).

Packages are found to attract attention (Underwood et al., 2001; Garber et al., 2000;Goldberg et al., 1999; Schoormans & Robben, 1997). In fact, Goldberg et al. (1999) found that by dismissing such non-verbal signs as colors, the attention to verbal signs can be increased. Pictures on packages are emphasized to attract attention, particularly when consumers are not very familiar with the brands (Underwood et al., 2001).

Furthermore, packages are claimed to attract attention when their appearances are not typical within a product class (Garber et al., 2000; Schoormans & Robben 1997). In other words, past research has discovered that deviating packages attract attention. Other studies show that deviating package colors and shapes attract attention (Garber etal., 2000; Schoormans & Robben 1997). Underwood et al. (2001), on the other hand, found that pictures on packages attract attention particularly in cases when consumers are less familiar with a brand. Studies that have focused on other single signs than pictures on packages have found that such single package signs as colors (Gordon et al., 1994), brand names (Rigaux-Bricmont, 1981), and materials (McDaniel & Baker, 1977) convey brand meaning.

Pires Gon¸calves, Ricardo (2008) worked on Product Characteristics and Quality Perception, according to him When they choose among competing products consumers are faced with quality and product performance uncertainty, hence, they rely on cues as extrinsic attributes, for instance brand, price, package and warranty, as signals of perceived quality. Little research has been done on packages as extrinsic attributes used by consumers as signs of perceived quality, thus this study is a small contribution to that lack of scholarly research on packages. Colors and shapes are important elements of marketing strategies, and they are both essential features of packages, especially in product labels. Labels are one of the most important features of product packaging, and they are designed to communicate a message. The model proposed in this study builds on previous models of consumer quality perception and signals of quality from product cues. In this research, colors and shapes combinations in labels are considered as the extrinsic attributes used as signals of quality by consumers.

Liang Lu (2008) worked on a paper :Packaging as a strategic tool University of Halmstad school of Business and Engineering. Packaging is an important part of the product that not only serves a functional purpose, but also acts as a mean of communicative information of the products and brand character. Packaging must be functional; it must protect the products in good storage, in shipment and often in use. Besides, it has also the function that can give customers

the ease of access and use on the purpose of convenience. After looking at Kolter theory about packaging, we will turn to different theory relating to packaging design and its important elements in order to help us to solve the first research question.

Judy Rex, Stuart Wai and Antonio Lobo (2003), it is An Exploratory Study into the Impact of Color And Packaging as Stimuli in the Decision Making Process for a Low Involvement Non-Durable Product The consumers and the manager agreed that important factors when deciding which packet of potato crisps to purchase were the quality, the brand and the price of the product, with flavor also being an important factor for the consumers. The consumers used a constant sum scale (out of 100) to rate the six attributes of flavor, quality, brand, price, size and shape, and the color of the packaging. Overall, the consumers indicated that the flavor of the product was easily the most important stimulus when selecting potato crisps with an average rating of 38 points. This was about twice as important as the quality (21 points), which was more important than the brand (14 points) and the price (13 points). While brand and price were of about equal importance,

P.H.K.Prathiraja and A.Ariyawardana (2003) has a great study in the impact of lutritional labeling on Consumer Buying Behavior. This study shows that consumers use nutritional labeling when making a purchasing decision and that it is especially because of health consciousness. A majority of the respondents revealed that they are willing to pay something additional for the nutritional information provided on food items. Of those who are willing to pay something additional, a greater proportion was in the age category 36 to 50 years, have had tertiary education and the households had less than 4 members.

K Sony (2008) studied the consumer responses toward attribute framing in product packaging. The main purpose of this study is to investigate the impact of message framing, level of involvement, and numerical difference on consumer response. Fresh-milk product was chosen as the object for experiment. This study has the following suggestion for packaging design based on the findings. Fresh milk is commonly considered as health-related product. The study is advantageous in giving marketers a more thorough picture of how message framing affects consumer response in various numerical alternatives and level of involvement. It will also be helpful in developing successful packaging strategy. For future study, different types of products can be investigated further.

Asso. Professor Jane (2005), Consumer Response to Sponsorship Leveraged Packaging (SLP). Structural equation modeling (SEM) was used to analyses the data from the experiment. This program of research aims to test a model that examines the structural relationships between SLP and consumer attitudes and purchase intentions toward the sponsors'

products as well as the factors that impact this relationship. Research suggests sponsorship leverage packaging may act in a similarly way to celebrity endorsement on product packaging, implying that FMCG brands may benefit from marketing strategies that communicate the sponsorship relationship on packaging. It is critical that brand managers identify the affect SLP has on consumer behavior and evaluate the degree to which it can enhance communication of the sponsorship relationship in the marketplace. This paper outlines a framework of consumer response to SLP, proposing a three step process of exploratory and experimental methodologies. The outcomes from the research will contribute to a better understanding of sponsorship effects on consumer behavior and provide managers with the means to develop more effective branding strategies and promotions.

## IV. THEORETICAL FRAMEWORK

Theoretical frame-work focuses on the relationship between the dependent and independent variables. The distinction between dependent and independent variables is as important in a comparative study as in a regression analysis. Dependent variable in case of a comparative study is the one which we aim to predict and independent variables here are the ones who are used to predict the dependent variable.

### a) What is packaging?

The definitions of 'packaging' vary and range from being simple and functionally focused to more extensive, holistic interpretations. Packaging can be defined quite simply as an extrinsic element of the product (Olson and Jacoby (1972)) - an attribute that is related to the product but does not form part of the physical product itself. "Packaging is the container for a product – encompassing the physical appearance of the container and including the design, color, shape, labeling and materials used" (Arens,1996).

### b) Objectives of packaging

Packaging and package labeling have several objectives:

- **Physical Protection –** Protection of the objects enclosed in the package from shock, vibration, compression, temperature, etc.
- **Barrier Protection -** A barrier from oxygen, water vapor, dust, etc.
- **Containment or Agglomeration -** Small objects are typically grouped together in one package for transport and handling efficiency. Alternatively, bulk Commodities (such as salt) can be divided into packages that are a more suitable Size for individual households.
- **Information transmission -** Information on how to use, transport, recycle, or Dispose of the package or product is often contained on the package or label.

- **Reducing theft -** Packaging that cannot be re-closed or gets physically damaged
- (Shows signs of opening) is helpful in the prevention of theft. Packages also Provide opportunities to include anti-theft devices.
- **Convenience -** features which add convenience in distribution, handling, display, Sale, opening, re-closing, use, and re-use.
- **Marketing -** The packaging and labels can be used by marketers to encourage Potential buyers to purchase the product. Packaging may be looked at as several different types. For example a transport package or distribution package can be the shipping container used to ship, store, and handle the product or inner packages. Some identify a consumer package as one which is directed toward a consumer or household.

Packaging may be discussed in relation to the type of product being packaged: medical device packaging, bulk chemical packaging, over-the-counter drug packaging, retail food packaging, military material packaging, pharmaceutical packaging, etc.

Theatrical Frame work
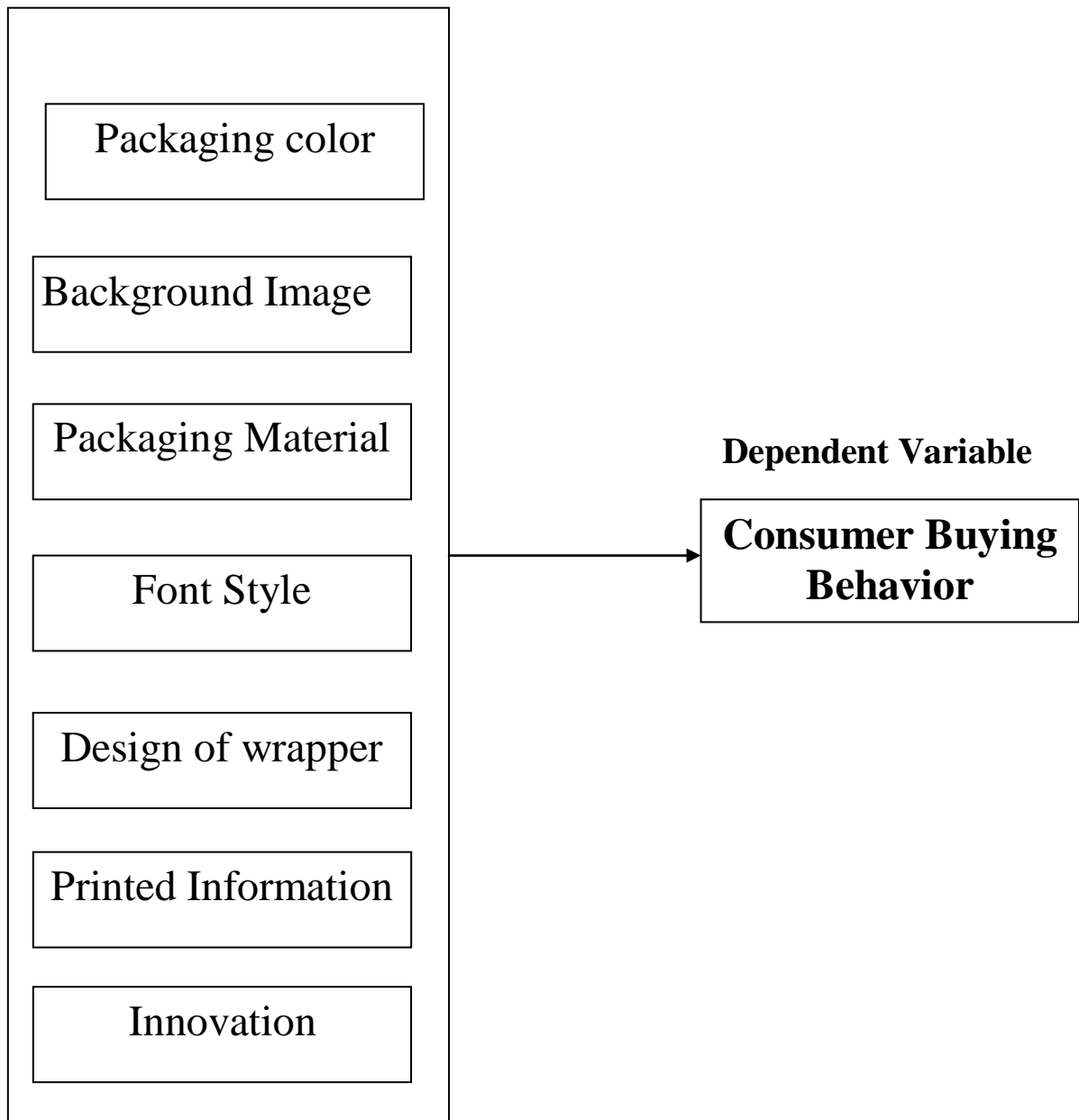
*Independent Variable*

1. Packaging color
2. Background Image
3. Packaging Material
4. Font Style
5. Design of wrapper
6. Printed Information
7. Innovation

*Dependent Variable*

Consumer Buying Behavior

## c) Packaging color

Color plays an important role in a potential customer's decision making process, certain colors set different moods and can help to draw attention. One good example of successful use of color psychology is in the Apple iPod advertisements; they use simple tri tone color schemes of black, white and a bright background color. The bright background color is to give the advertisement a fun feel and the contrasting white on black is to focus attention.

### i. Meaning of the Color Blue

Blue is the most common favorite color and is liked by both genders. Blue is seen as a trustworthy, peaceful and calm color and is often related to the sky or water. Blue is usually cool and quiet but more electric shades can give a dynamic feel. Although blue has the benefits of gender indifference and being the most common favorite color, the overuse of blue can seem cold or uncaring. Blue is often used because it is the designer's favorite color but after considering the meaning of other colors, another color may be a better choice.

### ii. Meaning of the Color Green

Green is related to life and nature; if you want to give your product a natural feel use green. Green is the second most popular color and the most popular shades of green are the blue-greens, which should be expected when blue and green are the two most popular colors. Yellow-greens should be avoided around food products as the color will act as an appetite-depressant. As well as the natural feel greens have, they can also signify money, health and power.

### iii. Meaning of the Color Yellow

Yellow is a very useful color because it is the most easily noticed, it will grab the attention of a person so can be a good choice for things such as magazine advertisements which may usually be ignored due to ad blindness. Yellow signifies happiness, optimism and warmth but also caution. The main advantage of yellow is its attention grabbing feature so a combination of blue and yellow can be a successful color scheme which could create a cool and calm mood from the blue but still draw attention because of the yellow.

A sealed pack of diced pork from Tesco. It shows the cooking time, number of servings, 'display until' date, 'use by' date, weight in kg, price to weight ratio in both £/kg and £/lb, freezing and storage instructions. It says 'Less than 3% Fat' and 'No Carbs per serving' and includes a barcode. The Union Flag, British Farm Standard tractor logo, and British Meat Quality Standard logo are also present.

## d) Background-image

The background image property specifies the background image for an element. When setting a background image, authors should also specify a background color property that will be used when the image is unavailable. Note also that when the image is available, it is rendered on top of the background color. Thus, in any transparent areas of the image, the background color will be visible.

## e) Packaging Material

Any material used especially to protect something- packing, wadding. Consumer can change its decision regarding Packaging material. High quality Packaging attract consumer then low quality Packaging. The first packages used the natural materials available at the time: Baskets of reeds, wineskins (Bota bags), wooden boxes, pottery vases, ceramic amphorae, wooden barrels, woven bags, etc. Processed materials were used to form packages as they were developed: for example, early glass and bronze vessels. The study of old packages is an important aspect of archaeology. Iron and tin plated steel were used to make cans in the early 19th century.

Paperboard cartons and corrugated fiberboard boxes were first introduced in the late 19th century. Packaging advancements in the early 20th century included Bakelite closures on bottles, transparent cellophane over wraps and panels on cartons, increased processing efficiency and improved food safety. As additional materials such as aluminum and several types of plastic were developed, they were incorporated into packages to improve performance and functionality. So packaging material have strong have with buying behavior.

## f) Font Style

The font style of Packaging grabs customer attraction. The up gradation of IT technology have support this feature. The successful companies have best practices of the font styles. They hire specialist in composing which create mind blowing and attractive font styles. The attractive package has innovative font style. So we can say that there is relation between font style and buying behavior

## g) Design of wrapper

The overall design also plays a vital role in attracting the consumer. Mostly the children of 10-18

55

years are so sensitive to the design of wrapper. The companies try their best to create attractive design of packaging

*h) Printed Information*

Container or wrapper of the product is serves a number of purposes like protection and description of the contents, theft deterrence, and product promotion. The labels on packages are important components of the overall marketing mix and can support advertising claims, establish brand identity, enhance name recognition, and optimize shelf space allocations.

The consumer can change his decision on the basis of information printed on the packaging. Mostly in Merchandises and daily FMCG the consumer can perform evaluation on the basis of printed information.

*i) Innovation*

Innovative packaging may actually add value to the product if it meets a consumer need such as portion control, recyclability, tamper-proofing, child-proofing, easy-open, easy-store, easy-carry, and non breakability. Manufacturers today strive to have packaging that maintains the key equities of the brand, has stand out appeal on the retailer's shelf, and is sustainable but with lower production costs. The customer can adopt product on the basis of its innovative packaging, which shows the relation between buying behavior and innovation of packaging.

# V. Research Methodology

*a) Objective*

Research objectives include the objective of research of the researcher before starting any research. The researcher should determine the objective or the goal of the research for the smooth functioning of study. Predetermine objective should be of such that researcher fulfils in the certain period of time at minimum cost.

Following are the research objectives,

❖ To determine the role of packaging on Consumer Buying Behavior.
❖ To determine the influence factors of packaging on the consumer buying behavior.
❖ To know the most important factor of packaging on the consumer behavior.

i. *Sampling*

❖ Sample Size        :   150
❖ Sample Frame     :   Patan District
❖ Sampling Method: Simple Random Sampling
❖ Constraints: Time, No. of respondent, Biased opinion
❖ Sampling Error : Response–145, Non-response - 05
❖ Survey                :   Questionnaire

*b) Hypothesis*

H1: there is relationship between Buying Behavior and Packing color
H2: there is relationship between Buying Behavior and Background of Packing.
H3: there is relationship between Buying Behavior and Quality of Packing.
H4: there is relationship between Buying Behavior and Font Style.
H5: there is relationship between Buying Behavior and Wrapper Design.
H6: there is relationship between Buying Behavior and Printed Information.
H7: there is relationship between Buying Behavior and Packing Innovation.

*Dependent Variable*
Consumer Buying Behavior

*Independent Variable*

Packaging color
Background Image
Packaging Material
Font Style
Design of wrapper
Printed Information
Innovation

Each of above mentioned variable was measure by asking the seven questions by using the 5-points itemized rating type scale ranging from (1) strongly disagree to (5) strongly agree

# VI. Methodology

To make analysis of data it will use SPSS software in which we will make analysis in to two parts where part one will lead descriptive statistics that will be use to "describe and summarize data and include measures of central tendency (average) and dispersion (the spread of data or how close each other is to the measure of central tendency)"

1. Descriptive analysis

It is used first techniques for generating result is descriptive statistics.  It shows minimum, maximum, and mean values of data.

2. Scattered plots

A scatter plot is a type of mathematical diagram using Cartesian coordinates to display values for two variables for a set of data. The data is displayed as a collection of points, each having the value of one variable determining the position on the horizontal axis and the value of the other variable determining the position on the vertical axis. This kind of plot is also called a scatter chart,

3. Correlation

The Pearson's correlation is used to find a correlation between at least two continuous variables. The value for a Pearson's can fall between 0.00 (no correlation) and 1.00 (perfect correlation). Other factors such as group size will determine if the correlation is significant. Generally, correlations above 0.80 are considered pretty high.

4. Multiple regressions

Linear regression analysis estimates the coefficients of a linear equation, involving one or more independent variables, that best predict the value of the dependent variable.

## VII. Empirical Findings

a) Reliability Test

i. Dependent Variable

The Value of Cronbach's Alpha is bigger then 0.7 and also positive, which shows the reliability of dependent variables.

| Reliability Statistics | |
|---|---|
| Cronbach's Alpha | N of Items |
| 0.782 | 2 |

ii. Independent Variable

The data of independent variables or predictors is reliable. Because the value of Cronbach's Alpha is 0.858 which is greater then 0.7. The value is also positive, so the data used for analysis is reliable.

| Reliability Statistics | |
|---|---|
| Cronbach's Alpha | N of Items |
| 0.858 | 7 |

b) Descriptive Analysis

Table : 5.1
Descriptive Statistics

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Buying_Behavior | 145 | 1 | 5 | 3.73 | 0.920 |
| Valid N (listwise) | 145 | | | | |

In the above table 5.1 the minimum values, maximum values, mean values and the values of standard deviation of dependent Variable have been shown. Mean value provides the idea about the central tendency of the values of a variable. Number of observations of each variable is 145. Standard deviation and the extreme values (minimum in comparison to maximum value) give the idea about the dispersion of the values of a variable from its mean value. The Minimum value is 1 while Maximum value is 5. The Mean value is 3.73 with standard deviation of 0.92

Table : 5.2
Descriptive Statistics

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Packing_Color | 145 | 1 | 5 | 3.55 | 0.924 |
| Valid N (listwise) | 145 | | | | |

In the above table 5.2 the minimum values is 1, maximum values 5, and mean values 3.55 while the values of standard deviation is 0.924. Mean value provides the idea about the central tendency of the values of a variable. Number of observations of each variable is 145.

Table : 5.3
Descriptive Statistics

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Background | 145 | 1 | 5 | 3.66 | 0.942 |
| Valid N (listwise) | 145 | | | | |

The above table 5.3 the minimum value of 1 and maximum value of 5. The values can be deviated by 0.942. Which means that the mean value can varied by +0.942 or -0.942.

Table : 5.4
Descriptive Statistics

| | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Quality_Packing | 145 | 1 | 5 | 3.72 | 0.924 |
| Valid N (listwise) | 145 | | | | |

The above table 5.4 the minimum value of 1 and maximum value of 5. The values can be deviated by 0.924. Which means that the mean value can varied by +0.924 or -0.924.

58

*Table : 5.5*

Descriptive Statistics

|  | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Font_Style | 145 | 2 | 5 | 3.71 | 0.849 |
| Valid N (listwise) | 145 |  |  |  |  |

In the above table 5.5 the minimum values is 1, maximum values 5, and mean value is 3.71 while the values of standard deviation is 0.849. Mean value provides the idea about the central tendency of the values of a variable. Number of observations of each variable is 145.

*Table : 5.6*

Descriptive Statistics

|  | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Wraper_Design | 145 | 1 | 5 | 3.70 | 0.927 |
| Valid N (listwise) | 145 |  |  |  |  |

In the above table 5.6 the minimum values is 1, maximum values 5, and mean value is 3.70 while the values of standard deviation is 0.927. Mean value provides the idea about the central tendency of the values of a variable

*Table : 5.7*

Descriptive Statistics

|  | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Printed_information | 145 | 1 | 5 | 3.68 | 0.992 |
| Valid N (listwise) | 145 |  |  |  |  |

In the above table 5.7 the minimum values is 1, maximum values 5, and mean value is 3.68 while the values of standard deviation is 0.992. Mean value provides the idea about the central tendency of the values of a variable

*Table : 5.8*

Descriptive Statistics

|  | N | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|---|
| Packing_Innovation | 145 | 1 | 5 | 3.55 | 0.953 |
| Valid N (listwise) | 145 |  |  |  |  |

In the above table 5.9 the minimum values is 1, maximum values 5, and mean value is 3.55 while the values of standard deviation is 0.953. Mean value provides the idea about the central tendency of the values of a variable.

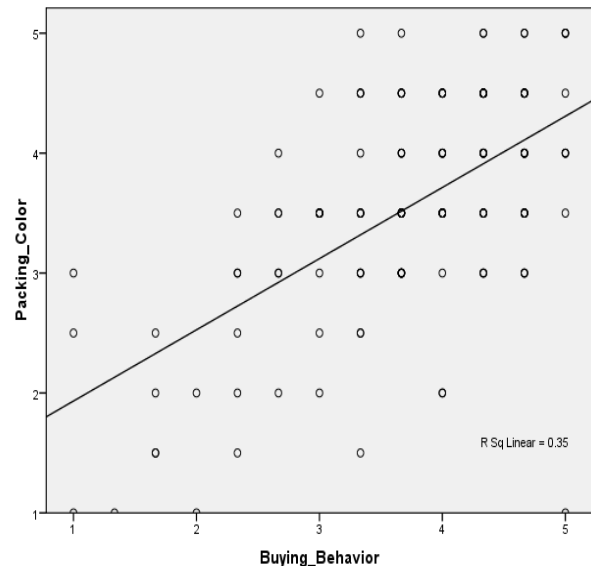c) *Scatter-Plot Matrix*

*Figure : 5.9*



Figure 5.9 shows the results of scatter plot matrix where we intend to have some idea about the relationship between buying behavior and color of packaging. If we observe then the flow of line is come from right to left which shows the positive relationship between buying behavior and color of packaging. This means that if the attractive colors are used in packaging then consumer will purchase product and the above results have been confirmed by the table of correlations.
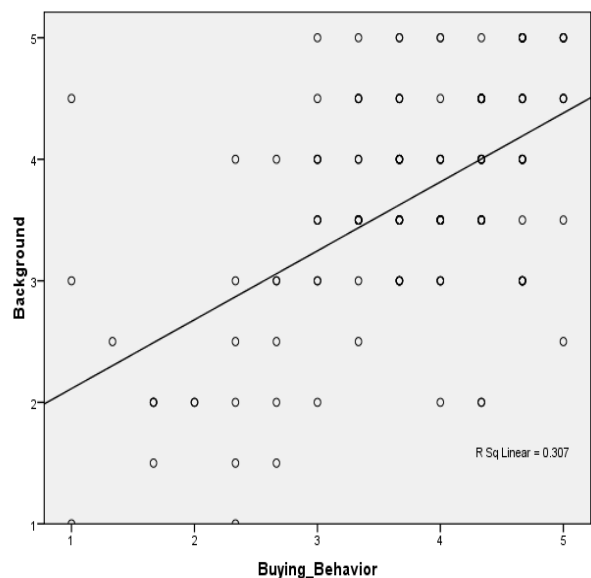
*Figure : 5.10*

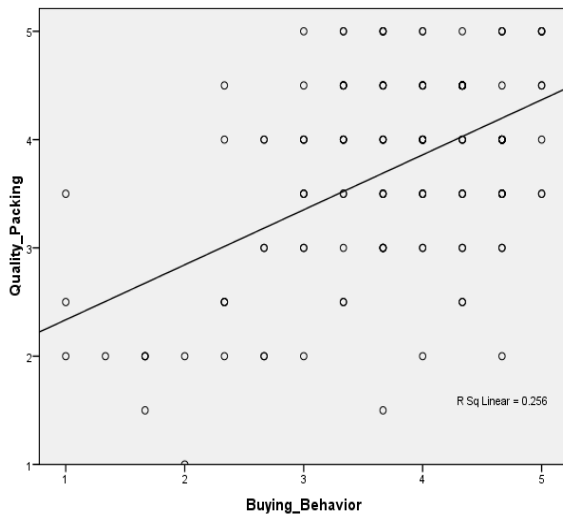Figure 5.10 shows the results of scatter plot matrix where we intend to have some idea about the relationship between buying behavior and background of packaging. If we observe then the flow of line is come from right to left which shows the positive relationship between buying behavior and color of packaging. This means that if the attractive background is used in packaging then consumer will purchase product and the above results have been confirmed by the table of correlations.

*Figure : 5.11*



Figure 5.11 shows the results of scatter plot matrix where we intend to have some idea about the relationship between buying behavior and quality of packaging. If we observe then the flow of line is come from right to left which shows the positive relationship between buying behavior and quality of packaging. This means that if the fine quality is used in packaging material then consumer will attract and the above results have been confirmed by the table of correlations.
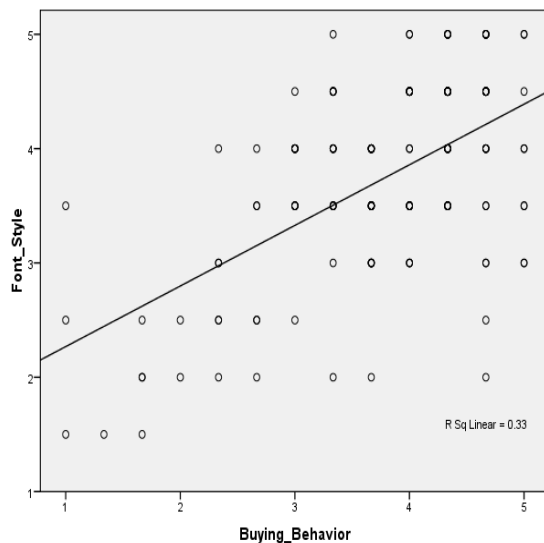
*Figure : 5.12*



Figure 5.12 shows the results of scatter plot matrix where we intend to have some idea about the relationship between buying behavior and font style used in packaging. If we observe then the flow of line is come from right to left which shows the positive relationship between buying behavior and quality of packaging.
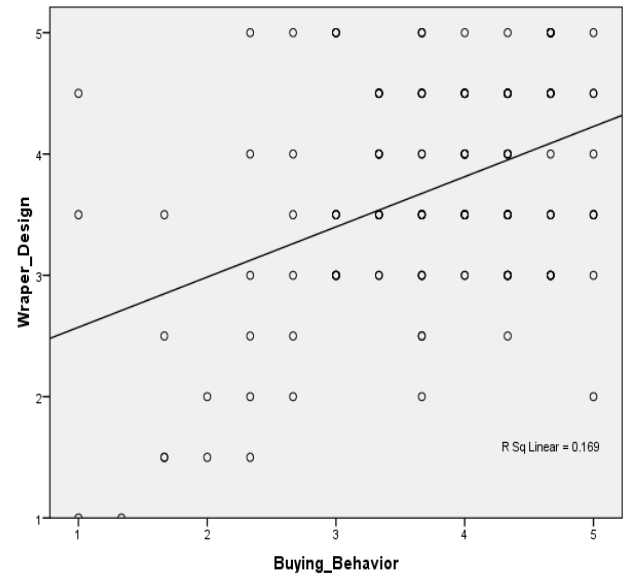
*Figure : 5.13*



Figure 5.13 shows the results of scatter plot matrix where we intend to have some idea about the relationship between buying behavior and design of wrapper. If we observe then the flow of line is come from right to left which shows the positive relationship between buying behavior and wrapper design. This means that attractive wrapper will attract consumer and the above results have been confirmed by the table of correlations.
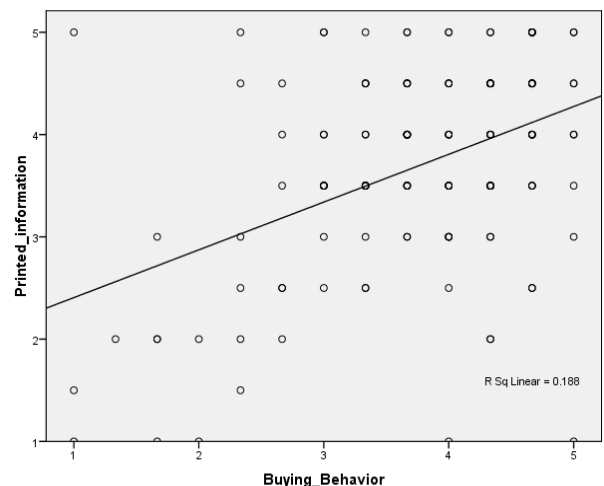
*Figure : 5.14*

Figure 5.14 shows the results of scatter plot matrix where we intend to have some idea about the relationship between buying behavior and design printed information. If we observe then the flow of line is come from right to left which shows the positive relationship between buying behavior and wrapper design. This means that if the printed information is used in packaging then consumer will attract and the above results have been confirmed by the table of correlations.
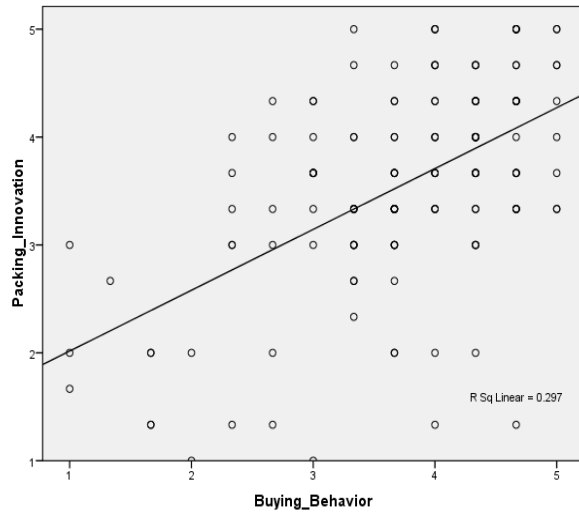
Figure 5.15 shows the results of scatter plot matrix where we intend to have some idea about the relationship between buying behavior and Packaging Innovation. If we observe then the flow of line is come from right to left which shows the positive relationship between buying behavior and wrapper design. This means that if the printed information is used in packaging then consumer will attract

*Figure : 5.15*

d) *Correlations*

*Hypothesis : 1*

H1: there is relationship between Buying Behavior and Packing color

*Table : 5.16*

Correlations

| | | Buying_Behavior | Packing_Color |
|---|---|---|---|
| Buying_Behavior | Pearson Correlation | 1 | .591 |
| | Sig. (2-tailed) | | .000 |
| | N | 145 | 145 |
| Packing_Color | Pearson Correlation | .591 | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 145 | 145 |

*\*\*. Correlation is significant at the 0.01 level (2-tailed).*

Table 5.16 represents the table of correlations. Where two variables – buying behavior and Packing color– are positively correlated (r= .591, p = .000). There is moderate relation between these two variables which is significant. So Hypothesis is accepted.

So we can say that the attractive packaging color can attract consumer. Consumer likes the colored

packaging. It also implies that using attractive colors in packaging we can grab customer attention.

*Hypothesis : 2*

H2: there is relationship between Buying Behavior and Background of Packing.

*Table : 5.17*

Correlations

|  |  | Buying_Behavior | Background |
|---|---|---|---|
| Buying_Behavior | Pearson Correlation | 1 | .554 |
|  | Sig. (2-tailed) |  | .000 |
|  | N | 145 | 145 |
| Background | Pearson Correlation | .554 | 1 |
|  | Sig. (2-tailed) | .000 |  |
|  | N | 145 | 145 |

*\*\*. Correlation is significant at the 0.01 level (2-tailed).*

Table 5.17 represents the table of correlations. Where two variables – buying behavior and Background of Packing are positively correlated (r= .554, p = .000). There is moderate relation between these two variables which is significant. So H2 is accepted.

It means that the customer can adopt product on the behalf of its packaging background. This result is also useful to marketer so that they create products with best possible background image.

*Hypothesis : 3*

H3: there is relationship between Buying Behavior and Quality of Packing.

*Table : 5.18*

Correlations

|  |  | Buying_Behavior | Quality_Packing |
|---|---|---|---|
| Buying_Behavior | Pearson Correlation | 1 | .506 |
|  | Sig. (2-tailed) |  | .000 |
|  | N | 145 | 145 |
| Quality_Packing | Pearson Correlation | .506 | 1 |
|  | Sig. (2-tailed) | .000 |  |
|  | N | 145 | 145 |

*\*\*. Correlation is significant at the 0.01 level (2-tailed).*

Table 5.18 represents the table of correlations. Where two variables buying behavior and Quality of Packing are positively correlated (r= .506, p = .000). There is moderate relation between these two variables which is significant. H3 cannot reject.

The result is clears that the consumer also evaluates the products on the behalf of its packaging quality. The better quality of package is proffered by customer.

Hypothesis : 4

H4: there is relationship between Buying Behavior and Font Style.

*Table : 5.19*

Correlations

|  |  | Buying_Behavior | Font_Style |
|---|---|---|---|
| Buying_Behavior | Pearson Correlation | 1 | .574 |
|  | Sig. (2-tailed) |  | .000 |
|  | N | 145 | 145 |
| Font_Style | Pearson Correlation | .574 | 1 |
|  | Sig. (2-tailed) | .000 |  |
|  | N | 145 | 145 |

*\*\*. Correlation is significant at the 0.01 level (2-tailed).*

Table 5.19 represents the table of correlations. Where two variables buying behavior and Font Style are positively correlated (r= .574, p = .000). There is moderate relation between these two variables which is significant. So H4 is accepted.

The result identifies that the font styles are also liked by customer. Consumer wants to have new experiments with font style.

*Hypothesis : 5*

H5: there is relationship between Buying Behavior and Wrapper Design.

*Table : 5.20*

Correlations

|  |  | Buying_Behavior | Wraper_Design |
|---|---|---|---|
| Buying_Behavior | Pearson Correlation | 1 | .411 |
|  | Sig. (2-tailed) |  | .000 |
|  | N | 145 | 145 |
| Wraper_Design | Pearson Correlation | .411 | 1 |
|  | Sig. (2-tailed) | .000 |  |
|  | N | 145 | 145 |

*\*\*. Correlation is significant at the 0.01 level (2-tailed).*

Table 5.20 represents the table of correlations. Where two variables buying behavior and Wrapper Design are positively correlated (r= .411, p = .000). There is moderate relation between these two variables which is significant. So H5 is accepted.

Hypothesis : 6

H6: there is relationship between Buying Behavior and Printed Information.

*Table : 5.21*

Correlations

| | | Buying Behavior | Printed Information |
|---|---|---|---|
| Buying_Behavior | Pearson Correlation | 1 | .433 |
| | Sig. (2-tailed) | | .000 |
| | N | 145 | 145 |
| Printed_information | Pearson Correlation | .433 | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 145 | 145 |

*\*\*. Correlation is significant at the 0.01 level (2-tailed).*

Table 5.21 represents the table of correlations. Where two variables buying behavior and Printed Information positively correlated (r= .433, p = .000).

There is moderate relation between these two variables which is significant. We will accept H1 and reject H0.

Hypothesis : 7

H7: there is relationship between Buying Behavior and Packing Innovation.

*Table : 5.22*

Correlations

| | | Buying Behavior | Packing Innovation |
|---|---|---|---|
| Buying_Behavior | Pearson Correlation | 1 | .545 |
| | Sig. (2-tailed) | | .000 |
| | N | 145 | 145 |
| Packing_Innovation | Pearson Correlation | .545 | 1 |
| | Sig. (2-tailed) | .000 | |
| | N | 145 | 145 |

*\*\*. Correlation is significant at the 0.01 level (2-ailed).*

Table 5.22 represents the table of correlations. Where two variables buying behavior and Printed Information positively correlated (r= .545, p = .000). There is moderate relation between these two variables which is significant. So there is significant relationship between Buying Behavior and Packing Innovation.

*e) Regression Analysis*

In above table the R is multiple correlation coefficient, its value is 0.729. While Adjusted R Square shows the ratio of interdependence. Value of adjusted R square is 0.507 which is multiply by 100. It that means 50.7% of the variance in the dependent variable can be predicted from Independent variable.

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .729[a] | .531 | .507 | .646 |

ANOVA[b]

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 64.787 | 7 | 9.255 | 22.191 | .000[a] |
| | Residual | 57.139 | 137 | .417 | | |
| | Total | 121.926 | 144 | | | |

The significant level in ANOVA table shows that the combination of variables significantly predicts the dependant variable.

Co-efficients<sup>a</sup>

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .274 | .297 | | .925 | .000 |
| | Packing_Color | .237 | .079 | .238 | 2.988 | .003 |
| | Background | .208 | .074 | .213 | 2.821 | .004 |
| | Quality_Packing | .059 | .079 | .059 | .748 | .001 |
| | Font_Style | .247 | .084 | .228 | 2.938 | .004 |
| | Wraper_Design | .040 | .076 | .040 | .520 | .004 |
| | Printed_information | .070 | .070 | .075 | .993 | .002 |
| | Packing_Innovation | .171 | .074 | .177 | 2.294 | .003 |

a. Dependent Variable: Buying_Behavior

*Model for Role of Packaging on Buying Behavior*

The objective of the regression in this study is to find such an equation that could be used to find the impact of predictors on dependent variable. The specified regression equation takes the following form:

$S = \alpha + \beta_1(PC) + \beta_2(BI) + \beta_3(PM) + \beta_4(FS) + \beta_5(DOR) + \beta_6(PI) + \beta_7(INV)$

Where

Packaging color = PC    Background Image = BI
Packaging Material = PM  Font Style= FS
Design of wrapper =DOR   Printed Information = PI
Innovation = INV

So equation comes as
Consumer Buying Behavior = 0.274 + 0.237(PC) + 0.208 (BI) + 0.059(RM) + 0.247(FS) + 0.040(DOR) + 0.070(PI) + 0.171(INV)

The significant levels of packing color, back ground of packing, quality of packing, font style, wrapper design, printed information and innovative packing are 0.003, 0.005, 0.001, 0.004, 0.004, 0.002, and 0.003 respectively. This test shows that the coefficients of the predictor are statistically significant at less than five percent level of significance. So we will reject Ho and accept H1.

## VIII. Conclusions

Results of research on role of packaging on consumer's buying behavior stipulated following conclusions:

➤ Package could be treated as one of most valuable tool in today's marketing communications, necessitating more detail analysis of its elements and an impact of those elements on consumers buying behavior.

➤ Appropriate and vivid picture or packaging color which delivers them a happy feeling, or an easy handle/open/dose/dispose package shape. All these elements contribute each important effort to catch consumers' attention and interest. Besides each element's single function, we think that a good combination of those elements may let the product more eye-catching and attractive.

➤ The impact of package and its elements on consumer's purchase decision can be revealed by analyzing an importance of its separate elements for consumer's choice. For this purpose main package's elements could be identified: graphic, color, size, form, and material of packaging are considered, wrapper design, printed information, innovation while product information, producer, country-of-origin and brand are considered as important ones. Moreover, the impact of package elements on consumers purchase decisions should be evaluated depending on the consumer's involvement level, time pressure or individual characteristics of consumers.

➤ Empirically testing the research model proposed, package elements having the ultimate effect on consumer choice in a case of different products from group of convenience goods were determined:

➤ It has revealed that elements of package are the most important for consumer's purchase decision. For a major part of consumers' a size and material are the main visual elements, while product information is also the main verbal elements when purchasing milk and washing-powder.

> Results of analyzing the impact of package elements on consumers purchase decisions depending on level of involvement correspond with those of theoretical studies and let us stating that visual elements of package have relatively stronger influence on consumer's purchasing when they are in the level of "low involvement", in opposite to those who are in the level of "high involvement".

> Packaging has a better reach than advertising does, and can set a brand apart from its competitors. It promotes and reinforces the purchase decision not only at the point of purchase, but also every time the product is used. Packaging in different serving sizes can extend a product into new target markets or help to overcome cost barriers. Packaging can even drive the brand choice (especially in the context of children's products).

> Research into packaging has found that different packaging cues impact how a product is perceived. Often the packaging is perceived to be part of the product and it can be difficult for consumers to separate the two (the concept of gestalt). Aspects such as packaging color, typography, illustrations and graphics can influence how a product is perceived.

> According to my research, I found out that most consumers like the product quality after they purchased their desired packaged products. Based on those facts, we can not say there is a 100% equal relationship between good package and good product quality, but there is a positive thinking and trend about well-designed package shows high product quality. As a matter of fact, people are becoming more and more demanding; packaging has been gradually shown his important role in a way to serving consumer by providing information and delivering functions. With its different functionality to ease and to communicate with consumers, there is no doubt about increasingly important role of packaging as a strategic tool to attract consumers' attention and their perception on the product quality.

## IX.    Recommendations

> Brand is important and its strategy is in consideration in the units. Product packaging is valuable for brand equity, product differentiation, market segmentation, new product introduction, pricing, promotion etc. Brand name using plan implementation must be effective in the units.

> All the marketing units pay attention for good packaging. They accept that poor packaging is one of the causes of product failure in the market. It is necessary to set the packaging standard and to implement accordingly for better protection and promotion of a product.

> Consumer new product manufacturers mostly use the label in their products. Basically they describe that made it, where it was made, when it was made, what it contains, how to use it etc. Further more they believe that the consumers are properly guided by label to use the products. The information given in the label and its value have to be highlighted while promoting the product in the market. It must also be more useful technically.

> Researcher believes that culture difference does have an impact on companies' initiatives to design the product package, for instance, during our research; the choices of packaging colors are quite different between the West and Far East. Thus, we think that it is important for international companies to take a consideration of culture differences when they design the product package.

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# The Link between Standardisation and Business Development

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*Abstract -* By simple definition, the term 'standardisation' refers to the process of using a set of rules or procedures as a reference point or standard. A business, on the other hand, can refer to any company, institution (including research, scientific and academic), hospital, society or organisation whose objective is to provide services or sell products to communities and/or society while making invaluable contributions to humanity and the economy, at large [Rishan Singh, definitions in context of essay, 2011]. The evolution of businesses rely heavily on finances acquired from banks, external organisations, including the government, and consumer expenditure.

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THELINKBETWEEN STANDARDISATION AND BUSINESSDEVELOPMENT

Strictly as per the compliance and regulations of:

# The Link between Standardisation and Business Development

Rishan Singh

By simple definition, the term 'standardisation' refers to the process of using a set of rules or procedures as a reference point or standard. A business, on the other hand, can refer to any company, institution (including research, scientific and academic), hospital, society or organisation whose objective is to provide services or sell products to communities and/or society while making invaluable contributions to humanity and the economy, at large [Rishan Singh, definitions in context of essay, 2011]. The evolution of businesses rely heavily on finances acquired from banks, external organisations, including the government, and consumer expenditure. However, in order for a business to form international and national links with associate and other businesses, universal standards are implemented [R. Singh, personal writing, 2011]. When a product or service conforms to a set of specifications or requirements (standards), it is said to have all the essential features [8]. This essay shows the link between some standards and their impact on the prosperity of business, society and the economy.

In the world that we live in, we encounter people from different cultures who have different business backgrounds, ideas and ethics. Business ethics are usually for the benefit of businesses with the interest of the public in mind. While some smaller business owners run businesses for the sake of making money and the personal satisfaction of being called an entrepreneur, larger business owners and employees are pressured into providing high quality products and services that satisfy the standards required by smaller businesses (such as sole traders, close corporations, and partnerships). However, small and large businesses work together to sustain the development of each other [R. Singh, personal writing, 2011].

Communities throughout the world are attracted to selected services and products that businesses advertise in various media resources [R. Singh, personal understanding and writing, 2011]. Advertising is fundamental to large businesses like Nestle, Coca-Cola, Tiger brands, Old etc., so as to promote their products to consumers, however, the impact of their advertisements are envisaged at different degrees in different parts of the world. For example, say Ola screens a Magnum advert internationally to attract consumers to purchase their new flavoured ice-cream, depending on the countries that it is broadcasted in; the advert would have a different impact on the society in those countries. It is something like wine: Californians may like red wine, while South Africans may prefer sparkling white wine. However, statistically, Ola would have an idea as to which countries provide the most revenue to their business and the production planner would instruct the supply chain manager to manufacture a smaller quantity of their new ice-cream to those countries where it is not that widely sold. In this way, Ola would develop a standard for the quantity of that particular ice-cream to be supplied to manufacturers and supermarkets. This will reduce costs to Ola by producing and supplying only adequate quantities to supermarkets [R. Singh, personal deductions, 2011].

Supermarkets rely on consumers for business development [R. Singh, personal deductions, 2011]. Therefore the business communication between supermarkets and Ola will allow for Ola to develop profitably because the public will purchase more of the ice-cream that they like in specific parts of the world where they are supplied in adequate quantities [R. Singh, personal understanding and writing, 2011]. This cause the world economy to become enhanced and gain confidence [8].

This scenario applies to any product or service that is marketed through advertising. Say if banana farmers in the South African South Coast of Durban are in search of a pesticide to enhance their banana production, they would rather purchase it from a business that can guarantee environmental, food and health safety because these features in pesticides contribute to environmental governance [8] and user-friendliness [R. Singh, personal writing, 2011]. The latter adjective allows for pesticides to become more wide-spread and established in the international markets. It also allows for such pesticides to become available to other farmers through business associations [R. Singh, personal understanding, 2011].

Business associations and proper advertising of products and/or services enhance business profiles if customers pay with cash and if such customers continue to increase in individual businesses. Advertising in any form of media, is a 'manipulative technique' because it attract customers to purchasing products. Sometimes adverts are so overwhelming that it results in customers buying on credit and it can even

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inspire the poor or less fortunate to overspend their budgets. This behaviour by consumers result in financial crisis's in businesses [R. Singh, personal writing, 2011]. This was the case with the Global Financial Crisis in 2008, which was caused by people buying on credit in many businesses globally [8].

When good customers who purchase goods on credit are unable to pay their debts within 120 days of notice, they are handed over to attorneys. Business owners often have accountants and/or bookkeepers (depending on the size of the business one is working in) employed to handle the process of credit control [R. Singh, personal writing, 2011]. However, the Global Financial Crisis in 2008 also prompted businesses to employ people from different accounting firms to form alliances and to make the process of tackling the credit crises worldwide more effective, in an attempt of sustaining the economy [8]. In general, many accountants of larger businesses are from different specialist and professional backgrounds which increases their ability to give input in a single sector of business with objectivity. The subjective aspect of their inputs arise from the unfortunate circumstance that their knowledge is unable to be used synchronistically (in the case of collaborations between members of the same company) to contribute toward the development of a single business because their inputs are compartmentalised into sectors that promote the holistic development of a business [R. Singh, personal writing, 2011].

Business accounting diversity is beneficial to the global economy if the number of accountants who form part of the International Standards Committee in different businesses increase [5; R. Singh, personal writing, 2011]. This makes various accounting operations and procedures within such committees more transparent to economists and the general public nationally and internationally. This allows greater stability of the foreign exchange prices far and wide (R. Singh., personal deduction). In addition, in order to reduce the inflation of our oil and water prices, the International Federation of Accountants (IFA) has suggested that accountants undertake Continuing Professional Development (CPD) courses through various professional bodies so that their attitudes, ethics and professional values are tapered to fit the ethical framework of professional accounting standards. The values of the accounting ethical framework include (1) becoming independent and having the confidence to do what is right, and (2) to demonstrate leadership of being sensitive to the needs of their clients, stakeholders and the public while maintaining professional competence and judgement [5]. It is integral to believe that the success of all businesses rely on these ethical values of accountants, auditors and bookkeepers because it allows business professionals, economists and

accountants to pass judgement on financial information to the economy and public with a great degree of certainty i.e. the ethical framework contributes to global business practices with great benefits to the economy and the society [3; R. Singh, personal writing, 2011].

The emergence of the global financial crisis, in 2008, prompted private and public business stakeholders to adhere to international standards so as to overcome the drastic drift in the world economy. This was enhanced by the standards provided by the International Organisation for Standardisation (ISO) that helped the business community, e-business, health, innovation, measurement, safety and sustainability [8]. Therefore accounting standards allow businesses and accountants in different parts of the world to cope with financial crisis's, when they do occur, by allowing economists to reproduce high quality data that can be utilised by the financial markets, such as the Johannesburg Securities Exchange, with a high degree of confidence [R. Singh, personal writing, 2011]. The confidence and timely reporting of financial data, gives the community and the economy assurance that it is legitimate viz. it has been passed through the process of standardisation [8; R. Singh, personal writing, 2011]. However, this information may be broadcasted (advertised) at different time intervals in different parts of the world, and this may cause the business spirit of some international and local investors to dampen [R. Singh, personal writing, 2011]. The International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB) has therefore suggested that webcasting facilities be made available to all major business holders so that there would possibly be improvements in financial broadcasting and reporting in different countries. In addition, attempts are currently being made to include international financial interpreters and analysts on the FASB so as to inspire certainty in financial reporting by showing the public its synchronisation and unionisation [8].

However, during the Global Financial Crisis, harmonization required input from the public of other countries such as Asia, Europe and America, if it wanted to be successful. This caused the IASB and FASB to accept advice, suggestion and input from the government, regulators and society of those countries. In addition, the IASB and FASB used suggestions that were published in their paper entitled 'Reducing Complexity in Reporting Financial Instruments' to enhance global confidence by developing common solutions to communicate effectively and reduce the complexity in financial instruments [8]. The communication between both boards helped return confidence to the marketplace because investors, creditors, auditors, and others rely on credible, transparent and comparable financial information [R. Singh, personal writing, 2011].

The International Accreditation Forum, Inc. has recommended that all accreditation certificates be recognised in all parts of the world [9] so that people from different countries can work together in similar or same businesses or give input into the governance of other businesses in different parts of the world [R. Singh, personal writing, 2011]. This is not beneficial to the prosperity of the economy, if the businesses involved in such collaborations do not prosper in large numbers. Therefore this type of colleagueship is worthless to participating businesses and to society [R. Singh, personal writing, 2011].

In terms of trading, accreditation enables suppliers to have their products or services exported and imported to and from countries without health, safety, and environmental hazards between economies [9]. Individual businesses benefit because conformity standards, like the Metric System (SI units), have to be 'accredited' (or adhered to) by standard operation procedures (SOPs), like those in food and health laboratories [9; R. Singh, personal writing, 2011]. These SOPs ensure that the, testing and calibration, results provided by those laboratories to the scientific community, are accurate and reliable [R. Singh, personal writing, 2011].

Hence, accreditation provides global confidence among buyers and regulators in that the products of a business are technically compatible, high in quality and safe (e.g. biodegradable/recyclable products). This facilitates the free exchange of commodities without technical barriers that would otherwise increase costs for importers and consumers [9].

In small and large businesses the ability to listen, read and write English influences many strategic aspects of business decision-making. Ever since the evolution of the English language, since the 12th century from Ireland, it has become the official standard language for travel, shipping and commerce in the United States, Canada, India, the Middle East, Australia and Hong Kong. There are, however, a large number of countries where there are numerous native languages e.g. in South Africa there are 11 official languages (excluding sign language); as well as specialised businesses that require a knowledge of English to communicate effectively with other professionals in the business. These businesses include computing, engineering, science, technology, medicine, and law. In these specialities, English is needed because professionals are required to understand what said at presentations and meetings so as to ask intelligent questions about the content of the presentation (listening). Also in order to maintain proper records of statements and annual quarter reports, business professionals like lawyer and consultants, use writing styles that are unique to other professions (writing). Moreover, they require English proficiency to read policy

changes, to interpret them and to critically reflect back those changes (reading) [2]. Therefore, the wider the vocabulary of English in business professionals, the greater their ability to describe important ideas [2]. Some business leaders also use tonality and body language to enhance their point about particular ideas to the people listening e.g. of adjectives of tonality and body language are voice control, body language, and empathy [2].

Entrepreneurs need to learn English in order to land jobs in business because English is required to communicate clearly with contacts and potential clients, in most countries because it is an internationally recognised language. Although English is considered to be a language of greater intelligence and professionalism, linguistically no language is superior to another [7]. However, aspirant entrepreneurs should note that it is crucial for them to be able to converse in the language of the country that they decide to work in e.g. a South African working in Spain would make more invaluable contributions to the prosperity of the business he/she is working in, if he/she knows Spanish and English. This makes English as a standard language important to entrepreneurs, but is of a greater value if known with the language of the country one is living in [R. Singh, personal deduction and writing, 2011]. Furthermore, since English is a universal language, website advertisements of products and services in English attract many customers and enable even small business owners to sell their products to people around the world [6]. This means that English communication contributes towards the establishment of businesses in the international business arena [R. Singh, personal writing and conclusion, 2011].

For all forms of advertising, well-written products and service descriptions in English will therefore be vital for attracting new customers and keeping them up to date on new product and service offerings [6].

In businesses throughout the world, the most crucial and 'introverted' standard is the International System of Units (SI) which ultimately involves knowledge that is acquired through the scientific study of measurement (metrology) [1]. SI units are used in trade and commerce and it attempts to ensure that the public, employees or owners of businesses and the economy speak the same numerical language [Rishan Singh, personal writing, 2011]. In general, it is used as an internal control for individual businesses and it is utilised for conveying financial and statistical information relating to product design, manufacturing, marketing, and even labelling [4]. The Metric System (SI) is therefore considered an objective tool since it measures global significance in all aspects of business and at the same time it contributes enormously to global infrastructure in terms of providing precise, accurate and traceable measurements [1; R. Singh, personal writing, 2011]. In

the United States, for example, labelling products precisely is pivotal if the product is to find its place in the global marketplace. In the United States the precise labelling of products is achieved by manufacturers developing standards for labelling different products, in individual businesses according to who will be the ultimate buyer [4]. This avoids the unnecessary wastage of money in making unwanted labels. This means that food, beverage, clothing and other retail stores will have labelling requirements that are different compared to non-consumer products, like those in wholesale trade [R. Singh, personal writing, 2011]. The difference between wholesale trade and retail trade is that wholesale trade involves numerical communication between manufacturers [R. Singh, personal deduction, 2011] e.g. Unilever packaging 50 litres of a dishwashing liquid for sale to another manufacturer for use in producing another product. This allows the manufacturers to familiarise themselves with each other's metric unit standards and for the consumers in the United States to relate metric quantities to equivalent inch-pound quantities by familiarising themselves with the units displayed on product packaging labels as endorsed by the Fair Packaging and Labelling Act (FPLA) [example adapted from 4]. Therefore, it is very important to be familiar with the metric system of units in order to expedite global business and consumer activities [4]. In other words, if a litre of petrol costs R 10.50 in South Africa, the amount in the United States, United Kingdom, Australia, and other countries has to be calibrated to the corresponding value per litre of petrol in order to sustain corporate development, governance, and the world economy [R. Singh, personal deduction, 2011].

SI units are used objectively, but there are some countries were its usage has become prejudiced. These countries include: Taiwan, India, Japan, China and Hong Kong [R. Singh, personal writing based on reports using unstandardised SI units, 2011]. This severely highlights the need for measurement standards to become universal and this view is supported by the Bureau International des Poids et Mesures (BIPM) [1]. The BIPM [1] emphasises the economic benefits of using metrology because of its advanced nature 130 years since its inception, when the first reference standards were the metre and kilogram. The advances in metrology, and government investments, instil standardised operations in business and the economy by enabling metrologists to record data about standards effectively, by comparing the current scientific, technical, commercial, and social applications with those 130 years ago [1; Rishan Singh, personal deductions, 2011]. This permits precise and traceable measurements to be recorded. Hence, the BIPM has estimated a clear and large techno-economic benefit of approximately 40 million pounds in United Kingdom investments for metrology, with returns of over 5000 million pounds [1].

In order to buy and sell commodities between different countries, consumers need to have a full understanding into the importance of SI unit conversions. SI unit conversions sustain the economy e.g. between reserve banks around the world. And it enables excellent business communication among entrepreneurs in different countries e.g. a boutique owner who makes and sells bridal outfits, would report measurements in metres which is the universal SI measurement that is understood throughout the world. Furthermore, say if one had to pay for a product using the MoneyGram method, the Foreign Exchange of banks would be able to provide the exact exchange value inclusive of the commission. This is an example of standardisation as well because by reporting the commission value to customers the bank sustains its development by reducing the financial losses to the business, by making such transfers, while meeting the needs of customers [R. Singh, personal writing, 2011].

SI units are also used in other fields such as Biology, Chemistry, Electrotechnology, Metallurgy and nanotechnology. In scientific laboratories, metrologists calibrate laboratory equipment [1], like the weighting scale, pipettes and biurets [R. Singh, personal writing, 2011], that measure physical quantities of solids and liquids [1]. Metrologists also certify masses and volumes that lie outside standard measurements. This is particularly important in order to obtain precise measurements [1] of the resultant, needed compound when performing titrations and precipitating important medicinal compounds such as aspirin and panado [R. Singh, personal writing, 2011]. Therefore metrologists aid scientists to acquire technical standards that are used to, test, calibrate and inspect laboratory equipment as well as, provide researchers with proper results for reporting to the public and private sectors [1]. In contrast, the periodic table, which is a tabular grouping of elements, like sodium, calcium, magnesium, silver, gold, copper, lead, tin, lead, nickel and many others, according to their proton (atomic/weight numbers), is also a universally accepted standard for chemists and allied chemistry professionals. The periodic table, in addition to SI units, allow scientists from different countries to understand each other's scientific results at conferences and within research publications; especially when reporting on new and innovative discoveries [R. Singh, personal writing, 2011].

In order for a business to operate legally, it has to be accredited by an organisation which can provide consumers with confidence, that the products available for purchase are safe and secure [9]. This implies that accreditation assures consumers that the products sold, and services rendered, by a business, have conformed to certain professional standards. For example, if one purchases a new laptop and the instruction manual says' Brand demonstrates corporate social responsibility and has a certified environmental management system',

the consumer will be satisfied if he is a business professional and understands the value of environmental management system. Therefore consumers are more prone to purchase advertised products because advertising ensures consumers that a particular business is reliable. Thus it can be assured that accredited businesses would achieve greater profit margins compared to those who sell the same product needed by that person, but is not accredited [R. Singh, personal writing, 2011].

Therefore governing and sustaining a businesses' development (whether a commercial firm, a theatre stage, trade or even buying and selling) depends on the way it markets itself, both nationally and internationally, while conforming to standards. The marketing process of businesses can either be detrimental or fruitful to the economy, depending on how a business chooses to procure consumers to buy their products or utilise their services e.g. advertising as discussed above. Advertising, people buying on credit, metrology, the periodic table, and accreditation have all contributed in some way to the global financial crisis. Accreditation, however, has had a great influence on consumer expenditure especially when standards have been advertised, including on the internet. Industrially, extroverted qualities such as the sociability of staff members and reliability of service delivery can also have an impact on business success e.g. if Debonaires allows for a 60 minute delivery time for pizzas to their consumers in South Africa, then all Debonaires stores should utilise such a rule as a standard globally. This allows Debonaires to prosper by attracting more customers through their reliability of service delivery [R. Singh, personal writing, 2011].

Standards also contribute to design excellence and adherence to proper and optimal procedures in business. The great pyramids of Egypt is an example of metrological standardisation used on a huge scale, and even though this sort of developments encourage business suppliers to formulate their own standards to indicate to other suppliers, and even customers, that a product or service provided by them meet the proper requirements to perform in the manner it was intended for, in life there are impediments. English, a language barrier, is not a universal language to all businesses restricting business communication and reporting among members working in the same and/or similar businesses in different parts of the world. This causes the quality, safety, and customer protection of interactive trading to be lost [R. Singh, personal readings and writing, 2011].

In many ways, implementing standards in businesses have contributed positively to the economy and the business world, and have influenced or been influenced by, society. Some qualities are not standards but can be considered standards for the sake of doing proper business; its evolution and advancement. In general, English communication is a general confounder to many countries where business is done using native languages and also because this is a major contributor to fraud and tax invasion. The idea of standards is tainted in similar businesses due to international competitiveness in order to achieve personal growth at the expense of the economy and possibly even the society [R. Singh, personal writing, 2011]. In spite of this, overall, the hypothesis that there is a strong link between standardization and business development still holds true, and aspirant business professionals and management students should be aware of this at all levels of entrepreneurship. As far as is known, standardisation is important for business and economic development by allowing people to work cooperatively and in a coordinated manner, but its effects on society are quite different in that it aims, in some ways, to alleviate poverty and crime in the world we live in.

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## A<sub>CKNOWLEDGEMENTS</sub>

# Measuring the Systematic Risk of South Pars Field

By Vida Varahrami

*University of Tehran*

*Abstract -* Iran is the biggest producer of natural gas. The most significant energy development project in Iran is South Pars field which is the biggest natural gas field of world. Capital asset pricing model (CAPM) is a famous model for measuring relation between risk and return. In this paper we extract systematic risk ( $\beta$ ) of South Pars project which cannot be diversified away.

*Keywords :* Natural Gas, South Pars Field, Capital Asset Pricing Model (CAPM), Systematic  Risk ( $\beta$ ).

MEASURING THE SYSTEMATICRISK OFSOUTHPARSFIELD

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# Measuring the Systematic Risk of South Pars Field

Vida Varahrami

*Abstract -* Iran is the biggest producer of natural gas. The most significant energy development project in Iran is South Pars field which is the biggest natural gas field of world. Capital asset pricing model (CAPM) is a famous model for measuring relation between risk and return. In this paper we extract systematic risk ($\beta$) of South Pars project which cannot be diversified away.

*Keywords :* Natural Gas, South Pars Field, Capital Asset Pricing Model (CAPM), Systematic Risk ($\beta$).

## I. Introduction

The most significant energy development project in Iran is the offshore South Pars field, which produces about 35 percent of total gas produced in Iran. Discovered in 1990 and located 62 miles offshore in the Persian Gulf, South Pars has a 24 phase's development scheme spanning 20 years. Each phase has a combination of natural gas with condensate and gas liquids production. Phases 1-10 are online. The majority of South Pars natural gas development will be allocated to the domestic market for consumption and gas re-injection. The remainder will be exported as liquefied natural gas (LNG) and used for gas to liquids (GTL) projects.

In this paper, Section 2 provides background. In Section 3, CAPM is presented. In Section 4, systematic risk ($\beta$), section 5 South Pars field and in section 6 empirical results are presented and Section 7 covers conclusion.

## II. Background

A study by Douglas (1969) showed that intercepts were larger than existing risk free rates and the coefficients for the systematic risk were not significant. Sharpe and Cooper (1972) discovered a positive return and risk relationship between NYSE common stocks during the period 1931-67, although it was not completely linear.

Black, Jensen and Scholes (1972) studied the risk and return relationship for portfolio of stocks and found a positive linear relationship between monthly excess return i.e. return over and above the risk free rate and portfolio beta, although the intercept was higher than the expected value.

Fama and French (2004) revealed that empirical work since the late 1970s challenged the Black version of the CAPM. Specifically, evidence mounts that much of the variation in expected return is unrelated to market beta.

A study by Basu (1977) showed that when common stocks were sorted on the basis of earnings/price ratios, future returns on high E/P stocks were higher than those predicted by the CAPM. Banz (1981) documented a size effect; when stocks were sorted on the basis of market capitalization (price times shares outstanding), average returns on small stocks were higher than those predicted by the CAPM. Bhandari (1988) found that high debt-equity ratios (book value of debt over the market value of equity, a measure of leverage) also helped explain the cross section of average returns after both beta and size are considered. A study by Fama and French (1992) concluded that during the period 1963 to 1990, beta was not relevant. The study also showed that the most significant predictor variables were book to market value and size.

Ansari, Naeem and Zubairi (2005) stated that, according to CAPM, the market rewards risk bearing, since people are generally risk averse. The risk premium for the aggregate of all risky assets must be positive to induce people to hold the total amount of risky assets in a financial system. The market (according to CAPM theory) rewards only efficient risk bearing. The risk premium on any individual security is not related to its own risk but to its contribution to the total risk of an efficiently diversified portfolio.

Zubairi and Farooq (2011) investigates whether CAPM and APT are valid models for determining price/return of the fertilizer and the oil & gas sector companies listed on the Karachi Stock Exchange (KSE). The purpose of their research is also to identify plausible reasons for deviations from the theories. The conclusions arrived at through data analysis reveal weak correlation between realized excess returns (i.e. actual returns over and above the risk free rate) and the expected return based on CAPM. With respect to APT model, the study reflects that macroeconomic factors including changes in GDP, inflation, exchange rate and market return do not serve as valid determinants of returns on oil, gas and fertilizer stocks.

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## III. CAPM (Capital Asset Pricing Model)

CAPM developed by Sharpe (1964), Lintner (1965) and Mossini (1965) builds upon the "Portfolio Theory" introduced by Harry Markowitz (1959). CAPM presents the basis for determining the required rate of return on all risky assets[1].

The CAPM provides an elegant model of the determinants of the equilibrium expected return ERit on any individual risky asset in the market. It predicts that the expected excess return on an individual risky asset $(ER_i - r)_t$ is directly related to the expected excess return on the market portfolio $(ER_m - r)_t$, with the constant of proportionality given by the *beta* of the individual risky asset:

$$(ER_i - r)_t = \beta_i (ER_m - r)_t \qquad (1)$$

Where beta

$$\beta_i = cov\,(R_{it}, R_{mt})/\,var(R_{mt}) \qquad (2)$$

The CAPM explains the expected excess return on asset i, given the expected market excess return. The CAPM is not a predictive equation for the return on asset i, since both the dependent and independent variables are dated at time t. Rather, the CAPM implies that contemporaneous movements in $(ER_i - r)_t$ are linked to contemporaneous changes in the excess market return. $ER_{mt}$ is the expected return on the market portfolio and is the 'average' return from holding all assets in the optimal proportions w[2].

$ER_{mt}$ is the expected return on the market portfolio and is the 'average' return from holding all assets in the optimal proportions $w*_i$. Since actual returns on the market portfolio differ from expected returns, the variance var $(R_{mt})$ on the market portfolio is non-zero. The definition of firm i's beta, indicates that equilibrium expected return of asset i depends on:
(i) The covariance between the return on security i and the market portfolio, cov $(R_{it}, R_{mt})$
(ii) Is inversely related to the variance of the market portfolio, var $(R_{mt})$.

## IV. Systematic Risk ($\beta$)

If we define the extra return on asset i over and above the risk-free rate as a risk premium,

$$ER_i = r + rp_i \qquad (3)$$

Then the CAPM gives the following expressions for the risk premium:

$$rp_i = \beta_i\,(ER_m - r) =\,_{\lambda m} cov(R_i, R_m) \qquad (4)$$

The CAPM predicts that only the covariance of returns between assets i and the market portfolio influence the cross-section of excess returns, across

assets. No additional variables such as the dividend–price ratio, the size of the firm or the earnings–price ratio should influence the cross-section of expected excess returns. All changes in the risk of asset i is encapsulated in changes in cov($R_i, R_m$). Strictly, this covariance is a conditional covariance – the agent at each point in time forms her best view of the value for the covariance/beta[3].

## V. South Pars Field

This gas field covers an area of 9,700 square of which 3,700 square kilometers is in Iranian territorial waters and 6,000 square kilometers (North Dome) is in Qatari territorial waters[4].

The South Pars Field was discovered in 1990 by National Iranian Oil Company[5]. The Pars Oil and Gas Company. A subsidiary of NIOC has jurisdiction over all South Pars-related projects. Field development has been delayed by various problems - technical (i.e., high levels of mercaptans and foul-smelling sulfur compounds), contractual issues and recently politics[6].

Gas production started from the field by commissioning phase 2 in December 2002 to produce 1 billion cubic feet per day of wet gas. Gas is sent to shore via pipeline, and processed at Assaluyeh.

Condensate production from South Pars is currently 200,000 barrels per day, and by 2010, could increase to over 500,000 barrels per day. As of December 2010, South pars gas field's production capacity stands at 75 million cubic meters of natural gas per day. Gas production at South Pars rose by nearly 30% between March 2009 and March 2010. The field's reserves are estimated at 14 trillion cubic meters of natural gas and 18 billion barrels of natural gas condensates. Production at South Pars gas field will rise to 175 million cubic meters per day in 2012.

NIOC is planning to develop the field in 24 to 30 phases, capable of producing about 25 billion cubic feet to 30 billion cubic feet of natural gas per day.

Each standard phase is defined for daily production of 1 billion cubic feet of natural gas, 1500 tones of liquefied petroleum gas (LPG) and 200 tones of sulfur, however some phases have some different production plans.

By the beginning of 2008 phases 1, 2, 3, 4 and 5 has been brought to production and by the end of

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2008 phases 6, 7, 8, 9 and 10 will be on stream. Phases 12, 15, 16, 17, 18, 19, 27 and 28 are under different development stages[7].

## VI. EMPRICAL RESULTS

Systematic risk is sensitive of ever share to return of market index. Therefore if systematic risk ($\beta$) for a share be bigger than 1, then industry is high risk and against if systematic risk ($\beta$) be smaller than 1, then, industry is low risk. In this paper, we want measure systematic risk ($\beta$) of South Pars project.

For this aim, we use natural gas price and extract return of South Pars field production, then we use Matlab 7 software for modeling. According to this modeling, systematic risk ($\beta$) of South Pars project is 1/036 and we can conclude that this project is relatively high risk. This project is high risk, because we cannot use machines and equipments of this field for other projects.

## VII. CONCLUSION

The South Pars field is a natural gas condensate field located in the Persian Gulf. It is the world's largest gas field, shared between Iran and Qatar. According to the International Energy Agency (IEA), the field holds an estimated 1,800 trillion cubic of in-situ natural gas and some 50 billion barrels of natural gas condensates[8].

In this paper, we measure systematic risk ($\beta$) for South Pars field. Results reveal that this project is relatively high risk, because machines and equipments which uses in this project, cannot be used in other projects.

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# Rapid Incubation Model for the Development of Micro and Small Enterprises in Sub-Saharan Africa

By Pralay Dey

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*Abstract -* Africa was called "The Dark Continent" by Europeans because little was known about it prior to European colonization. Sub-Saharan Africa region covering 48 countries refers to the area of the continent of Africa that lies south of the Sahara desert. Sub-Saharan Africa though having an agricultural base has all kinds of resources in the world in terms of vast availability of minerals, gold and diamond, crude oil and Uranium etc. like no other continent. Despite having so much resources, Sub-Saharan Africa continues to face longterm development challenges: poverty, dependence on a few primary commodities like agriculture and mining, low human capital, weak governance and non-existence of appropriate policies, low employment, low technology or processing capacity, low Investment, high cost of Finance, low empowerment of women, and climate change, non availability of cheap finance, etc.

*Index terms :* Micro and Small Enterprises, jobs, resources, Poverty, Rapid Incubation, Model, Incubator, Unemployment, Entrepreneur, Entrepreneurship, Hand holding support, projects, technology, Ideas, Finance, Marketing, business, economic, local, MSMEs, SMEs, Industry.

*GJMBR-A Classification :* FOR Code: 150314  JEL Code: L53, P12, L32



RAPIDINCUBATION MODELFORTHE DEVELOPMENTOF MICRO AND SMALLENTERPRISESIN SUB-SAHARAN AFRICA

Strictly as per the compliance and regulations of:

# Rapid Incubation Model for the Development of Micro and Small Enterprises in Sub-Saharan Africa

Pralay Dey

*Abstract* - Africa was called "The Dark Continent" by Europeans because little was known about it prior to European colonization. Sub-Saharan Africa region covering 48 countries refers to the area of the continent of Africa that lies south of the Sahara desert. Sub-Saharan Africa though having an agricultural base has all kinds of resources in the world in terms of vast availability of minerals, gold and diamond, crude oil and Uranium etc. like no other continent. Despite having so much resources, Sub-Saharan Africa continues to face long-term development challenges: poverty, dependence on a few primary commodities like agriculture and mining, low human capital, weak governance and non-existence of appropriate policies, low employment, low technology or processing capacity, low Investment, high cost of Finance, low empowerment of women, and climate change, non availability of cheap finance, etc.

Rapid Industrialization of Sub-Saharan Africa through establishment of Micro and Small Enterprises (MSEs) would be a signification step, addressing major challenges like poverty, unemployment, import dependency, and income distribution.

Establishing Micro and Small Enterprises (MSEs) is not a cake-walk despite having innovative inventions and ideas. It takes more than just having an idea of establishing a startup. Planning and arrangement of scarce resources like Finance, Infrastructure, Technology, Sourcing of raw materials, Marketplaces(buyers) and organizing Sales distribution channels are the major challenges for establishment and survival of any enterprise. Majority of startups fail in their first year of inception. Many of these failures can be prevented if entrepreneurs get handholding support by an Institution having specialized Incubation programmers. An incubator's main goal is to produce successful Micro and Small Enterprises with an array of targeted resources and services. These incubates have the potential to create jobs, develop technology for import substitution, commercialize new technologies, and strengthen local and national economies. Rapid Incubation model for the establishment of Micro/small enterprises is an unique way which transforms an unemployed youth even with scanty educational background, into a budding Entrepreneur quickly. This model envisages churning out a good number of entrepreneurs in limited time as compared to conventional Incubators with relatively low investment. The model is also compatible with the existing environment of Sub-Saharan Africa and it has been already welcomed by several countries in this region to alleviate poverty.

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*Index terms : Micro and Small Enterprises, jobs, resources, Poverty, Rapid Incubation, Model, Incubator, Unemployment, Entrepreneur, Entrepreneurship, Hand holding support, projects, technology, Ideas, Finance, Marketing, business, economic, local, MSMEs, SMEs, Industry.*

## I. INTRODUCTION

Sub-Saharan Africa region lies south of the Sahara desert. There are 48 countries with a population of 841 million people and South Sudan is the latest entrant. Through this region of Africa is often called Sub-Saharan Africa but only few countries are actually within the Sahara Desert. The Sub-Saharan region is also known as Black Africa, in reference to its many black populations.

Sub Saharan Africa is home to various languages, in-numerable tribes, ethnic and social groups, some representing very large populations consisting of millions of people, others are smaller groups of a few thousands.



*Sub Saharan Africa*

Despite the diversification, there are many similarities amongst these countries. Sub-Saharan Africa, though having predominantly an agricultural & livestock base has the most resources in the world in terms of vast availability of minerals, gold, copper and diamond, crude oil and Uranium etc. Inter-regional

exchange of goods and export of raw material are common in most countries.

Except a handful of countries like Nigeria, South Africa, Kenya and Botswana, most of the 48 countries are facing similar challenges e.g., poverty, dependence on a few primary commodities like agriculture and mining, low human capital, weak governance and non-existence of appropriate policies, low employment, low technology or processing capacity, low Investment, high cost of Finance, low empowerment of women, and climate change etc.

[1]Agriculture dominates the economy of African countries and is a major factor in determining livelihood fortunes. But the performance of African agriculture over the last 25 years has generally been poor. As a result, the number of hungry people has increased by 20 per cent since 1990 and is now estimated at 32 per cent of the total population, the highest prevalence of any region.

In world's macro regions, Sub Saharan Africa is the least industrialized. [2]Colonials including the Donors from North in fact never allowed local industries to grow. In-stead they had set up large capital-intensive concerns industries to feed their own countries. Even after getting independence, most of the Rulers of these countries were reluctant to promoting the growth of existing small-scale and micro-enterprises.



*Plantation of Banana in Mozambique has become a futile and expensive activity in absence of International buyers*

However, these modern big production centers contributed hardly anything to the development of the Sub Saharan Africa economy and society. Table 1 shows how the sub Saharan Africa countries are classified on GNI per capita basis.

| Table 1 | World Bank classification of economies, 2009 (GNI per capita) | | | |
|---|---|---|---|
| **Low income** $995 or less | **Lower middle income** $996–$3,945 | **Upper middle income** $3,946–$12,195 | **High income** $12,196 or more |
| Benin | Algeria | Botswana | Equatorial Guinea |
| Burkina Faso | Angola | Gabon | |
| Burundi | Cameroon | Libya | |
| Central African Republic | Cape Verde | Mauritius | |
| Chad | Congo, Rep. | Seychelles | |
| Comoros | Djibouti | South Africa | |
| Congo, Dem. Rep. | Egypt, Arab Rep. | | |
| Côte d'Ivoire | Lesotho | | |
| Eritrea | Morocco | | |
| Ethiopia | Namibia | | |
| Gambia, The | Sudan | | |
| Ghana | Swaziland | | |
| Guinea | Tunisia | | |
| Guinea-Bissau | | | |
| Kenya | | | |
| Liberia | | | |
| Madagascar | | | |
| Malawi | | | |
| Mali | | | |
| Mauritania | | | |
| Mozambique | | | |
| Niger | | | |
| Nigeria | | | |
| Rwanda | | | |
| São Tomé and Principe | | | |
| Senegal | | | |
| Sierra Leone | | | |
| Somalia | | | |
| Tanzania | | | |
| Togo | | | |
| Uganda | | | |
| Zambia | | | |
| Zimbabwe | | | |

*Source: World Bank.*

*Table 1 :* Africa development Indicators 2011 by World bank

Business communities are not very common in Sub Saharan Africa as like Asia and Middle East. In country like Tanzania with some kind of socialist hang-over have only Peasants and Teachers explained in their Constitutions and do not have any mention of Business community. Businessmen were not welcomed in the society, even sometimes back. Business grew and remains still in the hands of few Tribals like 'Chagga' (Tanzania) and 'Kikuyu' (Kenya) in East Africa and not practiced by all.

[3]The governments, their advisors and financiers pursued a different strategy. In the expectation that leapfrogging development by introducing state-of-the-art technology would have greater impacts than replicating the European path to it, they ensured that the most up-to-date production technologies were transferred to Africa from the industrialized nations. At the same time, the African governments created rules and regulations and promotion instruments which favored and subsidized the import of everything new while discriminating, criminalizing, and persecuting the existing autochthonous activities and pushing them into informality.

Planned development of Micro & Small enterprises therefore has a crucial role to play in stimulating growth, generating employment and contributing to poverty alleviation in Sub Saharan African countries.

## II. Definition Of Micro & Small Enterprises In Sub Saharan Africa

Micro & Small Enterprises in various countries of Sub Saharan Africa are defined based on several parameters, but mostly on size of employment.

[1] Natural Resources in Sub-Saharan Africa: Assets and Vulnerabilities by Johan Holmberg.
[2]&[3] Africa's Aborted Industrialization Modernization Strategies Impede Organic Industrial Growth by Wolf-gang Schneider-Barthold.

However, in many of the countries, there is no clear definition available.

The Tanzanian government defines SMEs according to sector, employment size, and capital investment in machinery. Accordingly, SMEs are defined as micro, small, and medium-size enterprises in non-farm activities, including manufacturing, mining, commerce and services. A micro-enterprise is one with fewer than five employees, a small enterprise with 5-49 employees.

In Kenya, there is about 2.2 millions micro, small and medium enterprises, (Strategic Business Advisors Africa Ltd. – SME Banking Sector Report, 2007), of which 88 percent are non-registered. There is no standard definition of SME in Kenya. Often, they define SMEs as businesses with six to 50 employees or with annual revenues less than 50 million Kenyan shillings.

The definition of SME in Mozambique varies from sector to sector. However, most of the existing definitions are based on the number of employees and the initial in-vestment capital. Industries with less than 25 are defined as Micro and more than 25 and less than 125 is as known small Industry.

Nigeria defines Small enterprise that has investment and working capital not exceeding N750, 000.

Small and micro enterprises in Ethiopia are categorized using various methods, including their size, location, capital investment and number of employees. Small manufacturing establishments engage less than ten employees and use power-driven machines. Those which do not use power-driven machines are regarded as handicraft enterprises.

Ghana defines a small enterprise as a firm with not more than 9 workers, and has plant and machinery (excluding land, buildings and vehicles) not exceeding 10 million Ghanaian cedi.

In Malawi, manufacturing enterprises having less than 50 employees are small enterprises.

*a)  Major Challenges Faced By Micro & Small Enterprises In Sub Saharan Africa*
Sub Saharan Africa continues to face development challenges i.e., dependence on agriculture, a few primary commodities, low human capital, poor or non-existing governance and policies & corruption, unstable governments and war conflicts, low youth employment, low empowerment of women, natural disasters  and climate change etc. Besides, the growth of small and medium enterprises are challenged by lack of finance, under-developed entrepreneurial culture, poor product quality, shortage of raw material supplies, under-developed markets, limited demand for products and services, and poor access to infrastructure and technology.


*Fruit pulps are being processed in one of the Incubation Centers in Mozambique*

Sub Saharan Africa needs to promote industrial development as Agricultural activities are no more profitable business and Mining activities are actually draining these countries, with some exceptions like South Africa and Botswana.

Small & Micro Industrial development will reduce unemployment and import dependency. But then, there need to be a holistic environment created which include good policies and their implementations, investment on infra-structure, developed entrepreneurial culture, easy credit facilitation and developed markets in each of these countries for the development and sustenance of Micro & Small Enterprises.


*Readymade garments are being manufactured in an Incubator at Kinsasha, DR Congo*

## III.  What Is Incubation Of Business?

According to the [4] EU Centre for Strategy & Evaluation Services: A business incubator is an organization that accelerates and systematizes the process of creating successful enterprises by providing them with a comprehensive and integrated range of support, including: incubator space, business support services, and clustering and networking opportunities. A successful business incubator will generate a steady flow of new businesses with above average job and wealth creation potential.

[4] EU Centre for Strategy & Evaluation Services

The [5] UKBI (UK Business Incubation) definition states that: Incubation is a unique and highly flexible combination of business development processes, infrastructure and people, designed to nurture and grow new and small businesses by supporting them through early stages of development and change.

## IV. IMPORTANCE OF INCUBATORS FOR ESTABLISHMENT OF MICRO & SMALL ENTERPRISES

Incubators are available in various types rendering a range of long and short-term assistances and they help in establishment of new enterprise in one way or other. Many of these provide only guidance, technical assistance and consulting to entrepreneurs and offer Business Development services. ICT incubators are major examples of these Incubators where clients access to appropriate rental space, shared basic business services and equipment. Few incubators assist only in developing new ideas and arrange for venture capital funding. Incubators are sometimes known as Business Accelerator as it accelerates start-ups by providing quick knowledge, support services and resources.



*Technical Incubation Centre, NSIC, New Delhi, India*

The definition of Incubators varies with their delivery of services. Many a times, they are known as business accelerator as they act as boot camps for freshers to start enterprises in their way they deliver their services, in their organizational structure and in the types of clients they serve. Highly adaptable, incubators have differing goals, including diversifying rural economies, providing employment for and increasing wealth of depressed inner cities, and transferring technology from universities and major corporations. Incubator clients are at the forefront of developing new and innovative technologies – creating products and services that improve the quality of our lives in communities around the world.

## V. VARIOUS TYPES OF BUSINESS INCUBATORS

*Adapted from "Best Practices for Managing Incubators", Rahul Patwardan, IndiaCo*

| | Local Economic Development Incubators | Academic and Scientific Incubators | Corporate Incubators | Private Investors' Incubators |
|---|---|---|---|---|
| Goal | Non-profit | Non-profit | For profit | For profit |
| Main Activity | Generalists | High-tech | High-tech | High-tech |
| Objectives | • job creation<br>• re-industrialization/ revitalization<br>• economic development<br>• support to particular target groups of industries<br>• development of SMEs and clusters | • commercialization of technologies<br>• development of entrepreneurial spirit<br>• civic responsibility<br>• image<br>• new sources of finance | • to develop entrepreneurial spirit among employees – keep talents<br>• monitoring – access to new technologies, business models and new markets<br>• profits | • profits by selling stock from a portfolio of companies allowing to risks to be spread |
| Targets | • small commercial craft service companies<br>• in some cases, high-tech companies | • projects internal to institution prior to company creation<br>• external projects | • internal and external projects, generally related to the activity of the company | • technological start-ups, generally ICT and/or biotechnology related |

Several years back, the initial model of incubation programme was based on leasing out infrastructure and common facility equipment to the entrepreneurs, in few focused areas. However, in more recent years, new incubators have been set up in areas of ICT, food processing, light engineering, Health care technologies, packaging, ceramics technologies, arts and crafts, product design and knowledge management. Many of them provide an opportunity to first generation entrepreneurs to acquire skill for enterprise building and also incubating them to become successful small business owners. At these centers, exposure in all areas of business operations are being provided such as business skills development, identification of appropriate technology, hands on experience on working projects, project / product selection, opportunity guidance including commercial aspects of business.

## VI. MODEL OF RAPID INCUBATOR

a) *Objectives Of Establishment Of Rapid Incubation Programme In Sub Saharan Africa*

I. Self employment generation among aspiring start up entrepreneurs.

II. Accelerate the development of new entrepreneurs.

III. Integrated support by way of providing hands on training on working projects.

IV. To boost the development of small enterprises in the manufacturing sector.

V. Introduction of new indigenous products in Sub Saharan Africa as import substitution.

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[5] UKBI (UK Business Incubation) Report

VI. Training of local trainers for Technical & Vocational Training (TVT) colleges.

### b) Rapid Incubation Programmed Of NSIC

Enterprise development is one of the thrust areas for economic development of any country, which can be achieved by way of providing hand holding support to the budding entrepreneurs. National Small Industries Corporation (NSIC), A Government of India Enterprise under the aegis of Ministry of Micro, Small & Medium Enterprises, India has developed a unique model of Rapid technology incubation for setting up new small enterprises, creating self employment opportunities by imparting training in entrepreneurship building and skill development to unemployed person, who intend to set up their small enterprises or seek employment opportunities. The Incubators envisage transformation of an unemployed youth into budding entrepreneur in just 3 months time that is the reason why this carries a prefix 'Rapid'. The Incubators intend to provide training in several trades in manufacturing of products and service sectors. Incubators provide an opportunity for first generation entrepreneurs to acquire skill on basic technical trades and gain exposure in all areas of business operation such as business skill development, identification of appropriate technology, hands on experience on working projects, project / product selection, opportunity guidance including commercial aspects of business etc. Supply of machinery and rendering easy credit support are arranged in this programmed to help the budding entrepreneurs to setup Micro and Small Enterprises. Once established, the entrepreneur also generates employment to others.

### c) Training Curriculum for Rapid Incubation Programme

#### I) Counseling (1 Week)

Counseling is process of selection of candidates. The success of any enterprise establishment programmed largely depends on the selection of right participants having enough potential to start their enterprise after the training programmed. For selection of prospective entrepreneurs, the information can be disseminated to the people of identified town/village by way of any of the local media i.e. newspapers, pamphlets, awareness meetings and / or through professional and academic institutions. Therefore, the broad guidelines for selection of the potential candidates are:-

➢ The candidates should have adequate space to establish the enterprise, ability to provide margin money and possess basic entrepreneurial traits.
➢ Minimum qualification: The candidate should have at least Form – IV passed and of minimum 14 years of age.

➢ Preference to be extended to those with higher qualification particularly having some knowledge / technical background in industry/business.

#### II) Entrepreneurship Orientation (2 Weeks)

During this period the trainees are imparted knowledge on business process, Entrepreneurship quality and motivation, business law, accounting procedure etc. The course contents for the training cover the following:

➢ Definition of business and kinds of businesses.
➢ Local conditions for setting up the small enterprises such as availability of raw material, skills available, demand for various products and services, availability of infrastructure and logistics including transportation etc.
➢ Entrepreneurial quality and motivation
➢ Product selection and opportunity guidance
➢ Business laws
➢ General banking
➢ Basic book keeping and accounting
➢ Working capital management
➢ Product costing and pricing
➢ Role of Banks
➢ Role of Govt. institutions and other promotional agencies
➢ Procedures for setting up of enterprise
➢ Approvals needed for setting up new enterprises
➢ Guidance for project/profile report preparation

#### III) Hands on Training on machines in Rapid Incubation Programme (4 Weeks)

After completion of Entrepreneurship orientation programmed, each trainee could select one project of his/her interest which is intended to be established by the respective trainee. Hands on training are provided on the selected machine / project as detailed below:

• Hands on working on selected project thus gain detailed knowledge to operate the machines.
• Acquiring technical knowledge about the machines installed.
• Raw material availability and its consumption plan.
• Understanding the production process.
• Understand the quality control process of the finished products.
• Understanding packaging of the finished product
• Understanding the basic maintenance needs of the machines.
• Understanding the preventive measures to be taken.

#### IV) Market Survey (1 Week)

• Visit to markets for raw materials and finish products
• Study the availability and quality of raw materials.
• Hold discussion with the bulk buyers and other pur-chasers.
• Understanding the competition in the market.

- Understanding the price and demand of the product in the market.
- Study the established market for finished product.
- Make a market survey report.

## V) Project Report Preparation (1 Week)

During this week the trainees prepare the project report for the project by them. The project report should contain the following:

- Introduction
- Market Survey
- Details of project
- Plant, Machineries and other fixed assets
- Fixed Capital
- Working Capital (Raw material cost, salary and wages, utility and overheads)
- Breakeven point
- Cost of the project
- Sources of finance
- Profit and loss statement
- Cash flow statement
- Expected Balance Sheet for next 5 years
- Re-payment of loan statement

## VI) Formal approvals and Registrations (1 Week)

- To establish the project, identification of various approvals such as Pollution control, special clearances in case of food product, quality control or any other approvals etc. wherever applicable.
- To discuss with the concerned authorities.
- Form filling and submission of application.
- Follow up for approvals.
- Submission of application & follow up with the bank for credit availability.

## VII) Monitoring and Follow up

The passed out trainees is monitored continuously and a report is maintained as the following format:

| # | Name of the trainee | Name of the Project | Value of the Project | Status of order for Machinery | Receipt of machinery | Installation of machinery | Working Capital availability status | Whether production started | Employ-ment status |
|---|---|---|---|---|---|---|---|---|---|
| 1. | | | | | | | | | |
| 2. | | | | | | | | | |
| 3. | | | | | | | | | |
| 4. | | | | | | | | | |
| 5. | | | | | | | | | |
| 6. | | | | | | | | | |
| 7. | | | | | | | | | |
| 8. | | | | | | | | | |

## VII. HAND HOLDING SERVICES OF A RAPID INCUBATOR
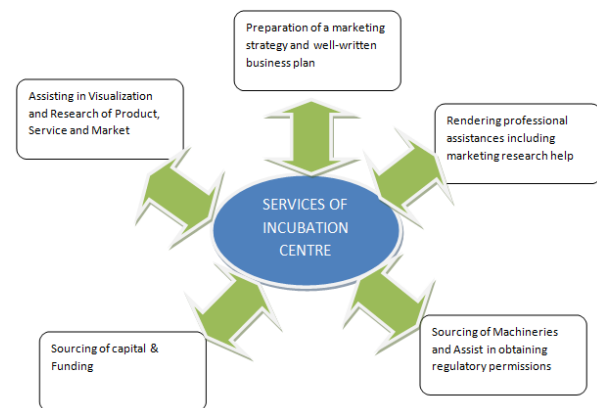




*Trainees learning how to make furniture using bamboo and cane in an Incubator at Sao Tome & Princepe*



*Trainee learning production techniques in Technology Incubator in Tanzania*

## VIII. CONCLUSION

Establishing a micro or small enterprise or per se any business, is not an easy task. There is a great amount of entrepreneurship skill and knowledge needed for sustenance and growth. It takes several months to years to gather information, garner knowledge, skills and resources to start and run any micro or small enterprise.

Generally this is achieved by peer surveys, talking to other business owners within the same

industry who can give practical advice. Conduct of independent research to find out appropriate technology, marketing intelligence, sources of Finance, Supply chain identification, demand assessment & forecasting, raw material availability etc. helps entrepreneur in decision making. However, all these are difficult inputs to acquire but imperative for any enterprise to become successful.

Unemployment is a colossal problem in Sub Saharan Africa. Self-employment generation is perhaps the fastest process by which one gets employed and also employs other unemployed youths in their small enterprises. Rapid Incubation for Small Enterprise Establishment is an innovative process that incubates and transforms an ordinary, even unemployed with very little educational background into a budding entrepreneur in just three months time. The major components of the Incubation process are Entrepreneur Skill Development, Project/Product selection and opportunity guidance, Hands-on practical training on working projects/training modules, Facilitation of funds through banks, Facilitation on setting up an enterprise, Support services to run small business. The technology used in this incubation process is low cost, appropriate, and any easy to maintain. This process can incubate any youth / person aged between 18-60 years. The process is applicable to all parts of the country and suitable for addressing unemployment issues of many least developed and developing countries. A private partner can also become an incubator under this. Start-ups can quickly learn and obtain support services as mentioned above through an emulated environment of an Incubator.

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**Key points to remember:**

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· Present your points in sound order

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· Use past tense to describe specific results

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- Fundamental goal
- To the point depiction of the research
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- Significant conclusions or questions that track from the research(es)

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- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
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Approach:

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- Do not take in frequently found.
- If use of a definite type of tools.
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- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

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

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- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
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Approach:

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