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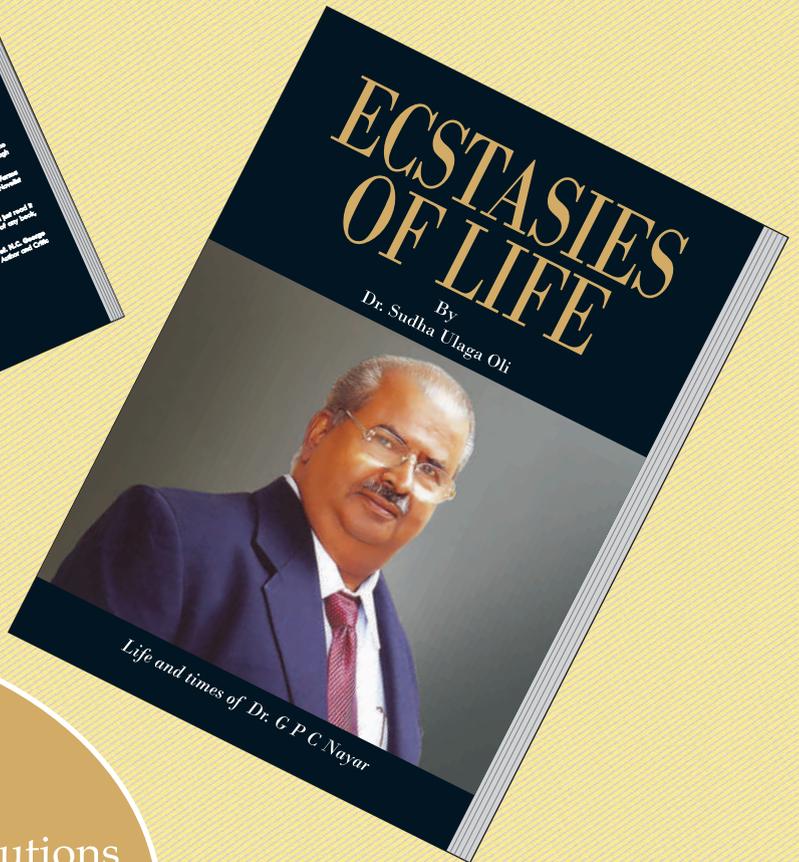
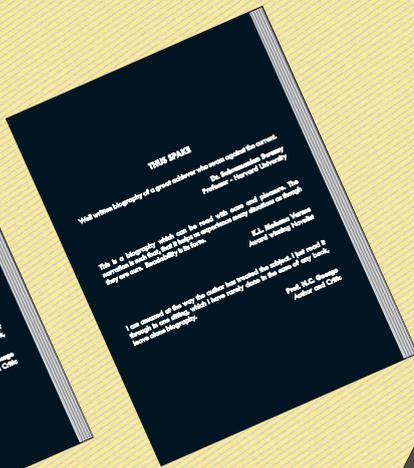
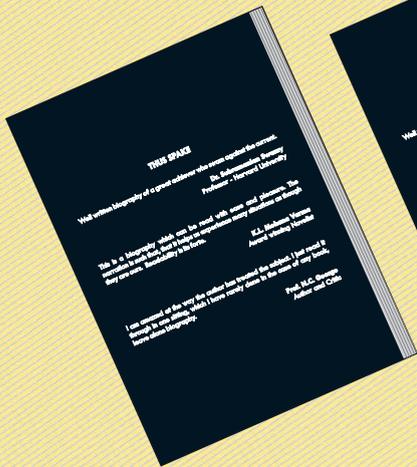
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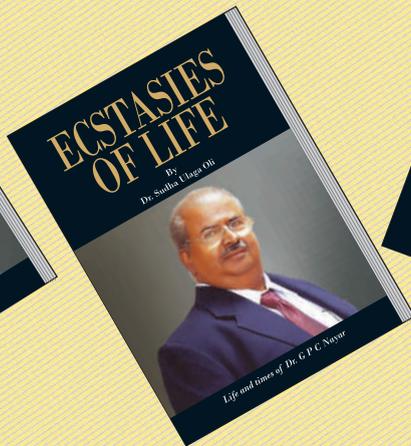
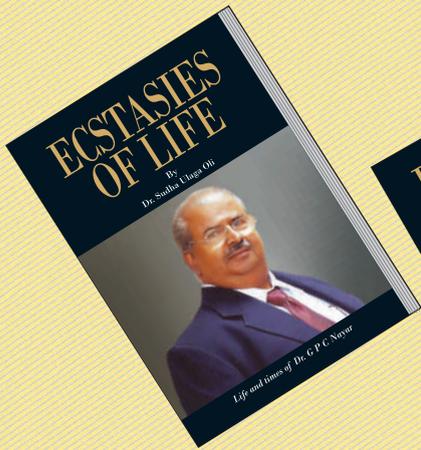
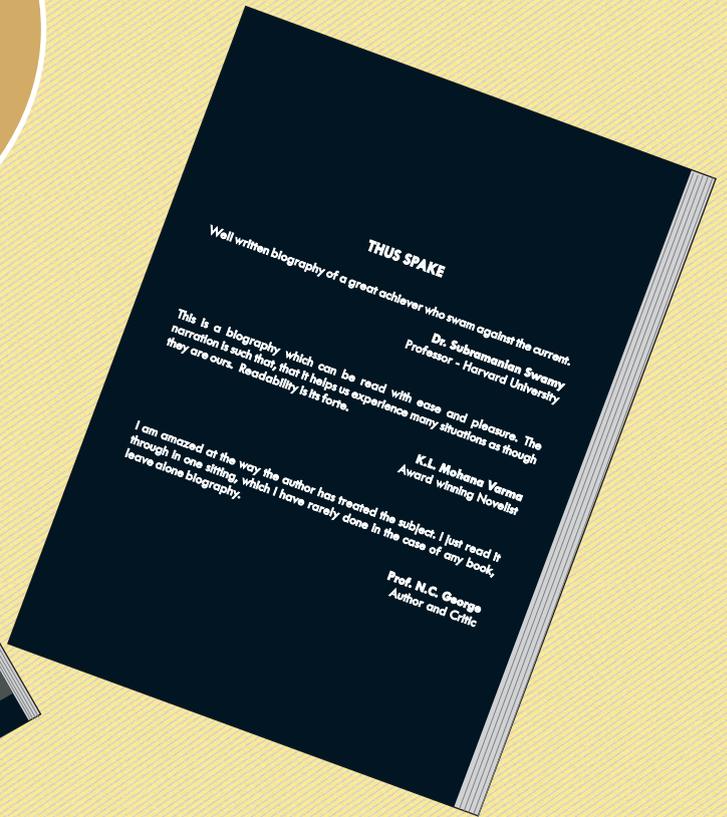
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**Determinants of Investment Decision-Making: Behavioral Perspective**

*Abdul Lathif and Syed Aktharsha*



Here's an entrepreneur who has created some excellent academic institutions in an unfriendly environment. It is a saga of trials and tribulations in an extremely readable manner by a consummate writer in English.



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## Chairman's Overview

The target of achieving sustainable growth and of maintaining macroeconomic stability is the dream of any country. Therefore, countries worldwide focus on the fiscal policy with the help of a proper strategy.

Sri Lanka took 58 years after independence to reach \$ 1000 per capita income in 2004. However, the country is already in the club of lower middle income countries. Since independence, the country adopted several different economic models. The study on the fiscal policy of Sri Lanka during the span of four decades that appears as the lead article in this edition scans and detects the lapses and casualties of their policy and eventually evolves a viable fiscal policy as a panacea for the upcoming nation.

Corporate disclosure practices have assumed greater importance in the recent past on account a couple of transitions taking place in the business field. On the one side, more and more business organisations are gaining a global edge and expanding in size. On the other side, more retail and institutional investors are entering into capital markets. Led by these developments, companies listed on stock exchanges are compelled to disclose at least the minimum information in their annual reports.

However, notably large and publicly traded leading companies prefer to go beyond the minimum requirements. In fact, a large share of corporate disclosures made through annual reporting deals with the company's core values, mission statement, business concept, social responsibility and the like.

In this background, you may find the second lead article in this issue, a study paper on the topic of disclosure practices informative.

The continuous innovation in information technology has impacted every business, small or big. Automation of tasks is the key to increase efficiency and productivity. But, for a tiny industry to implement it there are many hurdles such as high cost of software and implementation, lack of on-going technical support and the like. Our third lead article elaborates the implementation of a resource tracking and planning system project overcoming the impediments in a tiny manufacturing company.

In addition, this issue carries a number of learned articles on a variety of topics such as retail investors' herding behavior, fiscal policy, employee engagement, working capital management, Gen Y MBA students, dividend policy, macro-economic variables, investment decision making, et al.

I am confident that this issue will be truly informative and educative to our readers.

**Dr. G. P. C. NAYAR**

**Chairman, SCMS Group of Educational Institutions.**

# SCMS Journal of Indian Management

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## Editorial

# Techno-culture and Risk



Contemporary critical theory negotiates with massive environment disaster, industrial disaster, and other cataclysmic events. Contemporary social theory examines the role of such events play in culture. One of the most influential of such theories is that of the risk society.

In the book, *Risk Society: Towards a New Modernity*, Ulrich Beck propounded the thesis: risk society. To him risk is not real. Risks are about 'becoming real.' As soon as risk becomes real, it becomes disaster. Risk then gets displaced to other 'sites:' future disasters. So, risks are potential disasters. A domain where risk thesis is relevant is techno-culture. We live in a technological world. Global capitalism runs on the engines of information and communications technologies. Our everyday life depends on technology and is vulnerable to technological threats. Beck begins by suggesting that techno-science in industrial society has generated numerous dangers. Industrial society is based on the production and distribution of goods-required to fill the 'scarcity' within society. Beck suggests that a society based on scarcity and removal of scarcity can handle goods and needs only when they actualize as visible. Such a system cannot handle the risks and hazards of industrial production and distribution. But as long as risk is secondary to scarcity or needs industrial society has no problems. This is the feature of industrial modernity. In other words, risk generates solutions which generate more risks. Individualized beings experience newer forms of insecurity and anxieties. We have here a culture of warnings in banks, railway coaches, and malls. Anyway you go and you discover warnings against all kinds of dangers and risks. This has something to do with excessive technological, technologised and mediated information made available to us. With increasing and easier access to information and the risk of releasing confidential information-Credit cards members and residential address by children via the internet-have both increased risk considerably. When techno-science reveals the risk involved in contamination and other newer problems previously unknown, it also delivers information about these risks. It produces risks by making us aware of these risks. Beck's solution to the autopoietic risk culture is to find political potential outside government.

**Dr. D. Radhakrishnan Nair**

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# Fiscal Policy on Economic Growth: Endogenous Models from Sri Lanka

Ramesh Paudel and Reetu Verma

## Abstract

This paper aims to examine the role of fiscal policy on economic growth applying the endogenous growth models for Sri Lanka from 1960 to 2007. The empirical results suggest that indirect tax along with private and government investment have strong positive association with economic growth, consistent with the empirical growth literature. On the other hand, non-tax revenues and budget deficit contribute negatively to growth in Sri Lanka. The main policy inference from the study is that the Sri Lankan policy makers need to direct her fiscal policy towards increasing investment and indirect taxes, and to reduce the reliance on non-tax revenues.

**Keywords:** Fiscal Policy, Economic Growth, Sri Lanka, Time Series

**JEL Classification:** E62, O40, O53, C22



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The role of fiscal policy in economic growth has been an important issue among economists since the great depression in late 1930s; and most recently, the global financial crisis of 2008/09 has forced to think more seriously about this role. Economists generally agree that fiscal policy actions in an economy have an important impact on economic activities, hence in economic growth. However this impact could be negative or positive. In the literature, fiscal policy is considered as an important variable to force changes in national income in both developed and developing countries (Barro, 1990; Barro and Sala-i-Martin (1992, 1995) and Levine, 1999). This importance of fiscal policy is also explained by Perkins, Radelet and Lindauer (2006) concluding that macroeconomic stability via fiscal policy, guides the overall economic administration of a nation to upgrade the living standards of people.

The nexus of fiscal policy with economic growth is found to be different among studies and country references. Some studies explored a positive relationship, others explored a

negative relationship between these two phenomenon of national economy. For example, Easterly-Rebello (1993) found positive relationship of fiscal policy with economic growth; Landau (1983) and Barro (1989) found that government consumption causes a decline in per capita growth. Many studies have found such impact to be mixed i.e. positive relationship of some variables of fiscal policy with economic growth and negative relationship of other such variables. Some of these studies include Barth-Bradley (1988), Devarajan *et al.*, (1996), Cashin (1995), Trish (1997), Benos (2005), Martínez *et al.*, (2006) and Gray (2007). These studies are based on cross section and panel data analysis for different countries sample covering different time span.

However, there are some limitations with cross section and panel data analysis because the estimations are aggregate and not accurate. This problem is explained clearly in Ang (2007), “cross-sectional empirical analyses conducted at the aggregate level are unable to capture and account for the complexity of financial environments and economic histories of each individual country” (p. 2168). Quality of the data is the second shortcoming of these studies, as various countries have different conventions for measuring the size of the public sector and there are limited data at the required level of disaggregation, which can lead to ambiguous conclusions in cross section and panel data studies. Thus, this situation highlights a need for an in-depth analysis using time series data to investigate the nexus more clearly.

We found only M’Amanja and Morrissey (2005) have used the time series data, which is in the context of Kenya. They concluded that expenditure on consumption and government investment played an influential role in determining the growth of real per capita income, while expenditure on productive consumption had a strong negative effect on growth. However, their study did not take into account the structural break in their estimations. Testing structural breaks is an important step to analyse the time series data (Perron 1989, 1997); and if there is structural change, traditional cointegration tests that do not allow for a structural break may produce ‘spurious cointegration results’ (Kunitomo, 1996). Further, some important fiscal policy variables such as private investment, indirect tax revenue, non-tax revenue and foreign aid have been ignored in most of these studies.

To overcome these shortcomings, this paper contributes to the literature with two novelties; (i) it is the first study of its kind in the Sri Lankan context using annual data from 1960 to 2007 in time series analysis unlike many other studies. In this process, Perron’s (1997) unit root test with an endogenous structural break test have been conducted and then Autoregressive Distributed Lag (ARDL) approach to cointegration with bound test method has been applied, (ii) the study proposes suitable models which include most of the relevant variables of fiscal policy, so that the overall impact of fiscal policy on economic growth has been analysed systematically.

There are number of motivations to study the role of fiscal policy on economic growth in Sri Lanka; firstly, following the global financial crisis in 2007, the role of fiscal policy has been heightened as a tool to minimise the adverse impacts of shocks and crisis in an economy; secondly, fiscal policy is directly related with the political economy of a nation and thus deserves to be analysed in a country specific environment. This allows for better policy inferences, and hence makes it easy to prioritise government expenditure; and thirdly, most of the fiscal policy literature focus either on the revenue or the expenditure side and thus is not comprehensive to study the overall impact of fiscal policy on economic growth.

The remainder of the paper is organised as follows. In the next section, we discuss the data and two fiscal policy models to estimate the nexus with economic growth. Section 3 explores the econometric methodology of the paper. Section 4 discusses the empirical results from the estimation; and the final section presents concluding remarks.

## 2. Data and Model

This study used time series data from 1960 to 2007 from various issues of annual reports published by the *Central Bank of Sri Lanka*. The data are covered until 2007 to escape the very unusual years. The variables used in the study include Gross Domestic Product (GDP), Foreign Aid (AID), Private Investment (PINV), Unproductive Government Expenditure (UGEXP), Productive Government Expenditure (PGEXP), Government Investment (GINV), Direct Tax Revenue (DITX), Indirect Tax Revenue (INDTX), Non Tax Revenue (NTXR), Budget Deficit (BDFCT) and Labour Force (LF), representing human capital. All the variables are converted into the natural log form.

Two different models are developed in this study to capture the relationship between fiscal policy variables and economic growth, as represented in equations (1) and (2). These equations represent the revenue and expenditure

aspects of fiscal policy, respectively. Splitting the fiscal policy variables into an income and expenditure side allows us to investigate the impact of particular variables on economic growth. Variables are expressed in the natural logarithmic form:

$$LGDP_t = \alpha_1 + \alpha_2 LAID_t + \alpha_3 LDITX_t + \alpha_4 LINDTX_t + \alpha_5 LNTXR_t + \alpha_6 LLF_t + \alpha_7 D1_t + \varepsilon_t \quad (1)$$

$$LGDP_t = \alpha_8 + \alpha_9 LPINV_t + \alpha_{10} LGINV_t + \alpha_{11} LUEXP_t + \alpha_{12} LPGEXP_t + \alpha_{13} LBDGCT_t + \alpha_{14} D1_t + \varepsilon_t \quad (2)$$

In equation (1), economic growth (LGDP) is affected by the foreign aid (LAID), direct (LDITX) and indirect tax (LINDTX), non-tax revenue (LNTXR) and human capital (LLF). All the independent variables are expected to contribute positively to economic growth, thus the positive coefficients of  $\alpha_2, \alpha_3, \alpha_4, \alpha_5, \alpha_6$ . Lastly, D1 is the dummy variable which corresponds to the structural break date of LGDP and  $\varepsilon_t$  is the error term. Similarly, in the equation (2), it is expected that private investment (LPINV), government investment (LGINV) and productive government expenditure (LPGEXP) contribute positively to economic growth, while unproductive government expenditure (LUGEXP) and budget deficit (LBDGCT) affect economic growth negatively. Therefore, the signs of  $\alpha_9, \alpha_{10}, \alpha_{12}$  are expected to be positive and the signs of  $\alpha_{11}$  and  $\alpha_{13}$  negative.

### 3. Econometric Methodology

The objective of the empirical analysis being undertaken is to determine which fiscal policy variables affect economic growth in Sri Lanka. This is firstly done by determining if a long-run relationship (cointegration) exists between GDP and the fiscal policy variables [models (1) and (2)]. Secondly, the long and short-run coefficients for both the models are analysed. But before this can be done, the order of integration of the relevant variables needs to be conducted via the unit root tests.

#### 4.1 Unit Root Test

Most existing studies examine the stationary properties of variables by using the Augmented Dickey Fuller (ADF) (1979, 1981) or Philip-Perron (1988) unit root tests. A problem with these tests is that they don't allow for the possibility of a structural break. Perron (1989) argued that in the presence of a structural break, the standard ADF tests are biased towards the non-rejection of a null hypothesis. However, Perron's (1989) unit root test, which includes dummy variables to allow for one known, or exogenous, structural break was criticised by many who argued that it invalidated the distribution theory underlying conventional testing (Vogelsang and Perron, 1998). In response, a number of studies proposed different ways of estimating the time of the break endogenously which lessens the bias in the usual unit root tests. These include Banerjee, Lumsdaine and Stock (1992), Zivot and Andrews (1992), Perron and Vogelsang (1992) and Perron (1997). These studies have shown that any bias in the usual unit root tests can be reduced by endogenously determining the time of the structural break.

This study used Perron's (1997) Innovational Outlier (IO2) model which tests for the unit root while allowing for the presence of structural change in the intercept and slope of the trend function. The test is performed using the t-statistic for the null hypothesis,  $\alpha=1$ :

$$IO2: x_t = \mu + \theta D_{1t} + \beta t + \gamma DT_t + \delta D(T_b)_t + \alpha x_{t-1} + \sum_{i=1}^K c_i \Delta x_{t-i} + e_t \quad (3)$$

where  $T_b$  denotes the unknown time of break,  $DU_t = 1$  if  $t > T_b$  and zero otherwise,  $DT_t = t$  if  $t > T_b$  and zero otherwise,  $D(T_b) = 1$  if  $t = T_b + 1$  and zero otherwise,  $x_t$  is any general ARMA process and  $\varepsilon_t$  is the residual term assumed white noise. The null hypothesis of a unit root is rejected if the absolute value of the t-statistic for testing

$\alpha=1$  is greater than the corresponding critical value. The time of the break  $T_b$  was chosen from among all other possible break point values to minimise the t-ratio on the estimated slope coefficient ( $\gamma$ ). The truncation lag parameter,  $k$  is determined using the data-dependent method proposed by Perron (1997). The choice of  $k$  depends upon

whether the  $t$ -ratio on the coefficient associated with the last lag in the estimated auto regression is significant. The optimum lag ( $k^*$ ) is selected such that the coefficient on the last lag in an auto regression of order  $k^*$  is significant and that the last coefficient in an auto regression of order greater than  $k^*$  is insignificant, up to a maximum order  $k$  (Perron, 1997).

#### 4.2 The ARDL Bounds Testing Approach to Cointegration

The most widely used cointegration methods are the residual based Engle-Granger (1987) test and the maximum likelihood based Johansen (1991; 1995) and Johansen-Juselius (1990) test. The problem with these methods is that the variables in the equation need to be equal in order of integration, whereas the bounds testing approach estimates  $(p+1)k$  number of regressions in order to obtain the optimal lag length for each variable, where  $p$  is the maximum number of lags to be used and  $k$  is the number of variables in the equation. The ARDL modelling approach developed by Pesaran and Shin (1998), Pesaran and Smith (1998), and Pesaran, Shin, and Smith (2001) have numerous advantages as outlined below:

- The main advantage is that it can be applied irrespective of whether the regressors are  $I(0)$  or  $I(1)$  (Pesaran and Pesaran, 1997), as is the case in this study. Other cointegration techniques require every variable to be integrated to the order of one,

“which introduces a further degree of uncertainty into the analysis of levels relationships” (Pesaran *et al.*, 2001, p.289).

- The bounds testing procedure is a more statistically significant approach for determining cointegrating relationships in small samples, while the Johansen cointegration technique requires larger samples to be valid (Ghatak and Siddiki 2001).
- The bounds testing procedure is also robust and performs well for small sample sizes (Tang and Nair 2002). The current study has a relatively small number of observations (48), but a large sample size (1960-2007).
- A dynamic error correction model can be derived from ARDL through a simple linear transformation (Banerjee *et al.*, 1993). The error correction model integrates the short term dynamics with the long term equilibrium without losing any long term information.
- Lastly, many of the Monte Carlo results indicate that the ARDL method is best at estimating the long term coefficients due to the sensitivity of the diagnostic test of the specification of the error correction model (Gerrard and Godfrey, 1998).

The error correcting version of the two models is presented in equations as follows:

The error correcting version of the two models is presented in equations as follows:

$$\Delta LGDP_t = \alpha_0 + \sum_{i=1}^p \beta_i \Delta LGDP_{t-i} + \sum_{i=1}^p \delta_i \Delta LAID_{t-i} + \sum_{i=1}^p \phi_i \Delta LINDTX_{t-i} + \sum_{i=1}^p \varphi_i \Delta LNTXR_{t-i} + \sum_{i=1}^p \theta_i \Delta LLF_{t-i} + \gamma_1 LGDPR_{t-1} + \gamma_2 LAID_{t-1} + \gamma_3 LINDTX_{t-1} + \gamma_4 LNTXR_{t-1} + \gamma_5 LLF_{t-1} + \gamma_6 D73 + e_{1t} \quad (4)$$

$$\Delta LGDP_t = \alpha_0 + \sum_{i=1}^p \beta_i \Delta LGDP_{t-i} + \sum_{i=1}^p \delta_i \Delta LPINV_{t-i} + \sum_{i=1}^p \phi_i \Delta LGINV_{t-i} + \sum_{i=1}^p \varphi_i \Delta LUGEXP_{t-i} + \phi LPGEXP_{t-1} + \sum_{i=1}^p \theta_i \Delta LBFCT + \gamma_1 LGDP_{t-1} + \gamma_2 LPINV_{t-1} + \gamma_3 LGINV_{t-1} + \gamma_4 LUGEXP_{t-1} + \gamma_5 LBFCT_{t-1} + \gamma_6 D73 + e_{1t} \quad (5)$$

The procedure involves estimating the long-run relationship between the GDP, fiscal policy variables and the relevant structural break. The first step is to run F test which is used to determine whether a long-run relationship exists among the variables through testing the significance of the lagged level of the variables. The parameters  $\gamma_i$  where  $i = 1, 2, 3, 4, 5, 6$  are the corresponding long-run multipliers, while the parameters  $\beta_i, \delta_i, \phi_i, \rho_i, \theta_i$  the short-run dynamic coefficients of the underlying ARDL model. The null hypothesis of no cointegration amongst the variables  $H_0: \gamma_1 = \gamma_2 = \gamma_3 = \gamma_4 = \gamma_5 = \gamma_6 = 0$  is tested against the alternative  $H_1: \gamma_1 = \gamma_2 = \gamma_3 = \gamma_4 = \gamma_5 = \gamma_6 \neq 0$ . The F-test critical values are tabulated by Pesaran *et al.*, 2001. The asymptotic distributions of the F-statistics are non-standard under the null hypothesis of no cointegration between the examined variables, irrespective of whether the variables are purely  $I(0)$  or  $I(1)$ , or mutually cointegrated. Two sets of asymptotic critical values are provided by Pesaran *et al.* (2001). The first set assumes that all variables are  $I(0)$  while the second set assumes that all variables are  $I(1)$ . The null hypothesis of no cointegration will be rejected if the calculated F-statistic is greater than the upper bound critical value. If the computed F-statistics is less than the lower bound critical value, then we cannot reject the null of no cointegration (long-run relationship) among the variables.

If a long-run cointegrating relationship exists, the second step is to estimate the long-run and short-run elasticities. The estimated error correcting term also provides valuable

information on the short term adjustment to its long term equilibrium. These two equations incorporate a dummy variable, denoted as  $D73$ , to capture the effects of structural change found using the Perron (1997) procedure for GDP in 1973. Information on structural breaks in the time series is important to correctly specify the model.

### 5. Interpretation of Results

The results of the unit root test in Table 1 show that all the variables are non-stationary, apart from private investment (LPINV) and budget deficit (LBDFCT) which are stationary at the five percent significance level. Table 1 also indicates that the break dates coincide with the real events experienced by the Sri Lankan economy over the last five decades. These include the break of LGDP in 1973 which coincides with the world food shortage, global inflation, and the oil crisis of 1973/74. The break date of 1972 for investment and foreign aid corresponds with the government introducing constitutional change after independence which resulted in uncertainty in the investment sector. The break for private investment, productive government expenditure, government deficit, and indirect tax found in 1976 corresponds to the policy uncertainty in the financial sector at the onset of the financial liberalisation in 1977. Direct tax with the structural break in 1978 coincides with the reforms in foreign exchange market which resulted in increased employment and higher incomes.

**Table 1: Perron (1997) Innovational Outlier Model (IO2)  
Break in Both Intercept and Trend**

Variables	Break Date ( $T_b$ )	Test Statistics	Lag( $k$ )
LGDP	1973	-4.75	6
LAID	1972	-4.69	0
LPINV	1976	-5.66	6
LGINV	1972	-3.6	2
LUGEXP	1988	-3.54	7
LPGEXP	1976	-5.3	8
LDITX	1978	-4.29	2
LINDTX	1976	-3.63	5
LNTXR	1989	-4.93	8
LBDFCT	1976	-6.47	2
LLF	1977	-4.31	1

Note: Critical values at the 1%, 5% and 10% are - 6.32, -5.59 and -5.29 respectively.

$T_b$  is selected as a value that minimizes the absolute value on the  $t$ -statistic on the parameter associated with a change in slope in IO2 model. The max  $k=8$ .

The unit root results in Table 1 show that the variables are of a mix order of stationary and non-stationary (i.e consisting of a mix of I(0) and I(1) series) with a structural break. Given this and the advantages outlined above, the ARDL cointegration approach is used to examine the relationship between the variables in equations (1) and (2). The F-statistic of the two models, 4.99 and 4.23 respectively are both above the upper bound critical values at five percent level of significance (2.95, - 4.08). Thus, we can conclude that along-run relationship exists between GDP and its right hand side variables. Following the establishment of the existence of cointegration we estimate the long and short-run coefficients of the ARDL model which are presented in Tables 2 and 3.

Table 2 reports the estimated long and short-run coefficients for the model 1(the income side) where the Schwartz-Bayesian Criteria (SBC) lag specification for GDP is ARDL (1, 0,0,0, 0, 1,0) where the numbers represent the lags of the variables. The empirical results from Table 2 show that both indirect tax (LINDTX) and non-tax revenue (LNTXR) have a

significant effect on economic growth (LGDP). Indirect tax is positively associated with economic growth, where a one percent increase in indirect tax revenue leads to a 0.13 percent increase in real GDP in the long and 0.05 in the short-run, both of which are significant at the five percent level. This result is consistent with the endogenous growth models supporting the hypothesis that the government’s reliance on indirect taxes helps to expand the economy. However, non-tax revenue (customs duties, penalties, tariffs, and other non-tax charges) negatively affect economic growth in Sri Lanka. A one percent increase in non-tax revenue leads to a decrease in real GDP of -0.09 percent in the long-run. This negative relationship is also seen in the short-run but is not significant. The result contradicts the theory and suggests that the Sri Lankan government should not rely heavily on the non-tax revenues. However, the negative relationship is perhaps expected as one can assume that higher duties and other administrative expenses retard economic growth. It is also expected that if non-tax revenues are mainly generated from inefficient bureaucratic procedures, it will negatively affect growth.

**Table 2: Estimated Long-Run Coefficients and Short-Run Error Correction Model (ECM)**  
**Dependent Variable: LGDPR**

The long-run coefficients estimates based on ARDL (1,0,0,0,1,0) selected lags based on SBC			ECM-ARDL: dependent variable: ? LGDPR based on ARDL (1,0,0,0,1,0) selected lags based on SBC		
Regressor	Coefficient	T-Ratio	Regressor	Coefficient	T-Ratio
LAI	-	-0.4085	? LAI	-0.0025	-0.4171
LDITX	0.00680.0044	1.2701	? LDITX	0.0159	1.1598
LINDTX	0.1334	2.0795**	? LINDTX	0.0476	2.4466**
LNXTR	-0.0856	-2.2646**	? LNTXR	-0.0100	-1.0568
LLF	0.0842	0.575	? LLF	0.0300	0.5777
Constant	10.2254	7.5963***	? INPT	3.6436	2.7992*
Trend	0.0409	12.5356***	? TREND	0.0146	
D1	-0.0245	-0.5176	? D1	-0.0087	3.0138***
			ecm(-1)	-0.3563	-0.4957
					-3.2708***

Note: \*\*\* significant at 1% level, \*\* significant at 5% level, \* significant at 10% level.

The dummy variable was not significant implying that either the effects of structural change are common across the variables (so that they tend to net out in the simultaneous specification) or the variable is not enough to approximate the range of detected changes. The error correction model,  $ecm(-1)$  is significant at the one percent level with the expected negative sign. The  $ecm(-1)$  represents the speed of adjustment of GDP to its long term equilibrium following a shock. The  $ecm(-1)$  of -0.36 suggests that a deviation from the long term equilibrium level of GDP growth in one year is corrected by about 36 percent over the next year. Moreover, a significant error correction confirms the existence of a stable long term relationship between the significant regressors and the dependent variable, GDP.

Both the long and short-run coefficient estimates for model 2 (the expenditure side) are reported in Table 3. The SBC lag specification for GDP is ARDL (1, 0, 0, 0, 1) where the numbers represent the lags of the variables. As expected, the results in Table 3 indicate that private investment (LPINV) positively affects economic growth in both the long

and short-run. A one percent increase in LPINV leads to a 0.15 and 0.07 percent increase in LGDP in the long and the short-run respectively at the one percent level of significance. With regard to government investment (LGINV), a one percent increase in LGINV leads to much smaller increase of 0.03 percent in LGDP in the long-run, but this is only significant at the ten percent level. The other significant result is that a one percent increase in budget deficit (LBDFACT) negatively affects economic growth by a small but a significant 0.08 percent, significant at the one percent level. These results are in line with the expectations and are also consistent with the studies of Barth-Bradley (1988) and Barro (1989). Overall, the contribution of investment in the Sri Lankan economy is as predicted by our model and is also consistent with the growth theories. The contribution of unproductive government expenditure and productive expenditure is correct as predicted by our model; however both of them are not significant. Thus, the policy implication to promote economic growth in Sri Lanka is to encourage private investment and to reduce the budget deficit.

**Table 3: Estimated Long-Run Coefficients and Short-Run Error Correction Model (ECM)**  
**Dependent Variable: LGDPR**

The long-run coefficients estimates based on ARDL (1,0,0,0,0,1) selected lags based on SBC			ECM-ARDL: dependent variable: $\Delta$ LGDPR based on ARDL (1,0,0,0,0,1) selected lags based on SBC		
Regressor	Coefficient	T-Ratio	Regressor	Coefficient	T-Ratio
LPINV	0.1541	4.6249***	dLPINV	0.0759	5.3651***
LGINV	0.0311	1.7605*	dLGINV	0.0153	1.6513
LUGEXP	-0.0102	-0.2118	dLUGEXP	-0.0050	-0.2124
LPGEXP	0.0153	0.5022	dLPGEXP	0.0075	0.5065
LBDFACT	-0.0875	-2.5819**	dLBDFACT	-0.0199	-1.5654
INPT	10.8716	21.6812***	dINPT	5.3580	5.0681***
TREND	0.0395	14.2026***	dTREND	0.0194	4.7654***
D1	-0.0665	-2.9907***	dD1	-0.0328	-2.6122**
			$ecm(-1)$	-0.4929	-5.2265***

Note: \*\*\* significant at 1% level, \*\* significant at 5% level, \* significant at 10% level.

The trend and the structural dummy variable are significant at the one and five percent level respectively, which indicates that structural change had a long-run negative impact on GDP. The 1973 dummy variable coincides with world food shortages, global inflation, and the oil crisis of 1974, and notably, the IMF had listed Sri Lanka as one of the country's most seriously affected by this crisis (Balakrishnan 1975). The error correction model,  $ecm(-1)$  is of the correct sign and statistically significant, suggesting that following a shock, about 49 percent of the adjustment back to equilibrium is completed after a year.

The regression statistics and the diagnostic test statistics of the above ARDL models are presented in Appendix A. The diagnostic tests indicate that the model passes most of the tests for serial correlation, functional form, normality and heteroscedasticity. The high values of  $F$  for all the both ARDL models show that the overall goodness of the fit is extremely high. The F-statistics which measure the joint significance of all regressors in the two models are statistically significant at the one percent level, and lastly, the Durbin-Watson statistics for both models were over two.

Finally, the stability of the regression coefficients was evaluated using the cumulative sum (CUSUM) and the cumulative sum of squares (CUSUMQ). According to Bahmani-Oskooee (2001), the null hypothesis that the regression equation correctly specified cannot be rejected if the plot of these statistics remains within the critical bounds of the five percent level of significance. It is clear from Appendix B that the plots of both the CUSUM and CUSUMQ for the two are within the boundaries.

## 2. Conclusion

This paper aims to contribute to the literature by examining the role of fiscal policy on economic growth as per the endogenous growth models in Sri Lanka using time series data from 1960 to 2007. We develop a specific framework for the fiscal policy-growth relationship by introducing most of the relevant variables into this study. Two major models capturing the revenue and expenditure aspects of fiscal policy were analysed to test their impact on economic growth in Sri Lanka using advanced econometric techniques which take into account a structural break.

The empirical results based on Perron's (1997) innovational outlier model showed that the variables are a mix of non-stationary and stationary. Moreover, we found that the most significant endogenously determined structural breaks occurring over the last five decades coincided with the real events experienced by the Sri Lankan economy in the 1970s and 1980s. The next step was to test for the long-run relationship between GDP growth and the relevant fiscal policy variables as per the two models. The estimated long-run and short-run elasticities bring out important conclusions. Firstly, with regards to the revenue model, indirect tax is positively associated with economic growth, consistent with the growth theories. On the other hand, non-tax revenues contribute negatively to economic growth, contradicting the theory. Secondly, with the expenditure side model, both private and government investments have a strong positive association with economic growth in both the long- and short-run, supporting the endogenous growth theories. As expected, budget deficit is found to have a negative impact on economic growth.

The policy implication of this study is that the government of Sri Lanka needs to direct their fiscal policy towards increasing investment (both government and private). Indirect tax also has a positive impact on the economy, and therefore the government could further look at enhancing the indirect tax system of the country. Budget deficit and the government's reliance on non-tax revenues should be reduced as they both constrain economic growth.

## References

- Ang, J., 2007. "Are savings and investment cointegrated? The case of Malaysia (1965–2003)". *Applied Economics*, 39, pp. 2167-2174.
- Balakrishnan, N., 1975, "Sri Lanka in 1974: Battle for Economic Survival." *Asian Survey*, 15(2), pp. 102-109
- Banerjee, A., Dolado, J., Galbraith, J., and D. Hendry, 1993, *Cointegration, Error Correction, and the Econometric Analysis of Non Stationary Data*, Oxford, Oxford University Press.
- Banerjee, A., R. Lumsdaine and J. Stock, 1992, "Recursive and Sequential Tests of the Unit Root and Trend-Break Hypothesis: Theory and International Evidence". *Journal of Business and Economic Statistics* 10(3), pp. 271-287.

- Barro, R., 1989. Economic Growth in a Cross Section of Countries. *NBER Working Paper*. Working Paper No. 3120.
- Barro, R., 1990. "Government Spending in a Simple Model of Endogenous Growth." *Journal of Political Economy*, 98 (2), pp. 103-125.
- Barro, R. and X. Sala-I-Martin, 1992. "Public Finance in Models of Economic Growth." *Review of Economic Studies*, 59, pp. 645-661. "Barro, R. and X. Sala-I-Martin, 1995, *Economic Growth*, McGraw-Hill.
- Barth, J. and M. Bradley, 1988. "The Impact of Government Spending on Economic Activity." *National Chamber Foundation*, Washington, DC, mimeo.
- Benos, N., 2005. Fiscal Policy and Economic Growth: Empirical Evidence from OECD Countries. *Discussion Paper*, Department of Economics, University of Cyprus.
- Bogdanov, B., 2010. Cyclicity of Fiscal Policy over the Business Cycle: An Empirical Study on Developed and Developing Countries. Working Paper Series, *Agency for Economic Analysis and Forecasting*.  
[http://www.aeaf.minfin.bg/bg/izdaniq/working\\_paper\\_1\\_2010\\_en.pdf](http://www.aeaf.minfin.bg/bg/izdaniq/working_paper_1_2010_en.pdf) (Access: 02/04/2010).
- Cashin, P., 1995. "Government Spending, Taxes and Economic Growth." *IMF Staff Papers*, 42(2), pp. 237-269.
- Central Bank of Sri Lanka, various annual reports, *Central Bank of Sri Lanka*.
- Devarajan, S., Swaroop, V. and H. Zou, 1996, "The Composition of Public Expenditure and Economic Growth." *Journal of Monetary Economics*, 37, pp. 313-344.
- Easterly, W. and Rebelo, S., 1993. "Fiscal Policy and Economic Growth: An Empirical Investigation." *Journal of Monetary Economics*, 32, pp. 417-458.
- Gerrard, W. and Godfrey, L., 1998. "Diagnostic Checks for Single-Equation Error-Correction and Autoregressive Distributed Lag Models." *The Manchester School* 66(2), pp. 222-237.
- Ghatak, S. and Siddiki, J., 2001. "The Use of ARDL Approach in Estimating Virtual Exchange Rates in India". *Journal of Applied Statistics* 28(5), pp. 273-583.
- Gray, C., 2007. "Fiscal Policy and Economic growth in Europe and Central Asia: An Overview." *The World Bank*, Washington D.C.
- Kunitomo, N., 1996. "Tests of Unit Roots and Cointegration Hypotheses in Econometric Models." *Japanese Economic Review*, 47(1), pp. 79-109.
- Landau, D., 1983. "Government Expenditure and Economic Growth: A Cross Country Study." *Southern Economic Journal*, 49, pp. 783-793.
- Levine, R., 1999. "Law Finance and Economic Growth." *Journal of Financial Intermediary*, 8, pp. 8-35.
- M' Amanja, D. and Morrissey, O., 2005. "Fiscal Policy and Economic Growth in Kenya." *Centre for Research in Economic Development and International Trade*.
- Martinez, S., Jurado, Y., Zorita, C., and Vieites, A., 2006. Fiscal policy and Economic Growth: European Union Experience. *International Journal of Public Policy*, 1(3), pp. 244 - 257.
- Perkings, D., Radelet, S., and Lindauer, D., 2006. "Economics of Development." New York W.W. Norton and Company.
- Perron, P., 1989. "The Great Crash, the Oil Price Shock, and the Unit Root Hypothesis." *Econometrica*. 57(16), pp. 1361-1401.
- Perron, P., 1997. "Further Evidence on Breaking Trend Functions in Macroeconomic Variables." *Journal of Econometrics*, 80(2), pp. 355-385.
- Perron, P. and Vogelsang, T., 1992. "Nonstationarity and Level Shifts with an Application to Purchasing Power Parity." *Journal of Business and Economic Statistics*, 10(3), pp. 301-320.
- Pesaran, M. and Shin, Y., 1997. "An Autoregressive Distributed Lag Modelling Approach to Cointegration Analysis." *Cambridge University Press*. <http://www.econ.cam.ac.uk/faculty/pesaran/ardl.pdf> (Access : 14/11/2006)

- Pesaran, M. and Pesaran, B., 1997. "Working with Microfit 4.0: Interactive Econometric Analysis, Oxford: Oxford University Press.
- Pesaran, M. and Smith, R., 1998. "Structural Analysis of Cointegrating VARs. *Journal of Economic Surveys*, 12(5): 471-505.
- Pesaran, M., Shin, Y. and Smith, R., 2001. "Bounds Testing Approaches to the Analysis of Level Relationships. *Journal of Applied Econometrics* 16 (3), pp. 289-326.
- Poot, J., 2000. "A Synthesis of Empirical Research on the Impact of Government on Long-Run Growth." *Growth and Change*, 31, pp. 516-546.
- Tang, T.C and M. Nair, 2002. "Cointegration Analysis of Malaysian Import Demand Function: Reassessment from the Bounds Test." *Applied Economic Letters*, 9(5), pp. 293-296.
- Trish, K., 1997. "Public Expenditures and Growth." *The Journal of Development Studies*, 34 (1), pp. 60-84.
- Vogelsang, T. and Perron P., 1998. "Additional Tests for a Unit Root Allowing for a Break in the Trend Function at an Unknown Time." *International Economic Review*, Department of Economics, University of Pennsylvania and Osaka University Institute of Social and Economic Research Association, 39(4), pp. 1073-1100.
- Zivot, E. and K. Andrews, 1992. "Further Evidence on the Great Crash, the Oil Price Shock, and the Unit Root Hypothesis." *Journal of Business and Economic Statistics*, 10(3), pp. 251-70.

## Appendix A

### Model 1

#### 1.1 Key Regression Statistics:

$$R^2 = 0.99948$$

$$F(11, 32) = 5581.8 (0.000)$$

$$\text{Durbin-Watson Statistic} = 2.0292$$

#### 1.2 Diagnostic Tests Results

LM Test Statistics	Statistic	Probability
Serial Correlation <sup>a</sup> F <sup>(1,31)</sup>	0.0696	0.794
Functional Form <sup>b</sup> F <sup>(1,31)</sup>	0.5036	0.483
Normality <sup>c</sup> χ <sup>2</sup> (2)	7.4159	0.025
Heteroscedasticity <sup>d</sup> F <sup>(1,42)</sup>	2.0287	0.162

**a** Breusch-Godfrey LM test for serial correlation.

**b** Ramsey RESET test for omitted variables/functional form.

**c** Jarque-Bera normality test.

**d** White test for heteroscedasticity.

**Model 2**

**2.1 Key Regression Statistics:**

$$R^2 = 0.99986$$

$$F(21, 22) = 7471.60 (0.000)$$

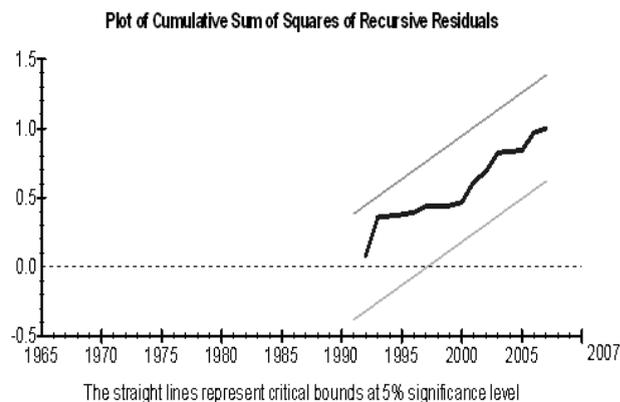
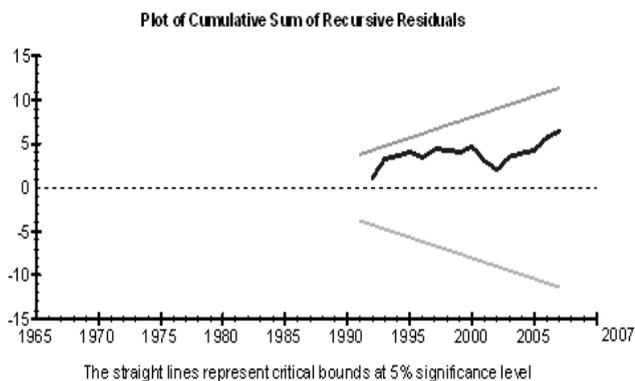
$$\text{Durbin-Watson Statistic} = 2.1778$$

LM Test Statistics	Statistic	Probability
Serial Correlation <sup>a</sup> F(1,21)	0.2688	0.610
Functional Form <sup>b</sup> F(1,21)	0.5114	0.482
Normality <sup>c</sup> χ <sup>2</sup> (2)	0.1423	0.931
Heteroscedasticity <sup>d</sup> F(1,42)	0.4989	0.484

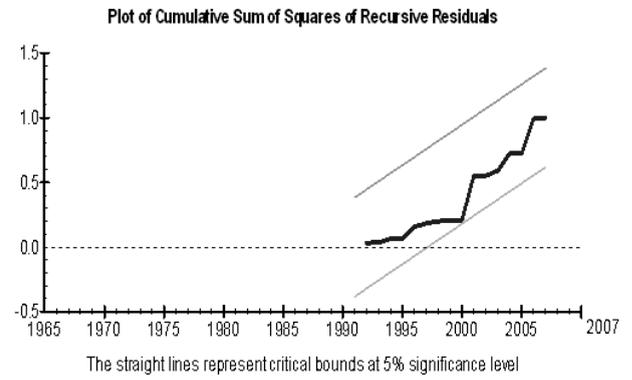
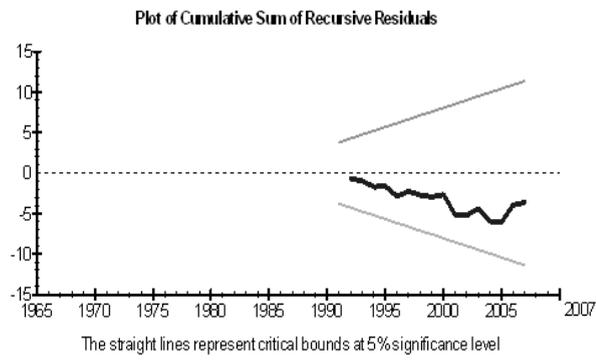
- a Breusch-Godfrey LM test for serial correlation.
- b Ramsey RESET test for omitted variables/functional form.
- c Jarque-Bera normality test.
- d White test for heteroscedasticity.

**Appendix B**

**Model 1**



### Model 2



\*\*\*\*\*

# Firm Size, Corporate Governance and Disclosure Practices: Inter-relations

Pankaj M. Madhani

## A b s t r a c t

Corporate governance and disclosure practices of firms are influenced by various internal and external variables. Among these, firm characteristics such as size, age, leverage, origin and types of firms viz. public sector, private sector and foreign firms. also have major impact on disclosure practices of firms. As there is no much research from Indian context regarding impact of specific firm characteristics such as firm size on corporate governance and disclosure practices of firms, this study aims to contribute to the understanding of this relationship. This study focuses on corporate governance practices of sample firms listed in Bombay Stock Exchange (BSE). The sample comprises 9 sectors selected from S&P BSE sectoral indices to study impact of firm size (both in terms of fixed assets as well as gross sales) on corporate governance practices of firms. By analyzing the impact of firm size on corporate governance and disclosure practices of firms, this research identifies and tests the empirical evidence for such relationship.

**Keywords:** *Corporate governance, Disclosure, Firm characteristics, Firm Size, Agency theory*



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The main objective of the corporate governance is to protect long-term shareholder value along with the other stakeholders. Corporate governance is a very wide term, which covers a wide range of activities that relate to the way business organization is directed and governed. It deals with the policies and practices that directly impact on the organization's performance, stewardship and its capacity to be accountable to its various stakeholders. Corporate governance is the system of relations between the shareholders, board of directors and management of a company as defined by the corporate charter, by-laws, formal policy and rule of law.

The corporate business is an increasingly important engine for wealth creation worldwide, and how companies are run will influence welfare in society as a whole. In order to serve this wealth creating function, companies must operate within a framework that keeps them focused on their objectives and accountable for their actions. That is to say, they need

to establish adequate and credible corporate governance arrangements. Management recognizes that there are economic benefits to be gained from a well-managed disclosure policy. A system of corporate governance needs a good level of disclosure and an adequate information to eliminate (or at least reduce) information asymmetries between all parties, making corporate insiders accountable for their actions (Madhani, 2014a).

Corporate governance and disclosure practices of firms are influenced by various variables such as board size, board independence, board committees, ownership concentration, cross-listing of firms, CEO duality, auditor selection, nature of industry (manufacturing versus service firms; traditional versus knowledge intensive firms; and tangible assets versus intangible assets dominated firms), and firm characteristics (size, age, leverage, origin and types of firms viz. public sector, private sector and foreign firms). As there is no much research from Indian context regarding impact of specific firm characteristics such as firm size (i.e. in terms of fixed assets and gross sales) on corporate governance and disclosure practices of firms, this study aims to contribute to the understanding of this relationship. Hence, this study focuses on corporate governance and disclosure practices of sample firms listed in Bombay Stock Exchange (BSE). By analyzing the impact of firm size on corporate governance and disclosure practices of firms, this research identifies and tests the empirical evidence for such relationship.

### **Literature Review**

Corporate governance stands for responsible business management geared towards long-term value creation. Good corporate governance is a key driver of sustainable corporate growth and long-term competitive advantage (Madhani, 2007a). A good system of corporate governance will facilitate the resolution of corporate conflicts between minority and controlling shareholders, executives and shareholders, and between shareholders and stakeholders. Corporate governance typically protects investor from managers who instigate self-deal, theft of corporate assets as well as corruption (Dalton and Daily, 1999). The broader objectives of corporate governance are; to ensure shareholders value, to protect interest of shareholders and various other stakeholders including customers, suppliers, employees and society at large, to ensure full transparency

and integrity in communication and to make available complete, accurate and clear disclosure to all concerned (Shukla, 2008).

Disclosure is an important component of corporate governance since it allows all stakeholders of firms to monitor performance of the firm. Good practices in corporate governance disclosure, guidance issued by OECD (2006) also states that all material issues related to the corporate governance of a firm should be disclosed in a timely manner. Hence, disclosures have to be clear, concise and precise and governed by the substance over form principle. An effective system of governance practices should ensure compliance with applicable laws, standards, rules, rights, and duties of all interested parties, and further, should allow companies to avoid costly litigation, including those costs related to shareholder claims and other disputes resulting from fraud, conflicts of interest, corruption and bribery, and insider trading. According to Ho et al. (2008), exhaustive disclosure by firms enabled investors to make better investment decisions.

Disclosure by firms can be categorized as mandatory disclosure and voluntary disclosure. Voluntary disclosure, also defined as information in excess of mandatory disclosure, has been receiving an increasing amount of attention from researchers in recent corporate governance and disclosure studies. Because of the inadequacy of mandatory disclosure by firms, the proactive action by firms such as voluntary disclosure provides investors with the necessary information to make more informed decisions (Madhani, 2007b).

According to Jensen and Meckling (1976) agency theory provides a framework that link disclosure behavior to firm-specific characteristics as corporate governance mechanisms are introduced to control the agency problem and ensure that managers act in the interests of shareholders. The impact of internal governance mechanisms on corporate disclosures may be complementary or substitutive. If it is complementary, agency theory predicts that a greater extent of disclosures is expected since the adoption of more governance mechanisms will strengthen the internal control of firms and provide an intensive monitoring mechanism for a firm to reduce opportunistic behaviors and information asymmetry (Knutson, 1992).

In this situation, managers are not likely to withhold information for their own benefits under such an intensive monitoring environment, which lead to improvement in extent as well as quality of disclosure (Apostolou and Nanopoulos, 2009). On the other hand, if the relationship is substitutive, firms will not provide more disclosures for more governance mechanisms since one corporate governance mechanism may substitute another one. If information asymmetry in a firm can be reduced because of the existing internal monitoring packages mechanism, the need to deploy additional governance devices is smaller.

Size of the firm is the most consistently reported variable that explains the differences in voluntary disclosure by firms (Foster, 1986). The positive relationship between size and level of disclosure is attributed to agency theory, which suggests that agency cost is high for large firms (Leftwich, 1981) as shareholders are widespread (Alsaed, 2006). As large firms have more agency costs and a wider ownership distribution so they are triggered to disclose more information (Meek et al., 1995). Because, it is harder to monitor, large firms need to compensate with stricter governance mechanisms (Jensen, 1986).

Since large firms rely on capital and tend to go to the stock market for their financial needs more often than small firms, such firms provide detailed disclosure (Kamran and Nicholls, 1994). There are other explanations for positive association between size and disclosure levels. Smaller firms may be at a competitive disadvantage against larger firms in the same industry and they may not freely disclosedue to fear of competition (Singhvi and Desai, 1971) as it could endanger their competitive positions.

Moreover, the cost of generating the information may be high for smaller firms. Large firms would be in a position to bear costly process of information gathering and processing and hence exhibit higher disclosure (Buzby, 1975). Freeman (1987) and Lang and Lundholm (1993) argue that the “differential information hypothesis” results in managers from large firms providing a relatively greater level of disclosure (that is, supply of information) than their smaller firm counterparts. Consistent with the legal costs and differential information hypotheses, regulators also have assumed a posture of requiring more disclosure from larger firms (Karim et al.).

In USA, the Securities Exchange Commission (SEC) has expressed concern that smaller registrants lack sufficient qualified personnel to deal with disclosure requirements. The SEC currently designates firms with less than \$75 million public float as smaller registrants. The previous threshold was less than \$25 million in public common equity and less than \$25 million in annual revenue. The change in threshold increased the number of smaller reporting firms to 4,976 from 3,395, an increase of 47%. Firms without calculable public float are considered small reporting firms if the previous year’s revenues were less than \$50 million. In March 2005, the SEC formed an Advisory Committee on Smaller Public Companies, which recommended smaller firms not be subject to further acceleration of Form 10-Q and 10-K filing dates “because of the lack of capacity... of internal compliance personnel and external professional advisors to smaller public firms” (SEC Advisory Committee on Smaller Public Companies, 2006). In 2008, the SEC amended Regulation S-K to expand the number of firms that qualify for scaled (by size) disclosure requirements (SEC 2008). From USA perspective, a more compelling reason for disclosure involves a consideration of costs of lawsuits brought under SEC Rule 10b-5 (Skinner, 1994).

By disclosing more information and in a timelier fashion, management subjects its firms to lower settlement costs in lawsuits. Large firms have “deeper pockets” and are therefore more susceptible to lawsuits than smaller firms (Ettredge, et al., 2011). Hence, large firms have the incentive to increase their levels of disclosure to avoid litigation costs (Field, *et al.*, 2005). Therefore, from the litigation risk perspective, managers from larger firms are more likely to disclose information than their smaller firm counterparts. This association may also occur because larger firms are more likely to have resources, including adequate officers’ and directors’ insurance, available to pay plaintiffs and their attorneys (Bonner et al., 1998).

However, in the Indian context, such research has not been fully explored. Hence, the impact of firm size on corporate governance and disclosure practices is studied in this research and accordingly it identifies and tests the empirical evidence for such relationship for firms listed in Indian stock market BSE.

### **Firms Size and Corporate Governance and Disclosure Practices**

Cooke (1989a) analyzed disclosure in Swedish firms and based on regression analysis indicated that listing status and size were major explanatory variables for voluntary disclosure. Cooke (1991), and Chow and Wong Boren (1987) have examined the factors influencing the disclosure levels in different countries. These studies examined the influence of size, country, industry, leverage, multi nationality (extent of multi-national operations), profitability, institutional and other block shareholding and international listing status on disclosure. Meek et al., (1995) studied the voluntary disclosure practices of firms from the international perspective. Their study examined the various factors influencing the voluntary disclosures of mainly three types of information: strategic, nonfinancial and financial information contained in the annual report. The sample of the study with sample size of 226 firms was drawn from various countries such as UK (64 firms), US (116 firms), France (16 firms), Germany (12 firms) and Netherlands (18 firms). Their study revealed that, firm size; country or region and the listing status were very important factors in explaining the voluntary disclosures of firms.

Many studies have examined the relationship between firm-specific characteristics and voluntary disclosure level. Naser *et al.* (2002), Fama and Jensen (1983), Camfferman and Cooke (2002), Donnelly and Mulcahy (2008), studied the association between firm size, debt ratio, ownership and auditor firm size and the level of disclosure. Firm size has consistently been found to be positively associated with various firm disclosures (Francis et al., 1994, Kasznik and Lev, 1995; Raffournier, 1995; Leung and Srinidhi, 2006). This suggests that large firms follow better disclosure practices (Ahmed and Courtis, 1999). Reasons why large firms might disclose more information than other firms can also be found in earlier research of Choi (1973), Schipper (1981) and Cooke (1989b). However, Stanga (1976) has found that the size of the firm did not significantly explain an association with the level of disclosure and its variability. Hossain, *et al.*, 1995 found a positive association between firm size and levels of disclosures. Study by Cullen and Christopher (2002) examined the association of governance disclosures of a sample of 100 industrial companies to firm characteristics. They found significant positive associations between governance disclosures and firm size.

The larger the firm, the greater the incentive to disclose information to reduce perceived political costs as larger firms may consider their size to be a variable which encourages the public to take notice, pay more attention or scrutinize their operations (Eilbirt and Parket, 1973).

According to Watts and Zimmerman (1978) the extent of political costs impacting on a firm is highly dependent on firm size. As a result, additional disclosure will be needed to reduce these costs (Watts and Zimmerman, 1983). Consequently, these firms might publish more information in their reports to supply information relevant to different users.

Firth (1979) argued that large firms tend to be in the public eye and attract more interest from government bodies, and thus may disclose more information to enhance their reputation and public image. Higher disclosure allays public criticism and government intervention in their corporate affairs. This is analogous to arguments concerning political visibility put forward by Watts and Zimmerman (1986), as the annual reports of larger firms are more likely to be scrutinized by financial and stock market analysts than those of smaller firms and investors may interpret nondisclosure as bad news, which could adversely affect firm value.

Large firms can have bigger impact on the economy as these companies account for a significant proportion of goods and services produced, raw materials consumed and number of people employed. As such, large firms are likely to come under the scrutiny of various interested parties and hence tend to disclose adequate information in their annual reports (Wallace and Naser, 1995) and are more likely to issue forecasts (Lev and Penman, 1990).

As large firms have the access to resources (Hossain et al., 1994), they tend to allocate larger resources for generation of this information (Stigler, 1961). These firms may have multi products and have operations covering larger areas. These firms require and produce more information for their own internal decision-making or management information systems (MIS) and for evaluating different divisions. The larger firms are likely to have a higher level of internal reporting to keep senior management informed and therefore are likely to have relevant information available (Owusu-Ansah, 1998). Thus, for larger firms no additional cost may be required for generating voluntary disclosures.

Hassan *et al.* (2006) justify the positive association between firm size and disclosure practices as large firms are more likely to have enough resources to afford the cost of producing in-depth information for annual reports and they are more likely to be of interest to different entities including government agencies. Larger firms tend to attract more analysts' followings than smaller ones, and may therefore be subjected to greater demand by analysts for private information (McKinnon and Dalimunthe, 1993). Karim *et al.*, (2013) found larger firms disclose more items than smaller firm. They have used assets and revenue of firm as proxies for firm size. In summary, the above arguments indicate that there is an interactive effect between firm size and disclosure levels. This research study seeks to examine how large size firms and small size firms differ in corporate governance and disclosure practices and accordingly following hypotheses are formulated.

### Development of Hypotheses

#### *Testable Hypotheses*

The relation between corporate governance and disclosure practices and firm characteristics, has become a subject of much interest in recent years. The current study develops hypotheses on the association between firm size and corporate governance and disclosure levels. As mentioned earlier, large firms show higher standard of corporate governance and disclosure practices compared to small firms. Thus, based on these arguments following alternate hypotheses are proposed:

H<sub>101</sub>:

*There is an association between firm size and levels of corporate governance and voluntary disclosure practices in India.*

From literature review, it may be emphasized that one of the important variables studied in corporate governance and disclosure research is the size of the firm. There are three measures of firm size namely assets, sales and market capitalization of the firm (Malone *et al.*, 1993). Fixed assets and gross sales were most highly correlated with disclosure level (Cooke, 1992). Hence, based on this, following two alternate hypotheses are proposed:

H<sub>102</sub>:

*Large firms have better corporate governance and disclosure practices compared to small firms, when fixed assets are used as firm size criteria.*

H<sub>103</sub>:

*Large firms have better corporate governance and disclosure practices compared to small firms, when gross sales are used as firm size criteria.*

### Research Design and Methodology

#### *Objective of the Study*

1. To measure extent of corporate governance and disclosure practices of sample firms with the help of an appropriate instrument as an evaluation tool.
2. To know that to what extent firms from different size disclosed through their annual reports.
3. To know how size of the firms influences their corporate governance and disclosure practices.

#### *Scope of the Study*

This study will help us to understand that whether intangible assets dominance of firms is associated with corporate governance and disclosure practices of firms in Indian context.

#### *Sources of Data*

This study employs a method of content analysis of published annual reports of firms. Content analysis can be a great source of information as it involves codifying both qualitative and quantitative information into pre-defined categories in order to track patterns in the presentation and reporting of information (Guthrie *et al.*, 2006). Content analysis is widely used in accounting research to reveal useful insights into accounting practice (Steenkamp and Northcott, 2007). Annual reports are important documents for assessing and analyzing the company performance in regard to corporate governance standards and compliance. The annual reports of 54 firms for the financial year 2011-12 i.e. for the period ending March 2012 or December 2012 (based on the sample firms' financial year) have been downloaded from the CMIE Prowess database (4.14 version).

*Sampling Technique Applied*

Stratified sampling was used for obtaining data of firms listed in Bombay Stock Exchange (BSE) and is constituent of S&P BSE sectoral indices.

*Sampling and Data Collection*

The sample for the study was collected from the firms listed in BSE in the form of S&P BSE sectoral indices. Sectoral indices at BSE aim to represent minimum of 90% of the free-float market capitalization for sectoral firms from the universe of S&P BSE 500 index. This sector index consists of the firms classified in that particular sector of the BSE 500 index. The sample firms represent different sectors viz.: Metal, Oil

& Gas, Power, FMCG, Health Care, IT, Auto, Consumer Durables and Capital Goods. In each of these sectors, top 6 firms as per market capitalization are selected for sample.

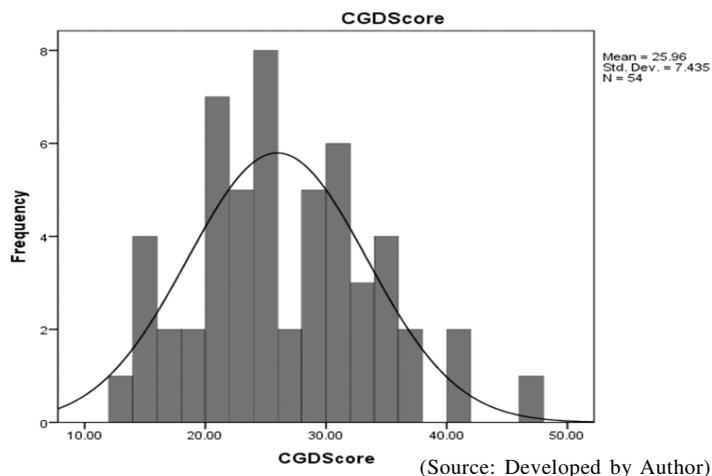
In most of the earlier studies on disclosure, firms were taken as the top largest firms listed on their respective stock exchanges which have been selected on the basis of their market capitalization. Such studies also employed content analysis of published annual reports (Joshi et al., 2012). As shown below in Table 1, these 54 firms selected from 9 different sectors represent more than 91% of overall sectoral index weight. Hence, these samples of 54 firms truly represent selected 9 sectors.

**Table 1: Weight of Sample Firms in Their Respective Sectoral Indices**

Sr. No.	S&P BSE Sectoral Indices	No. of Firms Studied	Weight in Index
1	S&P BSE Auto	6	89 %
2	S&P BSE Capital Goods	6	94 %
3	S&P BSE Consumer Durables	6	90 %
4	S&P BSE Healthcare	6	88 %
5	S&P BSE IT	6	95 %
6	S&P BSE Metal	6	82 %
7	S&P BSE Oil & Gas	6	94 %
8	S&P BSE Power	6	97 %
9	S&P BSE FMCG	6	91 %
<b>Total Sample Size</b>		<b>54</b>	<b>91 %</b>

(Source: Calculated by author form BSE Web Site)

Figure 1 shows relationship of CGD scores of sample firms, along with frequency distribution in terms of histogram.



**Mean CG Score = 25.96**  
**Std. Deviation = 7.435**  
**Sample Size = 54**

(Source: Developed by Author)

**Figure 1: CGD Scores of Sample Firms: Frequency Distribution**

### The Research Instrument: Measurement of Corporate Governance Disclosure Score

In this study, corporate governance and disclosure practices of firms are measured by using index developed by Subramaniana and Reddy (2012). They developed a new instrument to measure corporate governance and disclosure levels of firms, considering only voluntary disclosures in the Indian context. On the basis of the S&P instrument, the instrument also classifies corporate governance-related disclosures under two categories: ownership structure and investor relations (ownership), and board and management structure and process (board) (Annexure-I). This instrument was also used in prior research on corporate governance and disclosure studies in India (Madhani, 2014b; Madhani, 2014c; Madhani, 2015a; Madhani, 2015b; Madhani, 2015c; Madhani, 2015d; Madhani, 2015e; Madhani, 2016).

The final instrument had 67 items: 19 questions in the ownership disclosure category and 48 in the board disclosure category. The annual reports of the selected 54 firms were carefully examined for the financial year 2011-12. Hence, to arrive at the overall disclosure score for each category, i.e. ownership and board, annual reports of each firm under study was scrutinized for the presence of specific items under the above mentioned categories. One point is awarded when information on an item is disclosed and zero otherwise. All items in the instrument were given equal weight, and the scores thus arrived at (for each category), with a higher score indicating greater disclosure. Final corporate governance and disclosure (CGD) score (Maximum: 67) for each firm was calculated by adding overall score received in ownership (Maximum: 19) as well as and board category (Maximum: 48).

### Data Analysis and Interpretation

As explained earlier, with the help of instrument, corporate governance and disclosure practices of firms were calculated by thoroughly scrutinizing annual report of firms. The CGD

score was calculated for all 54 firms of sample. Firm size in terms of fixed assets as well as gross sales and CGD score for sample firms across various sectors is shown in Annexure-II.

### Summary of Findings and Empirical Results

The explanatory variables used in the present research are fixed assets and gross sales of firm. The study aims to find out if corporate governance and disclosure scores of large firms and small firms are significantly different. This study considers all these three measures of firm size i.e. fixed assets, gross sales and market capitalization to understand impact of firm size on disclosure practices. As explained earlier in sampling and data collection part of research methodology, sample firms comprise of top 6 firms as per market capitalization are selected from 9 sectors of S&P BSE sectoral indices. Hence, within sample of large firms (according to market capitalization), further segregation is made to divide firms in to large and small firms using fixed assets and gross sales as firm size criteria. As per frequency distribution analysis, firm size criteria for large firms is considered as fixed assets >INR 10,000 Crores while for small firms it is considered as fixed assets <INR 10,000 Crores. Similarly, firm size criteria for large firms is considered as gross sales > INR 20,000 Crores while for small firms it is considered as gross sales <INR 20,000 Crores.

For sample of 54 firms, mean value of fixed assets is INR 29,809.65 Crores while mean value of gross sales is INR 48,121.66 Crores. In the sample firms, 26 firms are large firms (fixed assets >INR 10,000 Crores), while 28 firms are small firms (fixed assets <INR 10,000 Crores). Similarly, out of 54 firms, 28 firms are large firms (gross sales >INR 20,000 Crores, while 26 firms are small firms (gross sales <INR 20,000 Crores). According to these criteria, segregation of large and small firms (in terms of fixed assets) is shown in Table 2 and Table 3 respectively. Similarly, Table 4 and Table 5 respectively show segregation of large and small firms (in terms of gross sales).

**Table2: Large Firms (According to Fixed Assets) across Various Sectors**

Sector	Sr. No.	Firm	Fixed Assets (INR Crores)
Oil & Gas	1	ONGC	254,415.39
	2	Reliance Industries	233,475.00
	3	IOC	107,630.59
	4	Bharat Petroleum	42,549.62
	5	Cairn India	35,703.86
	6	GAIL	31,769.19
Metal	7	Tata Steel	130,491.21
	8	Hindalco Industries	53,961.03
	9	JSW Steel	42,689.51
	10	Coal India	38,096.41
	11	Sterlite	37,289.83
	12	Jindal Steel & Power	22,421.80
Power	13	NTPC	88,882.13
	14	Power Grid	64,519.19
	15	Tata Power	38,256.23
	16	NHPC	30,293.05
	17	Reliance Infrastructure	17,045.07
Auto	18	Tata Motors	94,012.06
	19	Mahindra & Mahindra	35,007.94
	20	Maruti Suzuki	15,055.70
Capital Goods	21	L & T	25,778.14
	22	BHEL	10,017.20
FMCG	23	ITC	15,519.38
IT	24	Wipro	18,277.30
	25	TCS	12,991.29
Consumer Durables	26	Videocon Industries	14,892.29
<b>Mean Value</b>			<b>58,116.94</b>

(Source: Table Developed by Author)

**Table 3: Small Firms (According to Fixed Assets) across Various Sectors**

Sector	Sr. No.	Firm	Fixed Assets (INR Crores)
Healthcare	1	Dr Reddy	8,842.30
	2	Cipla	4,626.90
	3	Lupin	4,191.84
	4	Ranbaxy Laboratories	3,258.79
	5	Glenmark Pharmaceuticals	2,650.96
	6	Glaxo	316.18
Capital Goods	7	Cropmton Greaves	4,408.73
	8	PipavavDefence	2,557.67
	9	Siemens	1,998.32
	10	ABB	1,612.31
FMCG	11	United Spirits	8,898.40
	12	Nestle	4,368.68
	13	Godrej Consumer Products	4,185.74
	14	HUL	4,016.16
	15	Colgate	613.16
IT	16	HCL	9,581.82
	17	Infosys	9,194.00
	18	Mahindra Satyam	2,320.60
	19	Oracle Financial	1,324.42
Power	20	Reliance Power	6,935.61
Auto	21	Hero MotoCorp	6,308.26
	22	Bajaj Auto	3,839.32
	23	Cummins	699.52
Consumer Durables	24	Titan Industries	813.83
	25	Blue Star	417.63
	26	Gitanjali Gems	408.65
	27	TTK Prestige	202.86
	28	Rajesh Exports	87.81
<b>Mean Value</b>			<b>3,524.30</b>

(Source: Table Developed by Author)

**Table 4: Large Firms (According to Gross Sales) across Various Sectors**

Sector	Sr. No.	Firm	Gross Sales(INR Crores)
Oil & Gas	1	IOC	442,458.53
	2	Reliance Industries	368,571.00
	3	Bharat Petroleum	223,314.64
	4	ONGC	151,121.10
	5	GAIL	44,861.05
Capital Goods	6	L & T	64,960.08
	7	BHEL	50,653.84
Power	8	NTPC	66,365.89
	9	Tata Power	26,019.81
	10	Reliance Infrastructure	24,180.76
IT	11	TCS	48,894.08
	12	Wipro	37,308.30
	13	Infosys	33,734.00
	14	HCL	20,830.55
Metal	15	Tata Steel	135,975.56
	16	Hindalco Industries	82,549.03
	17	Coal India	78,410.38
	18	Sterlite	43,115.91
	19	JSW Steel	36,964.23
	20	Jindal Steel & Power	22,472.89
Auto	21	Tata Motors	170,677.58
	22	Mahindra & Mahindra	63,030.48
	23	Maruti Suzuki	40,049.60
	24	Hero MotoCorp	25,235.02
	25	Bajaj Auto	20,541.41
FMCG	26	ITC	36,990.37
	27	HUL	24,506.40
Consumer Durables	28	Rajesh Exports	25,653.85
<b>Mean Value</b>			<b>86,051.66</b>

(Source: Table Developed by Author)

**Table 5: Small Firms (According to Gross Sales) across Various Sectors**

<b>Sector</b>	<b>Sr. No.</b>	<b>Firm</b>	<b>Gross Sales(INR Crores)</b>
Health Care	1	Dr Reddy	9855.00
	2	Cipla	7128.82
	3	Lupin	7124.93
	4	Ranbaxy Laboratories	6331.46
	5	Glenmark Pharmaceuticals	4020.64
	6	Glaxo	2766.92
Capital Goods	7	Siemens	12478.88
	8	Crompton Greaves	11615.12
	9	ABB	7610.48
	10	PipavavDefence	1867.23
FMCG	11	United Spirits	18,233.54
	12	Nestle	8581.88
	13	Godrej Consumer Products	4986.61
	14	Colgate	2805.54
IT	15	Mahindra Satyam	6395.60
	16	Oracle Financial	3146.68
Oil & Gas	17	Cairn India	11,860.65
Power	18	NHPC	6920.33
	19	Power Grid	10,311.52
	20	Reliance Power	2019.21
Auto	21	Cummins	3924.01
Consumer Durables	22	Videocon Industries	13,684.51
	23	Gitanjali Gems	12,498.28
	24	Titan Industries	8983.15
	25	Blue Star	2847.82
	26	TTK Prestige	1122.71
<b>Mean Value</b>			<b>7273.90</b>

(Source: Table Developed by Author)

**Table 6 shows firm size (in terms of fixed assets) and CGD score across various sectors.**

**Table 6: Firms Size (According to Gross Sales) across Various Sectors**

Sr. No.	Sector	Firm Size (Fixed Assets)		Fixed Assets (INR Crores)			CGD Score	
		Large	Small	Min.	Max.	Mean	Min.	Max.
1	Oil & Gas	6	0	31,769.19	254,415.39	117,590.61	20	34
2	Metal	6	0	22,421.81	130,491.21	54,158.30	17	35
3	Power	5	1	6,935.61	88,882.13	40,988.55	25	30
4	Auto	3	3	699.52	94,012.06	25,820.47	13	34
5	Health Care	0	6	316.18	8842.30	3981.16	14	40
6	Capital Goods	2	4	1612.31	25,778.14	7728.72	21	31
7	FMCG	1	5	613.16	15,519.38	6266.92	15	41
8	IT	2	4	1324.42	18,277.30	8948.24	20	47
9	Consumer Durables	1	5	87.81	14,892.29	2803.85	15	26
<b>Total Firms (54)</b>		<b>26</b>	<b>28</b>	<b>87.81</b>	<b>254,415.39</b>	<b>29809.65</b>	<b>13</b>	<b>47</b>

(Source: Table developed by author)

As shown in Table 6, oil & gas and metal sector represents maximum number of big firms i.e. 6 in terms of fixed assets. However, all firms in health care sector are small firms. Firm size is determined based on whether fixed assets of firm are more or less than INR 10,000 Crores.

Table 7 shows firm size (in terms of gross sales) and CGD score across various sectors.

**Table 7: Firms Size (According to Gross Sales) across Various Sectors**

Sr. No.	Sector	Firm Size (Gross Sales)		Gross Sales (INR Crores)			CGD Score	
		Large	Small	Min.	Max.	Mean	Mean	SD*
1	Oil & Gas	5	1	11,860.65	442,458.53	207,031.16	27.83	5.08
2	Metal	6	0	22,472.89	135,975.56	66,581.33	26.33	7.12
3	Capital Goods	2	4	1867.23	64,960.08	24,864.27	24.83	3.87
4	Auto	5	1	3924.01	170,677.58	53,909.68	23.67	7.55
5	Power	3	3	2019.21	66,365.89	22,636.25	28	1.79
6	IT	4	2	3146.68	48,894.08	25,051.54	32	10.20
7	Health Care	0	6	2766.92	9855.00	6204.63	23.83	8.68
8	Consumer Durables	1	5	1122.71	25,653.85	10,798.39	19.67	4.59
9	FMCG	2	4	2805.54	36,990.37	16,017.39	27.50	10.82
<b>Total Firms (54)</b>		<b>28</b>	<b>26</b>	<b>1122.71</b>	<b>442,458.53</b>	<b>48,121.66</b>	<b>25.96</b>	<b>7.44</b>

\*SD = Standard Deviation

(Source: Table developed by author)

As shown in Table 7, metal sector represents maximum number of big firms i.e. 6 in terms of gross sales. However, all firms in health care sector are small firms. Firm size is determined based on whether gross sales of firm are more or less than INR 20,000 Crores.

#### Research Procedures for Testing Hypotheses

This research conducted an inferential statistical analysis for testing the hypotheses. In order to study relationship

between firm size and CGD score, correlation matrix has been used while to test the significant differences in the CGD scores of large firms and small firms, parametric *t*-test has been used.

Table 8, below shows key statistics for large firms and small firms along with CGD score. As shown in Table 8, mean size (in terms of fixed asset) of sample firm is INR 29809.65 Crores, while mean size (in terms of gross sales) of sample firm is INR 48121.66 Crores.

**Table 8: Firm Size and CGD Score**

Sr. No.	Firm Size Criteria	Size of Firms	No. of Firms	Firm Size (INR Crores)			CGD Score			
				Min.	Max.	Mean	Min.	Max.	Mean	SD
1	Fixed Assets (FA)	Large	26	10,017.20	254,415.39	58,116.94	17	47	28.58	6.95
		Small	28	87.81	9581.82	3,524.30	13	40	23.54	7.15
2	Gross Sales (GS)	Large	28	20,541.41	442,458.53	86,051.66	17	47	28.79	7.32
		Small	26	1122.71	18,233.54	7273.90	13	40	22.92	6.39
<b>Overall</b>			<b>54</b>	<b>87.81 (FA)</b>	<b>442,458.53 (GS)</b>	<b>29809.65 (FA)</b> <b>48121.66 (GS)</b>	<b>13</b>	<b>47</b>	<b>25.96</b>	<b>7.44</b>

(Source: Table developed by author)

Values of minimum, maximum, mean and standard deviation of CGD score for large firms and small firms have also been reflected. Results show that there is a difference between mean and standard deviation of CGD score for large firms and small firms. Analysis of the result shown in Table 8, indicates that mean of CGD score is higher for large firms at 28.58 and 28.79 respectively for fixed assets and gross sales. While, mean of CGD score is lower for small firms at 23.54 and 22.92 respectively for fixed assets and gross sales

H<sub>101</sub>:

*There is an association between firm size and levels of corporate governance and voluntary disclosure practice in India.*

To test above hypothesis correlation matrix has been used to examine the correlation between the dependent and independent variables; Pearson product moment correlation (*r*) was computed to test the hypothesis. A correlation matrix of all the values of '*r*' for the explanatory variables along with dependent variables was constructed and is shown in Table 9. Correlation matrix shows pair wise correlation coefficients between the CGD score and firm size (measured by fixed assets) as well as CGD score and firm size (measured by gross sales). When Pearson *r* is close to '0' it means that there is a weak relation between two variables. Thus, value of '*r*' = .427 (for Sales) and '*r*' = .500 (for Fixed Assets), shows that relationship exists between these independent variables and corporate governance and disclosure practices of firms as variables are correlated. Table 9 shows correlation matrix of dependent and independent variables.

**Table 9: Correlation Matrix Dependent and Independent Variables**

Independent Variables	CGD Score	Ln (Sales)	Ln (Fixed Assets)
CGD Score	1	0.427* (0.001)	0.500* (0.000)
Ln (Sales)		1	0.760*
Ln (Fixed Assets)			1

Note: \* indicates significance at 1% levels.

(Source: Table developed by author)

Result also revealed a positive relationship between gross sales and fixed assets ( $r = .760$ ). As significance value is  $< .05$  for both fixed assets and gross sales we can conclude that there is statistically significant correlation between firm size (measured in terms of fixed assets as well as gross sales) and CGD score. Hence, it is evident from the Table 9 that there is significant relationship between corporate governance and disclosure practices of firms and variables such as size of firms in terms of fixed assets as well as gross sales.

H1<sub>02</sub>:

Large firms have better corporate governance and disclosure practices compared to small firms, when fixed assets are used as firm size criteria.

H1<sub>03</sub>:

Large firms have better corporate governance and disclosure practices compared to small firms, when gross sales are used as firm size criteria.

Both hypotheses H1<sub>02</sub> and H1<sub>03</sub> have been tested using the univariate test. Group statistics and independent sample test output is given in Table 10 and Table 11 respectively. Results of parametric test, as indicated in Table 10, show that significance value  $p$  is less than 0.05, therefore at 5% level of significance; null hypothesis of equality of means is rejected. Thus, there exists statistically significant difference between corporate governance and disclosure scores of large firms and small firms (segregated in terms of fixed assets) and as such corporate governance and disclosure practices of large firms are better than small firms.

**Table 10: Results of Univariate Test – Hypothesis 2**

Null Hypothesis	t - Value	Significance Level
No significant difference between corporate governance disclosure scores of large firms and small firms (segregated according to fixed assets)	2.6241	.005689

(Source: Table developed by author)

Results of parametric test, as indicated in Table 11, show that significance value  $p$  is less than 0.05, therefore at 5% level of significance; null hypothesis of equality of means is rejected. Thus, there exists statistically significant difference between corporate

governance and disclosure scores of large firms and small firms (segregated in terms of gross sales) and as such corporate governance and disclosure practices of large firms are better than small firms.

**Table 11: Results of Univariate Test - Hypothesis 3**

Null Hypothesis	t -Value	Significance Level
No significant difference between corporate governance disclosure scores of large firms and small firms (segregated according to gross sales)	3.12549	.001451

(Source: Table developed by author)

### Discussion and Conclusion

This research focus on corporate governance and disclosure practices of firms listed in BSE. Research found that in Indian environment, firm size is an important variable influencing corporate governance and disclosure practices of firms. Research study used both fixed asset as well as gross sales as proxies for firm size and concluded that large firms have higher disclosure compared to small firms.

There are many reasons for higher disclosure by larger firms as explained below:

1. As financial analysts and the media focus more on financial statements of large firms, they may consider a low level of disclosure as a signal for hiding bad news. Therefore, large firms are more motivated to increase the level of disclosure to gain investors' confidence.
2. As large firms have more expertise and financial resources compared with small firms, the costs of dissemination of financial information are lower for them and hence large firms disclose more compared to small firms.
3. Large firms require more finance to support and expand their operations and hence for financing purposes, such firms are more likely to voluntarily disclose additional information.
4. Large firms require more funding than smaller firms and have a need to raise large capital at the lowest cost; hence such firms will comply with mandatory disclosures and also provide voluntary disclosures.

As found in this research, large firms have considerably higher CGD score (for both criteria of firm size i.e. fixed assets and gross sales) compared to mean CGD score of sample firms. Similarly, small firms have considerably lower CGD score (for both criteria of firm size i.e. fixed assets and gross sales) compared to mean CGD score of sample firms. The empirical evidence found in this study is consistent with

prior research. Hence, it is concluded that large firms have better corporate governance and disclosure practices compared to small firms as large firms provide more voluntary disclosure than their smaller firm counterparts.

### References

- Ahmed, K. and J. K. Courtis (1999). "Associations Between Corporate Characteristics and Disclosure Levels in Annual Reports: A Meta-Analysis." *The British Accounting Review*, Vol. 31, No. 1, pp. 35-61.
- Alsaeed, K. (2006). "The Association between Firm-specific Characteristics and Disclosure: The Case of Saudi Arabia." *Managerial Auditing Journal*, Vol. 21, No. 5, pp. 476-96.
- Apostolou, A. K. and K. A. Nanopoulos (2009). "Voluntary Accounting Disclosure and Corporate Governance: Evidence from Greek Listed Firms." *International Journal of Accounting and Finance*, Vol. 1, No. 4, pp. 395-414.
- Bonner, S. E., Z. Palmrose and S. Young (1998). "Fraud Type and Auditor Litigation: An Analysis of SEC Accounting and Auditing Enforcement Releases." *The Accounting Review*, Vol. 73, No. 4, pp. 503-532.
- Buzby, S. L. (1975). "Company Size, Listed vs. Unlisted Stock and Extent of Financial Disclosure." *Journal of Accounting Research*, Vol. 13, No. 1, pp. 16-37.
- Camfferman, K. and T. E. Cooke (2002). "An analysis of disclosure in the annual reports of UK and Dutch companies." *Journal of International Accounting Research*, Vol. 1, No. 1, pp. 3-30.
- Choi, F. D. S. (1973). "Financial Disclosure and Entry to the European Capital Market." *Journal of Accounting Research*, Vol. 11, No. 2, pp. 159-175.
- Chow, C. W. and A. Wong Boren (1987). "Voluntary Financial Disclosure by Mexican Corporations." *The Accounting Review*, Vol. 62, No. 3, pp. 533-541.

- Cooke, T. E. (1989a). "Disclosure in the Corporate Annual Reports of Swedish Companies." *Accounting and Business Research*, Vol. 19, No. 74, pp. 113-124.
- Cooke, T. E. (1989b). *An Empirical Study of Financial Disclosures by Swedish Companies*, New York: Garland Publishing.
- Cooke, T. E. (1991). "An Assessment of Voluntary Disclosure in the Annual Reports of Japanese Corporations." *The International Journal of Accounting*, Vol. 26, No. 3, pp. 174-189.
- Cooke, T. E. (1992). "The Impact of Size, Stock Market Listing and Industry Type on Disclosure in the Annual Reports of Japanese Listed Corporations." *Accounting and Business Research*, Vol. 22, No. 87, pp. 229-237.
- Cullen, L. and T. Christopher (2002). *Governance Related Information and Firm Characteristics of Listed Industrial companies*. Unpublished research paper, Edith Cowan University, Perth Western Australia.
- Dalton, D. R. and C. M. Daily (1999). "What's Wrong with Having Friends on the Board?." *Across the Board*, Vol. 36, No. 3, pp. 28-32.
- Donnelly, R. and M. Mulcahy (2008). "Board Structure, Ownership, and Voluntary Disclosure in Ireland." *Journal Compilation Blackwell Publishing Ltd.*, Vol. 16, No. 5, pp. 16-29. .
- Eilbirt, H. and I. R. Parket (1973). "The Practices of Business: The Current Status of Corporate Social Responsibility." *Business Horizons*, Vol. 16, No. 4, pp. 5-14.
- Ettredge, M., K. Johnstone, M. Stone and Q. Wang (2011). "The Effects of Firm Size, Corporate Governance Quality, and Bad News on Disclosure Compliance." *Review of Accounting Studies*, Vol. 16, No. 4, pp. 866-889.
- Fama, E. and M. Jensen (1983). "Separation of Ownership and Control." *The Journal of Law and Economics*, Vol. 25, No. 2, pp. 301-325.
- Field, L., M. Lowry and S. Shu (2005). "Does Disclosure Deter or Trigger Litigation?." *Journal of Accounting and Economics*, Vol. 39, No. 3, pp. 487-507.
- Firth, M. (1979). "The Impact of Size, Stock Market Listing and Auditors on Voluntary Disclosure in Corporate Annual Reports." *Accounting and Business Research*, Vol. 9, No. 36, pp. 273-280.
- Foster, G. (1986). *Financial Statement Analysis*, Englewood Cliffs, NJ: Prentice-Hall, 1986.
- Francis, J., D. Philbrick, and K. Schipper (1994). "Shareholder Litigation and Corporate Disclosure." *Journal of Accounting Research*, Vol. 32, No. 2, pp. 137-164.
- Freeman, R. (1987). "The Association between Accounting Earnings and Security Returns for Large and Small Firms." *Journal of Accounting and Economics*, Vol. 9, No. 2, pp. 195-228.
- Hassan, O., G. Giorgioni, and P. Romilly (2006). "The Extent of Financial Disclosure and its Determinants in An Emerging Capital Market: The Case of Egypt." *International Journal of Accounting, Auditing and Performance Evaluation*, Vol. 3, No. 1, pp. 41-67.
- Ho, P-L, G. Tower, and D. Barako (2008). "Improving Governance Leads to Improved Communication." *Corporate Ownership and Control*, Vol. 5, No. 4, pp. 26-33.
- Hossain, M., L. M. Tan and M. Adams (1994). "Voluntary Disclosure in an Emerging Capital Market: Some Empirical Evidence from Companies Listed on the Kuala Lumpur Stock Exchange." *The International Journal of Accounting*, Vol. 9, No. 4, pp. 334-351.
- Hossain, M., M. H. B. Perera, and A. R. Rahman (1995). "Voluntary Disclosure in The Annual Reports of New Zealand Companies." *Journal of International Financial Management and Accounting*, Vol. 6, No. 1, pp. 69-87.
- Jensen, M. C. (1986). "Agency Costs of Free Cash Flow, Corporate Governance, and Takeovers." *American Economic Review*, Vol. 76, No. 2, pp. 323-329.
- Jensen, M. C. and W. H. Meckling (1976). "Theory of the Firm: Managerial Behavior, Agency Costs and Ownership Structure." *Journal of Financial Economics*, Vol. 3, No. 4, pp. 306-360.
- Kamran, A. and D. Nicholls (1994). "The Impact of Non-Financial Company Characteristics on Mandatory Disclosure in Developing Countries: The Case of Bangladesh." *International Journal of Accounting Education and Research*, Vol. 29, No. 1, pp. 62-77.
- Karim, K. E., R. Pinsker and A. Robin (2013). "Firm Size and the Voluntary Disclosure of Nonfinancial Information by Private versus Public Firm Managers." *Managerial Auditing Journal*, Vol. 28, No. 9, pp. 866-892.

- Kasznik, R. and B. Lev (1995). "To Warn or Not to Warn: Management Disclosures in the Face of An Earnings Surprise." *Accounting Review*, Vol. 70, pp. 113-134.
- Knutson, P. (1992). *Financial Reporting into the 1990's and Beyond*, New York, Association for Investment Management and Research.
- Lang, M. and R. Lundholm (1993). "Cross-sectional Determinants of Analyst Ratings of Corporate Disclosures." *Journal of Accounting Research*, Vol. 31, No. 2, pp. 246-271.
- Leftwich, R.(1981). "Evidence of the Impact of Mandatory Changes in Accounting Principles on Corporate Loan Agreements." *Journal of Accounting and Economics*, Vol. 3, No. 1, pp. 3-36.
- Leung, S. and B. Srinidhi (2006). "The Effect of the Private Securities Litigation Reform Act on Analyst Forecast Properties: The Impact of Firm Size and Growth Opportunities." *Journal of Business Finance & Accounting*, Vol. 33, pp. 767-792.
- Lev, B. and S. H. Penman (1990). "Voluntary Forecast Disclosure, Nondisclosure and Stock Prices." *Journal of Accounting Research*, Vol. 28, No. 1, pp. 49-76.
- Madhani, P. M. (2007a). "Corporate Governance from Compliance to Competitive Advantage." *The Accounting World*, Vol. 7, No. 8, pp. 26-31.
- Madhani, P. M. (2007b). "Role of Voluntary Disclosure and Transparency in Financial Reporting." *The Accounting World*, Vol. 7, No. 6, pp. 63-66.
- Madhani, P. M. (2014a). "Corporate Governance and Disclosure Practices of Indian Firms: An Industry Perspective." *The IUP Journal of Corporate Governance*, Vol. 13, No. 2, pp. 27-41.
- Madhani, P. M. (2014b). "Corporate Governance and Disclosure: Public Sector vs Private Sector." *SCMS Journal of Indian Management*, Vol. 11, No. 1, pp. 5-20.
- Madhani, P. M. (2014c). "Corporate Governance and Disclosure Practices in India: Domestic Firms Versus Cross-Listed Firms." *The IUP Journal of Corporate Governance*, Vol. 13, No. 4, pp. 24-51.
- Madhani, P. M. (2015a). "MNC Subsidiaries vs Domestic Firms." *SCMS Journal of Indian Management*, Vol. 12, No. 1, pp. 5-24.
- Madhani, P. M. (2015b). "A Study on the Corporate Governance and Disclosure Practices of Tangible Assets Dominated and Intangible Assets Dominated Firms and Their Relationship." *The IUP Journal of Corporate Governance*, Vol. 14, No. 2, pp. 7-29.
- Madhani, P. M. (2015c). "Corporate Governance and Disclosure Practices of MNC Subsidiaries and Cross-Listed Firms: An Institutional Environment Perspective." *The IUP Journal of Corporate Governance*, Vol. 14, No. 3, pp. 48-71.
- Madhani, P. M. (2015d). "The Impact of Board Characteristics on Corporate Governance and Disclosure Practices of Firms Listed in Indian Stock Exchange." *The IUP Journal of Corporate Governance*, Vol. 14, No. 4, pp. 14-46.
- Madhani, P. M. (2015e). "Study of Relationship between Board Committees and Corporate Governance Practices of Indian Firms." *Global Management Review*, Vol. 9, No. 3, pp. 1-19.
- Madhani, P. M. (2016). "Study of Relationship Between Ownership Types and Corporate Governance and Disclosure Practices of Firms Listed in Indian Stock Exchange." *The IUP Journal of Corporate Governance*, Vol. 15, No. 1, pp. 7-29.
- Malone, D., C. Fries, and T. Jones (1993). "An Empirical Investigation of the Extent of Corporate Financial Disclosure in the Oil and Gas Industry." *Journal of Accounting, Auditing & Finance*, Vol. 8, No. 3, pp. 249-273.
- McKinnon, J. and L. Dalimunthe(1993). "Voluntary Disclosure of Segment Information by Australian Diversified Companies." *Accounting & Finance*, Vol. 33, No. 1, pp. 33-50.
- Meek, G. K., C. B. Roberts and S. J. Gray (1995). "Factors Influencing Voluntary Annual Report Disclosures by U.S., U.K. and Continental European Multinational Corporations." *Journal of International Business Studies*, Vol. 26, No. 3, pp. 555-572.
- Naser, K., K. Alkhatib and Y. Karbhari (2002). "Empirical Evidence on the Depth of Corporate Information Disclosure in Developing Countries: The Case of Jordan." *International Journal of Commerce and Management*, Vol. 12, No. 3/4, pp. 122-134.

- 
- Organization for Economic Cooperation and Development (OECD) (2006). "Guidance on Good Practices in Corporate Governance Disclosures." *OECD Publications*, pp. 1-52.
- Owusu-Ansah, S. (1998). "The Impact of Corporate Attributes on the Extent of Mandatory Disclosure and Reporting by Listed Companies in Zimbabwe." *International Journal of Accounting*, Vol. 33, No. 5, pp. 605-631.
- Raffournier, B. (1995). "The Determinants of Voluntary Financial Disclosure by Swiss Listed Companies." *The European Accounting Review*, Vol. 4, No. 2, pp. 261-280.
- Schipper, K. (1981). "Discussion of Voluntary Corporate Disclosure. The Case of Interim Reporting." *Journal of Accounting Research*, Vol. 19, Supplement, pp. 85-88.
- SEC (2008). "Final Rule: Smaller Reporting Companies Regulatory Relief and Simplification Act." Securities and Exchange Commission Release Nos. 33-8876; 34-56994; 39-2451 (January 4).
- SEC Advisory Committee on Smaller Public Companies (2006). "Final report to the United States Securities and Exchange Commission (April 23)."
- Shukla, H. J. (2008). "Corporate Governance Practices by Indian Corporates." *Asia Pacific Business Review*, Vol. 4, No. 3, pp. 124-29.
- Singhvi, S. S., and H. B. Desai (1971). "An Empirical Analysis of the Quality of Corporate Financial Discussion." *The Accounting Review*, Vol. 46, No. 1, pp. 129-138.
- Skinner, D. J. (1994). "Why Firms Voluntarily Disclose Bad News." *Journal of Accounting Research*, Vol. 32, No. 1, pp. 38-60.
- Stanga, K. G. (1976). "Disclosure in Published Annual Reports." *Financial Management*, Vol. 5, No. 4, pp. 42-52.
- Stigler, G. J. (1961). "The Economics of Information." *Journal of Political Economy*, Vol. 64, No. 3, pp. 213-225.
- Subramanian, S. and V. N. Reddy (2012). "Corporate Governance Disclosures and International Competitiveness: A Study of Indian Firms." *Asian Business & Management*, Vol. 11, No. 2, pp. 195-218.
- Wallace, R. S. O. and K. Naser (1995). "Firm Specific Determinants of the Comprehensiveness of Mandatory Disclosure in the Corporate Annual Reports of Firms Listed on the Stock Exchange of Hong Kong." *Journal of Accounting & Public Policy*, Vol. 14, No. 4, pp. 311-368.
- Watts, R. L. and J. L. Zimmerman (1978). "Towards a Positive Theory of the Determination of Accounting Standards." *Accounting Review*, Vol. 53, No. 1, pp. 112-134.
- Watts, R. L. and J. L. Zimmerman (1983). "Agency Problems, Auditing and Theory of The Firm: Some Evidence." *Journal of Law & Economics*, Vol. 12, No. 26, pp. 613-633.
- Watts, R. L. and J. L. Zimmerman (1986). *Positive Accounting Theory*, Englewood Cliffs, NJ: Prentice Hall.
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**Annexure – I**  
**Corporate Governance and Disclosure (CGD) Index**

<b>Component 1:</b>	<b>Board and Management Structure and Process</b>	
	<i>Sr. No.</i>	<i>Disclosure of:</i>
	1	Details about current employment/position of directors provided?
	2	Details about previous employment/positions provided?
	3	When each of the directors joined the Board?
	4	Details about whether the chairman is executive or non -executive?
	5	Detail about the chairman (other than name and executive status)?
	6	Details about the role of the Board of Directors in the company?
	7	Are the dates of Board meetings disclosed?
	8	Is the aggregate Board attendance disclosed for each meeting?
	9	Are directors attending over 60 per cent of the Board meetings?
	10	Are attendance details of individual directors at Board meetings disclosed?
	11	Do independent directors constitute at least 1/3 of the Board?
	12	Do independent directors constitute more than 1/2 of the Board?
	13	Do independent directors constitute more than 2/3 of the Board?
	14	A list of matters reserved for the Board?
	15	Is the list of audit committee (AC) members disclosed?
	16	Is the majority of AC independent?
	17	Is the chairman of the AC independent?
	18	Is disclosure made of the basis of selection of AC members?
	19	Is the aggregate attendance of AC meetings disclosed?
	20	Is the attendance of individual directors at AC meeting disclosed?
	21	Does the company have a remuneration committee?
	22	Is the list of remuneration committee members?
	23	Is the majority of RC independent?
	24	Is the remuneration committee chaired by an independent director?
	25	Is the frequency of RC meetings disclosed?

<b>Component 1:</b>	<b>Board and Management Structure and Process</b>	
	<i>Sr. No.</i>	<i>Disclosure of:</i>
	26	Is the aggregate RC meeting attendance disclosed?
	27	Is disclosure made of individual members' attendance in RC meetings?
	28	Does the company have a nominating committee?
	29	Is the list of members of the nominating committee disclosed?
	30	Is the majority of nominating committee independent?
	31	Is the frequency of NC meetings disclosed?
	32	The existence of a strategy/investment/finance committee?
	33	The number of shares in the company held by directors?
	34	A review of the last Board meeting disclosed (for example, minutes)?
	35	Whether they provide director training?
	36	The decision-making process of directors' pay?
	37	The specifics on performance-related pay for directors?
	38	Is individual performance of Board members evaluated?
	39	Is appraisal of Board performance conducted?
	40	The decision making of managers' (not Board) pay?
	41	The specifics of managers' (not on Board) pay (for example, salary levels and so on)?
	42	The forms of managers' (not on Board) pay?
	43	The specifics on performance-related pay for managers?
	44	The list of the senior managers (not on the Board of Directors)?
	45	The backgrounds of senior managers disclosed?
	46	The details of the CEO's contract disclosed?
	47	The number of shares held by the senior managers disclosed?
	48	The number of shares held in other affiliated companies by managers?

<b>Component 2:</b>	<b>Ownership Structure and Investor Relations</b>	
	<i>Sr. No.</i>	<i>Does the annual report contain?</i>
	1	Top 1 shareholder?
	2	Top 3 shareholders?
	3	Top 5 shareholders?
	4	Top 10 shareholders?
	5	Description of share classes provided?
	6	Review of shareholders by type?
	7	Number and identity of shareholders holding more than 3 per cent?
	8	Number and identity of shareholders holding more than 5 per cent?
	9	Number and identity of shareholders holding more than 10 per cent?
	10	Percentage of cross-ownership?
	11	Existence of a Corporate Governance Charter or Code of Best Practice?
	12	Corporate Governance Charter/Code of Best Practice itself?
	13	Details about its Articles of Association (for example, changes)?
	14	Voting rights for each voting or non -voting share?
	15	Way the shareholders nominate directors to Board?
	16	Way shareholders convene an Extraordinary General Meeting (EGM)?
	17	Procedure for putting enquiry rights to the Board?
	18	Procedure for putting proposals at shareholders meetings?
	19	Review of last shareholders meeting (for example, minutes)?

**ANNEXURE - II**  
**Firm Size and CGD Score across Various Sectors**

Sector	Sr. No.	Firm	Firm Size		CGD Score
			Fixed Assets(INR Crores)	Gross Sales (INR Crores)	
Health Care	1	Dr Reddy	8,842.30	9,855.00	40
	2	Cipla	4,626.90	7,128.82	14
	3	Lupin	4,191.84	7,124.93	24
	4	Ranbaxy Laboratories	3,258.79	6,331.46	22
	5	Glenmark Pharmaceuticals	2,650.96	4,020.64	23
	6	Glaxo	316.18	2,766.92	20
Capital Goods	7	L & T	25,778.14	64,960.08	31
	8	BHEL	10,017.15	50,653.84	24
	9	Crompton Greaves	4,408.73	11,615.12	23
	10	PipavavDefence	2,557.67	1,867.23	21
	11	Siemens	1,998.32	12,478.88	28
	12	ABB	1,612.31	7,610.48	22
FMCG	13	ITC	15,519.38	36,990.37	41
	14	United Spirits	8,898.40	18,233.54	24
	15	Nestle	4,368.68	8,581.88	16
	16	Godrej Consumer Products	4,185.74	4,986.61	36
	17	HUL	4,016.16	24,506.40	33
	18	Colgate	613.16	2,805.54	15
IT	19	Wipro	18,277.30	37,308.30	47
	20	TCS	12,991.29	48,894.08	33
	21	HCL	9,581.82	20,830.55	34
	22	Infosys	9,194.00	33,734.00	37
	23	Mahindra Satyam	2,320.60	6,395.60	21
	24	Oracle Financial	1,324.42	3,146.68	20
Metal	25	Tata Steel	130,491.21	135,975.56	32
	26	Hindalco Industries	53,961.03	82,549.03	20
	27	JSW Steel	42,689.51	36,964.23	35
	28	Coal India	38,096.41	78,410.38	24
	29	Sterlite	37,289.83	43,115.91	30
	30	Jindal Steel & Power	22,421.81	22,472.89	17

Sector	Sr. No.	Firm	Firm Size		CGD Score
			Fixed Assets(INR Crores)	Gross Sales (INR Crores)	
Oil & Gas	31	ONGC	254,415.39	151,121.10	31
	32	Reliance Industries	233,475.00	368,571.00	34
	33	IOC	107,630.59	442,458.53	28
	34	Bharat Petroleum	42,549.62	223,314.64	24
	35	Cairn India	35,703.86	11,860.65	30
	36	GAIL	31,769.19	44,861.05	20
Power	37	NTPC	88,882.13	66,365.89	28
	38	Power Grid	64,519.19	10,311.52	25
	39	Tata Power	38,256.23	26,019.81	29
	40	NHPC	30,293.05	6,920.33	29
	41	Reliance Infrastructure	17,045.07	24,180.76	30
	42	Reliance Power	6,935.61	2,019.21	27
Auto	43	Tata Motors	94,012.06	170,677.58	34
	44	Mahindra & Mahindra	35,007.94	63,030.48	30
	45	Maruti Suzuki	15,055.70	40,049.60	19
	46	Hero MotoCorp	6,308.26	25,235.02	22
	47	Bajaj Auto	3,839.32	20,541.41	24
	48	Cummins	699.52	3,924.01	13
Consumer Durables	49	Videocon Industries	14,892.29	13,684.51	18
	50	Titan Industries	813.83	8,983.15	26
	51	Blue Star	417.63	2,847.82	20
	52	Gitanjali Gems	408.65	12,498.28	24
	53	TTK Prestige	202.86	1,122.71	15
	54	Rajesh Exports	87.81	25,653.85	15

(Source: Table developed by author)

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# Resource Tracking and Planning System Project: An Adapted Implementation Model

Justin Joy and T. Nambirajan

## A b s t r a c t

This article elaborates the requirement analysis, design, development and implementation aspects of a resource tracking and planning system. The requirement analysis highlighted the need for orderly storing. The system was designed and developed using a database management system. The implemented system automated some of the manual processes of the company. The study highlighted the deterring factors that would affect the long term sustenance of the implemented system. This article has laid down parameters to address these hindering factors, and have attributed the success of system implementation to an earlier model adapted.

**Keywords:** *Automation, Database Management System, Implementation Model, Management Information Systems, Resource Tracking, Resource Planning, Tiny Sector Manufacturing*



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This project is an endeavour that attempts to meet the system and automation requirements of a tiny sector manufacturing company. The main author as an action researcher had endeavoured to be a change agent in the implementation of the automated process. In the process, factors that hindered such implementations were identified and an available model (Joy and Nambirajan, 2016) in literature that addresses these was suitably adapted. The hindering factors included the high cost of software and implementation, lack of on-going technical support and lack of proper training. The adapted model partly overcame these restraints.

This article presents a project that focuses initially on the analysis of the existing manufacturing operations in a tiny sector manufacturing company and the automation possibilities of its resource tracking and planning processes. Based on this analysis, a system is designed, developed and implemented. The functional and non-functional requirements are also highlighted in the process. This paper

is structured to highlight initially the theoretical base related to the concepts proposed in this project; followed by a study of the company processes and lastly the application of the same in the implementation. Conclusively it underlines adherence to an adapted implementation model to ensure the long term success of the implementation.

### Literature Review

Today, the scope of automation in manufacturing operations is very wide. Automation of operations may encompass the automation of a single operation or the automation of an entire factory. The reasons to automate include; to increase productivity leading to competitive advantage, to reduce production time, to increase manufacturing flexibility, to reduce costs, to eliminate human error or to make up for a labour shortage. Decisions associated with automation are usually concerned with some or all of these economic and social considerations. The need for automation is felt because of the following reasons (Acharya, 2012):

- (a) Automation facilitates efficient and detailed information through the use of aids like computers.
- (b) It ensures speedy recording, processing and presentation of information.
- (c) Increased volume of work, scarcity of time and the slow manual processes necessitate the introduction of automation.
- (d) It facilitates better quality work by reducing errors created by manual work.
- (e) Revolution in office has been brought about by automation because increased volume of work is handled in a better manner with greater accuracy and speed. This thus results in increased output.
- (f) Automation increases the goodwill and reputation of the firm because it adds to the prestige and status symbol of the enterprise.

Since automation has the potential to replace human effort, it helps to cut down the labour cost. On the other hand, the initial installation cost of an automated system could be high.

A phenomenon called automation bias (Skitka, et al., 2000) is also described in literature. Automation bias is the

“tendency to use automation as a heuristic replacement for vigilant information seeking and processing”(Skitka, et al., 2000, p. 704). In other words, it is the tendency of a decision-maker to over-rely on automation to perform tasks and make decisions rather than use the automated system as an aid in the decision making process(Biros, et al., 2004). There are those who propose that humans and machines are to complement one another (Satchell, 1998).

For small business owners, hindering factors of automation such as the high cost of implementation and maintenance can be daunting. But it is an issue that should not be put off. Perry Pascarella in *Industry Week* wrote (Pascarella, 1986). “Failure to take a strategic look at where the organization wants to go and then capitalizing on the new technologies available will hand death-dealing advantages to competitors—traditional and unexpected ones.”

However there exists the possibility of automation of information as Leslie Jasany writes (Jasany, 1990). “But now, with the aid of the computer, companies will have to move to the next logical step in automation—the automatic analysis of data into information which empowers employees to immediately use that information to control and run the factory as if they were running their own business.” Indeed, industry analyst Scott Flaig also supplements this view (Jasany, 1990) where he mentions “automation of information is clearly where the opportunity is...”

This is the opportunity where automation using Information Technology can be made to good avail. Certain office automation instances are seen in the way word processing programs have replaced typewriters; spread sheet programs have replaced ledger books; database programs have replaced paper-based rolls, inventories and staff lists; personal organizer programs have replaced paper diaries; and so on. Modern office automation software is very powerful. Skilled users can develop very sophisticated products. Databases management systems could be used for office automation because of its various features like efficient organising, storing, retrieving, displaying and analysing data (Date, 1977) and these are the elements that are intended to be tapped into in this project.

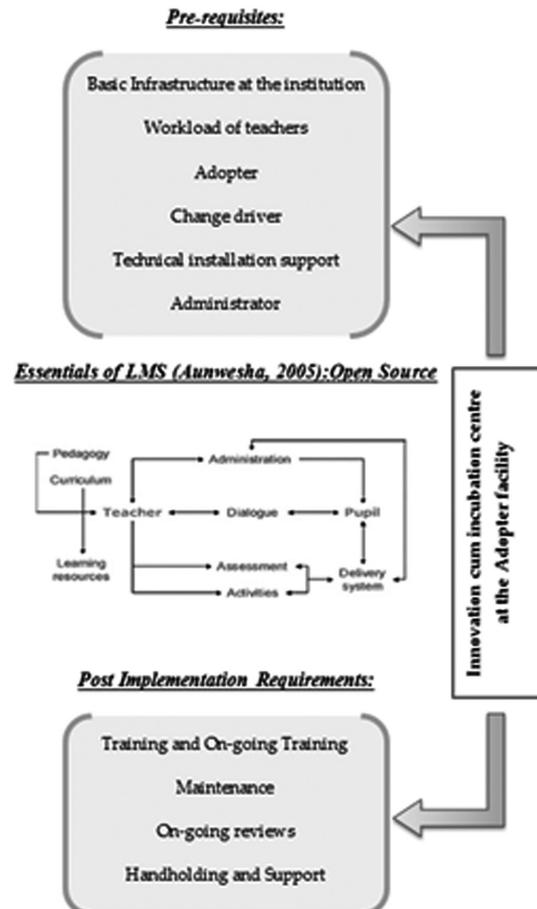
For development of a system intended to automate using the features of a database management system, a particular

methodology has to be adopted. This would act as a framework to structure, plan and control the process of designing and developing an information system. Traditional approaches include Waterfall model, V model, Incremental model, RAD model, Agile model, Iterative model, Spiral model etc. Although all these models were available, the advantages, adopting the agile model offers are stated as below (Grinys, 2012, p. 25):

- Agile methodology has an adaptive team that is able to respond to the changing requirements.
- The team does not have to invest time and effort and finally find that by the time they delivered the product, the requirement of the customer has changed.
- Face to face, communication and continuous inputs from customer representative leaves no space for guesswork.
- The documentation is crisp and to the point to save time.
- The result is the high quality software in the time duration required and having a highly satisfied customer.

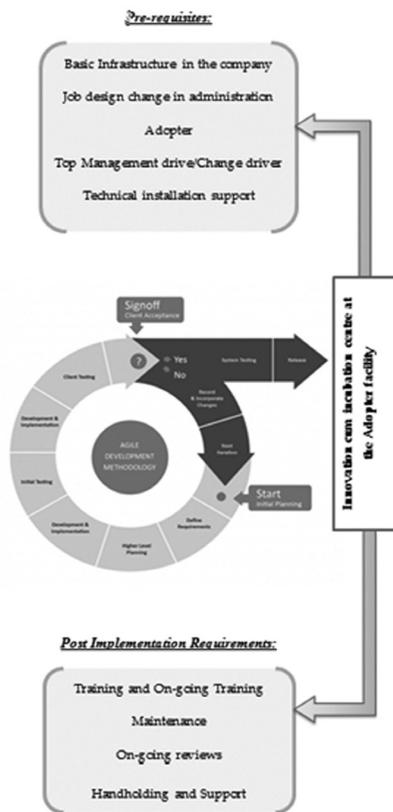
In waterfall model, development teams only have one chance to get each aspect of a project right. In an agile paradigm, every aspect of development requirements, design, etc. is continually revisited throughout the lifecycle. When a team stops and re-evaluates the direction of a project every two weeks, there is always time to steer it in the right direction if in case it has moved off track.

In addition to the successful implementation of the system which can be perceivably for a short duration, a model for its long term sustenance was also explored. An implementation model (Joy and Nambirajan, 2016, p. 292) as shown in the figure below proposed for the long term sustenance of an open source learning management system in educational institutions was studied for this purpose.



**Figure 1: Implementation Model for an open source LMS in educational institutions**

The model shown in the figure needed adaptation to fit the current project scenario in a tiny sector manufacturing company. The model was adapted to incorporate the output or deliverables of an agile implementation methodology (Benchmark, 2016) instead of activities in a learning management system and the slight changes in the pre-requisites as these slightly deviate from an educational scenario.



**Figure 2: Adapted implementation model for IS intiny sector manufacturing company**

**Companyprofile &its process**

The company where this system was implemented is a textile assembly manufacturing company located at Kochi, Kerala. The company has employee strength of 50, out of which around 5 people work in the administration. Company has 40 stitching machines imported from Japan and the work floor is air conditioned.

Production orders of baby garments from companies located in the United States of America translates into a job work involving fabrication of kids wear in this company. Production profile thus involves fabrications of kids wear for exports amounting from about 6000 to 15000 units per day.

Input raw materials are procured as front, back, and right and left sleeve cut pieces of the baby garment for assembly. These are laser machine cut cloth pieces supplied to this manufacturing facility.

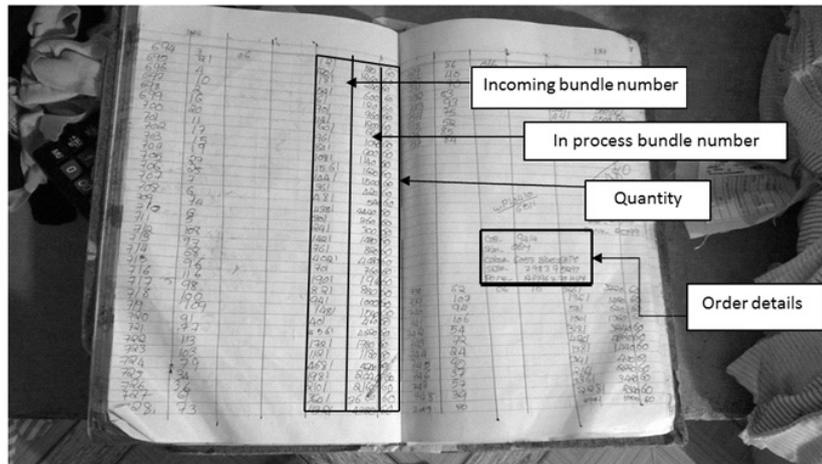
The cut pieces for the baby garments reaches the facility in the morning and the assembly manufacturing operations start everyday by around 9 am and the company is expected to assemble and finish the operations and return the finished baby garments by evening on the same day at around 6:30 pm. The facility receives daily targets ranging from 6000 – 15000 units detailed in the incoming orders slip. In accordance to the target, workers and machines are proportionally allotted.

The cut pieces come with tags which contain details about the cut pieces and each tag is attached to a bundle of cut pieces. Each tag has details such as Style number, GB as number, PO number, DC number, Colour number and Size. These details are collectively called as order details and these details specify a particular bundle. Tag details would differ from bundle to bundle.

There are totally around 120 bundles on an average coming in every day. Out of these 120 bundles, there are usually two type of varieties of baby garment cutpieces. For example; 60 of them may be red stripes designs and 60 of them could be solid blue designs and each bundle contains around 60-80 cut pieces of sleeves, front and back.

When the cut pieces of the baby garments are received at the company, the employee is responsible for maintaining the cord of the tag order details, but each bundle is taken as a single entity while making records and work log entries in the existing system, all the data entry of the order and bundle details are manually done.

Order details are entered in a register by an employee, along with the bundle details. While receiving the bundles, a number for the bundles is assigned at the company in addition to a number from the incoming source for easy identification. Data entry operator of the company enters the order details and the bundle details manually as depicted in the following figure.



**Figure 2.1 Order details and bundle details register**

**Order and bundle details**

In the order details, details such as ID number, Date, Style number, Colour number, Size, PO number, DC number, GB number and Variety are included. For each incoming order, there are a number of bundle details including the incoming bundle number and the in process bundle number.

In the bundle details, incoming bundle number, in process bundle number and quantity are also entered under the corresponding incoming order.

**Product line**

The product line features 20 processing machines. Depending on the target, the allotments of employees to

the machines are set initially by the operations manager. Irrespective of the target, the bundles however have to pass through ten different assembly line processes in order to get the finished product. The ten different processes are:-

Label printing, Neck binding, Front back joining, Sleeve hemming, Sleeve attaching, Tab label attaching, Left side stitching, Right side stitching and labelling, Bottom binding and Tacking.

Besides these, the four other processes involved are bundle feeding, checking, auditing and transportation. The processes are diagrammatically represented below.



**Figure 3: Process Chart**

**Bundle Feeding:**

The incoming order stock is laid out in the bottom floor in bundles. These bundles are labelled and each cloth piece inside has its own label or a sticker which specifies its colour for all the three parts such as the front, back and sleeves. These bundles are then tagged with an in process bundle number for easy understanding in the production process eg. 278. This number is same for the entire cloth pieces inside the bundle. It is manually recorded in a register. If any cloth has any complaint, then this will be reverted back to source of the incoming order.

**Label Printing:**

Then this bundle is taken and arranged and a label is printed on each one of them, using a machine that can label six units simultaneously at a time. This bundle is manually taken to the first process of the assembly line by a feeder.

**Neck Binding:**

Here the person unpacks the bundles, binds the neck with a roll of cloth. The bundles are never rearranged and the pieces flow in the same order it comes throughout the process flow.

**Tab Label Attaching:**

Here a label is attached to the cloth then moved on to the next process.

**Front and Back Joining:**

Here the person attaches the front part of the cloth and back part of the cloth both having the same sticker number after which it is forwarded to the next process.

**Sleeve Hemming:**

The sleeve cloths are hemmed ready here and then forwarded to the next process.

**Sleeve Attaching:**

These sleeve pieces are attached to the main cloth.

**Left Side Stitching:**

The left side of the garment is now stitched.

**Bottom Binding:**

The bottom part of the garments is bound together and forwarded.

**Right Side Stitching and Labelling:**

The right hand side of the garment is stitched and another label is attached to it.

**Tacking:**

This then is taken as a bundle and arranged and checked if the numbers are the same.

**Checking:**

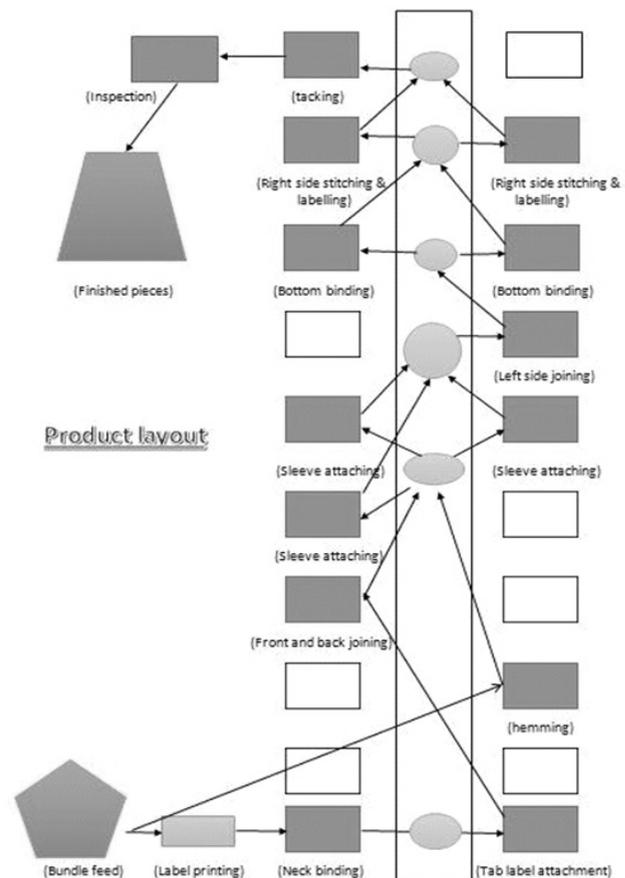
Here the entire garment is checked to see if there are loose threads present, needle pins are checked to see if any broken pieces are attached to the cloth.

**Auditing:**

Once more, this packed bundle is checked for any faults and then the number of the bundle is noted, recorded, and checked from the earlier books to make sure that the number of garments is the same from the start to the end process.

However, there is more than one machine doing some of the same processes. This is because, certain processes require a longer processing time than the others. So, in order to avoid a delay in the next process in the production line, two or more machines might be required to do some of the same processes so that the whole operations are carried out evenly with the least balance delay.

The entire product line of the company's assembly manufacturing is depicted in the figure below.



**Figure 4: Product Layout of the Assembly Line Process**

It features a mass production assembly line process. Blue boxes depict the stitching machines and the orange coloured pentagon is where the bundle details are fed. The green coloured trapezium is where the finished pieces or garments are packed and set for dispatch after the last activities of auditing and inspecting are completed.

When each bundle is processed by an employee, he or she maintains a record of the work he or she has completed. Each individual employee maintains a separate notebook where his entire work log is recorded. That is: after processing a bundle the employee writes the bundle number and the quantity of the bundle written against it. The sample of an employee work log entry is depicted below.

Employee's sample log entry book

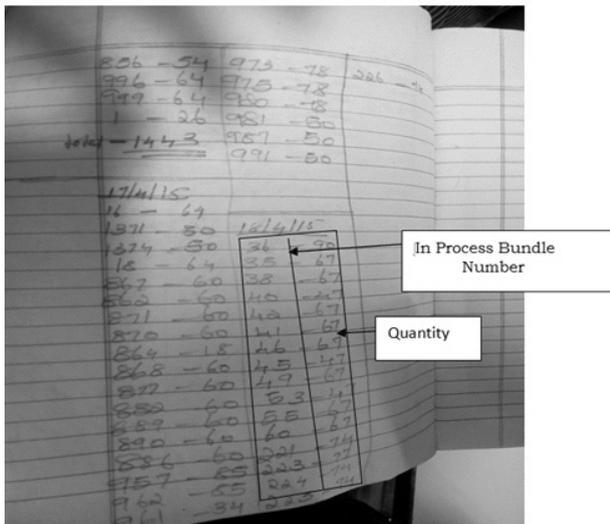


Figure 5: Employees Sample Work Log Entry Book

In the employees' personal work log book the following details are listed:-

- Employee's name
- Date
- In process bundle number
- Quantity in the bundle processed

The employee work log entry details are later taken for salary calculation purposes. Salary is defined in the terms of piece rate. Each process has a different payment rate. So pay rate for each employee varies. For example an employee who did the hemming process of 50 pieces in a bundle, his rates are calculated for hemming on a piece rate of 6 paisa per unit and his total amount payable for this process would be 6 paisa multiplied by 50 pieces which is 3 rupees.

Additional parameters introduced for the proposed system are variety and the new way of in process bundle numbering. Variety is a new parameter required for constructing the new design of the in process bundle number because in the current system, the process bundle numbers are randomly numbered such as bundle numbers 293, 301, 405,406 etc. without any logic behind the same. Variety is number of types of garments that has arrived on that particular day. Usually 2 to 3 varieties of garments arrive in a day each containing around 60 bundles and the First variety would be labelled 'a', second 'b', third 'c' and so on.

Therefore a new format has been adopted, in which date, variety and bundle number are incorporated. That is, [day; variety; bundle number] For example; '14062016a01' In this format, '14' is the 'day' part of the date and 'a' is the variety and '01' is the number of the bundle. Therefore, while entering bundle details, it is required to be in the form depicted below.

20160214a01
20160214a02
20160214a03
20160214a04
Etc.

Table 1: New in process bundle numbering system

As the date changes, the 'day' part of the bundle number also changes. That is, if the bundle number entered on the first of any month should be 2016 0201 a 01 and bundle number entered at the last of any month should be 2016 0228 a 01, which further is subjected to the change in the variety and the bundle number (last digits). This also allows ease of sorting bundles in ascending and descending orders.

**Problem Definition**

In the existing operations of the company, it was evident that there was a need for automation in the area of documenting register entries and generation of reports because all the register entries were made manually by the employees. The

employees literally write all the Order details entry and Bundle details entry in the register book. If a report of these was to be generated, it would take a long time to manually check and sort the needed details for that particular report. Using a system with automation intent, the reports, the register entries and the fraudulent multiple entry check can be made at the click of a button.

Operations manager of the company was consulted to acquire an in-depth understanding about the process. The most essential requirement of the company was found to be in the time consuming salary calculation as it required 8–10 days of time in the current manual process. It would require these many days to calculate the salary of all the workers because details of the bundles are obtained from the employees work log and salary is calculated on the basis of piece rates. Workers were found to resort to practices like fraudulent multiple work log entry in order to get paid more. Since entries are made manually in the register, it is difficult to promptly find out errors and malpractices performed by the workers. The problems to address in its processes were identified as follows:

- The problem of fraudulent multiple entries should be addressed: A system in incorporating a fool proof work log entry system which is able to track the error malpractice should address the same.
- The salary calculation takes around 8 – 10 days: In a single day the quantity of finished goods could range from 6000– 15000 units. Each piece of a finished garment has to pass through every single process and the workers involved make work log entries in their respective log books. 6000 units amount to around 120 bundles of 60 pieces and each worker makes close to 100 logs entries in the note book depending on the number of bundles he/she works on in a single day. By the end of the month, salaries of 30– 40 such workers have to be calculated. This calculation has to be done after filtering off the fraudulent multiple entries as the company won't be able to afford to pay the workers for the bundles they have not worked on.
- To track bundles based on GB number, DC number, Style number and PO number: Company would like to know the number of bundles belonging to different categories. It would also need to know

the number of bundles coming under a particular GB number and also the company would want to keep an account of the number of bundles under other identification parameters like DC number, Style number and PO number.

- To find out and keep record of defective pieces: there are instances where defective pieces are received from Kitex and there are instances where a defect is caused by workers themselves at the machines. Defective pieces are returned back in exchange for a defectless one. A record of these defective types should be maintained separately and provision for this has to be incorporated in the software.
- To find out whether a particular consignment is dispatched or not: A consignment consists of a set of bundles and user should be able to identify the dispatched bundles and a record of the same should be maintained. Dispatched bundles may be required to be identified by its GB, PO, DC and Style numbers.
- To enable a secure login interface for the software: Software must be made accessible only a secure login interface. Both admin and regular user privileges must be incorporated with different sets of user names and passwords.

### Objectives of the Study

The objectives of the project in accordance with the problem definition are coined as below:

- To perform requirement analysis of the identified automation opportunity of a resource tracking and planning system,
- To design, develop and implement the resource tracking and planning system in accordance with the requirement analysis,
- To focus the implementation of the proposed system to initially enhance the swiftness of the employee salary computations and various bundle reports generation, and
- To adhere to an adapted implementation model to ensure the longevity of the implemented system.

## Scope

Scope of the work will thus entail the requirements of the resource tracking and planning system to be analysed and based on this design, develop the system with appropriate software. This system will also need to be implemented to the extent possible within the time frame and sustained in the long term through a model proposed.

## Methodology Adopted

The progress and completion of the systems project were facilitated by adopting a mix of agile methodology of systems implementation and action research. Agile methodology is a group of software development or implementation methods in which requirements and solutions evolve through collaboration between self-organizing, cross-functional teams. It promotes adaptive planning, evolutionary development, early delivery, continuous improvement and encourages rapid and flexible response to change. So-called lightweight agile software development methods evolved in the mid-1990s as a reaction against the heavyweight waterfall-oriented methods, which were characterized by their critics as being heavily regulated, regimented, micromanaged, and over-incremental approaches to development. Proponents of lightweight agile methods contend that they are returning to development practices that were present early in the history of software development (Siems, 2015).

The term action research has a long history (Lewin, 1948); and has continued to gain credence in management research (Coghlan and Brannick, 2010). Lewin (1948) described Action Research as an iterative process in which practitioners plan for action, act and then perform reconnaissance. Action oriented research involves the generation of situation specific knowledge, not mere application of some pre existing knowledge (Waring, et al., 2013). Achievement of change, not just knowledge acquisition, as well as a rigorous process of data generation and analysis characterise action research (Clarke, et al., 2006). O'Leary (2005, p. 190) describes action researchers as working on 'real world problems' at the 'intersection' of the production of knowledge and a 'systematic approach to continuous improvement' which she argues is part of management.

Many organizations today consider implementation of packaged software as a driver for transforming their

organization and bringing about a change in the organization. It is not just the technology that is being implemented, but processes are re-engineered and people are re-organized to perform better in the organization. In this agile methodology, the focus was on using the best processes through empowered teams, customer involvement and the ability to analyse and quickly control changes to the project scope at not only the inception, but throughout the lifecycle of the project.

## Requirement Analysis

### Functional requirements

According to the analysis, various requirements have been identified for developing the software. Based on the requirements only, forms and designs are to be designed. The various identification details such as GB number, Style number, PO number etc. is to be incorporated while creating forms and reports.

The detailed functional requirement analysis presented below:

**FR1:** The system should be a multiuser type: Identified users are administrator and a regular user. Administrator will be the operations manager and the regular user will be the accounts manager or data entry operator. Both should have different sets of privileges. Privileges of the same are mentioned below:

Administrator shall perform:

1. Adding/Removal/Editing of new employees
2. Adding/Removal/Editing of processes
3. Adding/Removal/Editing order and bundle details
4. Adding/Removal/Editing employee work log entries
5. Generation of reports for salaries and bundles Regular user shall perform:
6. Adding order and bundle details
7. Adding employee work log entries
8. Generation of reports for salaries and bundles

**FR2:** The software should be secure in nature. In order to get access to the system, there should be a log in form which lets user to use the software. Log in form should have a user name and password field. Both admin and regular users

should have different sets of username and password. Normally regular users would be using the software.

**FR3:** The system should be able to add details of the employees and processes. The software should have a provision for adding details of the employees and processes. Employee details should incorporate the following details: Employee ID, employee name, address, phone number and email address and the Process details should incorporate Process ID, process name and process payment rate. Both the employee details and process details should come under the general details part of the software.

**FR4:** The system should be able to store the order and the bundle details. Order details and the bundle details are to be stored in the same form, but in different tables. Each order detail will have a number of items in the bundle details. An order detail would contain OrderID, Date, Style number, Colour, Size, GB number, PO number, DC number. These details are common to a set of bundles. But the bundles are differentiated from each other using its incoming and in process bundle numbers. The components of bundle details are incoming bundle number, in process bundle number and quantity. Order details and bundle details should come under the data entry part of the software.

**FR5:** The system should be able to store employee work log details of all the employees. The work logs of the employees are fed into the software by referring their personal work logbook. The details to be fed are Date, In process bundle number, and quantity. Employee work log entry details should come under the data entry part of the software.

**FR6:** The system should be able to store the details of the defective bundles. Bundle details are used while storing the defective bundle details. Date and in process bundle numbers are used while storing the details.

**FR7:** The software should be able to detect the fraudulent multiple entries in the work log entries and a report of the same has to be generated along with the name of the employee associated with that bundle. Fraudulent multiple entries should be traceable and a report of the same generated.

**FR8:** The software should be able to provide information of the dispatched bundles. For this, the software would require

adequate and appropriate forms and reports. Details of the dispatched bundles consist of bundle numbers and the corresponding date.

**FR9:** The system should be able to generate the salary reports and bundle reports according to various search criteria. The system should be able to generate a salary report of a particular employee based on his name for the time period specified, wages of all the employees and total wages paid to an employee till date. The system also should be able to generate bundle reports based on Date, Style number, GB number and Date range.

### Non-functional requirements

Along with the functional requirements, there are certain non-functional requirements to be taken care of before venturing into creating designs for forms and reports. The non-functional requirements help to identify the general requirements of the software. The non-functional requirements are listed as below:

#### NFR1: Usability

The design of the software should be easily understood by the users. No complicated jargons should be used while designing the forms and reports. The headings and tabs should be written in English, so that the user can easily understand. The software shall incorporate keywords used in the manual system so as for the user to easily relate and associate with the former system.

#### NFR2: Security

The software shall have a secure log in interface. Software should not be freely accessible and only authorized personnel should be permitted for using the software. In the company, the operations manager, finance manager and data entry operators are the main users. A secure feature in the system also in turn enhances its robustness.

#### NFR3: Reliability

The system should be operational at any time of the day and night. Whenever the user wants to perform activities on the software, it should be ready and shall not crash in the middle as well.

**NFR4: Disaster Recovery**

If the system happens to crash and does not recover, the data stored in it at least should be recoverable. A data loss is unsolicited and would cause great damage to the entire operations including salary calculations and in identifying fraudulent multiple work logentries.

**NFR5: Scalability**

The amount of daily data entry for the proposed system would be huge. For example: 120 bundles details entry for 40 workers would amount to around 4300 entries in total daily. The system should be able to withstand this enormous data and should be able to run the system with no or negligible lag.

**NFR6: Back up**

The provision for backup should be integrated in the system. For example, if the user desires to back up data at the end of 3months, the system should be able to back up the entire data successfully and at the same time the system should be able to retrieve it whenever the user desires.

**Software and Hardware Requirements**

Having analysed the requirements, it was found that the popular automation solutions in the manufacturing sector such as an MRP based ERPs or a manufacturing module of popular ERPs could not effectively meet the unique needs of the company where this project is implemented. The needs did not necessarily require large amounts of integration of the various functional departments of the company. It was found that the requirements would be easily met and the company problems largely addressed by a simple and customised design of a relational data base management system. Based on the existing hardware set up in the facility. It was decided to design and develop this data base management system in Microsoft Access 2010.

The project requirements on the hardware side are basically a desktop system running windows operating system with minimum 1.65 Hz frequency and 100 GB hard disk available free space, running windows. Windows should be equipped with Microsoft Access 2010 version. As the layout of Microsoft Access is some what similar to other Microsoft applications, with a little training the user can get used to the interface.

**Cost Involved**

Being, a consultancy project intended to test a sustainable model, the design and development of a resource tracking and resource planning system using a suitable Data base Management System was done by the author himself with no charges applied. The focus was on the learning received in the process of developing the same. Moreover, the software Microsoft Access was available in the windows of ficesuite in the computers used in the company and thus there was no need to purchase new software.

**Design & Development**

Microsoft Access 2010 was considered to design and develop the resource tracking and planning system. Before implementing the software, the resources were analysed like the computer equipment available and operational at the company facility, the operating system, the data entry and admin team of the unit would be comfortable with, the technical competency of the staff and the costs which would be incurred. Since Microsoft access is a desktop version database and it can be run in any personal computer with minimal set of requirements. Every month the database would have to be archived as the data keeps on increasing on a day today basis and the size of the database can increase to the range of giga bytes. Microsoft Access can handle upto four giga bytes of data. After this limit, the desktop version can be come unstable so as a precautionary measure a monthly archiving of the data base is needed, so that the data base can work smoothly without any hindrance. This Microsoft Access data base can also be net worked so that the resource tracking and planning system could have users' simultaneously entering data if required. It can allow up to 10 users to simultaneously access the system and use the information without any delay. Microsoft Access database consists of objects like Tables, Forms, Queries, Reports and Macros. The resource tracking and planning system developed was designed to have nine main tables all logically connected to each other in what is called relationships.

**T-bundle table**

This table consists of all the details of all the incoming bundles assigned in process bundle numbers along with the quantity of pieces in each bundles.

**T-defects**

This table contains all the details about pieces, which were identified as defective either from source or that were rendered defective during the process on the machines. It stores information like date, number and incoming and in-process bundle number.

**T-employee details**

The table consists of detailed information of all the employees in the manufacturing unit. This table stores information like employee id that is assigned to each employee a unique number, employee name, address, phone, email address and blood group.

**T-incoming orders**

All the attributes regarding a particular bundle for a particular date falling in an incoming order is stored in this table. The table contains information regarding attributes of the bundle like style number, colour number, DC number, PO number, GB number, size, variety, date and status. The status tag allows the data base to assign the status of the bundles in an incoming order as open/in-process or as closed/dispatched.

**T-log of work inputs**

This is the vital table which stores information regarding all the bundles on which each employee has worked and all

the records from each employees record logbook comes in to this table and it is this data that is used for salary calculations. This table has information like Employee name, in-process bundle number, quantity, and process.

**T-process details**

Process details do not undergo much changes and this table stores information like process id, process name and the process payment rate.

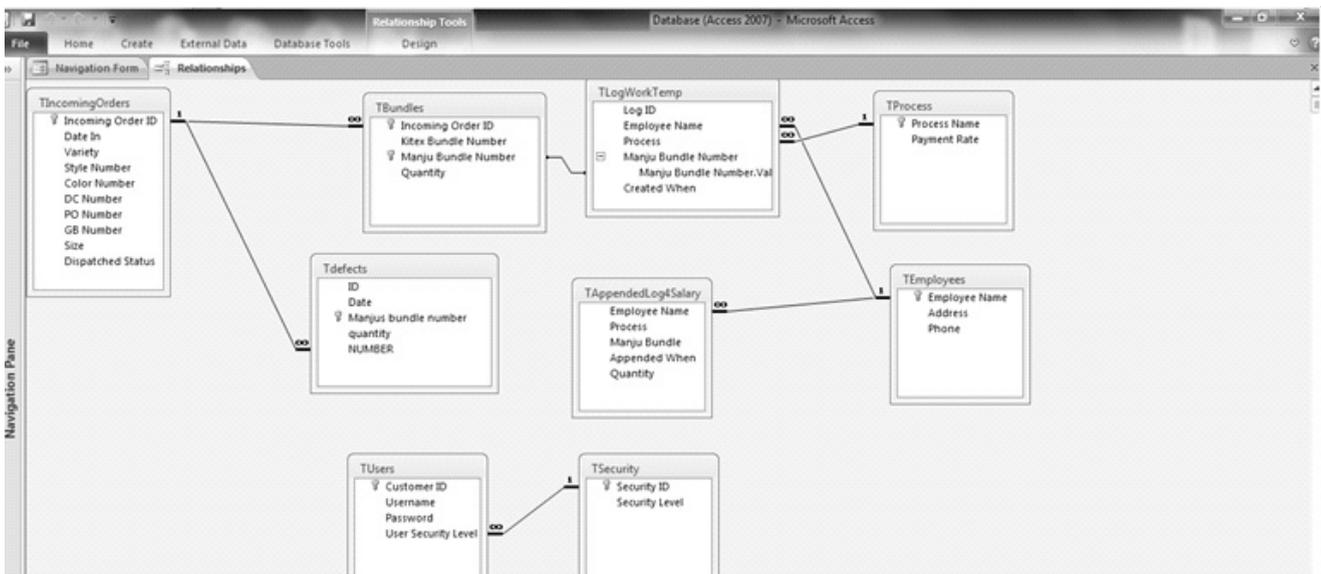
**T-Security**

This table is made to set privileges for users. There are two types of privileges-one being the User and the other being the Admin, User, level privileges does not allow one to access back end tables and queries as User need not modify any tables, and as this is a relational data base every thing is related to each other so any modification may affect the entire data base. Only the Administrator with an Admin level privilege has the access to modify the back end of the data base. This table contains information i.e. fields like security id and security level.

**T-Users**

This is an important table as it contains information like Username, Password, and User Security. This can only be accessed by the admin of the data base. Admin can also add new Users and assign different privileges.

**These nine tables are related with one another as follows:**



**Figure7: All Tables Relationships of the System**

## Forms

Access provides an easy way to enter data into your Access tables via forms. In Access you have the ability to quickly make and customize these data entry forms and streamline the data input process. Access forms can be used to enter, edit, or display data. They are based on the tables or queries initially designed. When using a form, you can choose the format, the arrangement, and the fields to display. For the manufacturing company, forms were created for passing

inputs from the front end to the desired tables and queries. An example of a simple form is shown below for entering the details of an employee, whose values will be passed on to the table T- employee details. The other forms incorporated are the switch board menu form, form to input process details, form to input an order and its multiple bundle details in a subform, form to change the dispatch status of orders, form to input defective bundles, form to assign users privileges on admin access and form to input the log of work for each employee daily.

**Figure 8: Sample of Form**

## Queries

Queries are the primary mechanism for retrieving information from a data base and consist of questions presented to the data base in a predefined format. Many data base management systems use the Structured Query Language standard query format. A query combines information stored in separate tables to avoid duplication in the tables themselves. Access queries are very powerful, allowing viewing, inserting, deleting, and calculating records and fields from numerous tables in the data base. Queries can be used to supply data for a form or report. By using a query, data in different tables can be assembled before designing a form

or report. Given below is a salary calculation Query. The query is named 'Q-daily pay.' The fields are taken from different tables and assembled in this query and the relations between query fields stays as per the relations already in place in the table design.

To calculate the salary itself a new column is made which has an expression in which it is derived from the values in the 'T-log of work input' i.e. the quantities of pieces processed and multiply it with the process payment rate values in the table 'T-process details' and generate the salary.

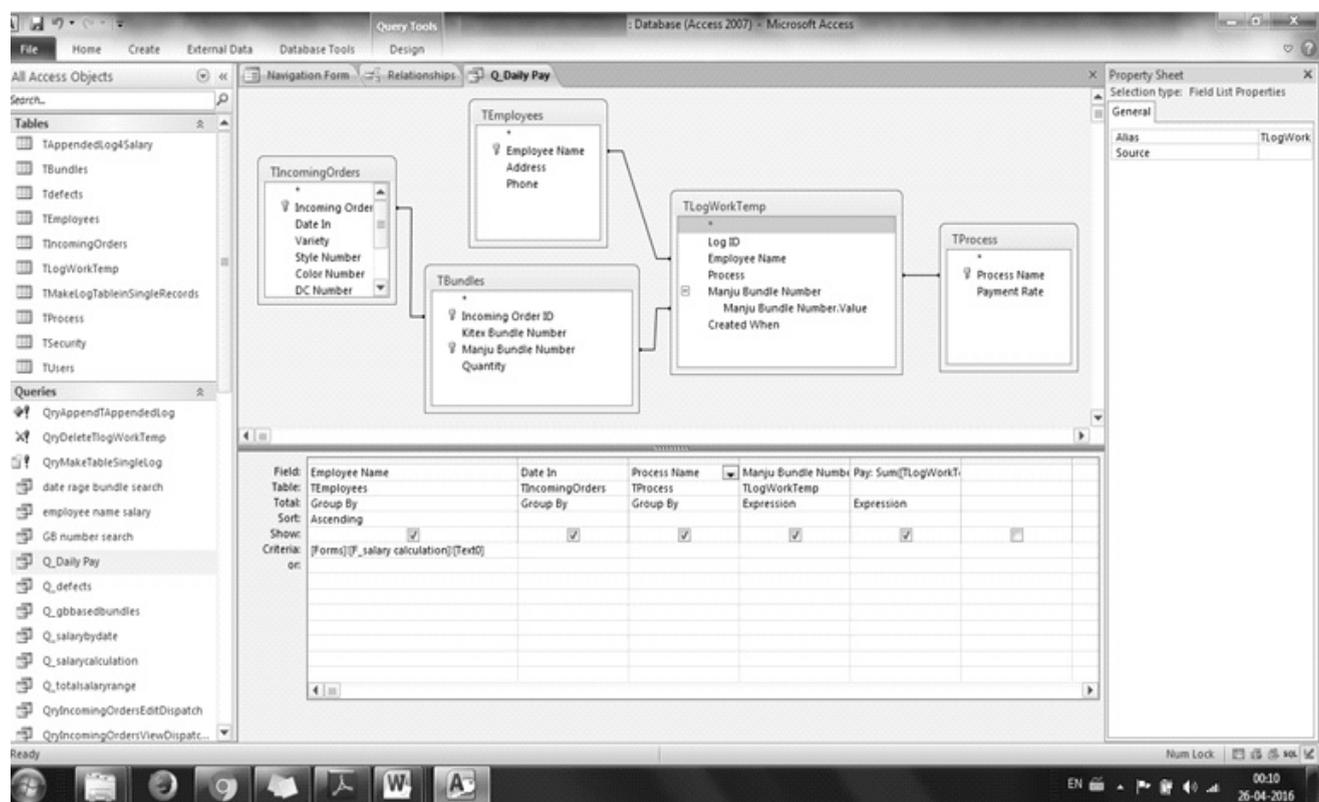


Figure 9: Sample of Query

**Reports**

A report is a data base object that is used to display and summarize data. Reports provide a way to distribute or archive snapshots of your data, either by a print out, or exported and converted to PDF or XPS files or other file formats. Reports can provide details about individual records and summaries across many records. Reports offer away to view, format, and summarize the information in your Microsoft Access database.

The reports that have been incorporated in the developed system are as follows:

- The salaryreport of a selected employee in a date range
- The salary report of all employees in a date range
- Report of all bundles handled by an employee on a given date

- Report of defective bundles in a date range
- Report of in-process orders and bundles that need to be dispatched
- Report of all bundle details attached to an incoming order
- Report of all orders and dispatched bundles on a given date
- Report of all orders and dispatched bundles within a date range
- Report of total monthly salaries given within a date range
- Report of bundle cum process duplicate entries

A sample report of the employees’ salaries within a given date range a long with details of the processes, bundles and the number of pieces they have worked, on is given below:

Date Range Employees Salary - Process, Bundle & Quantity details							
Employee Name	Process	Manju Bundle	Quantity	Date In	Salary		
Danish	Collaring	20150914A001	66	13-09-2015	594		
		20150914A001	78	14-09-2015	702		
		20150914B001	80	14-09-2015	720		
		20150914B002	90	14-09-2015	810		
		20150914A001	66	13-09-2015	396		
	Hemming	20150914A001	78	14-09-2015	468		
		20150914A002	70	13-09-2015	420		
		20150914B002	90	14-09-2015	540		
		Edwin	Collaring	20150914A001	66	13-09-2015	594
				20150914A001	78	14-09-2015	702
20150914A002	70			13-09-2015	630		
20150914B001	80			14-09-2015	720		
20150914B002	90			14-09-2015	810		
Hemming							

**Fig 10 : Sample of report**

Room for developing new reports for meeting the needs that would emerge overtime is also facilitated in the developed system.

Moreover the adapted implementation model would enable the long term sustenance of the implemented project with the support from the adopter which in this case is the innovation centre at SCMS Cochin School of Business. This model can provide the necessary hand holding and training to sustain the implemented system. Here is where the refraining factors of high cost of software and implementation, lack of training and lack of support are overcome. The expertise gained by the adopter is translated to such tiny sector manufacturing companies via this model in return for hands learning and expertise building on the part of the faculty and students of the adopter.

**Summary and Conclusion**

The project performed a detailed study of the existing processes and manual system of manufacturing company identifying opportunities for automation and coming up with the requirement specifications of the proposed system. The requirement analysis based on which the design, development and implementation of a resource tracking and planning system at the manufacturing unit were accomplished. The agile model was followed throughout the implementation process and the main author had endeavoured as an action researcher to be a change agent in the implementation of this project and the adapted model proposition. With the envisioned system designed and developed, the project objective of automating the manual processes intended to cut down the enormous time taken in their data compilation with regard to their employee salary

computations and record tracking reports were positively achieved. The system was developed using a data base management system in Microsoft access 2010. The system implemented cut down the time taken for salary computation from about ten days to a matter of seconds. The issue of double entry of worklog by workers either by error or with fraudulent intentions has been greatly curtailed as the double entries are highlighted and corrected by the end of the day itself.

The hardware requirements for the system matched the hardware already available at the unit averting the need for any additional infrastructure costs for the implementation.

A parallel implementation strategy is followed currently with the resource tracking and planning system and the manual system both running simultaneously. This will go on for a period after which the manual system would be phased out.

The proposed system takes the manufacturing company a step further in its progress towards office automation. By building on the proposed system, it can move a stage closer towards machinery automation too. All stakeholders' perspectives were considered without necessitating the need to handle much change management issues.

The system has also incorporated on a small scale, reports that supports and aids decision making by graphical representations of the analysed data and information. The system delivered has also made provisions and recommendations to upgrade and expand if required in the future.

Finally the adapted model proposed to be adhered seems to offer long term sustenance of the implemented project.

## References

- Acharya, A., 2012. *What are the needs and importance of office automation ?*. [Online]  
Available at: <http://www.preservearticles.com/201101143349/needs-and-importance-of-office-automation.html> [Accessed 24 April 2016].
- Benchmark, 2016. *Services - Agile Software Development*. [Online]  
Available at: <http://benchmarkitsolutions.com/software-development/>
- Biros, D. P., M. Daly and G. Gunsch, 2004. The influence of task load and automation trust on deception detection. *Group Decision and Negotiation*, 13(2), pp. 173-189.
- Clarke, J., R. Thorpe and L. Anderson, & J. Gold, 2006. It's all action learning: action learning in SMEs. *Journal of European Industrial Training*, 30(6), pp. 441-455.
- Coghlan, D. & Brannick, T., 2010. *Doing Action Research in your own organization*. 3rd ed. London: Sage Publications.
- Date, C. J., 1977. *An Introduction to Database Systems*. Reading, MA: Addison-Wesley.
- Grinys, A., 2012. *Agile Project Estimation*, Reykjavík: s.n.
- Jasany, L. C., 1990. Knowledge (and Power) to the People. *Automation*, July.
- Joy, J. & Nambirajan, T., 2016. Implementation model for an open source learning management system in educational institutions. In: R. Kasilingam, B. Rajeshwari & R. C. Sivasubramanian, eds. *Intelligence Innovation and Inclusion-Best Practices for Global Excellence*. Pondicherry: Vijay Nicole Imprints Private Limited, pp. 286-294.
- Lewin, K., 1948. Action Research and Minority Problems. In: T. G. W. Lewin, ed. *Resolving Social Conflicts. Selected Papers on Group Dynamics*. New York: Harper and Row, pp. 201-216.
- O'Leary, Z., 2005. *Researching Real-World Problems: A Guide to Methods of Inquiry*. London: Sage Publications.
- Pascarella, P., 1986. Unlearn the 'Truths' about Automation. *Industry Week*, 26 May.
- Satchell, P., 1998. *Innovation and Automation*. Aldershot, England: Ashgate Publishing.
- Siems, M., 2015. *What is Agile Software Development?*. [Online]  
Available at: <http://www.successfulprojectmanager.com/agile-software-development/> [Accessed 31 December 2015].
- Skitka, L. J., K, L. M. & M, B., 2000. Accountability and Automation Bias. *International Journal Human-Computer Studies*, Issue 52, pp. 701-717.
- Waring, T. et al., 2013. Developing Knowledge Sharing Partnerships in the SME Sector: An Action Research Approach. *European Conference on Research Methodology for Business and Management Studies*, April, p. 354.

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# Retail Investors' Herding Behaviour: Determinant of

Sakshi Saxena, Harish Purohit and Vibha Dua Satija

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Investors make investment decisions with a view to earning appropriate returns on the funds they have. Their investment decisions are based on the information available with them. It has been proven by various studies that sometime investors also become irrational while making investment decisions. This principle has given birth to a new domain known as Behavioural Finance. The present study investigates the presence of herd behaviour in the Indian stock market with the help of survey instrument, i.e. questionnaire by collecting responses of various retail investors residing in Delhi and NCR. The Study focuses upon the psychology of retail investors as well as various factors which contributes to herd behaviour. The finding provides meaningful insight and various relevant factors which contribute to herd behaviour among retail investors in the Indian stock market.

**Keywords:** Behavioural Finance, Herding, Indian Stock Market, Irrationality



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**F**inancial markets all over the world have seen huge fluctuations in the recent years. Traditionally, returns were based on performance, forecasting, market timing, etc. which produced very ordinary results. Due to various fundamental mistakes in the decision making process, the difference between probable/ expected returns and actually received returns exists. In order to avoid this difference and to improve the quality of investment decisions, investors realized the impact of psychology in investment decisions. Existence of such difference has been challenged by a new domain known as behavioural finance. Also, existence of various anomalies like lagged reactions to earnings announcements, small firm effect, value versus growth, momentum and reversal, etc. is abig contributor to the formation of behavioural finance. These anomalies directly violate modern financial and economic theories which take the assumption of rationality and logical behaviour in consideration. Research has revealed that stock price behaviour that is inconsistent with the prediction of familiar models, as expected returns are not constant through time. So, there is a need to develop and study some

models which can help investor formulate his investment strategy.

Behavioural finance focuses on explaining investor's irrationality. Various researchers have attributed various behavioural biases affecting investors' psychology and anomalies present in the stock market. Basically, the main objective of an investor is to earn returns on the money invested. Various studies have shown that behavioural biases such as overconfidence, optimism, conservatism, hindsight, herding, overreaction to chance, errors of preferences, regret of omission and commission, regret and risk taking, etc. affect the investment strategies of investors in various markets.

The above mentioned behaviours contribute a lot during financial decision making of investors. Among all of these behaviours, herding is the most common behaviour found among investors while studying their psychology. When investors start imitating the market consensus and does not use their own private beliefs, the value of securities starts deviating from the market value. It also influences risk- return trade-off of securities. This is known as herd behaviour.

Herd behaviour can be explained in two ways – rational as well as irrational. In rational herding, “herding can be referred to as a tendency of investors irrationally ignore their own analysis and information and conform for the market consensus, even if they do not agree with that (Christie and Huang, 1995).”

Irrational herding mainly happens due to protecting reputational concerns of an investor. Such investors normally ignore their own analysis of available information and start replicating the decisions of other investors by assuming that decisions made by them are more reliable and they had access to better source of information. “Existence of herding behaviour challenges the validity of EMH, which believes that all investors are rational and possess the same set of information and form the expected stock price in the same way. Therefore, the stock price should reflect the information available in the market and the security's true value (Fama, 1970).”

According to herd behaviour, investors may not be necessarily rational. They determine the share price by following the actions of others and not by performing proper

analysis of the company. Thus, security does not reflect its true value and get deviated from the fundamental value. This happens due to the presence of irrationalities in the market. Thus, EMH cannot provide answers to such kind of problems.

Behavioural finance is not a new area in the field of finance and it is very popular in stock markets across the world for investment decisions. Since long, investors considered that psychology played a key role in determining the behaviour of markets but it was not explored much. In recent times, only a series of concerted formal studies have been undertaken in this area. Thus, various studies have been done involving responses of investors to understand the psychology of investors and to explore the depth of involvement of psychology in investors' investment decisions. The present study focusses upon identification of relevant factors causing herd behaviour among individual investors residing in Delhi and NCR investing in Indian Stock Market.

### Review of Literature

Mathur (2014) attempted to investigate various factors that were responsible for planning better financial measures for the retirement among sample population of Indian women expatriate's in UAE. Sample of the study includes 600 women participants who are employees of educational institutions, multinational companies and local enterprises of Abu Dhabi, Ajman, Dubai, Fujairah, Ras al-Khaimah, Sharjah, and Umm al-Quwain. The results state that 40% of respondents were found to have basic knowledge about the investments. The association of age was also found to be positive with primary purpose of portfolio and type of investment whereas it does not have an association with understanding the investments and possession of emergency funds. The trends observed in possession of emergency funds indicated that there were no emergency funds in case of no schooling, primary and secondary schooling categories while possession of emergency funds were found among under graduate and post graduate categories of educational qualifications.

Mathur (2014) investigated retail investors' attitude towards investment in secondary equity market in New Delhi. The study followed a two-step approach in order to understand the current standing and role of retail investors in the stock market. Initially the study tried to follow a Top Down approach, where the performance of the stock market was

appraised for duration of 5 years and then the study focused upon the pattern of the investment of major investing participants i.e. Foreign Institutional investors, Mutual Fund and retail investors. The analysis also indicated few peculiar characteristics about the respondents residing in NCR region.

Garg and Jindal (2014) investigated the presence of herd behaviour in Indian Stock Market during 2000-2012 by using methodologies suggested by Christie and Huang (1995) and Chang et al. (1995). Daily as well as monthly data have been considered for the same. The result indicates that herd behaviour is not present in Indian stock market.

Garg and Gulati (2014) examined the existence of herd behaviour in Indian Stock Market by using daily, weekly as well as monthly data of the securities listed in CNX 500 during the time period 2000-2013. Christie and Huang (1995) as well as Chang et al. (2000) measures were employed in the study. The results provide that Indian stock market does not follow herd behaviour. Existence of herd behaviour was also investigated during increasing market state, decreasing market state, high volume state, low volume state as well as before sub-prime crisis, during sub-prime crisis as well as post sub-prime crisis. The results nullify the presence of herd behaviour in Indian stock market. It seems that Investors' behaviour is quite rational in Indian Stock Market.

Warne et al. (2012) attempted to understand the attitude, perception, and the problems investors usually faces in stock market, with special reference to Ambala district in Haryana, India. Primary data were collected with the help of survey method from investors. The results show that investors assimilate their objective of saving, factors which influences saving and various sources of information while making investment decisions. Investors also give due importance to their annual income and annual savings as income helps them in deciding the level of savings. Results also show that investors are fully aware about the stock market.

Jains et al. (2012) examined the psychology and preferences of an investor living in Udaipur through a structured Questionnaire. The findings exhibit that investors are quite cautious while making their investment decisions and prefer the wait and watch policy. They invest in both primary as well as secondary market. Investors are also influenced by the amount of information existing in market. They are also

influenced by various behavioural biases and psychological factors as judgement criteria, i.e. involvement of rationality and irrationality in investment behaviour takes them more cautious as it can affect the lifestyle, asset value, and relationship with others.

Bennet et al. (2011) attempted to identify the Stock specific factors that influence investors' sentiment, living in Tamil Nadu district. The results shows that the Investors' expectation of stock prices rising for the next 12 months in Tamil Nadu is influenced by expected events surrounding the stock and the book value, financial community and Price Cut off rules.

Chandra et al. (2011) identified some psychological and contextual factors affecting individual investor behaviour in Delhi and NCR and which factors influences behaviour the most. Primary data were collected from the investors. Principal Component Analysis was done to examine the behaviour of investors. The results stated that prudence and pre-cautious attitude, conservatism, under confidence, informational asymmetry, and financial addiction affected Indian individual investor behaviour the most.

Shaikh et al. (2011) investigated the awareness among retail investors about various investment alternatives available in the district of Karnataka state. The study attempted to find out level of correlation between the level of investment knowledge and the expected rate of returns of retail investors and also between the occupation and the level of risk assumed by the retail investor. Primary data were collected from investors with the help of structured questionnaire. The findings showed that the level of investment knowledge significantly leveraged the returns on the investment. Negative correlation existed between occupation and the level of risk assumed by the retail investor

Ali (2011) examined relationship between individual investors' perceived financial performance of companies and their trading intentions, and the mediating effect of companies images on the relationships. It attempted to find that individual investors' trading decisions are directly affected by their perceived risk, perceived returns and trust directly while attitude towards brand partially mediated the relationships. The result stated that investors evaluates risk and return associated with companies and did not get influenced only by emotional factors.

Mohanta *et al.* (2011) investigated that investors made investment decisions to fulfil their financial, social and psychological need. “They do take into consideration other benefits like safety and security, getting periodic return or dividends, high capital gain, secured future, liquidity, easy purchase, tax benefit, meeting future contingency etc. while taking decisions.”

Kabra *et al.* (2010) in his study came to a conclusion that “modern investor is a mature and adequately groomed person. Individual investor prefers to invest according to their risk preference despite of tremendous growth in the security market and quality Initial Public Offerings (IPOs) in the market. Many investors use some source and reference groups for taking decisions. Though they are also categorized under several biases like overconfidence and narrow farming, they consider various factors and attempts to collect diversified information before executing some kind of investment transaction.”

Sultana (2010) concluded that “Indian investors prefer to adopt conservative approach even if they are of high income, well educated, salaried, and independent. They invest in those financial products which give risk free returns. So, Indian investors prefer to play safe. The investment product designers can design products which can cater to the investors who are low risk tolerant and use TV as a marketing media as they seem to spend long time watching TVs.”

Babajide *et al.* (2012) examined influence of various behavioural biases while decision making on performance of security market in Nigeria by drafting a questionnaire. Primary data were collected from randomly selected investors investing in Nigeria Security market. The results showed that there existed a weak and negative association between behavioural biases and stock market performance. Hence, impact of behavioural biases existed but it was not so severe in the Nigerian security market.

Ahmed *et al.* (2011) investigated the investment decision making behaviour of small investors in Lahore Stock Exchange. Responses of 300 randomly selected small investors have been collected through survey method of data collection. The findings stated that behavioural biases did affect the investment decision making of small investors as they relied more on behavioural finance theories rather than conventional financial theories. Therefore, the results

did not support the existence of the principles of rationality while making an investment related decision.

Gunay *et al.* (2011) attempted to find out whether there was any relationship between demographic and financial behaviour factors which affect investment decisions. The result stated that overreaction, herding, cognitive bias, irrational thinking, and overconfidence biases was directly related with gender, which stated that male respondents showed more financial behaviour than female respondents in their investment decisions. Saving level of individuals was also impacted by these behavioural biases. Though, no interaction was found between age and overreaction, herding, cognitive bias, irrational thinking, overconfidence and media effect factors.

Baghdadabad *et al.* (2011) investigated the behaviour of small investors' investing in Kuala-Lumpur stock market. 12 small investors were recruited on the basis of demographic characteristics, experience levels in purchasing stock and value of purchasing per time. The results provided 13 effective factors which can influence small investors' decisions of selection of a stock. These factors are financial statements of companies, accounting instruments, past stock price (return), firms' public information, profitability variables, consult with anybody, financial ratios, past trading volume of stocks, second-hand information resources, discounted cash-flow tools, government policies, calculation of risk and economic variable.

Alrabadi (2011) investigated overconfidence biases of Jordanian investors by undertaking primary data based study collected by drafting questionnaire. Investors trading in Amman Stock Exchange filled questionnaires and provided data. The result provided the fact that investors investing in ASE are overconfident as they believe in their abilities and skills and highly appreciate their success. The result also states that experience of an investor also increases his confidence level.

### **Objective of the study**

The present study is an attempt to understand the psychology of individual investors with respect to herd behavior of individual stock market investors investing in the volatile Indian stock market. Thus, the study aims at identifying various psychological factors contributing herd

behaviour of retail investors investing in Indian stock market.

It is quite evident from the literature review related to the issue that behavioural biases impacts the psychology and trading behaviour of investors a lot. The issue related to the relationship between cognitive as well as behavioural biases and its impact on trading behaviour of investors is a burning topic and quite relevant in today's context. Various behavioural biases have been explored by eminent researchers in developed markets of US, UK and other developed economies. But, very less studies have been documented in case of emerging countries, especially India. There is a need to provide more empirical research studies in order to understand the psychology of investors investing in an emerging market like India. The present study is thus, an attempt to understand the psychology of investors and extract various factors affecting herd behaviour of investors investing in Indian Stock Market. The study specifically focuses upon the behaviour of retail investors in India. Retail investors are generally perceived to be less aware and can also be among those who contribute to noise trading in the stock market. Normally, majority of research focuses upon the trading behaviour of Institutional behaviour rather than retail investors as it has been believed that retail investors' behaviour could hardly affect the stock price. Thus, policy makers, investment advisors, and other related parties focus upon the behaviour of institutional investors and ignores the trading behaviour of retail investors investing in the stock market. This consideration provides the issue of addressing the behaviour of retail investors in Indian stock market.

In India, as of now behavioural finance field is not properly analyzed. Retail investors do get affected by various behavioural biases. Among all of cognitive as well as emotional biases, herding is the most common biases to be followed by retail investors. Thus, this discussion along with the review of literature has helped in identifying some issues. The very first issue is to understand the role of demographics and basis of investment considered by investors in defining their trading behaviour in Indian stock market. The second issue is to understand retail investor behaviour, which may further help in understanding the market structure in a better way and thus, helps in realizing

the power of individual investors investing in Indian stock market.

#### Primary Data Collection Procedure

A questionnaire survey has been conducted to capture the behaviour of retail investors investing in Indian stock market. The questionnaire attempts to understand their demographics, objective of investment and various factors which may affect the rationality involved in the investment decision making of retail investors. Retail investors can be defined as individual investor who purchases and sells securities for their personal reason, instead of for any organization. As it is already described that data were collected from primary source where a questionnaire is constructed and pilot study is done to check through the Cronbach's alpha of reliability co-efficients. The questionnaire initially deals with the demographics of retail investors investing in Delhi and NCR region. It has been proved by many major studies mentioned in the literature section that age, income, occupation and gender matters a lot when any investors makes their investment decision.

Then, the questionnaire attempts to know the basic psychology of retail investors investing in stock market. Amount of investment investor usually invests in equities, frequency of monitoring investment activity, objective of investment, role of intuition and risk bearing ability of investors investing in stock market are given due consideration. Questions related to ranking of information and sources considered by retail investors were also prepared. Lastly, the questionnaire attempts to investigate the herd behaviour of retail investors. In this section, data were collected using 5 point Likert scale. In this section, 23 statements were framed and asked from retail investors to investigate the causes for which they follow herd behaviour.

#### Sample and Data

Data were collected from individual retail investors investing in Indian stock market residing in Delhi and NCR. Survey was conducted on 315 retail investors in Delhi and NCR through personal contacts and emails. Out of total 315 questionnaires filled by retail investors, 49 questionnaires were found incomplete. After screening of questionnaire, 266 retail investors' responses were recorded for further analysis. The response rate comes out to be 84.4%.

The present study used Judgmental Sampling Technique for sample selection. Individual retail investors are scattered in the Delhi-NCR region selected for the study. It was quite difficult to find out the exact number of retail investors investing in Delhi and NCR region. Client base of around 300 investors was selected. The only criteria considered was that none of the individual participating in the study should be of age less than 18 years. It is considered due to the fact that individuals of age less than 18 years are considered minor while above 18 years are considered major. Thus, efforts were made to ensure that no minor should take part in the study. Some individuals are quite

apprehensive in disclosing information related to their financial assets.

**Testing the Reliability of Survey Measures**

Various researchers use Cronbach alpha value as a measure of reliability of their questionnaire. The Cronbach alpha computes the average of all possible split-half reliabilities for a multiple item scale. In this study Cronbach’s alpha of reliability coefficients for the constructs used is .627 (See Table 5.2). The result indicates a fair internal consistency of the survey instruments.

**Table 5.2: Cronbach’s Alpha of Reliability Coefficients**

Cronbach’s Alpha of Reliability Coefficients	
Cronbach’s Alpha	No. of Items
.627	53

After investigating the reliability of the questionnaire, data were collected from retail investors and Principal Component Analysis was performed and relevant factors were generated to understand the psychology of retail investors. The factor analysis is a statistical method used to describe variability among observed, correlated, variables in terms of a potentially lower number of unobserved variables called factors. For example, if we measure several variables, the

correlation between each pair of variables can be arranged in what’s known as an *R-matrix*. An *R-matrix* is just a correlation matrix. The factors extracted from such analysis can also be described in terms of an equation (with no intercept, the reason being that the straight lines of the axes describing the factors intersect at zero, hence the intercept is also zero) as follows. The  $\beta$ s in the equation represent the factor loadings:

$$Y_i = \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n + \varepsilon_i \dots(1)$$

The above equation can be re-written as following:

$$Factor_i = \beta_1 Variable_1 + \beta_2 Variable_2 + \dots + \beta_n Variable_n + \varepsilon_i \dots(1a)$$

The new factor thus extracted represents the unobserved variable. Based on the above modeling, we attempt to explore some new unobserved variables/factors which influence investor’s behaviour in India.

**Data Analysis**

In the present study, primary data collected from retail investors investing in Delhi and NCR region were analysed to find out the behavioural aspects of retail investors

investing in Indian stock market. Statistical Package for Social Sciences (SPSS) 22 along with Microsoft Excel has been used for our data analysis. The data analysis starts with preliminary analysis of the data and then multivariate data analysis was applied. Below mentioned is the summary statistics of all the survey data collected from the retail investors investing in Indian Stock Market, using a structured questionnaire. Table 1 shows the Demographic Composition of Retail Investors targeted in the sample:

**Table 1: Composition of Demographics in the Sample**

<b>Demographics</b>	<b>Variables</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Gender</b>	Male	211	79.3
	Female	55	20.7
<b>Occupation</b>	Student	24	9.0
	Government Employee	48	18.0
	Private org Employee	89	33.5
	Businessman	52	19.5
	Professional	53	19.9
<b>Age</b>	Less than 18 years	0	0.0
	19-36 years	147	55.2
	37-54 years	94	35.3
	More than 54 years	25	9.4
<b>Income: Per Month</b>	Less than • 15000	22	8.3
	• 15001- • 25000	28	10.5
	• 25001- • 40000	42	15.8

Table 1 represents the composition of demographics in the sample. Total of 266 retail investors' responses were analysed. The sample states that male constitutes of 79.3% of the total sample while female accounts for 20.7% of the total sample. It can be inferred from the table 1 as well as diagram that number of males investing in the stock market is more than the number of females investing in the stock market. This states that participation of female in stock market is quite less as compared to participation of males. It may be due to higher risk taking capacity of males. Barber and Odean (2001) "in their study stated the result that men trade more than women by 45% and women are quite risk averse in terms of making investment decisions." As provided by table 1 majority of the respondents are from the private organization, i.e. 89 retail investors. It may be due to the fact that respondents working in private organizations have higher salaries. They can save more and invest more in the stock market to generate returns unlike 18% government employees who like to invest in securities generating stable returns. It is quite interesting to report that students also took part in the study and contributes 9% of the total sample. It can be due to the fact that Institutions in their campus normally conduct various awareness program in order to

promote awareness among students regarding investment in stock market. NSE has also come up with various initiatives like NCFM Certifications and NSE Paathshala to promote financial literacy among students. With respect to age variable, majority of the sample, i.e., 147 retail investors belongs to the age group, 19-36 years. Retail investors belonging to this age group are quite enthusiastic as well as aggressive in terms of making investment decisions. In the research methodology section, it was decided that the study will focus on the retail investors above 18 years because it has been assumed that they will be having clear understanding and better decision making power. Thus, retail investors with age less than 18 years were not targeted. Less number of retail investors, i.e., 25 retail investors belongs to the age group of more than 54 years since they focus upon stable earnings post retirement. With respect to income as shown in table 1, 65.4% of the total sample earn more than Rs. 40000 per month. This constitutes maximum percentage of the retail investors targeted for the study. 8% investors investing in the stock market has income less than Rs. 15000. It can be observed explicitly from the above figure that investors with less amount of monthly income, normally save less and also invest less in stock market while investors

with large amount of monthly income, save more and also invest more in stock market. It can be due to the fact that first of all individual focusses upon securing basic necessities of life and then they start finding out investment options.

### Parameters for Judging Investors' Psychology

After demographic analysis, the next step is to examine various parameters considered by retail investors for judging investors' psychology. It can be tabulated as shown:

**Table 2: Important parameters for judging Investors' Psyche**

S.No.	Basis of investment	Variables	Frequency	Percentage
1.	<b>Monitoring of Investment</b>	Many times in a day	42	15.8
		Daily	94	35.3
		Weekly	63	23.7
		Once in a month	67	25.2
		Total	266	100.0
2.	<b>Amount of Investment</b>	Less than ? 20000	72	27.1
		? 20001-? 40000	83	31.2
		? 40001-? 60000	48	18.0
		More than ? 60001	63	23.7
		Total	266	100.0
3.	<b>Objective of Investment</b>	Take benefit from the daily price fluctuations	78	29.3
		Earn steady income in the form of dividends	44	16.5
		Combination of income and capital gain	144	54.1
		Total	266	100.0
4.	<b>Role of intuition</b>	No effect	36	13.5
		Little effect	90	33.8
		Moderate effect	102	38.3
		Quit a high effect	38	14.3
		Total	266	100.0
5.	<b>Level of risk</b>	1.0	34	12.8
		2.0	57	21.4
		3.0	124	46.6
		4.0	36	13.5
		5.0	15	5.6
		Total	266	100.0
		6.	<b>Right investment decision made by investors</b>	>80%
50-80%	179			67.3
<50%	35			13.2
Total	266			100

Table 2 shows the response of retail investors with respect to the basis of investment followed by them. 67 investors stress upon the monitoring investment activities once in a month, while 42 investors monitor their activities many times in a day and 63 retail investors monitor their investments weekly. Therefore, in the study, there are large number of investors who contribute to speculation in the stock market. 72 retail investors invest less than Rs.20000 while 63 retail investors invest more than Rs.60000. Such investment amount is generally decided by investors on the basis of savings done from the income available with them after confirming their requirements for necessity and scrutinizing of present investment options.

Retail investors were also asked about the objective for which they did investment. 29.3% of retail investors wanted to take benefits of daily price fluctuations. 16.5% of the sample cant that they made investment to earn steady dividends. 54.1% of retail investors replied that combination of income and capital gain is their major objective of investment. It states that large number of retail investors intends to focus upon investing for long term as they wants to earn capital gains as well as dividends in the long run, while 78 retail investors want to take benefits from daily price fluctuations. All of these 78 retail investors may contribute to speculation in the stock market. It can be observed from the results that intuition has little impact on the investment decisions of retail investors. Only 36 respondents feel that intuition has no effect on their

decisions. Rest of all investors apply their intuition while making investment decisions. 38.3% of retail investors feels that intuition has moderate effect while making purchasing decision of a stock while 38 respondents has high intuition effect on their decision of purchasing a stock. Retail investors are also confident with respect to their right investment decision making. Only 35 investors feel that less than 50% of their investment decisions were right. Rest of all investors are quite confident, as more than 50% of their investment decision making was right. 179 respondents feel that their right decision making lies in the range of 50-80% while 52 retail investors feel that more than 80% of the investment decisions made by them are right. Investors are also asked to rate their level of risk on the scale of 1 to 5, in which 1 means very low risk while 5 means very high risk. It can be seen in the table 5 that only 15 respondents from the sample are willing to take high risk. 34 retail investors rated their risk appetite as 1 which states that they can't take much of risk. 124 respondents rated their risk ability as 3 which means that they are average risk taker. It can be further interpreted that risk profile of investors is quite average as majority have rated it 3 out of 5 while means they can take calculated risk. This can be very well related with the decisions taken by them with respect to various situations presented in front of them. It also states that investors are not much risk takers rather than they are risk averse investors. Risk averse investors may contribute towards herding in the market.

**Table 3: Ranking of information used by retail investors for making their investment decisions**

Variables	1 <sup>st</sup> Rank		2 <sup>nd</sup> Rank		3 <sup>rd</sup> Rank		4 <sup>th</sup> Rank		Total	
	Freq.	%	Freq.	%	Freq.	%	Freq.	%	Freq.	%
<b>Corporate announcements</b>	41	15.64	33	12.31	73	27.03	119	45.07	266	100
<b>Social and Political factors</b>	164	62.59	139	51.86	124	45.92	105	39.77	266	100
<b>Change in economic indicators</b>	57	21.75	96	35.8	73	27.03	40	15.15	266	100

(Where Freq. stands for Frequency and % stands for percentage)

The above table 3 presents ranking given by retail investors with respect to the ranking of information source considered by retail investors while making investment decision. Ranking given by retail investors to various information sources considered by them can be understood from the table 3. It can be easily seen from the figure that retail investors largely consider information coming from social as well as political factors rather than from other sources. 164 retail investors have given 1<sup>st</sup> rank to information from social and political factors as relevant informational source.

Large number of retail investors investing in Indian Stock Market consider changes in social factors as major indicators as compared to other factors. It can be due to the fact that Indian culture is quite collective-oriented (Chen et al., 2007). Therefore, they like to look for the opinion of others while taking investment decisions making it most important as well as relevant source considered by them in Indian scenario.

### Factor Analysis

After understanding the demographics and profile of retail investors making investment decisions in Indian Stock Market, the next step is to extract relevant factors which support herd behaviour. Factor analysis has been performed to name various factors affecting herd behaviour of retail investors. To reduce the data, factor analysis has been performed on 23 variables measured on Likert scale, out of which, 8 major factors have been identified. The below mentioned is the result of factor analysis provided by retail investors, applied on all 23 statements measured on Likert scale:

In order to understand the data suitability for factor analysis, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and the Bartlett's Test of Sphericity were employed. According to Kaiser (1974) "a bare minimum of 0.5 and that values between 0.5 and 0.7 are mediocre, values between 0.7 and 0.8 are good, values between 0.8 and 0.9 are great and values above 0.9 are superb" (Hutcheson and Sofroniou, 1999). The results of KMO and Bartlett's Test of Sphericity are reported in Table no.4 below:

**Table 4: Kaiser-Meyer-Olkin Measure of Sampling Adequacy.**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.642
Approx. Chi-Square	1240.754

The above table 4 provides KMO and Barlett's test statistic. According to the rule as mentioned above, value should be

more than 0.5. Its value is 0.642 which is more than 0.5. Thus, the sample is adequate enough to be run factor analysis

**Table 5: Total Variance Explained**

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.690	16.045	16.045	3.690	16.045	16.045	2.641	11.483	11.483
2	2.079	9.037	25.082	2.079	9.037	25.082	1.883	8.188	19.670
3	1.823	7.924	33.006	1.823	7.924	33.006	1.827	7.946	27.616
4	1.557	6.770	39.777	1.557	6.770	39.777	1.811	7.873	35.489
5	1.440	6.261	46.038	1.440	6.261	46.038	1.540	6.697	42.186
6	1.289	5.604	51.642	1.289	5.604	51.642	1.470	6.391	48.577
7	1.187	5.160	56.802	1.187	5.160	56.802	1.469	6.389	54.966
8	1.137	4.943	61.746	1.137	4.943	61.746	1.338	5.819	60.785
9	1.067	4.637	66.383	1.067	4.637	66.383	1.287	5.597	66.383
10	.893	3.885	70.267						
11	.824	3.581	73.848						
12	.758	3.296	77.144						
13	.721	3.136	80.280						
14	.629	2.735	83.015						
15	.612	2.661	85.676						
16	.592	2.574	88.250						
17	.503	2.187	90.436						
18	.462	2.010	92.446						
19	.411	1.786	94.232						
20	.376	1.633	95.865						
21	.350	1.523	97.388						
22	.327	1.421	98.810						
23	.274	1.190	100.000						

**Rotated Component Matrix**

Rotated Component Matrix helps in simplifying interpretation of factor analysis. The below mentioned table provide results of rotated component matrix:

**Table 6: Rotated Component Matrix**  
**Rotated Component Matrix<sup>a</sup>**

	Component								
	1	2	3	4	5	6	7	8	9
Q13. Statement 5	<b>.747</b>		.189	.139	.115			-.116	-.113
Q13. Statement 9	<b>.712</b>	.148		.103					.111
Q13. Statement 20	<b>.668</b>			-.141		.233		.308	.187
Q13. Statement 7	<b>.570</b>	.158	.233			.315		.159	
Q13. Statement 22	.205	<b>.730</b>							
Q13. Statement 3	.458	<b>.582</b>				-.341			
Q13. Statement 12	.170	<b>-.577</b>		-.104	.385	-.313	-.154		
Q13. Statement 21	.188	-.109	<b>.751</b>	.336					
Q13. Statement 17			<b>-.668</b>	.135	.402				-.151
Q13. Statement 23	-.189	.496	<b>.579</b>		.254				
Q13. Statement 10	.292	.108	.186	<b>.635</b>	-.134		-.210		.256
Q13. Statement 8	.327	.230	.306	<b>.635</b>			.168		-.200
Q13. Statement 11	-.206	-.183		<b>.621</b>	.217			.206	
Q13. Statement 14			-.123		<b>.812</b>	.124			.166
Q13. Statement 4					<b>-.550</b>	.383			.324
Q13. Statement 18	.163			.172		<b>.769</b>			
Q13. Statement 15	-.174	-.350	-.258	.252		<b>-.518</b>	.145	-.128	-.320
Q13. Statement 6	.122			-.161			<b>-.810</b>		
Q13. Statement 1		.160		-.247	-.237		<b>.715</b>		
Q13. Statement 16	-.327	-.313		-.270	.191	.147	.379	.203	-.291
Q13. Statement 2			.193					<b>.816</b>	
Q13. Statement 13			-.325	.375		-.171		<b>.634</b>	
Q13. Statement 19			.130				.102		<b>.862</b>

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 15 iterations.

### Labelling or Naming the Factors

The results given by rotated component matrix help in finding out factors which affect herd behaviour of retail investors investing in stock market. After performing the extraction process, nine pertinent components contributing to herd behaviour have been found. Ninth factor has only one variable loading. Thus, eight major factors have been extracted, which are named as follows: under confidence, lack of awareness, optimism, reputational factors,

speculation, volatility in global markets, landwagon effect and social proof. Below mentioned is the table showing factor loading of statements contributing to herd behaviour.

Following are the detailed analysis for each of the eight components extracted from the Principal Component Matrix:

**1) Under Confidence** –Factors that were loaded higher on Factor 1 can be named as “**Under Confidence.**” The component is the most important factor as it accounts for

about 16.045% of data variance before rotation. After Varimax rotation of variables, it accounts for about 11.483% of data variance. Under confidence can be explained as the tendency of investors who react quickly with respect to whatever comes their way without analyzing their decisions. They promptly revise the decisions taken and quickly get influenced by others doing. The set of variables considered explains that investors normally feel insecure while investing in risky assets. They may lack confidence while making their own decisions of investment. Bearish trend can also promote herd behaviour as during downward trend, investors generally ignore his own analysis and starts following market trend. Sometimes, investor wants to invest in the companies in which his/her friends and family have done the investment. This may be followed as investor may not possess the amount of courage to make his own financial decisions. Similarly, investor sometimes replicates others' decision intentionally. This is normally done as investor feels that the decisions taken by others are better informed.

**2) Lack of Awareness-** The second factor extracted from the analysis has been attributed as "**Lack of awareness.**" This behavioural component accounts for about 9.037% of data variance before rotation and about 8.188% of data variance after Varimax rotation of variables. Investor may start following the market trend rather than making his own strategy, due to sheer ignorance. They may not have proper awareness about making their own investment strategy. Sometimes, investor does not possess proper knowledge about the stock market. Due to lack of knowledge, investor starts following the market. It may also happen that information is not properly and easily available in the market because of which investors follow herd. Some investors prefers investing in their region specific companies. They do not want to look for investing in other companies and ignores all the information.

**3) Optimism – "Optimism"** is the third factor extracted from Rotated Component Matrix. This component is explained by 7.924% of data variance before rotation and about 7.946% of data variance after Varimax rotation of variables. Investors normally remain optimistic with respect to the investment decisions made by them. Bullish trend in the market can make investors optimistic to generate more returns. They start following herd even in case of upward trend existing in the market with the hope that the decisions taken by other can assure more returns as compared to their own analysis. Investor can also take investment decisions

in Blue Chip Companies. Blue Chip Companies are fundamentally sound companies. Investor can follow others decision of investing in such companies in the hope of good returns. Similarly, companies engaged in CSR activities may attract investors towards them.

**4) Reputational Factors** –Factor 4 which has higher loading can be known as "**Reputational factors.**" The component accounts for about 6.770% of data variance before rotation and about 7.873% of data variance after Varimax rotation of variables. Investors may follow herd behaviour in order to safeguard their reputation. Individuals with high reputation would like to protect their current status. They feel that their reputation will be affected if their decisions went wrong. This fear will lead to imitation of behaviour of the group rather than making their own decisions. Sometimes, investors are quite conservative in their attitude. Such conservatism may reduce the level of their own decision making power and promote following herd. Investors may also feel comfortable while trading in a group. They perceive that trading in a group adds to their reputation rather than taking their own investment decisions.

**5) Speculation** –Factor 5 can be named as "**Speculation.**" The component accounts for about 6.261% of data variance before rotation and about 6.697% of data variance after Varimax rotation of variables. Speculation may arise in the market when an investor attempts to earn profits from fluctuations in the market value of the financial asset. Some investors are regular traders in the market and always keep on focusing upon the increase or decrease in the share value in a way to earn maximum return. Such aggression may force them to follow others in a way to get due returns. Investors may also believe upon the market sentiments rather than technical analysis and thus can contribute to herd behaviour.

**6) Volatility in Global market** – The sixth factor extracted from Rotated Component Matrix can be named as "**Volatility in Global Market.**" The component accounts for about 5.604% of data variance before rotation and about 6.391% of data variance after Varimax rotation of variables. Global market has been long characterized as dynamic as well as uncertain. In the state of uncertainty in global markets, investors cannot make investment decisions solely on their own and may start looking for the opinion of others. Such uncertain and turbulent state may cause to formation of herd behaviour. Investors may also start relying upon the opinions of their friends, family and peer group rather than making their own decisions.

**7) Bandwagon effect** –Factor 7 can be categorized as “**Bandwagon Effect.**” The component accounts for about 5.160% of data variance before rotation and about 6.389% of data variance after Varimax rotation of variables. Due to bandwagon effect, investors start relying on the decisions of others regardless of the underlying evidence. When some investors believe in a decision, others may simply “hop on the Bandwagon” and contributing to herd behaviour. It may be because investors rather than making their own judgement feels imitating a quite easy task. They may also consider investing in such companies with which they are pretty familiar.

**8) Social Proof** –Factor 8 can be named as “**Social Proof**” since investor may believe on rumors and analysis done by other investors. The component accounts for about 4.943% of data variance before rotation and about 5.819% of data variance after Varimax rotation of variables. Under social proof, investors may look for the actions of others in order to decide correct behaviour in a particular situation. When investors are uncertain about the way they should act in an ambiguous situation, they start following herd. Existence of rumors in the market may create such situations and may contribute to herd behaviour. Uncertainty of acting in a particular situation may also lead to following of herd.

Factor 9 has only been given loading of one variable, therefore, it has not been considered as separate factor for the study. All of the above mentioned factors affect investment strategy of retail investors a lot and contributes to following of herd behaviour in the stock market.

### Findings

Herding is widely considered as an important element while analyzing behaviour of investors in financial markets, since it is the most common behaviour employed by individuals even in their ordinary course of life also. Literature available on behavioural finance and more specifically herd behaviour was scanned in order to understand the psychology of retail investors and their trading behaviour. Herd behaviour is the most common type of behavioural biases followed by retail investors as they invest their hard earned money- to maximize their returns. They may not have proper knowledge of various avenues where they can invest. The findings of the study show that Demographics of retail investors shows that more number of males invests in stock market than females. Many researchers have supported this argument which states that involvement of males is more in stock

market than that of females. This is also in consistent with the results provided by Barber and Odean (2001).” While both men and women exhibit overconfidence, men are generally more overconfident than women” (Lundeberg, Fox, and Puncochar 1994). Majority of the individuals who took part in the study belongs to the age group of 19-36 years. Thus, they can be categorized as more aggressive and less mature as compared to other retail investors. Maximum number of people who took part in the study earns income more than Rs. 40000. Thus, as individuals earn more income, they can take more risk and would like to invest in the stock market which can provide more returns. Investors invest in the stock market in order to achieve their short run as well as long run horizon, i.e., Combination of income and capital gain. Investors also feel that intuition plays moderate role in making decision about purchasing a stock. Regarding their level of risk, majority of investors are risk aversers as they like to focus on both long term and short term goals. Therefore, risk averse investors may disturb market equilibrium and start following the herd behaviour. Majority of investors agree to the pint that they make their 50-80% investment decisions right. It means that the investors are quite confident with respect to the financial investment decision making. Regarding the sources of information used by investors, social as well as political factors have been given top rank by them. This state that various factors like trends and patterns in the society, demographic variables, political changes etc. affects investment strategy of investors a lot. The result of factor analysis provides relevant eight factors causing retail investors to follow herd behaviour. They are under confidence, Lack of Awareness, Optimism, Reputational factors, Speculation, Volatility in global markets, Bandwagon effect and Social Proof. All of these factors holds great significance in understanding trading behaviour of retail investors’ specially in a developing economy like India.

### Conclusion

Herd behaviour may also cause abnormal market volatility as investors start following market consensus rather than believing on their own financial decisions. Such kind of behaviour disturbs market equilibrium. The present study provides estimates to the body of literature of a different time frame about presence of herd behaviour. Investigation of herd behaviour in Indian stock market will develop a new insight about the way investors make investment decisions and strategies. It also helps us in understanding the risk

aptitude of Indian stock market as well as about the efficiency status.

While investigating the presence of herd behaviour among retail investors residing in Delhi and NCR, it was found that investors consider various parameters while making their investment decisions. Power of intuition, risk taking ability and confidence level of retail investors have greater influence while devising investment strategy. Factor analysis has provided various factors affecting herd behaviour of retail investors investing in Indian stock Market. They are named as: under confidence, Lack of Awareness, Optimism, Reputational factors, Speculation, Volatility in global markets, Bandwagon effect and Social Proof. All of these factors dominantly exist among retail investors due to which they follow group behaviour. Results support HDMM (Holistic Decision Making Model) conceptualized by Purohit (2013), inspired by the WISDOM equation (Wisdom = Reason + Intuition) conceptualized by Prof. Subhash Sharma (1996).

Lack of confidence among retail investors can lead to following the decisions of the market consensus, since they are unable to take their own decisions. Investors can also follow herd behaviour because of the optimism as they may feel that when market is in increasing state, following others may give better results as compared to own strategies. Sometimes, investors can follow herd behaviour to safeguard their status and reputation in the society they live.

Sometimes, their status in the society becomes an important parameter rather than other major parameters. Therefore, to safeguard their status, they can follow the crowd. Investors who are involved in immediate buying and selling of securities in order to earn profits from the fluctuations in prices of securities can also lead to following of group. Such investors causes speculation in the stock market.

Based on speculation, other investors may also get attracted to earn more return, therefore they might cause herd behaviour. Like speculation, volatility in global markets can also affect the financial decisions of retail investors. Existence of bandwagon effect and requirement of social proof can also lead to herd behaviour. "Indian culture is collective-oriented and encourage people to follow more than criticize" (Chen, et al., 2007).

Therefore, retail investors may like to consider the opinion of others rather than making decisions on the basis of information available with them. Secondary data analysis

reported that Investors in Indian Stock Market does not possess herding behaviour. Thus, the market is quite efficient. Yet, decision making of retail investors normally get affected due to the presence of any or all factors like under confidence, Lack of Awareness, Optimism, Reputational factors, Speculation, Volatility in global markets, Bandwagon effect and Social Proof.

## References

- Ahmed, N., Z. Ahmad, and S. Khan (2011). "Behavioural Finance: Shaping the Decisions of Small Investors of Lahore Stock Exchange." *Interdisciplinary Journal of Research in Business*, 1(2), 38-43.
- Ali, A. (2011). "Predicting Individual Investors' Intention to Invest: An Experimental Analysis of Attitude as a Mediator." *International Journal of Human and Social Sciences*, 6(1).
- Alrabadi, D., M. Gharaibeh, Ziad, and M. Zurigat (2011). "What Makes Investors Overconfident? Evidence from Amman Stock Exchange." *European Journal of Economics, Finance and Administrative Sciences*, ISSN 1450-2275(43), 28-34.
- Babajide, A. and K. Adetiloye (2012). "Investors' Behavioural Biases and the Security Market: An Empirical Study of the Nigerian Security Market." *Accounting and Finance Research*, 1(1), 219-229.
- Baghdadabad, M., F. Tanha, and N. Halid (2011). "A study on small investors' behaviour in choosing stock case study: Kuala-Lumpur stock market." *African Journal of Business Management*, 5(27), 11082-11092.
- Barber, B. and T. Odean (2001). "Boys will be Boys: Gender, Overconfidence and Common Stock Investment." *Quarterly Journal of Economics*, 116(2), 261-292.
- Bennet, E., M. Selvam, and E. Ebenezer. (2011). "The Influence of Stock-Specific Factors on Investors' Sentiment." *World Journal of Social Sciences*, 1(4), 107-116.
- Chandra, A., and R. Kumar (2011). "Determinants of Individual Investor Behaviour: An Orthogonal Linear Transformation Approach." Retrieved from <http://mpr.ub.uni-muenchen.de/29722/>.

- Christie, W., and R. Huang (1995). "Following the pied piper: do individual returns herd around the market?" *Financial Analysts Journal*, 51(4), 31-37.
- Fama, E. F. (1970). "Efficient Capital Markets: A review of Theory and empirical work." *Journal of Finance*, 25(2), 383-417.
- Garg, A. and R. Gulati (2014). "Do investors herd in Indian market." *Decision*, 40(3), 181-196.
- Garg, A. and K. Jindal (2014). "Herding Behaviour in an Emerging Stock Market: Empirical Evidence from India." *The IUP Journal of Applied Finance*, 20(2), 18-36.
- Gunay, S. and E. Demirel (2011). "Interaction between Demographic and Financial Behaviour Factors in Terms of Investment Decision Making." *International Research Journal of Finance and Economics*, ISSN 1450-2887(66), 147-156.
- Hutcheson, G. and N. Sofroniou (1999). *The multivariate social scientist: introductory statistics using generalized linear models*. London: Sage Publication.
- Jains, D., and N. Dashora (2012). "A study on impact of market movements on investment decision-An empirical analysis with respect to investors in Udaipur, Rajasthan." *Journal of Arts, Science & Commerce*, 2(2), 78-88.
- Lundeberg, M.A., P. W. Fox and J. Puncochar (1994). "Highly Confident but Wrong: Gender Differences and Similarities in Confidence Judgments." *Journal of Educational Psychology*, LXXXVI, 114-121.
- Mathur, M. (2014). "Investment decision making for retirement planning in the shadow of holistic decision making model: A study of Indian expatriate women in UAE(Unpublished doctoral dissertation)." Banasthali Vidyapith, Rajasthan.
- Mathur, M. (2014). "Retail Investors Attitude towards Investment in Secondary Equity Market and the Impact of Behavioural Finance: A Study in New Delhi City (Unpublished doctoral dissertation)." Banasthali Vidyapith, Rajasthan.
- Mohanta, G. and S. Debasish (2011). "A Study on Investment Preferences among Urban Investors in Orissa." *Prerana: Journal of Management Thought and Practice*, 3(1), 1-9.
- Shaikh, A., and A. Kalkundarikar (2011). "Analysis of Retail Investor's Behaviour in Belgaum District, Karnataka State." *International Journal for Management Research*, 1(2), 22-39.
- Sultana, S. (2010). "An Empirical Study of Indian Individual Investors Behaviour." *Global Journal of Finance and Management*, 2(1), 19-33.
- Suman and D. Warne (2012). "Investment Behaviour of Individual Investor in Stock Market." *IJRFM*, 2(2), 432-439.

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# Organisational Support and Employee Engagement: Interaction Effect

P. Srivalli and Kota Neela Mani Kanta

## A b s t r a c t

Employee Engagement is a significant employee attitude towards his/her job in regard to effective teaching. The study is conducted among 410 private engineering college faculty working in Rayalaseema region of Andhra Pradesh. The study follows descriptive research design, as it describes the moderation effect of Organisational Support. It follows probabilistic, multi stage sampling method in selection of sample and administers structured questionnaire among engineering college faculty for collection of primary data. It finds statistically insignificant moderation effect of Organisational Support.

**Keywords:** Employee Engagement, Organisational Support, Teaching Effectiveness, Private Engineering Colleges.



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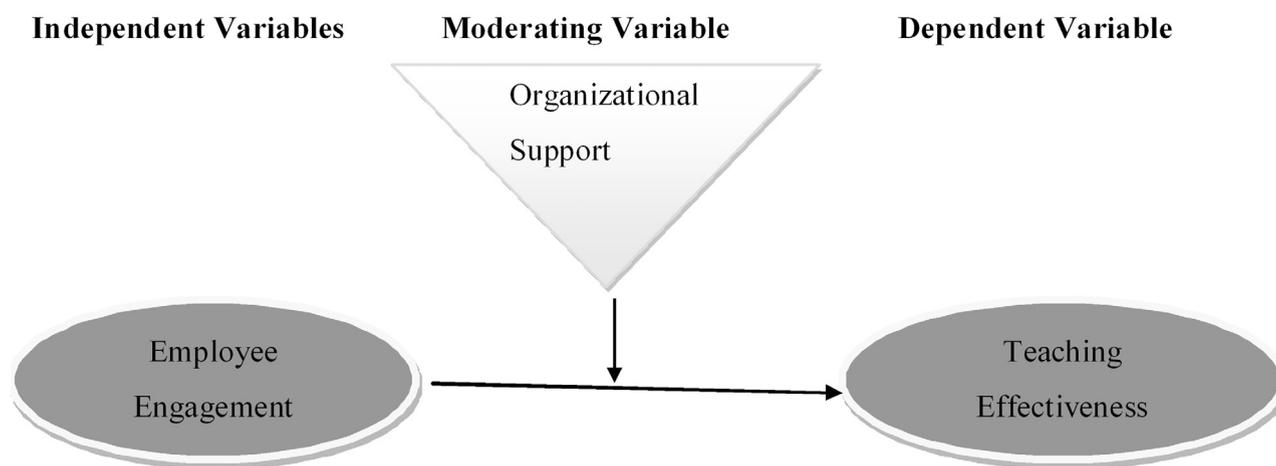
The educational sector is facing a serious crisis from unemployment; the rationale could be the deteriorating standards of education. Particularly private engineering graduates are lacking the key technical skills for performing Job. In this respect, faculty of private engineering colleges are assumed as the central focus to transform the present scenario, since among the resources in engineering colleges, faculty are the significant contributor for providing quality education. However the faculty need to be engaged at their work to be effective in teaching, quality education. Further the faculty require support from its institution in providing basic facilities in developing their teaching standards.

Lack of climate for openness, supportiveness, rewards, recognition, procedural justice, job dissatisfaction, sense of value, and usefulness, are observed factors influencing faculty engagement, unfavorably. Hence many of the faculty is turning towards industry, leaving educational field. Further the organisations are restraining the faculty in doing research activities, providing research infrastructure, permission to attend and organize symposiums, conferences and seminars. The study assumes above reasons could be the factors for deteriorating educational standards.

Hence this study is sought to understand the levels of Employee Engagement, Perception of Organisational Support and Teaching Effectiveness among faculty in private engineering colleges in Andhra Pradesh. Further the study analyzes the moderating effect of Organisational Support on the relationship between Employee Engagement and Teaching Effectiveness. The study contributes insights to

the management of private engineering colleges to focus on designing practices and processes that enhance Employee Engagement, Organisational Support and Teaching Effectiveness.

The following section discusses the key literature available with respect to Employee Engagement, Job Satisfaction, Organisational Support, and Teaching Effectiveness.



**Fig 1: Moderation effect of Organisational Support**

### Employee Engagement

In the literature till date, employee engagement has been deemed as the key component in human resource development. Employees get disengaged from their job if their welfare is not addressed holistically in appropriate manner. Employee Engagement construct is built on the foundation of earlier concepts likewise job satisfaction, employee commitment and organizational citizenship behaviour. Previous studies confirm Employee Engagement is stronger predictor of organisational performance. Engaged employees involve in their job with high enthusiasm and are emotionally attached to their organisation, going extra mile beyond the employment contractual agreement (Solomon Markos, 2010).

In a descriptive study to examine the effect of job satisfaction on employee engagement, correlation outcome shows that

job satisfaction and employee engagement are associated. Regression results signify factors such as nature of the job, superior's recognition to one's work, team spirit, cooperation between departments, comparative benefits, equal and proper administration of company policies contribute to a moderate state of employee engagement. Further the study confirms that cooperation between departments varied with education (Abraham, 2012).

A seminal paper examined the influence of intention to leave towards employee engagement among young employees, in the perspective of Malaysian commercial banks. The study findings showed that intention to leave only make minimal unique contribution towards employee engagement in the perspective of young bankers in Malaysia (I. A. Hussain, 2013).

### Organisational Support

A meta-analysis indicated that 3 major categories of beneficial treatment received by employees (i.e., fairness, supervisor support, and organizational rewards, and favorable job conditions) were associated with POS (Perception of Organisational Support). POS in turn, was related to outcomes favorable to employees (e.g., job satisfaction, positive mood) and the organization (e.g., affective commitment, performance, and lessened withdrawal behavior).

The above relationships are the assumptions drawn from organisational support theory, employees' belief that the organization's actions are flexible, feeling of responsibility to aid the organization, realization of socio-emotional needs, and performance-reward expectancies (Linda Rhoades, 2002).

In a study conducted by Khulida Kirana Yahya, 2012 examines the relationship between the perceived organizational support and expatriates' organizational commitment. The correlation analysis confirmed that the perceived organizational support is highly important to affective and normative commitment whereas its relationship with continuance commitment is not relevant. Finally, the regression analysis revealed perceived organizational support as being more significant at influencing organizational commitment (Khulida Kirana Yahya, 2012).

In a research study, relationships between perceived organizational support (POS) and the dimensions of organizational commitment (i.e. affective, normative and continuance commitment), and to test the moderating effect of locus of control and work autonomy have been examined. The results show that POS is positively and extensively associated with affective and normative commitment. Additionally, the outcome of the hierarchical multiple regression analyses supports the moderating effect of locus of control and work autonomy with regard to the relationship between POS and affective commitment. This study highlights the significance of providing support to employees in order to foster their affective and normative commitment to the organization. In addition, the results confirm in favor of managerial interventions aimed at enhancing perceived control and, consequently, minimizing the negative effects of a lack of organizational support on employees' affective commitment. Consequently taking into

account three dimensions of organizational commitment, study explores personality and job design factors can transform their relationship between POS and organizational commitment (Caroline Aube, 2007).

### Teaching Effectiveness

Organizational effectiveness is the main concern of all higher education institutes. Over the years there have been many different models of effectiveness along with the criteria for measuring organizational effectiveness. Four main models of organizational effectiveness namely the goal approach, the system resource approach, the process approach, and the strategic constituency approach are reviewed. Moreover, this paper introduces several models of organizational effectiveness in higher education. Then, a brief review is attempted on some empirical studies that used the Cameron's (1978) model of organizational effectiveness. In the end, the paper suggests that Cameron's (1978) model seems the most appropriate for studying organizational effectiveness in higher education (Giti Ashraf, 2012).

Students' and lecturers' perceptions of own effectiveness and creativity as teachers are compared, using a survey questionnaire. Results specify that students focus more than faculty on creativity when they imagine how they would execute as teachers. Besides, the lecturers selected as creative score similar to students, as to the perception of their own creativity, and to their peers, as to effectiveness. Teaching creatively is seen by its agents as the search for doing things better, and if the communication process is successful, that attempt is perceived by the students as creative. The study explores that creativity lies neither in faculty, nor in the student, but in approach of interaction between the two. Further more study suggests it is significant to examine what is involved in the edifice of faculty roles and communication process with students, rather identifying innovative ways of presenting the subject matter (Sousa, 2010).

Teachers make a difference in student academic growth. Students from low-income, minority communities attend schools with less resources and less eligible teachers than students in more affluent communities. The policy stipulates that teacher effectiveness be determined, insignificant part, by student growth measures and supplemented with multiple observation-based examinations. The prominence placed on student output to indicate teacher

effects has served to link teacher evaluations with teacher effectiveness. Information received from a combination of evaluation measures can be used to identify both effective and ineffective teachers, to target areas in need of enhancement to increase teacher effectiveness, and to make decisions concerning the equitable distribution of effective teachers, especially for students who are most in need (Mangiante, 2011).

### Hypothesis Development

**H1:** There is significant influence of Employee Engagement on Teaching Effectiveness

**H2:** There is significant influence of Organisational Support on Teaching Effectiveness

**H3:** There is a moderation effect of Organisational Support on the relationship between Employee Engagement and Teaching Effectiveness.

### Research Methodology

The objective of this study is to understand the levels and direction of relationship among Employee Engagement, Perception of Organisational Support, and Teaching Effectiveness among private engineering college faculty. The study is descriptive in nature, since the study examines and describes the relationship and moderation effect among Employee Engagement, Organisational Support and Teaching Effectiveness. Employee Engagement is considered as independent variable, Organisational Support is taken as moderating variable and Teaching Effectiveness is considered as dependent variable. This study is conducted among the faculty of private engineering colleges in Kadapa, Anantapur, Chittoor and Kurnool Dist of Andhra Pradesh. The study collected primary data through self-administered questionnaire.

### Sample Design

The study follows probabilistic; multi stage sampling technique to select the sample. The first stage in sampling design is region, Andhra Pradesh has two regions Rayalaseema and Coastal Region, among them Rayalaseema region is selected. Second stage among the Rayalaseema Districts of Kadapa, Anantapur, Chittoor and Kurnool District, few towns were selected based availability of majority engineering colleges for collection of data.

### Data Collection

The study collects primary data through well-structured questionnaire administered to faculty in engineering colleges. The questionnaire consists of two sections, in the first section, questions were asked to measure demographic factors like Age Group, Gender, Year of Experience, Qualification and Designation. In the second section, the questions associated to Employee Engagement, Organisational Support and Teaching Effectiveness, are present. The statements are requested rate on five point Likert Scale from Strongly Agree to Strongly Disagree.

The study measures Employee Engagement by adopting the items designed by Schaufeli and Bakker's (2003) Well-being Survey (UWES) was used with a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The items are "I really "throw" myself into my job," "My mind often wanders and I think of other things when doing my job (R)", "I am highly engaged in this job," "Being a member of this organization is very captivating," "One of the most exciting things for me is getting involved with things happening in this organization," "I am really not into the "goings-on" in this organization (R)," "I am highly engaged in this organization."

The statements are adopted from the scholarly research of Eisenberger, R., Huntington, R., Hutchison, S., and Sowa, D. 1986. The statements are as follows: "My organization really cares about my well-being", "My organization strongly considers my goals and values", "My organization shows little concern for me" "My organization cares about my opinions" "My organization is willing to help me, if I need a special favor", and "If given the opportunity, my organization would take advantage of me."

Teacher Effectiveness is assumed as a significant dimension of Organizational effectiveness in the context of higher education. Teacher effectiveness in this study means creating deep understanding in students by using less content and more perspectives and application, further learning is also a significant factor to teach effectively. Hence the following statements are used for measuring teaching effectiveness: "Knows subject matter," "Speaks at appropriate volume," "Uses class time efficiently," "Gives multiple examples," "Friendly/easy to talk with/approachable," "Encourages/responsive to questions and comments/encourages discussion," "Stresses important points/emphasizes principles and generalizations," "Respects students," "Communicates effectively/explains clearly," and "Helpful to individual students." The

statements are requested to rate from Totally Effective to Totally Ineffective on five point Likert Scale.

### Statistical tools

Correlation and Regression- Moderation Model was employed using SPSS 16.0 to analyze the direction and levels of Organisational Support and Teaching Effectiveness.

### Data Analysis

The following Table 1 explains the statistic details of demographic factors like Age Group, Gender, Year of Experience, Qualification and Designation.

**Table 1: Descriptive Statistics of Demographic factors of Faculty (N=410)**

SL. No	Demographic Factors	Number of Respondents	Percentage	
1	Gender	Male	264	64.4
		Female	146	35.6
2	Age Group	25-30 Years	257	62.7
		31-40 Years	138	33.7
		41-50 Years	10	2.4
		51-60 Years	5	1.2
3	Year of Experience	0-5 Years	250	61.0
		6-10 Years	101	24.6
		11-15 Years	42	10.2
		15-20 Years	13	3.2
		21 and above Years	4	1.0
4	Qualification	Graduation	47	11.5
		Post Graduation	305	74.4
		NET/SLET(CSIR)	5	1.2
		M. Phil	19	4.6
		Ph. D	34	8.3
5	Designation	Assistant Professor	350	85.4
		Associate Professor	51	12.4
		Professor	8	2.0
		Others	1	0.2
6	District	Kadapa	110	26.8
		Chittoor	100	24.4
		Anantapur	100	24.4
		Kurnool	100	24.4

It is observed from the data, there are 257 (62.7 %) of respondents are in the age groups of 25-30 years, 138 (33.7%) of 31-40 Years, 10 (2.4 %) of 41-50 years, 5 (1.2 %) of 51-60 years. The sample comprises 264 (64.4%) male and 146 (35.6%) female faculty. Around 250 (61 %) faculty members have 0-5 Years of Experience, 101 (24.6 %) faculty have 6-10 Years, 42 (10.2 %) faculty have 11-15 Years, 13(3.2 %) faculty have 15-20 Years and 4 (1.0 %) faculty have 20 and above years of experience.

47 (11 %) faculty are Graduates, 305 (74.4 %) are Post Graduates, 5(2.7%) faculty have NET/SLET, 19 (4.6 %) have M. Phil and 34(8.3 %) faculty have PhD degree. 350 (85.4 %) faculty are Assistant Professors, 51 (12.4 %) faculty are Associate Professors, 8 (2 %) faculty are Professors and 1 (0.2 %) faculty have other designation like Principal, visiting and guest faculty.110 (26.8%) members of faculty have participated from Kadapa, 100(24.4%) faculty have participated from Chittor, Anantapur and Kurnool.

The weighted means and Cronbach’s alpha of variables likewise Employee Engagement, Organisational Support and

Teaching Effectiveness is analyzed. Cronbach’s alpha is concerned with the degree of interrelatedness among the set of items designed to measure a single construct. The Cronbach’s Alpha for Employee Engagement, Organisational Support and Teaching Effectiveness resulted as 0.872, 0.736 and 0.940 in order, which is above the standard norms. The weighted mean score of Employee Engagement, Organisational Support and Teaching Effectiveness is observed at 4.0, 3.4 and 4.20 is interpreted as neutral levels of perceptions regarding Organisational Support. However the study finds positive levels of Employee Engagement and Teaching Effectiveness.

**Influence of Employee Engagement on Teaching Effectiveness**

The study analyzes the relationship between Employee Engagement and Teaching Effectiveness by employing Correlation and Regression analysis. Employee Engagements taken as independent variable and Teaching Effectiveness is taken as dependent variable. The results are summarized in the following **Table 2 and 3**.

**Table 2: Correlation Analysis among study variables**

SL. No	Relationship	r	p-value
1	Employee Engagement → Teaching Effectiveness	<b>0.317</b>	<b>.000</b>
2	Organisational Support → Teaching Effectiveness	<b>0.383**</b>	<b>.000</b>

\*\*Significance at P < 0.01.  
Source: SPSS Output

**Table 3: Regression Analysis among study variables**

SL. No	Relationship	R <sup>2</sup>	p-value
1	Employee Engagement → Teaching Effectiveness	<b>0.068</b>	<b>.000</b>
2	Organisational Support → Teaching Effectiveness	<b>.1926</b>	<b>.000</b>

\*\*Significance at P < 0.01.  
Source: SPSS Output

The correlation analysis reveal there is significant relationship between Employee Engagement and Teaching Effectiveness ( $r = 0.317, p < .000$ ). The regression analysis reveal Employee Engagement is able to explain 19 % of variance in Teaching Effectiveness ( $R^2 = 0.190, p < .000$ ). Consequently the study results confirm there is significant relationship between Employee Engagement and Teaching Effectiveness. Hence Hypothesis 1 that there is significant influence of Employee Engagement on Teaching Effectiveness is accepted.

**Influence of Organisational Support on Teaching Effectiveness**

To analyze the relationship between Organisational Support and Teaching Effectiveness, Correlation and Regression analysis is employed. Organisational Support is considered as independent variable and Teaching Effectiveness is considered as dependent variable. The results are summarized in the following **Table 2 and 3**.

The correlation analysis reveal there is significant relationship between Organisational Support and Teaching Effectiveness ( $r = 0.383, p < .000$ ). The regression analysis reveal Organisational Support is able to explain 14.6% of variance in Teaching Effectiveness ( $R^2 = .1926, p < .000$ ). Consequently the study results confirm there is significant relationship between Organizational Support and Teaching Effectiveness. Hence Hypothesis 2 that there is significant influence of Organisational Support on Teaching Effectiveness is accepted.

**Moderation effect of Organisational Support**

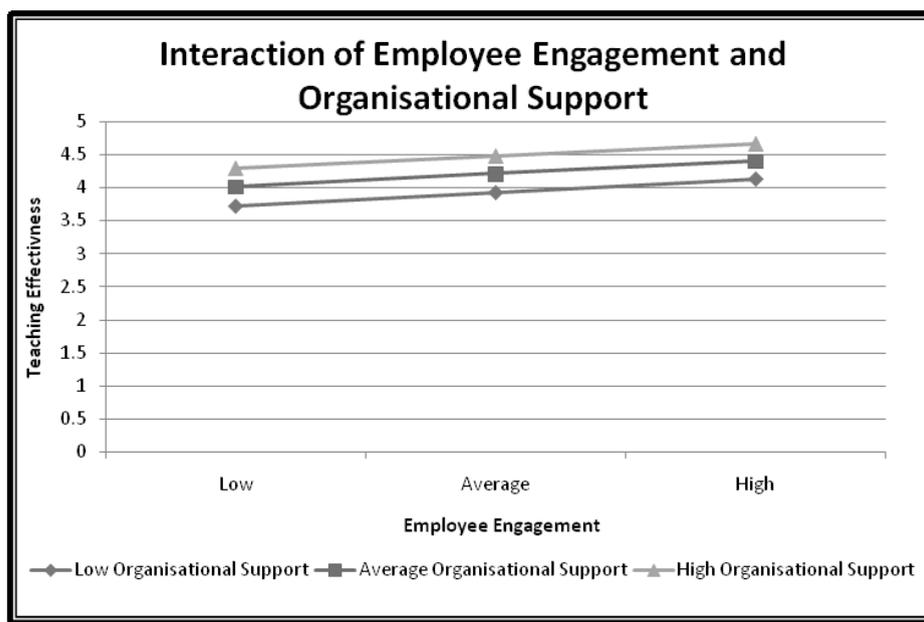
**H3:** The moderation model in regression analysis is employed to test hypothesis; Organizational Support moderates the relation between Employee Engagement and Teaching Effectiveness. The study enters dependent variable-Teaching Effectiveness, independent variable-Employee Engagement and moderate variable-Organizational Support. The results are exhibited in the following **Table 4**.

**Table 4: Partial out effect of Organisational Support**

Model	R	R Square	Adjusted R Square	Change Statistics	
				R Square Change	Sig. F Change
Employee Engagement	.435 <sup>a</sup>	.190	.188	.190	.000
Employee Engagement and Organisation Support	.481 <sup>b</sup>	.056	.227	.179	.000

The regression of Organisational support on teaching effectiveness is significant at  $\beta = 4.203, t(406) = 105.18, p = .000$ . The regression of Employee Engagement on Teaching effectiveness is significant in presence of Organisational support at  $\beta = .338, t(406) = 4.732, p = .000$ . The total model

summary is significant at  $R^2 = .1926, F(406) = 32.27, p = .000$ . Interaction effect of Organisational Support and Employee Engagement is insignificant at  $R^2 = .0002, F(406) = .106, p = .7448, \beta = -.031, t(406) = -.325, p = .744$ .



**Chart 1: Interaction Effect of Employee Engagement and Organizational Support**

By observing the above **Chart 1**, enhancing effect of Organizational Support and Employee Engagement on Teaching Effectiveness is visible. In the context of low Organizational Support and Employee Engagement, Teaching Effectiveness is observed to be lowest. Further at high Organizational Support and Employee Engagement, Teaching Effectiveness is high. However study fails to prove statistically, the moderation effect of Organizational Support. Hence **H3** is rejected.

### Conclusion

The study fails to prove the moderation effect of Organisational Support on relationship between Employee Engagement and Teaching Effectiveness. The faculty, who are engaged even though they don't have necessary support from the management, could be the reason for insignificant moderation effect of Organisational Support. However the study believes if the management provides necessary support, the faculty can be more committed.

Hence Perception of Organisational Support is a significant factor that contributes positive attitude in faculty towards the organisation and job. The management of

colleges need to provide necessary infrastructure, policies and environment that enhances the perception of the faculty that they have support from their organisation. The management should support the faculty in their career advancement, research activities, training programmes, attending conferences and like. Since the positive perception of faculty is important in delivering effective teaching and enhancing educational standards.

Employee Engagement in the context of Private engineering colleges, is product of autonomy, participative decision making, effective leadership and supportive culture. Hence the study advises to design policies and practices to increase the engagement levels of faculty. The study concludes that perception of Organisational Support is opined neutral. The study suggests the management need to take corrective actions to enhance Organisational Support and develop conducive environment for increasing the perception of Organisational Support.

### References

- Abraham, S. (2012). "Job Satisfaction as an Antecedent to Employee Engagement." *SIES Journal of Management*, 8 (2), 27-36.

- Caroline Aube, V. R. (2007). "Perceived organizational support and Organisational Commitment." *Journal of Managerial Psychology*, 22 (5), 479-495.
- Eisenberger, R. S. (2002). "Perceived supervisor support: Contributions to perceived organizational support and employee retention." *Journal of Applied Psychology*, 565-573.
- Giti Ashraf, S. b. (2012). "A Review on the Models of Organizational Effectiveness: A Look at Cameron's Model in Higher Education." *International Education Studies*, 5 (2), 80-87.
- Hamad Khan, B. S. (2013). "Organizational Commitment of Teachers and Role of Their Employment Traits in the Context of Higher Education Institutions of Pakistan." *Management Science and Engineering*, 7 (3), 1-12.
- I. A. Hussain, N. Y. (2013). "The Influence of Intention to Leave Towards Employee Engagement among Young Bankers in Malaysia." *International Journal of Business and Management*, 8 (14), 89-97.
- Khulida Kirana Yahya, F. Z. (2012). "An Empirical Study on the Influence of Perceived Organizational Support on Academic Expatriates' Organizational Commitment." *Journal of Organizational Management Studies*, 1-14.
- Linda Rhoades, R. E. (2002). "Perceived Organizational Support: A Review of the Literature." *Journal of Applied Psychology*, 87 (4), 698-714.
- Mangiante, E. M. (2011). "Teachers matter: Measures of teacher effectiveness." *Springer*, 23 (1), 41-63.
- Schaufeli, W. B. (2006). "Job demands, job resources, and their relationship with burnout and engagement: A multi-sample study." *Journal of Organizational Behavior*, 293-315.
- Solomon Markos, M. S. (2010). "Employee Engagement: The Key to Improving Performance." *International Journal of Business and Management*, 5 (12), 89-96.
- Sousa, F. C. (2010). "Creative Teaching and Effectiveness in Higher Education." *The International Conference of Organizational Innovation*. 3, pp. 5-46. Thailand: International Journal of Organisational Innovation.
- Yuen-Onn Choong, K.-L. W.-C. (2012). "Organizational Commitment: An Empirical Investigation on the Academician of Malaysian Private Universities." *Business and Economics Research Journal*, 3 (2), 51-64.

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# Working Capital Management on Profitability : Cement Industry in India

N. S. Pandey and S. Sabamaithily

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This paper is to examine the Impact of Working Capital Management (WCM) on profitability in cement industry in India. It focuses on the impact of working capital on profitability throughout various factors affecting the working capital management on profitability. The period of study is 10 years from 2003-04 to 2013-14. The study, based on Secondary Data, is limited to the 24 selected Cement Industries from those listed in Bombay Stock Exchange. Six independent variables (CR, QR, WCTR, DTR, FATR, and ITR) and one dependent variable (ROI) have been tested using regression analysis. The findings of the study show that there is a significant effect of WCM in respect of selected predictor variables i.e (CR, QR) on Profitability (ROI) have significant impact on the WCM on P chosen by Cement Industry in India for the study period.

**Keywords:** Working Capital management, Profitability, Compound annual growth rate, Return on Capital Employed, Cement Industry.



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The present study focuses on the “A Study on The Impact of Working Capital Management on Profitability of Selected Cement Industry in India.” In business, procurement of funds and their utilization become an important function for any financial managers. It has become all true and related more subsequent to liberalization measures and competitions posed by the companies. Therefore, as there is no scientific model for working capital management, the responsibility of fund management is of great importance for the success of any business.

## Literature Review:

Ajao and Adebayo (2004) in the paper entitled “*The study of Working Capital Management as a Financial Strategy*” argue that working capital management as a financial strategy has its effects on liquidity as well as profitability of the firm during a period of five years from 2004-2009. The effect of changed variables of working capital management including Current Ratio and Collection Days on Gross Profit

Movement co-efficient has been used for analysis. This indicates that as collection days are reduced, there will be growth in profitability. The firm should be aggressive in the management of its working capital to improve profitability.

Abram and Ali Ghufan (2005) in "*Analytical Study of Working Capital Management of Marketing Cooperative Societies*" studied the impact of working capital on profitability in eight Marketing Cooperative Societies for a period of three years from 1997-98 to 1999-2000. He examined the mechanisms, structure, and financing of working capital of these societies. The study decided that 6 societies for their investment in working capital following aggressive approach, more dependences on short term funds for their financing of working capital the liquidity location of all the societies, was not acceptable except one and there was negative impact on working components.

Balakrishnan (2005) in his study, "*Financial Performance of Public Sector Petroleum Industry*," analyzed the liquidity, solvency, profitability and forecast the financial location of the companies. He concludes that the petroleum industry is in a healthy position.

Sahoo and Karnath (2005) in "*Operating Cycles, Working Capital Finance and Tandon Formula*" in their article on "*Working Capital of Indian Private Corporate Sector: An Empirical Analysis*," analyzed the working capital of the Indian corporate sector and the factors that control of the firms during the period 1980-81 to 2003-04. The study suggests that the firm is significantly and positively to working capital ratio, asset structure and profitability are the most significant influences deciding the working capital.

Hamasalakshi and Manickam (2005) evaluated in this study titled "*A Cross Section Study of The Measurement of working capital and profitability*" in their study on "*Financial Performance Analysis of Selected Software Companies*" examined liquidity, profitability and leverage position of thirty four software companies during the period 1997-1998 to 2001-2002 by using ratios, correlation and multiple regression analysis. The study revealed positive liquidity and working capital location. They concluded that the companies rely on the internal financing and overall profitability position of the software companies showed a moderately increasing trend.

Chalam and Prasad (2006) described in his study "*A Working Capital Study on Financial Performance, A study on Profitability and Liquidity*" tried to evaluate financial presentation of primary agricultural co-operative societies in Andhra Pradesh, through scaling method. The study decided that out of nine co-operative societies, four societies' presentation was poor.

Ghosh (2007) examined in this study titled "*Working Capital Management Practices in some Selected Industries in India*," in four different industries: (i) Working Capital Management in Textile Industry (ii) Working Capital Management in Cement Industry, (iii) Working Capital Management in National Fertilizer Limited and (iv) Working capital management in Pharmaceutical industry; and included the following objectives such as to control source and size of working capital with a review made in 98 small scale textile firms of Punjab. The study concluded that in adding to the own capital, bank loans are the most projecting source of working capital among most of the selected units.

Raheman (2007) described in his study "*Working Capital Management and Profitability*" that working capital management has its effect on liquidity as well on profitability of the firm. In this research, we have selected a sample of 94 Pakistani firms for a period of 6 years from 1999-2004, we have studied the outcome of different variables of working capital management including the Average collection period, Inventory turnover in days, Average payment period, Cash conversion cycle and Current ratio on the Net operating profitability. The results display that there is a strong negative relationship between variables of the working capital management and profitability of the firm. There is also a significant negative relationship between debt used by the firm and its profitability.

Stephanou (2010) evaluated in this study titled "*The Effect of Working Capital Management on firms Profitability: Empirical Evidence From An Emerging market*." The results of this study should be of great importance to managers and major investors, such as, creditors and financial analysts are particularly after the recent global financial crises and the latest downfalls of oversize organizations worldwide.

Shahid Ali (2011) highlighted in this study titled "*Working Capital Management and the Profitability of the*

*Manufacturing Sector: A Case Study of Textile Industry,*” the efficiency of working capital management as reflected by three variables: cash conversion efficiency, days operating cycle, and days of working capital. We use return on assets, economic value added, return on equity, and profit margin in sales as proxies for profitability. Data set covering 160 textiles firm for the period 2000-05. Return on assets is found to be significantly and negatively related to average days receivable positively related to average days payable. The findings of the regression analysis show that average days in inventory, average days receivable, and average days payable have a significant economic impact on ROI.

Palani and Yasodha (2012) described in *“Working Capital Management in Loyal Textile Mills Limited, Chennai”* the extent to which working capital has been successfully used by Loyal Textile Mills Ltd during 2006-07 to 2010-11. The data for the research was collected from secondary sources i.e. annual reports of the company. The research methodology created on ratio analysis techniques and statistical tools with Z-Score analysis. The Company maintained good working capital turnover ratio which exposed efficient utilization of working capital in generating sales. Together Pearson’s correlation coefficient and Spearman’s rank correlation was very significant positive relationship between capital employed and current ratio.

Hesam (2012) conducted a study on *“Impact of Working Capital Management on Profitability Ratios: Evidence from Iran”* for 2009-12. Multiple linear regressions tool tested the research hypotheses. The results displayed show that return on assets and earnings per share have a negative impact on working capital management. The results also show earnings per share and profit margin definitely related with the firm performance.

Rakshit (2012) in *“An Empirical study on Working capital Management Practices of Steel Indian Pharmaceuticals Companies”* make a comprehensive analysis of the Working Capital Management policies and the practice followed by the companies. The study considered four selected Indian Pharmaceutical companies and is based on secondary data for the period of 10 years data (i.e) from 2001-2010. It is concluded that most of the sample companies have observed satisfactory performance.

Ghanavati Elham *et al.* (2012) in *“Working Capital Management and Corporate Performance: Evidence from Iranian Companies”* evaluates the WCM over the performance of firms listed in Tehran Stock Exchange (TSE). The findings of studying 50 different companies during the time period between 2006-2009 by using a multi-regression model, show that there is a negative and significant relationship between the variables of Average Collection Period, Inventory Turnover in day, Average Payment Period, Net Trading cycle and the performance of firms listed in TSE. The results show that the increase in CP, PP and NT will lead towards the reduction of profitability in the company.

Singh Shveta *et al.* (2013) in *“Working Capital Management- Empirical Evidence from Indian Corporate”* reveal the inter relationship between the working capital variables. The sample for the study is 166 non-financial companies in BSE 200 companies which engaged in manufacturing and service sector for the period of 10 years. It is concluded that the majority of the sample companies do not have excessive investment in working capital and working capital investment is commendable.

Kumar Panigrah (2013) in *“Relationship between Working Capital Management and Profitability”* discovers the position of efficient working capital management (WCM) as indubitable. The purpose of this paper is to examine the connection between inventory change period and firms profitability. The dependent variable, gross operating profit is used as a measure of profitability and the relation between inventory management and profitability is examined for a sample of five top Indian cement companies over a period of 2001-2010. This study employs Regression analysis to determine the impact of inventory conversion period over gross operating profit taking current ratio, size of the firm, financial debt ratio as control variables. The values indicate that there is a significant undesirable linear relationship between inventory conversion period and profitability.

Sundar Rama (2013) in his study *“A Study of Working Capital Management of Cement Industries in India”* aims to examine the working capital issues like liquidity and profitability features of the working capital management. It analyses the various bases of working capital finance. The study covers the period 2003-2008. The help of different financial ratios and arithmetical tool correlation is verified statistically.

Madhavi (2014) in “*Working Capital Management of Paper Mills*” assesses working capital and refers to the firm’s investment in short term assets. It relates to the Paper Mills. The data reported in this paper have been collected for 2002-2011. Part of the study has been calculated to analyse profitability and working capital management from financial report. The study aims to provide empirical evidence about the effects of current assets and current liabilities of Andhra Pradesh Paper Mills Limited and Sashasayee Paper Mills Limited.

Ghafoor and Shalid (2014) in their paper “*Impact of Working Capital Management on Profitability of Cement sector in Pakistan*” investigate to find whether financial ratios affect the presentation of companies in special context of cement industry in Pakistan. The study inspects the relationship between working capital management by using data of 10 cement for 2009-2013. Investigation has been done using the techniques of correlation co-efficient and multiple regression analysis. The relationship of current ratio is insignificant with ROE.

Yadav and Kumar (2014) in “*Impact of Profitability on the Determinants of Working Capital: An evident study of Large Steel Manufacturing companies in India*” discusses the relationship between working capital management determinants on profitability during 2003-2013. Secondary data has been used. Variables such as Average Collection Period, Inventory Turnover in days, Average Payment Period, Cash Conversion Cycle and Net Trading Cycle have been used to assess working capital management and Return on total Assets, the tools used by Regression.

Agha (2014) in “*Impact of Working Capital Management on Profitability*” investigates relationship between these two. The period of the study was 1996-2011. Secondary data have been used in this study. Using variables in this study return on asset ratio has been used to measure the profitability of company and variables of account receivable turnover, creditor’s turnover, inventory turnover and current ratio as working capital management criteria. The results of investigation show that there is a significant impact of the working capital management on profitability of company.

#### Scope and Period of the study

The scope of the present study covers within its fold a theoretical framework of working capital management in general analysis of working capital trends, relationship of

working capital to sales, profitability of working capital, analysis of management of components of working capital and the management of working capital finance. The period of the study has been considered for 10 years i.e. 2004-2005 to 2013-2014.

#### Importance of the Study

The importance of WCM in any industrial concern cannot be under estimated. Under the present inflationary condition management of working capital is may be more important than even management of profit. It requires conscious attention, as each of its components requires different type of treatment, throwing upon a stimulating challenge to the Financial Manager. It calls for constant attention on exercise of skills and judgment, awareness of economics trends, etc., due to urgency and complicity of the management of working capital.

#### Objectives of the study comprise:

- To analyse the impact of working capital management on profitability,
- To find out the various factors affecting working capital requirements in cement industry,
- To examine the growth and trend value of Cement Industry in India over the period of the study.

#### Hypotheses of the study

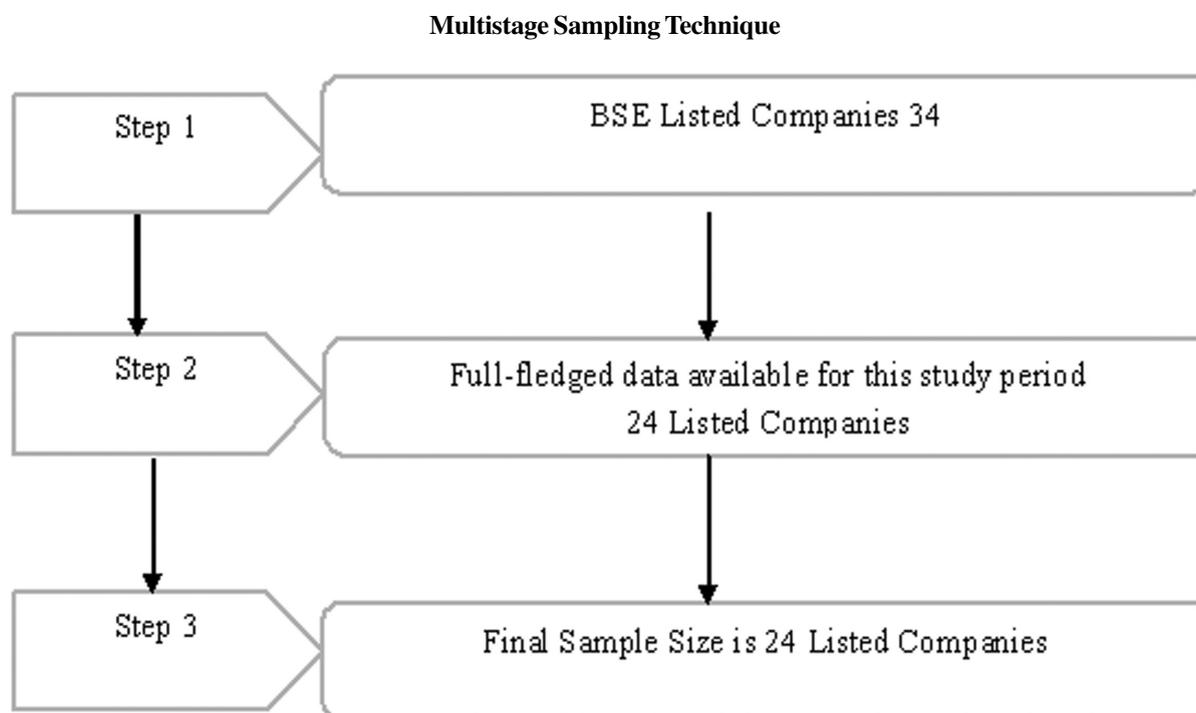
- $H_0^1$ : There is no significant impact of Quick ratio on Return on Investment.
- $H_0^2$ : There is no significant impact of Current ratio on Return on Investment.
- $H_0^3$ : There is no significant impact of Working Capital Turnover ratio on Return on Investment.
- $H_0^4$ : There is no significant impact of Debtors Turnover ratio on Return on Investment.
- $H_0^5$ : There is no significant impact of Fixed Assets Turnover ratio on Return on Investment.
- $H_0^6$ : There is no significant impact of Inventory Turnover ratio on Return on Investment.

#### Research Methodology

The study is based on secondary data. The data has been collected from money control.com. Financial statements like Profit & Loss Account and Balance Sheet of selected cement industry have been used as data base. The sample unit of this study has been chosen from the listed Cement Industry in Bombay Stock Exchange (BSE). The total numbers of listed Cement Industry in BSE are 34.

The full-fledged data are available for only 24 cement industry therefore, 24 industries have been considered as sample size for this study. The period of the study has been considered for 10 years i.e. 2004-05 to 2013-14.

#### Sampling Design



#### Nature and sources of Data collection

Since the study is based on financial data, the main source of data was financial statements, such as balance sheet, profit and loss account of listed companies for the period from 2004-05 to 2013-14. Besides, data has been also collected from secondary sources i.e., Annual Reports of the company, and data base from www.money control.com.

#### Research Methods

The analyses of data are Descriptive statistics, such as Mean and Standard Deviation have been used for this study

the central tendency and consistency in the time series data. The Regression analysis has been used with help of Statistical Package for Social Science (SPSS) Package for analysis. The following formulae and various statistical tools have been used in this study.

#### Ratio Analysis

The ratios relating to working capital management which have been selected and computed for the study are:

**Table 1**

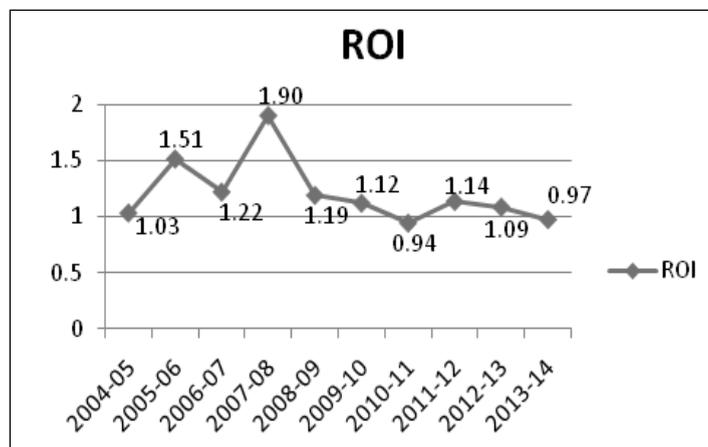
Variables	Test Variables	Formulas
Independent Variables	Quick Ratio (QR)	$(\text{Current Assets} - \text{Inventories}) / \text{Current Liabilities}$
	Current Ratio (CR)	$\text{Current Assets} / \text{Current Liabilities}$
	Working Capital Turnover Ratio (WCR)	$\text{Net Sales} / \text{Net Working Capital}$
	Fixed Asset Turnover Ratio (FATR)	$\text{Net Sales} / \text{Average Fixed Asset}$
	Debtors Turnover Ratio (DTR)	$\text{Net Sales} / \text{Average Debtors}$
	Inventory Turnover ratio (ITR)	$\text{Cost of Goods sold} / \text{Avg. Inventories}$
Dependent Variables	Return on Investment (ROI)	$\text{PAT} / \text{Total Assets}$

**Analysis and Interpretation**

To analysis the data for studying working capital management in different sample units of cement industry was carried out by using Return on Investment as

Profitability, Current Ratio (CR), Quick Ratio (QR), Working Capital Turnover Ratio (WCR), Debtors Turnover Ratio (DTR), Fixed Asset Turnover Ratio (FATR), Inventory Turnover ratio (ITR). The results of these analyses are presented and interpreted as given below

**Figure 1**  
**Trend of Average Profitability of Cement Industry over the period under Study**



Source: Computed results based on compiled data

**Figure1** shows that there is a sudden rise in profitability during the year 2007-2008 and then there is a sudden steep fall in the next year in profitability in the year 2008-2009. All sample units have positive value in the study period. After deep fall in profitability during there is a slight fall for two and later a little rise and ends with fall of profitability.

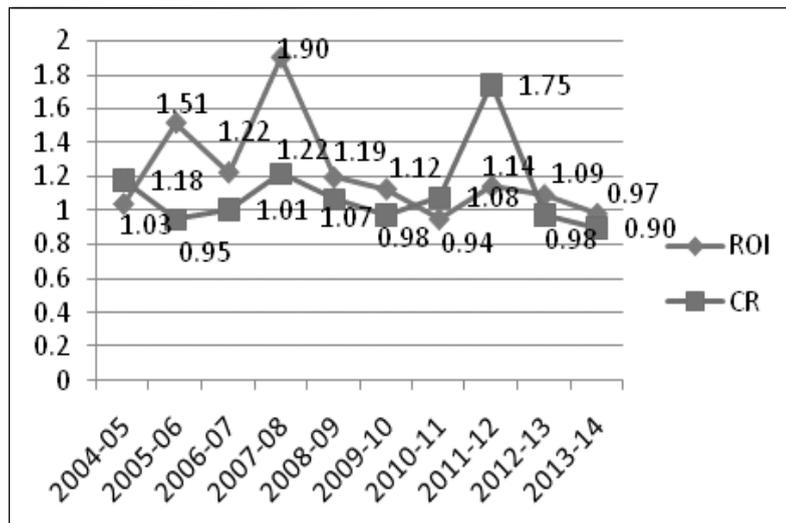
**Table 2** shows the analysis of the profitability (ROI) in respect of 24 companies during the period from 2004-2005 to 2013-14 are shown in table 2

The analysis reveals the profitability in terms of Return on Investment (ROI) is highest in Gujarat Sidhee Cement with mean is (2.91) and lowest in Rain Cement with mean of (0.38) followed by Shiva Cement with mean is (0.45). The degree of variation of profitability is low in India Cement with Standard deviation of (0.05) and Andra Cement (3.02) the variation of profitability is high in case of Payam Cement (6.52).

The variation of profitability is also very high Payam Cement with standard deviation (6.52) the degree of Compound Annual Growth Rate (CAGR) is high in Brila Cement and Heidelberg Cement with (0.11) and next highest value in Andra Cement (1.08) and lowest value of CAGR with Gujarat

Sidhee Cement and Payam Cement with negative CAGR with (-0.12) and (-2.12) respectively. Hence, it is in feared that profitability in respect of ROI is higher in Gujarat Sidhee Cement of course with higher variation. The variation of profitability is low in Rain Cement and Shiva Cement.

**Figure 2**  
Trend of Average Profitability and Current Ratio of Cement Industry over the period under Study



Source: Computed results based on compiled data.

**Figure 2** shows that the average profitability and the current ratio have positive relationship. (i.e) when current ratio increases then the profitability decreases and vice-versa. Return on investment increase in the first year 2005-2006 and goes down then touches the peak in the year 2007-2008 and steps down fluctuating the subsequent years. In the first year it steps down and again rises in the year 2007-2008. In the subsequent year current ratio goes down fluctuating.

**Table 3** depicts normally most of the sample units have more than 0.50 of positive mean Current Ratio. Hence it is better to maintain more than 0.50 Current Ratio with given better profitability for companies in Cement Industry.

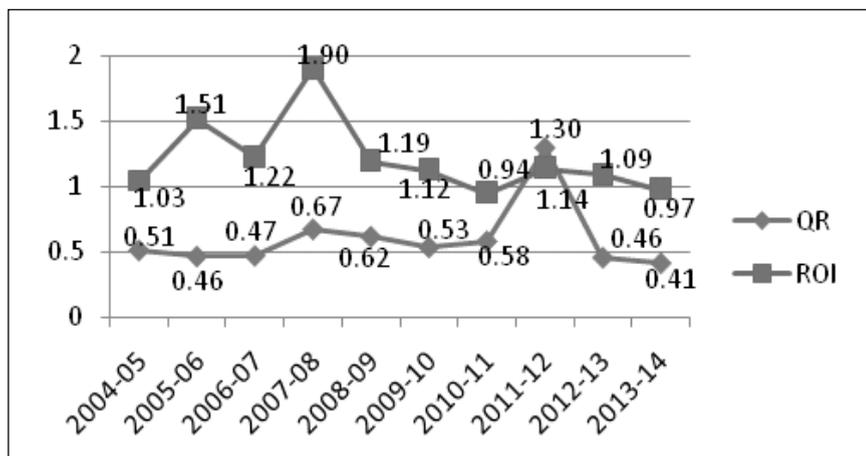
The details of analysis about the profitability in respect of Current Ratio (CR) of 24 Cement Companies during the period from 2004-05 to 2013-14 are shown in table 3.

The analysis reveals that profitability in terms of Current Ratio (CR) is the highest in Burnpur Cement with mean of (4.20) and next highest in Kakatiya Cement with mean of

(3.43) and the lowest in Payam Cement with mean of (0.26) and next lowest in mean of JK Lakshmi Cement (0.38). The degree of variation of profitability is very low in Ultra Tech Cement with standard deviation of (0.04) and Tables and Interpretation Burnpur Cement with Standard deviation of (6.17) and (1.86) respectively. The degree of Compound Annual Growth Rate is higher in Barak Vally Cement and followed by J.K. Lakshmi Cement of (0.11) and lowest value in Compound Annual Gearing Ratio in Rain Cement of (-0.06). It is found that the profitability in terms of Current Ratio is higher in Burnpur Cement of course with high variation of profitability. The variation in Profitability is also high in Rain Cement and Burnur Cement.

It is observed from the analysis that only three JK Lakshmi Cement, Andraa Cement, Payam Cement are maintaining Current Ratio less than 0.50, except these Companies all industries are maintaining higher Current Ratio more than 0.50. Hence, lesser sample units should make more profits in future.

**Figure 3**  
Trend of Average Profitability and Quick Ratio of Cement Industry over the period under Study



Source: Computed results based on compiled data.

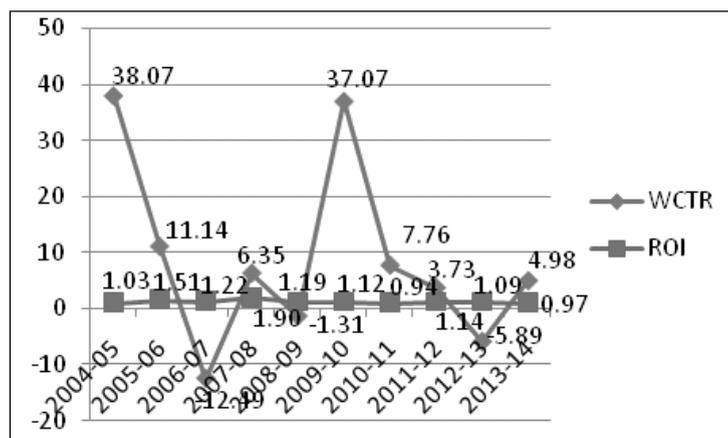
**Figure 3** shows that the profitability and quick ratio has the positive relationship. There is a huge rise in quick ratio in the year 2007-2008 and sudden fall in the year 2008-2009 and the profitability goes heap in the year 2011-2012 and sudden fall in the next year. There is more fluctuaton in the profitability. According to the study, when the quick ratio increase the profitability also increases and when quick ratio decrease the profitability also decreases in most of the time.

**Table 4** shows the details of analysis about the profitability in respect of Quick Ratio (QR) of 24 Cement Industries during the period from 2004-05 to 2013-14 are shown in table 4.

The analysis reveals that profitability in terms of Quick Ratio (QR) highest in Burnpur Cement with means of (3.23) and followed by Shree mean (0.13) and followed by Prism Cement with mean (0.15). The degree of variation of Profitability is very low in Ultra Tech cement with Standard deviation of (0.04). The variation of profitability is also very high in Rain Cement with standard deviation of (6.17).

The degree of Compound Annual Growth Rate (CAGR) is higher in Anjani Cement with (0.17) it is found that the profitability in terms of Quick Ratio is high in Burnpur Cement of course with high variation of profitability. The variation in profitability is also high in Rain Cement and Burnpur Cement.

**Figure 4**  
Trend of Average Working Capital Turnover Ratio on Profitability of Cement Industry over the period under Study



Source: Computed results based on compiled data.

**Figure 4** shows that the average of working capital turnover ratio, there is a deep fall in the year 2006-2007 and there is more fluctuating in the subsequent years in working capital turnover ratio and the profitability remains constant with only very slight changes in them. Moreover, if there is high fall or heap in working capital turnover ratio, the profitability remains constant.

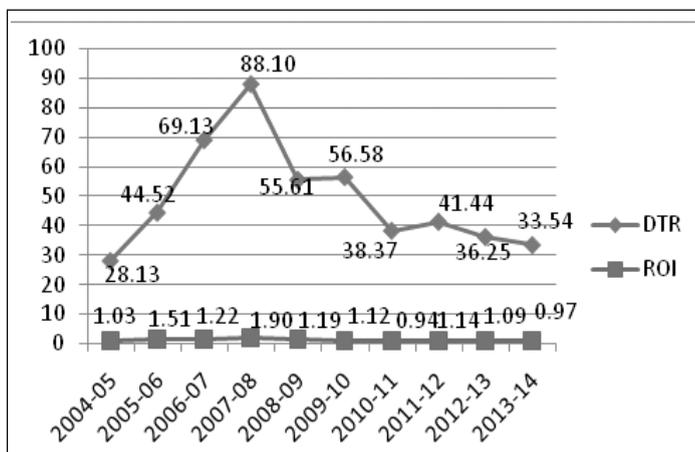
**Table 5** shows the analysis about the profitability in respect of Working Capital Turnover Ratio (WCTR) of 24 Cement Companies during the period from 2004-05 to 2013-14 is shown in table 5.

The analysis reveals that profitability in terms of Working Capital Turnover Ratio (WCTR) is the highest in Shree Cement with mean of (72.34) followed by Prism cement with mean of (28.27) and the lowest in ACC Cement with negative

mean of (-17.53) followed by Ultra Tech cement with negative mean (-12.80). The degree of variation of profitability is very low in Barak Vally Cement with Standard deviation of (0.050) and the variation of profitability is very high in Ramco Cement with standard deviation of (244.30). The variation of profitability is very high in Shree Cement with Standard deviation of (226.72).

The degree of Compound Annual Growth Rate (CAGR) is high in Shree Cement with CAGR is (0.61) and the degree of Compound Annual Growth Rate is low in NCL Cement with Compound Annual Growth Rate is (-2.51). It is found that the profitability in terms of Working Capital Turnover Ratio is high in Rain Cement of course with high variation of profitability. The variation in profitability is also high in Ramco Cement industry.

**Figure 5**  
**Trend of Average Debtors Turnover Ratio of Profitability of Cement Industry over the period under Study**



Source: Computed results based on compiled data.

**Figure 5** shows that the average of profitability and debtor’s turnover ratio has positive relationship, when debtor’s turnover ratio increases, profitability will decrease and vice versa. The debtor’s turnover ratio shows a gradual fall in the year 2008-2009 and there is very slight increase in the next year and again fall in the subsequent year. The debtor’s turnover ratio decreases in the next year and the profitability also decreases in the same year.

**Table 6** shows the analysis about the profitability in respect of Debtors Turnover Ratio of 24 Cement Industry during the period from 2004-05 to 2013-14. is shown in table 6.

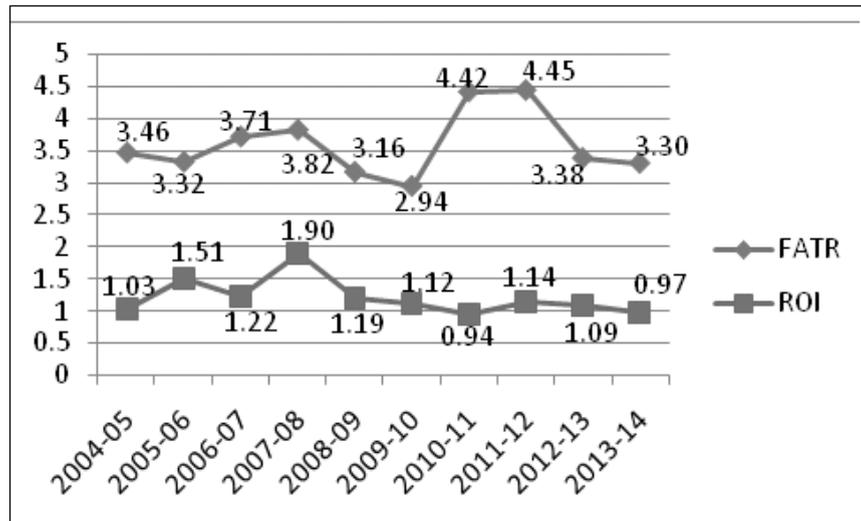
The analysis reveals that profitability in term of Debtor’s Turnover Ratio (DTR) is highest in Deccan Cement with mean of (124.87) and followed by Mangalam Cement with mean of (123.67) and lowest in Burnpur Cement with mean of (7.52) followed by Shiva Cement with mean (12.61). The degree of variation of profitability is very low in NCL cement with Standard deviation of (3.43) and followed by OCL Cement with Standard deviation of (4.75). The variation of profitability is also very high in Prism Cement with Standard deviation of (188.97).

The degree of Compound Annual Growth Rate of (0.16) and degree of variation is low in Gujarat Sidhee Cement with negative CAGR of (-0.22). It is inferred that the profitability

of course with high variation of profitability. The high variation in profitability is also Prism Cement Industry.

**Figure 6**

**Trend of Average Fixed Assets Turnover Ratio on Profitability of Cement Industry over the period under Study**



Source: Computed results based on compiled data.

**Figure 6** shows that the fixed assets ratio and profitability has positive relationship when the fixed assets turnover increases the profitability decreases and vice versa. The profitability increase in first year 2005-2006 and has high rise in the year 2007-2008. Profitability remains constant and end in slight decrease. There is a sudden rise in fixed assets turnover ratio in the year 2009-2010 and goes constant and sudden fall in the year 2012-2013. The fixed assets turnover starts with more fluctuations and ends in slight decrease.

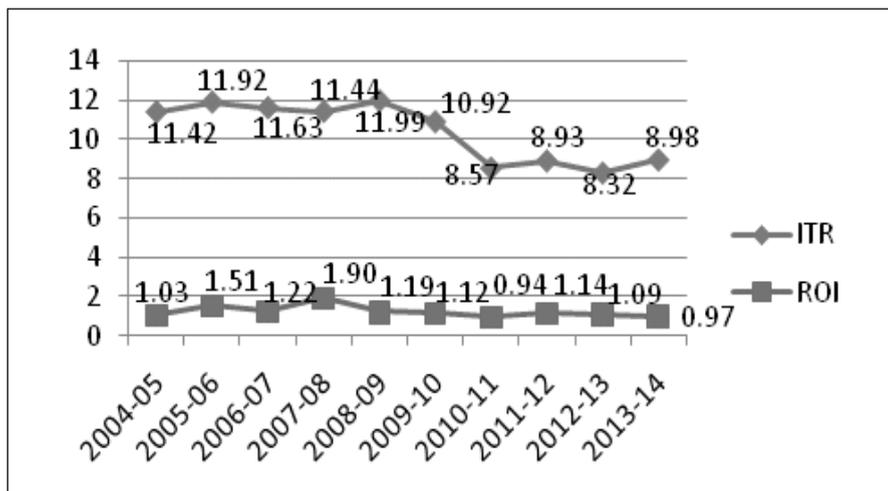
**Table 7** shows the analysis of about the profitability in respect of Fixed Asset Turnover Ratio of 24 Cement Industry during the period from 2004-05 to 2013-14 is shown in table 7.

The analysis reveal that profitability in term of Fixed Assets Turnover Ratio (FATR) is highest in Rain Cement with mean

of (14.22) and lowest in Shiva cement with mean of (1.01) followed by Ramco Cement with mean of (1.61). The degree of variation of profitability is very low in Shiva Cement with Standard deviation (0.22) and followed by Ultra Tech Cement with standard deviation of (0.29) and the variation of profitability is very high in Rain Cement with Standard deviation of (18.44).

The degree of Compound Annual Growth Rate (CAGR) is high in Heidelberg Cement with (0.17). It is inferred that the profitability is in terms of Fixed Assets Turnover Ratio is high in Rain Cement of course with high variation of profitability. The variation in profitability is also high Rain Cement Industry.

**Figure 7**  
Trend of Average Inventory Turnover Ratio on Profitability of Cement Industry over the period under Study



Source: Computed results based on compiled data.

Figure 7 shows the profitability and the current ratios have positive relationship, when inventory turnover ratio increases then the profitability decreases and vice versa. Profitability is constant in most years. In the year 2007-2008, it increases and fluctuates in subsequent years. The inventory turnover ratio rise slightly changes in the first year and steep down in the year 2010-2011. It ends with slight rise in the end year 2013-2014.

Table 8 shows the analysis of about the profitability in respect of Inventory Turnover Ratio of 24 Cement Industry during the period from 2004-05 to 2013-14 is shown in table 8.

The analysis reveals that profitability in term of Inventory Turnover Ratio (ITR) is highest in Sagar Cement with mean

of (18.50) and lowest value in Kakatiya Cement with means (6.17) and followed by Gujarat Sidhee Cement with mean (6.94). The degree of variation of profitability is very low India Cement with Standard deviation of (0.72) and variation of profitability is very high in Sagar Cement with Standard deviation of (12.21). The degree of Compound Annual Growth Rate (CAGR) is high in Andra Cement with CAGR of (0.49) and followed by Deccan Cement with CAGR of (0.17). It is inferred that the profitability in terms of Inventory Turnover Ratio is high in Sagar Cement and followed by JK Lakshmi Cement and Sagar Cement of course with high variation of profitability.

**Table 9**  
Descriptive Statistics of Cement Industry in India

Variables	N	Minimum	Maximum	Mean	SD
ROI	24	-2.993	20.337	1.216	1.386
QR	24	0.13	2.47	0.460	0.483
CR	24	0.26	3.51	0.939	0.799
WCTR	24	-102.76	43.05	-0.536	24.815
DTR	24	5.47	95.73	38.561	25.661
FATR	24	0.79	9.87	2.945	1.765
ITR	24	4.96	21.53	10.155	3.722

Source: Computed results based on compiled data.

The descriptive statistics (Table IV.) shows that **DTR** has the highest mean value and it indicates that the company's **DTR** collection period varies highly within the industry. The next highest mean is **ITR** which shows that the company debt collection period varies highly within the industry. **DTR**

have higher Standard Deviation indicating that the company effectively **DTR** and followed by **WCTR** also has high Standard Deviation but **QR** have low Standard Deviation from the mean value indicating that there is low in **WCTR**.

**Table 10**  
**Regression Results of Cement Industry in India**

Variables	B	't'	Sig.
(Constant)	-494.725	-1.742	.100
QR	-1.830	-6.780	.000**
CR	2.202	8.100	.000**
WCTR	-.021	-.199	.844
DTR	-.199	-1.731	.102
FATR	.013	.124	.903
ITR	.182	1.483	.156
R <sup>2</sup>	0.831		
Adjusted R <sup>2</sup>	0.771		
F statistics	13.902		

\*\*Significant at the 0.01 level (2-tailed).

- QR has significant is negative co-efficient -1.830 at (0.000) 1% level with ROI. Hence, it is better for the industry to invest less in the productive purpose. There is a significance negative relationship between Quick Ratio on Profitability.

**H<sub>0</sub><sup>1</sup>:** "There is no significant impact of Quick Ratio on Profitability" hence, null hypothesis is **rejected** at 1% level of the significant. Therefore, it is concluded that quick ratio has significant impact on profitability.

- CR has significant positive co-efficient 2.202 at (0.000) 1% level with ROI, which means that the companies maintain a large invest more in the productive purpose. There is significant positive relationship between Current Ratio on Profitability.

**H<sub>0</sub><sup>2</sup>:** "There is no significant impact of Current Ratio on Profitability," hence, null hypothesis is **rejected** at 1% level of the significant. Therefore, it is inferred that current ratio has the significant impact on profitability.

- WCTR has significant negative co-efficient on ROI. Which means that the companies maintain a lower proportion of net Working Capital when compare to sales. So the Working Capital Turnover Ratio on the profitability has negative significant impact between them.

**H<sub>0</sub><sup>3</sup>:** "There is no significant impact of Working Capital Turnover Ratio on Profitability" hence, null hypothesis is **accepted**. Therefore, it is concluded that working capital turnover does not have an impact on profitability.

- DTR has significant negative co-efficient on ROI indicating that the longer the period between credit sales and cash collection it is decreasing profitability of the industry. There is not significant negative relationship between Debtors Turnover Ratio on the Profitability.

**H<sub>0</sub><sup>4</sup>:** "There is no significant impact of Debtors Turnover Ratio on Profitability" hence, null hypothesis is **accepted**. Therefore, it is inferred that debtor's turnover ratio does not have an impact on profitability.

- FATR has significant positive co-efficient on ROI which shows that the fixed asset not significantly related to profitability.
- **H<sub>0</sub><sup>5</sup>:"There is no significant impact of Fixed Assets Turnover Ratio on profitability"** hence, null hypothesis is **accepted**. Therefore, it is concluded that fixed assets turnover does not have an impact on profitability.
- ITR has significant positive co-efficient 0.182 at (0.156) level with ROI, which shows that the Inventory turnover ratio is not significantly related to the profitability.
- **H<sub>0</sub><sup>6</sup>:"There is no significant impact of Inventory Turnover ratio on Profitability"** hence, null hypothesis is **accepted**. Therefore, it is concluded that inventory turnover ratio does not have a significant impact on profitability.

The overall regression model is fit which is represented by R<sup>2</sup> is above 50 per cent (0.831) which shows that the explaining variables determine more than 50% of the change in profitability. The R<sup>2</sup> and adjusted R<sup>2</sup> value is 83.1% and 77.1% respectively indicate that the explanatory power of the regression is good. F statistics also shows significant value (13.902).

## FINDINGS

- It is establish that it is better to maintain more than 0.50 CR, which gives better profitability of Cement Industries. CR has negative significant co-efficient with ROI. The companies like Ultra Tech Cement ACC Cement, India Cement, Ramco Cement, Brila Cement, J.K Cement, Prism Cement, Rain Cement, Shree Cement, Heidelberg Cement, Mangalam Cement which have CR more than 0.50 are able to maintain higher mean profitability position over the study period.

Hence, **H<sub>0</sub><sup>1</sup>:"There is no significant impact of current ratio on profitability is rejected"** at 1% level of significance. Therefore, it is concluded that current ratio has significant impact on profitability.

- It is found that it is better to maintain more than 0.50 QR, which gives better profitability of Cement Industries. QR has negative significant co-efficient with ROI. The companies like Rain Cement, Barak Vally Cement, Burnpur Cement, Kakatiya Cement, Deccan Cement, OCL Cement, Shiva Cement, Anjani Cement which have QR more than 0.50 are able maintain higher mean profitability position over the study period.

Hence **H<sub>0</sub><sup>2</sup>:"There is no significant impact of quick ratio on profitability is rejected"** at 1% level of significance. Therefore, it is concluded that quick ratio has significant impact on profitability.

- It is begin that working capital turnover ratio decreases when there is an increase in net working capital proportionate to sales level so, decrease the WCTR, in turn, increase the profitability of the industry. The companies like India Cement Ramco Cement, J.K Cement, J.K Lakshmi Cement, Prism Cement, Rain Cement, Shree Cement, Heidelberg Cement, Mangalam Cement etc. WCTR have higher profitability over the year of the study.

Hence, **H<sub>0</sub><sup>3</sup>:"There is no significant impact of working capital turnover ratio on profitability is accepted."** Hence, working capital ratio does not have an impact on profitability.

- It is initiated that the analysis of the debtor's turnover ratio supplements the inference regarding the liquidity of one item of current asset of the firm. The companies like Mangalam Cement, Deccan Cement DTR have higher. A higher ratio is indicative of shorter time-lag between credit sales and cash collection. Allow ratio shows that the debts are not being collected rapidly.

Hence, **H<sub>0</sub><sup>4</sup>:"There is no significant impact of debtor's turnover ratio on profitability is accepted"**. Hence, debtor's turnover ratio does not have a significant impact on profitability.

- It is found that the analysis of the fixed asset turnover ratio inference that the fixed asset of the company increases the profitability also increases. The companies like Rain Cement, Andra Cement, Shree Cement, Brila Cement have higher fixed assets have normal profitability over the period the study.

Hence,  $H_0^5$ : "There is no significant impact of fixed assets turnover ratio on profitability is accepted."

Hence, fixed assets turnovers ratio does not have a significant impact on profitability.

- It is inferred that the analysis of the ratio of inventory turnover ratio inference affects the profitability. The companies like Deccan Cement, Barak Vally Cement, Prism Cement, Bumpur Cement which have higher inventory turnover ratio over the study period.

Hence,  $H_0^6$ : "There is no significant impact of inventory turnover ratio on profitability is accepted." Hence, inventory turnover ratio does not have significant impact on profitability.

#### Limitations of the Study

- The Study is limited to 10 years i.e. from 2004-05 to 2013-14. Therefore, a detailed trend covering a lengthy period is not possible.
- The study is based on Secondary Data collected from www.moneycontrol.com. Therefore, the quality of the study depends purely upon the accuracy, reliability and availability of secondary data.
- The Study is limited to the Cement Industry in India and listed in Bombay Stock Exchange. Therefore, the accuracy of results is purely based on the availability of data.

#### Conclusion

Working capital in business is measured as life blood in human body; also it is measured to be life-giving force to an economic entity. Management of working capital is one of the most significant factors of corporate management. Hence, the study focuses to concentrate, the WCM throughout various factors affecting the working capital and different ratios.. After studying the model for assessing the performance of the working capital location in this study, the methods of ratio analysis as well as method of identifying the working capital determinants have been used. The overall regression model is represented by  $R^2$  is above 50 percent (.0831) 83.1% and Adjusted  $R^2$  which makes clear that the independent variables included to mode has powerful impact on ROI. The level of significance shows that the model of our research study is good fit. The Return on Investment

was used as the dependent variable in order to test the impact of Working Capital Management on firm's profitability. However, the whole Working Capital Management across the Cement Industry is more efficient.

#### References:

- Acharekar, Sachin Vijaya and Sundar Rama Shingare, Vishal (2013). "A study of Working Capital Management of Cement Industry in India." *International Refereed Journal of Engineering and Science (IRJES)*. 2(8). August: 12-17.
- Agha, Hina (2014). "Impact of Working Capital Management on Profitability." *European Scientific Journal*. 10(1). January: 374-81.
- Ahmad, Rais and Ghufuran, Ali (2005). "Analytical Study of Working Capital Management of marketing Cooperative Societies." *Management & Account Research*, January: 35-51.
- Awan, Abdul Ghafoor and Pervaiz, Shahid (2014). "Impact of Working Capital Management on Profitability of Cement Sector in Pakistan." *International Journal of Business and Management Review*. 2(4). September: 1-20.
- Balakrishnan (2005). "A Case Study of Financial Performance of Public Sector Petroleum Industry." *The Management Accountant*, March: 172-74.
- Charatou, Melira Stephanou (2010). "The Effect of Working Capital Management on firms Profitability: Empirical Evidence from an Emerging market." *Journal of Business and Economics Research*. 8(12). December: 63-68.
- Debdas, Rakshit and Chanchal Chatterjee (2012). "An Empirical study on Working capital Management Practices of Steel Indian Pharmaceuticals Companies." *The Management Accountant*, The Institute of Cost Accountants of India. 47(9). September: 1065-71.
- Ghosh, Arindam (2007). "Working Capital Management Practices in some Selected Industries in India." *The Management Accountant*, January: 60 -67.
- Hamasalakshi and Manickam (2005). "A Cross Section Study of The Measurement of Liquidity, and profitability." *Journal of Accounting Research, Autumn*, May: 290-303.

- Madhavi, K. (2014). "Working Capital Management of Paper Mills." *International Journal of Research in Business Management*. 2(3). March: 63-72.
- Owolabi, Ajao and Adebayo Alayemi (2004). "The Study of Working Capital Management as a Financial Strategy." *Asian Journal of Business and Management Science*. 2(4). January: 1-8.
- Palani, A. and Yasodha, P. (2012). "A Study on Working Capital Management in Loyal Textile Mills Limited, Chennai." *South Asian Academic Research Journals*. 2 (5). May: 156-73.
- Panigrah, Ashok Kumar (2013). "Relationship Between Inventory Management and Profitability: An Empirical Analysis of Indian Cement Companies." *Asia Pacific Journal of Marketing & Management*. 2(7). July: 19-28
- Raheman, Abdul and Nasr Mohamed (2007). "Working Capital Management and Profitability – Case of Pakistani Firms." *International Review of Business Research Papers*. 3(1). March: 279-300.
- Sahoo, Sudhansu Mohan and Kamath, Gom (2005). "Working Capital Finance and Tandon Formula." *The Management Accountant*, June: 810-12.
- Shahid Ali (2011). "Working Capital Management and the Profitability of the Manufacturing Sector: A Case Study of Textile Industry." *The Labore Journal of Economics*. 16(2). January: 141-178.
- Singh, Shweta, P.K. Jain, and S. SurendraYadav (2013). "Working Capital Management- Empirical Evidence from Indian Corporate." *The Management Accountant, The Institute of Cost Accountants of India*. 48(6). June: 691-705.
- Taghizadeh Khanqah Vahid, Ghanavati Elham, AkbariKhosroshahi Mohsen and Ebrati Mohammadreza (2012). "Working Capital Management and Corporate Performance: Evidence from Iranian Companies." *Social and Behavioural Science Published by Elsevier Ltd*. 62(42). September: 1313-1318.
- Vaghfi, SeyedHesam (2012). "Impact of Working Capital Management on Profitability ratios: evidence from Iran." *International Journal of Managerial Finance*. 3(2). February: 164-77.
- Venkata Raman, N., K. Ramakrishnaiah, and P. Chengalrayulu, (2013). "Impact of Receivable Management on Working Capital and Profitability: A Study on Selected Cement Companies in India." *International Journal of Marketing, Financial Service and Management Research*. 2(3). March: 23-30.
- Yadav, C. Srinivas and B. Sai Shiva Kumar (2014). "Impact of Profitability on the Determinants of Working Capital: An Evident Study of Large Steel Manufacturing Companies in India." *Asia Pacific Journal of Research*. 1(6). March: 34-46.

### Annexure

S. No	Abbreviation	Firms Name	S. No	Abbreviation	Firms Name
1	UTC	Ultra Tech Cement	13	AC	Andra Cement
2	ACCC	ACC Cement	14	SC	Sagar Cement
3	IC	India Cement	15	NCLC	NCL Cement
4	RC	Ramco Cement	16	GSC	Gujarat Sidhee Cement
5	BC	Brila Cement	17	BVC	Barak Vally Cement
6	JKC	J.K. Cement	18	BC	Burnpur Cement
7	JKLC	J.K Lakshmi Cement	19	KC	Kakatiya Cement
8	PC	Prism Cement	20	DC	Deccan Cement
9	RC	Rain Cement	21	OCL	OCL Cement
10	SC	Shree Cement	22	PC	Payam Cement
11	HC	Heidelberg Cement	23	SC	Shiva Cement
12	MC	Mangalam Cement	24	AC	Anjani Cement

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# Job Attributes influencing Job Pursuit Intention of Gen Y MBA students: Investigation

Vandana Madhavkumar

## Abstract

This paper aims to explore the impact of the perceived importance level of Job Attributes on Job Pursuit Intention of Gen Y management students in India. In addition, differences among the male and female student segments in perceived importance level of the job attributes is also explored.

Respondents consisted of 483 Gen Y MBA students from business schools of Coimbatore in their second year of the two-year full time MBA program. Self-administered questionnaires were used to gather data. Job Attributes exhibited significant effects on Job Pursuit Intention. No significant gender differences in the study variables were observed. Findings and implications of the study are discussed.

**Keywords:** Gen Y, MBA students, Job Attributes, Job Pursuit Intention



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With rapid influx of Gen Y into the workforce, they are set to outnumber the other generations in the near future. Gen Y members are an important source of recruitment for organisations. It is therefore important for organisations to understand the expectations of this cohort to attract them. In the recent decade, characteristics of these new entrants Gen Y individuals, their work related expectations and behaviour, and potential consequences for human resource managers have attracted considerable attention. The distinctness of the Gen Y can be attributed to the globalization and technological advances and the socio-cultural environment they have been exposed to. This in turn has affected their characteristics and values.

In India, it is estimated that by 2020 the average age of an Indian will be 29 years. Presently two third of its population is below 35 years. Thus, India's workforce will have a large segment of Gen Y employees. With the Indian economy positioned on the growth trajectory, there is an increasing demand for managerial skills and therefore MBA is a popular course in India. For organisations too, business schools are an important source of recruitment for filling

entry level positions. If employers are to be successful in recruiting the Gen Y talent, it is important to know what job attributes are considered important by Gen Y applicants' in the organisation they seek employment, and to what extent these impact their intention to pursue a job with the organisation.

An understanding of the job attributes leading to the intention to pursue a job with an organisation is critical for organisations to develop effective recruitment strategies. Organisations can highlight these attributes to attract maximum suitable job prospects. It is known that firms with perceived Job Attributes like interesting and challenging work, flexibility, developmental opportunities, attractive compensation and benefits attract more as well as higher quality applicants. The study thus investigates the Job Attributes that influences Gen Y management students' intentions to pursue and apply for a job with an organisation.

### Review of Literature

A generational cohort includes individuals born during the same time period and who share common experiences which in turn influences their attitudes, behaviors, and work styles (Strauss and Howe, 1991; Conger, 1998; Valentine and Powers, 2013). The people of the same generation are united through shared common values, and majority of them also experience the world in similar ways (Smola and Sutton, 2002; Patterson, 2007; Fernandez, 2009). The next generation workforce are technologically savvy which makes them highly desirable in today's job markets (Burke and Ng, 2006; Fernandez, 2009) and a target of competition for firms (Ng and Burke, 2006). As the Millennial generation or Gen Y has different values and expectations than their predecessors, there is lot of attention towards research on Millennials and their expectations (Pew Research Center, 2010) and studies available have focused on the characteristics, aspirations and expectations of this cohort to better understand and channelize their talent for organisational advantage.

Scholars differ in the age range of this generation and the boundaries given vary. Past literature defines the beginning of Generation Y as early as 1977 and as late as 1981 and ending as early as 1994 and as late as 2002 (Hagevik, 1999; Karefalk, Petterssen and Zhu 2007; Erickson 2008). Smola and Sutton (2002) define Generation Y as born between 1980 to 1994 and in Pricewater Coopers (PwC) study it is given

that Gen Y individuals are those born between 1980 and 1995 and currently under 35 years of age (PwC, 2013). Some of the scholars also note the year range of Gen Y as they follow Gen X, as ranging from 1978 to 2000 (Greene, 2003; Leo, 2003; Sujansky, 2004; Howe and Strauss, 2004; Patterson, 2007; Vejar, 2008). This study considers Gen Y-ers born between 1980 and 1995, falling in the age range of 20 - 35 years.

It is very important to understand what these Gen Y individuals look for in an organisation they wish to pursue employment (Loughlin and Barling, 2001; Smola and Sutton, 2002) for organisations need to attract and retain them. This is because Gen Y individuals represent the workforce of the future as they are rapidly entering the workforce and set to outnumber other generations and make up a large part of the labour pool (Smola and Sutton, 2002). As the Millennial generation or Gen Y has different values and expectations than their predecessors, there is lot of attention towards research on Millennials and their expectations (Pew Research Center, 2010) and studies available have focused on the characteristics, aspirations and expectations of this cohort to better understand and channelize their talent for organisational advantage.

Recently, lot of studies have given attention to the characteristics, aspirations and expectations of this cohort to better understand and channelize their talent for organisational advantage (Erickson, 2008; Meier et al., 2010; Balderrama, 2007; Lloyd, 2007; Cruz, 2007; Twenge, 2010; Twenge et al., 2012; Ng. et al., 2010; Twenge, Campbell and Freeman, 2012). Scholars differ in the age range of this generation. Smola and Sutton (2002) explored the perceived differences between generational groups and found that the work values of Generation Xers were significantly different from those of the Baby Boomers and proposed that Generation Y will want even higher salaries, flexible working arrangements and more benefits than Generation X.

Management education world over is much sought after and in India too it is a popular career choice (Agarwala, 2008). Employers consistently pay MBA graduates almost double the average starting salary offered to undergraduate school students (Murray, 2009). MBA graduates have a distinct advantage over others in the job market. Even MBA

graduates believe that management education gives them a competitive advantage in the job market (GMAC, 2013). The 2015 survey by GMAC reports that 84% employers plan to hire B-School graduates in 2015 compared to 74% in 2014 of which 59% plan to increase the number of new MBA hires. 75% of Asia-Pacific firms plan to hire MBA graduates up from 69% last year. Business schools have traditionally been a training ground for management education and supplies managers to organisations (Ng and Burke, 2006) and a substantial number of managerial position recruitment takes place on-campus. Therefore, it is important to examine the job attributes that attract Gen Y MBA graduates to organisations so that the organisation can focus on developing suitable recruitment and retention strategies (Loughlin and Barling, 2001; Smola and Sutton, 2002).

Scholars have described members of Generation Y as individualistic, technologically savvy, well-educated (Meier and Crocker, 2010; Blain 2008; Erickson 2008; Valentine and Power, 2013), independent, self-reliant (Martin, 2005) sophisticated, mature, and structured (Syrett and Lammiman, 2003). According to Galpin et al. (2006), Gen Y members want to contribute towards something worthwhile and value meaningful work.

Organisations' perceived image as an employer has been identified as one of the main determinants of job seekers' attraction to organisations (Highhouse et al., 1999; Berthon et al., 2005). Employer image consists of individuals' perceptions of the Job and Organisational attributes that is attractive and important to them (Turban et al., 1993; Phillips et al., 1994; Eddy and Burke, 2006; Sutherland, 2012).

Previous literature has shown the importance of job attributes like pay, opportunities for advancement and flexible working hours to job applicants (Turban et al., 1993; Chew and Teo, 1993; Phillips et al., 1994; Turban et al., 1998; Tolbert and Moen, 1998; Chapman et al., 2005; Berthon et al., 2005; Ng et al., 2006; Terjesen, et al., 2007; Gomes and Neves, 2011). Ng and Burke (2006) in their study report that business students rate opportunities for advancement and challenging work high. Further, research has shown that challenging job is rated as a significant job attribute by job applicants (Chew and Teo, 1993; Phillips et al., 1994; Ng et al., 2006, Gomes and Neves, 2011). Other studies have also focused on importance of opportunities to travel abroad (Chew and Teo, 1993; Ng et al., 2006; Terjesen, et al., 2007

and work relationship (Chew and Teo, 1993; Turban et al., 1993; Berthon et al., 2005; Ng et al., 2006; Terjesen, et al., 2007; Sutherland, 2012) to job applicants. Past studies reveal Gen Y prefer flexible working hours (Cole et al., 2002) and are family oriented (Leo, 2003; Raines, 2002). Bigoness (1988) identified three primary preferred job attribute dimensions through factor analysis (1) professional growth; (2) work environment; and (3) salary. In the past studies job attribute preferences are categorised as being either "extrinsic" relating to materialistic fulfilment or "intrinsic" which is described as fulfilling often higher order needs, such as self-determination, self-expression etc. (Konrad et al., 2000). However, as categorisation of some job attributes is difficult, the researcher may choose own perspective and re-categorise to suit the study (Sutherland, 2012).

Extensive studies are also available on gender differences in job attribute preferences (e.g. Bigoness, 1988; Chew and Teo, 1993; Konrad, 2000; Elizur, 2001; Terjesen et al. 2007; Gokuladas, 2009; Sutherland, 2012). Past literature exploring gender differences report mixed findings. While most of the studies have reported gender differences in job attribute preferences the recent ones have reported no differences. Few studies note minor or no gender differences. Alnáyacyk, E. and Alnáyacyk, U. (2012) in their study indicated significant differences between the perceived levels of importance of employer attractiveness dimensions concerning the gender of the respondents, but no significant differences in terms of age or the current employment status of respondents. Elizur (2001) in a study finds men rank pay and convenient working hours higher than women. Konrad et al., (2000) also find men ranking pay and salary higher than women. Other studies show women attributing high importance to challenging work than men (Singh, 1994; Konrad et al., 2000; Elizur, 2001; Bigoness, 2001). Robinson et al. (2004) in their study examine job attribute preferences of men and women and find that though some differences remain, most gender differences have decreased since previous studies. It is therefore important to understand differences in job attribute preferences between men and women.

Gomes and Neves (2011) in their study reveal positive correlation between job characteristics and organizational attributes with intention to apply to a job vacancy. Job Pursuit Intention refers to "the intention to pursue a job or to remain in the applicant pool" (Chapman et al., 2005, p.

929). Job Pursuit Intention was found to be related to pay by Aiman-Smith et al. (2001). Identifying the predictors of Job Pursuit Intention will provide important insights for understanding the factors that predict the young applicants' behavioural intentions. There have been no studies that have clearly established what the most relevant job characteristics for predicting Job Pursuit Intention. The principal objective of this study is therefore to identify the Job Attributes that influence the Job Pursuit Intention of Gen Y management students. Further, the study also explores gender differences in Job Attributes preferences.

Thus, the study investigated the following research questions -

1. What Job Attributes are preferred by Gen Y MBA students?
2. What Job Attributes influence Job Pursuit Intention of Gen Y MBA students?
3. Do male and female respondents differ in their preferences of Job Attributes?

The related Hypotheses of the study are as follows:

H1: Job Attributes positively impact Job Pursuit Intention

H2: Male and Female respondents will differ in their Job Attribute preferences

### Research Methodology

#### Sample and Data Collection

Data was collected using a questionnaire from Gen Y MBA students from 18 randomly selected business schools in Coimbatore. These colleges were selected from the 71 institutes offering MBA programme in Coimbatore. Colleges were arranged in alphabetical order and every 4<sup>th</sup> college was selected. 20 students from each of the selected college, in their second year of MBA and actively looking for job were asked to fill the questionnaire. 550 questionnaires were distributed, of which 483 were usable. Multiple regression and t-test were used to arrive at the results.

### Measures

The questionnaire consisted of three sections. The first section related to demographic characteristics such as

gender, age, work experience and marital status. The second section measured the extent to which the Job Attributes are preferred by the respondents. Respondents were first asked to mention the company they aspire to work for and respond to the items in the questionnaire by considering to what extent they perceive their dream company to have these Job Attributes. The items in the third section measure the Job Pursuit Intention of the respondents.

The responses to second section and third section are collected on a seven point Likert scale. Responses to the second section ranged from 1= strongly disagree, through 7 = strongly agree and the third section on 1= not important and 7=extremely important.

### Job Attributes

Job attributes are measured with 9 items adapted from various studies through review of literature. Items include "Flexible working conditions," "Variety of assignments," "Opportunities for international travel," "Opportunities for relocation abroad," "Control over working hours," "Training and development," "Work-life balance," "Attractive overall compensation" and "Challenging work."

### Job Pursuit Intention

To measure Job Pursuit Intention the five item scale was developed by adapting from the study of Highhouse et al. (2003). It includes items like "I would accept a job offer from this company as employer," "I would make this company one of my first choices"; "If this company invited me for a job interview, I would go," "I would accept a job offer from this company," These items are selected and adapted from previous research (e.g., Rynes and Miller, 1983; Schwoerer and Rosen, 1989; Ployhart and Ryan, 1998). The reliability (Cronbach's  $\alpha$ ) of this measure is 0.843.

### Tools used for the Study

To seek answer to the research question 1 'What Job Attributes are preferred by Gen Y MBA students?' descriptive statistics was done to understand Gen Y MBA students' Job Attribute preferences.

Multiple Regression analysis was conducted to test hypothesis 1 (H1) and to answer the research question 2 'What Job Attributes influence Job Pursuit Intention of Gen Y MBA students?'

T-test was performed to test hypothesis 2 (H2) and to answer the research question 3 ‘Do male and female respondents differ in their preferences of job Attributes?’

**Analyses and Results**

Of the respondents 51.6% and 48.4% female, and 94.4% of them belonged to the age group of 20-25 years. Almost all

the respondents were unmarried i.e. 96.1% and majority (81.4%) of them did not have work experience with only 10.2% having work experience as is typical of higher studies in India where most of the individuals pursue their education before working.

Data Analyses is performed in SPSS spreadsheet after coding the questionnaires.

**Table 1: Descriptive Statistics of Study Variables - Job Attributes and Job Pursuit Intention**

Preferred Job Attributes	Mean	Std. Dev.
Challenging Work	5.7412	1.20739
Flexible working conditions	5.8261	0.95042
Variety of Assignments	5.6708	1.07273
Attractive overall Compensation	5.6915	1.11853
Opportunities for international travel	5.5921	1.24295
Control over working Hours	5.5176	1.27748
Opportunities for relocation abroad	5.4700	1.31091
Training and development	5.7557	1.18354
Work - life balance	5.8903	1.08859
Job Pursuit Intention	5.6918	0.75800

Source: Primary Data

Table 1 shows all the attributes have mean more than 5 indicating all the attributes are highly preferred by Gen Y management students. However, Work-Life balance and Flexible working conditions show highest score indicating high preference for the two attributes. The descriptive statistics presented seeks to answer the research question

1, to understand the Job Attribute preferences of Gen Y MBA students. The results indicate Gen Y members rate work-life balance and flexible working conditions highest as was also established by previous studies (Cole et al., 2002; Smola and Sutton, 2002; Hess and Jepsen, 2009; Meier et al., 2010).

**Table 2: Regression Analysis with Job Attributes as independent variables and Job Pursuit Intention as dependant variable**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	F	Sig.
6	0.813 <sup>f</sup>	0.661	0.657	0.44405	154.750	0.000 <sup>f</sup>

f. Predictors: (Constant);  
 Flexible working conditions  
 Challenging Work  
 Training and development  
 Work life balance  
 Attractive overall Compensation  
 Opportunities for international travel  
 Dependant variable: Job Pursuit Intention

Table 2 shows the results of stepwise linear multiple regression analysis with Job Attributes as Independent Variables and Job Pursuit Intention as dependant variable. The variables or items are included stepwise. The final 6<sup>th</sup> model which shows the values (R<sup>2</sup> and F-Statistics) of all the variables or items of Job Attributes items that significantly influence Employer Attractiveness is presented. It is seen that of the 9 items of Job Attributes, 6 items are

significantly related to Job Pursuit Intention. Also, the predictor items of Job Attributes accounts for 65.7% ( $R^2 = 0.657$ ) of the variance in the dependant variable Job Pursuit

Intention. Table 2 also gives the probability of the F statistic for the regression relationship  $F(154.750); p = 0.000$  which is, less than the level of significance of 0.05.

**Table 3: Coefficients<sup>a</sup> of Regression model**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
6 (Constant)	1.430	0.149		9.579	0.000
Flexible working conditions	0.245	0.026	0.308	9.289	0.000
Challenging Work	0.158	0.020	0.267	8.018	0.000
Training and development	0.141	0.023	0.221	6.263	0.000
Work life balance	0.086	0.023	0.124	3.723	0.000
Attractive overall compensation	0.064	0.022	0.095	2.903	0.004
Opportunities for international travel	0.049	0.019	0.080	2.501	0.013

a. Dependent Variable: Job Pursuit Intention

**Table 3 gives the coefficients for the regression equation. The regression equation is as given below:**

Job Pursuit Intention = 1.430 + 0.306 (Flexible working conditions) + 0.267 (Challenging Work) + 0.221 (Training and development) + 0.124 (Work life balance) + 0.095 (Attractive overall compensation) + 0.080 (Opportunities for international travel)

Table 3 also gives the values of the standardized regression coefficient Beta ( $\beta$ ) which is very useful, as Beta ( $\beta$ ) gives the relative strength of each independent variable's relationship with the dependent variable. From the Beta values in the table 3 it is seen that 'Flexible working conditions' has the strongest relationship with Job Pursuit Intention compared ( $\beta = 0.308$ ;  $t = 9.289$ ;  $p = 0.000$ ) to other Job Attribute variables.

Upon analysing these items it was observed that other items of Job Attributes that show strong significant relationship with Job Pursuit Intention were - 'Challenging Work' ( $\beta = 0.267$ ;  $t = 8.018$ ,  $p = 0.000$ ); 'Training and development' ( $\beta = 0.221$ ,  $t = 6.263$ ,  $p = 0.000$ ); 'Work-life balance' ( $\beta = 0.124$ ,  $t = 3.723$ ,  $p = 0.000$ ); 'Attractive overall compensation' ( $\beta = 0.095$ ,  $t = 2.903$ ,  $p = 0.000$ ) and 'Opportunities for international travel' ( $\beta = 0.080$ ,  $t = 2.501$ ,  $p = 0.013$ ). The results are in line with past studies that reported

the importance of 'Challenging work' to Gen Y members (Meier et al., 2010). Previous studies also established the preferences of Gen Y for Work-life balance. They value their non-work time and though like work, they do not want work to dominate their life (Morton, 2002; Kerslake, 2005). Compensation and Pay have been reported to be important for Gen Y individuals who want work to fund their life (Smola and Sutton, 2002; Ng and Burke, 2006; Hess and Jepsen, 2009). Gen Y members also assign high importance to Training and Development opportunities and the results also substantiate the earlier findings that this young generation believes in their development and would make use of developmental opportunities including that of international travel (Smith, 2008; Terjesen and Frey, 2008).

Thus, Hypothesis 1 is accepted that Job Attributes positively impact Job Pursuit Intention. Though three job attributes studied did not significantly impact Job Pursuit Intention – "Control over working hours," "Variety of Assignments," and "Opportunities for relocation abroad." This may be attributed to the fact that all the respondents are in their early career stage and majority of them do not have work experience. Therefore, they may not be able to relate to these factors of Job Attributes.

**Table 4.4: t-test: Gender and Study Variables – Preferred Job Attributes**

					Levene's Test for Equality of Variances		t-test for Equality of Means			
		N	Mean	Std Dev		F	Sig.	t	df	Sig. (2-tailed)
Training and Development	Male	249	5.6145	1.2264	Equal variances assumed	7.002	0.008	-2.723	481	0.007
	Female	234	5.9060	1.1193	Equal variances not assumed			-2.731	480.586	0.007
	Total	483	5.7557	1.1835						
Work-Life Balance	Male	249	5.7831	1.1040	Equal variances assumed	3.018	0.061	-2.240	481	<b>0.026</b>
	Female	234	6.0043	1.0624	Equal variances not assumed			-2.243	480.727	0.025
	Total	483	5.8903	1.0886						

Only two variables showed significant differences in the mean value - "Training and development" and Work-Life balance." The other variables do not show any differences. Table 4.4 provides a summary of t-test results with respect to the two variables. The Levene's Test for Equal variances yields a p-value of 0.008 with respect to "Training and development". This means that the group variances are not equal and the statistics in the second row (Equal variances not assumed) is to be used. The p-value 0.007, less than 0.05, indicates that there is significant difference between mean of "Training and development" of female and male students. Female respondents show significantly higher mean value. Thus, it is concluded that male and female students are significantly different with respect to the importance assigned to "Training and development" when choosing a career in management and hypothesis 2 is accepted to some extent.

Further, with respect to the Job Attribute "Work-Life balance," the Levene's Test for Equal variances yields a p-value of 0.061. This implies that the group variances are equal and the statistics in the first row is to be used. The p-value 0.020, less than 0.05, indicates that there is significant difference between mean of "Work-life balance" of female and male students. Thus, it is concluded that male and female students are significantly different with respect to the preferences for the Job Attribute "Work-life balance." Female respondents (M = 5.7831) are found to assign more importance to Work-Life balance as compared to male respondents (M = 6.0043).

The results support some of the recent studies that reported very small gender differences in job attribute preferences, even if statistically significant. It has been noted that over the past 20 years men's and women's work preferences have been characterized by a high degree of similarity (Tolbert and Moen, 1998, Gokuladas, 2010). Gender differences were found to vary across the period and the results may not reflect the preferences of men and women of the current generation (Tolbert and Moen, 1998).

Gokuladas (2010) in a study observed no gender difference among the young generation in their preference for training and development opportunities with their potential employer and found that females rated career growth in company as a significant factor for them to accept a particular job than that of their male counterparts. This is in contradiction to the accepted stereotype of giving importance to a man's career, and this indicates that career success is equally important for the current women workforce.

The results also reveal that women assign more importance to work-life balance than men. A study by (Subramaniam, Overton, and Maniam, 2015) reports that women value work-life balance when making job choice decisions. This may be because according to stereotype women are considered as nurturers and caretakers, who are expected to take on the role of a homemaker. The responsibility of managing the home therefore, largely rests on the woman.

## Discussion

The results of the study show high mean value with regards to the job attributes - "Flexible working conditions" (M = 5.82); "Work-life balance" (M= 5.89); "Training and development" (M = 5.82) and "Challenging Work" (M = 5.74). This indicates that the respondents attribute high importance to Flexible working conditions, Work life balance, development opportunities and Challenging work. This is in line with earlier research which reports that young generation give high priority to flexible working conditions (Cole et al., 2002) and are family oriented (Raines, 2002; Leo, 2003). Results of regression analysis reveal six Job Attributes significantly predicting job pursuit intention. This shows Gen Y value Flexible working conditions, Challenging work, Training and development, Work life balance, Attractive overall compensation, and Opportunities for international travel in the organisation they seek employment. Of these the "Flexible working conditions" have the maximum beta value ( $\beta=0.308$ ) followed by "Challenging Work" ( $\beta=0.267$ ) and Training and development ( $\beta=0.221$ ) indicating Gen Y students' importance of convenient working conditions, challenging working conditions and development opportunities.

No gender differences were observed in 7 of the 9 job attribute preferences studied. Female respondents were found to rate Training and development and Work-life balance higher than male respondents. This is in line with earlier literature which establishes little difference between men and women in their job attribute preferences in their earlier career stages (Robinson et al., 2004). The findings also show results that are not typically as per earlier studies as female respondents seem to value development opportunities and work-life balance more than male respondents. As per gender roles women are family oriented hence their preference for work – life balance may be explained. A higher preference for training and development opportunities among female respondents indicate more and more young women seriously consider their career and career growth, which they feel can be accomplished by utilizing opportunities to develop themselves.

Thus, the findings of the study will enable recruiters to focus on the job attributes preferred by Gen Y when they seek to hire them. Recruiting is a process that focuses on

attracting maximum number of applicants. Recruitment message should therefore emphasize the factors that attract maximum number of right applicants. An understanding of what Gen Y individuals look for in organisations, recruiters will be able to develop suitable recruitment strategy and thus succeed in attracting maximum number of Gen Y individuals. The results of the study will also be useful to organisations in developing their employer brand. Organisations can use the information to attract and retain Gen Y individuals by offering flexible working conditions, training and development opportunities, challenging work, above average compensation and opportunity to maintain work-life.

## Limitations and Implications for Future Research

The main limitation of the study is that the results cannot be generalized, as the findings are restricted to MBA students from one geographical location. The study cannot be related to the global context or belonging to other cultural and economic background. The results also cannot be extended to other disciplines as knowledge, skills and abilities and may vary from those of business students.

Moreover, majority of the students pursuing MBA from tier two cities like Coimbatore, where almost all the colleges do not belong to the top business schools, have no work experience and pursue higher education immediately after under graduation. The study outcomes may therefore, not be applicable to Gen Y individuals with work experience

The research can be extended to include students of other disciplines and geographical location. Future research involving aspects of cultural differences with respect to students from different regions would provide further insight into those factors influencing the decision of undergraduate students with respect to their intention to apply for a job with an organisation. Further study can include working executives in their various career stages.

Generation Y employees are set to dominate the workforce and for years to come it will be a challenge for managers to understand the young generation as they move into the work force. Therefore, the study will be useful to managers who must train and motivate this next generation of employees so as to channelize the strengths for the benefit of the company.

## Conclusion

The findings of the study have attempted to give an understanding of the Generation Y management students' preferences of job attribute preferences. The findings are in line with the past studies which on job attribute preferences of job applicants. Though not many of the past studies focussed on Gen Y individuals' job attribute preferences, the results suggest that Gen Y members seek developmental opportunities and value work-life balance, Challenging work, opportunities for international travel and compensation. The results of the study also shows Gen Y management students do not seek opportunities to relocate abroad. Moreover, variety of assignments and control over working hours were also not significantly impacting Job Pursuit Intention can be due to the fact that majority of the respondents do not have work experience and therefore were not able to relate to these attributes. Very less gender difference suggests that with more and more women entering the workforce, young women also share similar preferences with regards to their career and job choice. Further, in the initial career stages with no commitments, as most of the respondents were young and unmarried work and job aspiration are similar among men and women. Thus, the study provides useful information to assist HR managers and recruitment specialists in improving the efficiency of the recruitment process by framing suitable strategies to attract the right talent.

## References

- Agarwala, T. (2008). "Factors influencing career choice of management students in India." *Career Development International*, 13(4), 362-376.
- Aiman-Smith, L., T. N. Bauer and D. M. Cable (2001). "Are you attracted? Do you intend to pursue? A recruiting policy-capturing study." *Journal of Business and psychology*, 16(2), 219-237.
- Balderrama, Anthony (2007). Generation Y: Too Demanding at Work? CNN.com. Retrieved from <http://www.cnn.com/2007/LIVING/worklife/12/26/cb.generation/>.
- Bigoness, W.J. (1988). "Sex differences in job attribute preferences." *Journal of Organizational Behavior*, 9, 39-147.
- Blain, Alicia (2008). "The Millennial Tidal Wave: Five Elements That Will Change The Workplace of Tomorrow." *Journal of the Quality Assurance Institute*, 22(2), 11-13.
- Chapman, D. S., K. L. Uggerslev, S. A. Carroll, K. A. Piasentin, and D. A. Jones (2005). "Applicant attraction to organizations and job choice: a meta-analytic review of the correlates of recruiting outcomes." *The Journal of Applied Psychology*, 90(5), 928-44. doi:10.1037/0021-9010.90.5.928.
- Chew, I. and A. Teo (1993). "Job Attribute Preferences: The effect of gender in job choice of undergraduates." *Women in Management Review*, 8(5), 15-23.
- Cole, G., R. Smith, and L. Lucas (2002). "The debut of Generation Y in the American workforce." *Journal of Business Administration Online*, 1(2), 1-10.
- Conger, J. (1998). "How 'Gen X' managers manage." *Strategy and Business*, 10, 21-31.
- Corrigan, E. A. (2008). "Welfare states, families, job attribute preferences, and work." *Cross Cultural Management: An International Journal*, 15(2), 144-161. doi:10.1108/13527600810870598.
- Cruz, Cathy S. (May 2007). "Gen Y: How Boomer Babies are Changing the Workplace." *Hawaii Business*. Retrieved from <http://www.hawaiibusiness.com/gen-y/>.
- Elizur, D. (2001). "Gender and work values: A comparative analysis." *The Journal of Social Psychology*, 143(2), 201-212.
- Erickson, Tamara J. (2008). "Plugged In: The Generation Y Guide to Thriving at Work." *Harvard Business Press*, Boston, MA.
- Esra Alnıyaçık and Ümit Alnıyaçık (2012). "Identifying dimensions of attractiveness in employer branding: effects of age, gender, and current employment status." *Procedia - Social and Behavioral Sciences*, 58, 1336-1343.
- Ewing, M.T., L.F. Pitt, N.M. de Bussy, and P. Berthon (2002). "Employment Branding In The Knowledge Economy." *International Journal of Advertising*, 21(1), 3-22.

- Fernandez, Susana (2009). "Comparing Generation X to Generation Y on work-related beliefs." *Master's Theses*, Paper 3974.
- Galpin, M., A. Linley, N. Page, and M. Stairs (2006). "Retention on a knife edge: The role of employee engagement in talent management." *Selection and Development Review*, 22(5), 19-23.
- Gokuladas, V. K. (2010). "Factors that influence first-career choice of undergraduate engineers in software services companies: A south Indian experience." *Career Development International*, 15(2), 144-165. doi:10.1108/13620431011040941.
- Gomes, D., and J. Neves (2011). "Organizational attractiveness and prospective applicants' intentions to apply." *Personnel Review*, 40(6), 684-699. doi:10.1108/00483481111169634.
- Graduate Management Admission Council (2013). "Corporate recruiter survey: 2013 Hiring Report." Retrieved from <https://www.google.co.in/url?sa=t&rct=j&q=&esrc=s&source=web&cd=2&ved=0ahUKEwjt8vXWq93KAhWMGo4KHfBmDrQQFgghMAE&url=http%3A%2F%2Fwww.gmac.com%2F~%2Fmedia%2FFiles%2Fgmac%2FResearch%2FEmployment%2520Outlook%2Fcrs-2013-hiring-report-01.pdf&usq=AFQjCNE2gWO-dNbgwzB9iYE4Q1CX4RCawQ&sig2=rwYvBwZ-pSTZjSHuBDfo5A&bvm=bv.113370389,d.c2E&cad=rja>.
- Graduate Management Admission Council (2015). Mba.com Prospective students survey. Retrieved from <http://www.gmac.com/market-intelligence-and-research/research-library/admissions-and-application-trends/2015-mbacom-prospective-students-survey-report.aspx>.
- Greene, E. (2003). "Connecting with generation y." *Chronicle of Philanthropy*, 15(19), 31-37
- Hagevik, Sandra (1999). "From Ozzie and Harriet to the Simpsons, generations in the workplace." *Environmental Health*, 61(9), 39.
- Highhouse S., M. J. Zickar, T. J. Thorsteinson, S. L. Stierwalk and J. E. Slaughter (1999). "Assessing Company Employment Image: An Example in the Fast Food Industry." *Personnel Psychology*, 52, 151-172.
- Howe, N. and W. Strauss (2004). "Millennials rising: The next great generation." Retrieved from [www.ism.ws](http://www.ism.ws).
- Karefalk, Aroonwan, Maria Pettersson, and Yeqing Zhu (2007). "How to Motivate Generation Y with Different Cultural Backgrounds: A Cross-Cultural Comparison between China and Sweden." *PhD Dissertation*. Kristianstad University.
- Kerslake P. (May, 2005). "Words from the Ys." *Management*, 44-46.
- Konrad, A. M., E. Corrigan, P. Lieb and J. E. Ritchie (2000). "Sex Differences in Job Attribute Preferences among Managers and Business Students." *Group & Organization Management*, 25(2), 108-131. doi:10.1177/1059601100252002.
- Leo, J. (2003). "The good-news generation." *U.S. News & World Report*, 135(15), 60-6.
- Lloyd, Jeromy (2007). "The Truth about Gen Y." *Marketing Magazine*, 112 (19), 12-22.
- Loughlin, C. and J. Barling (2001). "Young workers' work values, attitudes and behaviours." *Journal of Occupational and Organizational Psychology*, 74(4), 543-59.
- Maier, M. (1999). "On the gendered substructure of organization: Dimensions and dilemmas of corporate masculinity." In G. N. Powell (Ed.), *Handbook of gender & work*. 69-93, Thousand Oaks, CA: Sage Publications.
- Martin, C. (2005). "From high maintenance to high productivity: what managers need to know about Generation Y." *Industrial and Commercial Training*, 37(1), 39-44.
- Meier, J., S.F. Austin, and M. Crocker (2010). "Generation Y in the workforce: Managerial challenges." *The Journal of Human Resource and Adult Learning*, 6(1), 68-78.

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# Determinants of Dividend Policy for Cement Sector in India: An Empirical Analysis

Souvik Banerjee

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Determinants of Dividend Distribution are one of the hotly debated topics in corporate finance. In this research paper top 4 cement companies in India are analysed over a span of 5 financial years. Three factors namely Leverage, PE Ratio, and Return on Equity are found to be statistically significant, as far as Dividend Distribution Decisions are concerned. This is a significant addition to the theory on Determinants of Dividend Distribution, especially in the Indian context.

**Keywords:** Dividend Distribution, Leverage, PE Ratio, Return on Equity

**JEL Classification:** G35



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**D**istribution of profit to shareholders is termed as dividend (Pandey, 2004). Profit earned by companies can be retained by them for future usage, or can be returned to shareholders as dividends. Each business organization, has their own unique circumstances to take a very strategic decision with regards to the money generated through profit, i.e. whether to keep retain it or to return it to the shareholders. A number of conflicting theories have also been developed with respect to this (Alkuwari, 2009). The pertinent in this respect to note that

“The harder we look at the dividend picture the more it seems like a puzzle, with pieces that just do not fit together” (Black 1976). There are different theories on dividend payment, and they deal with whether dividend payment increases or decreases the valuation of the company. It is not difficult to identify the variables which affect the dividend payment decisions, however, what is difficult to determine is how these factors interact among themselves (Ross, 2009).

Most of the existing researches have focussed on developed Western Europe and the Northern American regions. Whereas emerging economies as a whole attracted very little attention in this respect (Musiegaet al., 2013).

Models developed in the western world, may or may not be applicable to emerging markets, due to their unique social as well as corporate culture, regulations and nature of investors (Musiegaet al., 2013). Decisions to pay dividend and its impact on valuation of shares, is also widely debated in the literature of corporate finance, one set of argument put forth says that, dividend payment and increase in its amount, increases the valuation of the firm, whereas another line of argument says that, it decreases the valuation of the firm, still there are other researchers who think, dividend payment decisions have no impact on the valuation of the shares (Anupam, 2012). Modigliani and Miller (1961) proposed that dividend payment decisions are irrelevant from the equity valuation perspective.

Dividend payment decisions are signals to the investors regarding, what the incumbent management thinks about the future of the company. According to Bishop et al. (2000), profits earned can be ploughed back into the business or kept by the management for investment for capital expenditure in future projects. In taking these decisions, what is pertinent to consider is not only how much money is needed for fresh capital expenditure, but also, what effect the capital expenditure will have on the share price of the company, thus affecting wealth of the shareholders of the company. Also firms should not drastically change, their dividend pay-out ratio, as it will impact the planned future investments (Abdullahi, 2011).

### **Cement Sector in India:**

India is the second largest producer of cement in the world. As India is putting more emphasis on infrastructure building, cement demand is moving higher. According to a report of India Brand Equity Foundation, the current production capacity of Indian cement industry is 366 million tonne per annum. It is expected to show robust growth in the years to come.

### **Literature Review:**

Krishman (1963) propagated a bird in the hand theory, regarding dividend distribution. According to this theory

investors are risk averse by their very nature. Linter (1962), Gordon and Shapiro (1956) got support for this theory, through their research. The underlying logic for this behaviour was that returns from the equity market is uncertain, also there is considerable information asymmetry in the system, as a result, investors will like dividend payment, as it transfers money from the company to the investors.

On the other hand 'Agency Theory', propagated by Jensen (1986), argues that the dividend payment restricts the fund available to managers, as far as investment in new projects is concerned.

Lintner (1956) focussed on the behavioural side of the policy regarding Dividend Payment Decisions. He concluded that the managers take the decisions to increase the proportion of Dividend Payment, only when they are certain that the firm's earnings have increased permanently. Brittain (1966) studied the Dividend Payment Policy and tax structure, over a long period (1919-1960) of time and concluded that, the principal determinant of Dividend Payment Policy decisions are Cash Flow of firms, and not the Net Profit figure. On the other hand Fama and Babiak (1968), concluded that Net Profit is a better determinant of Dividend Payment, than either the Cash Flow figures or the Net Profit and the Depreciation figures are taken separately, they reached this conclusion, on the basis of data analysed of 392 major firms, on a timeframe of 1946 to 1964.

In the Indian context, there are certain studies, in this regard. For example, Rao and Sarma (1971) concluded that Lintner model can explain the Dividend Payment Decisions, in industries such as coal mining, sugar, jute textiles, chemical, and cement industries.

Bhattacharya (1979) was of the view that bird in hand hypothesis is not proper. Moreover, it was further suggested, that the firm's level of risk assumption affects the level of dividend. Bhat and Pandey (1994) found support of Lintner's model in the Indian context, which proved that Indian managers increased the level of dividend, only when they became absolutely certain about the permanent nature of the increase in profitability.

Mishra and Narender (1996) tested the Lintner's model of Dividend Payment on Public Sector Units (PSUs) in India.

The study concluded that, the number of Dividend Paying PSUs compared to the total number of PSUs is quite small. The study also came to the conclusion that, the Dividend Payment Ratio (DPR), remain constant for most of the companies, even if the Earning per Share(EPS) figure shows a constant improvement. On the other hand Saxena (1999) found that, past revenue growth rate, future earnings forecast, how many shareholders a company has, and systematic risk act as the Determinants of Dividend Pay-out Policy.

Naceur, Goaid and Belanes(2006) tested Lintner's model in the context of Tunisian companies. This research found that, Tunisian firms follow a stable dividend policy; it also found that the primary determinant of Dividend Payment decisions is current earnings, instead of past Dividend Payment decisions.

Husamet al. (2007) examined the determinants of corporate dividend policy in the context of Jordanian companies. This research endeavour found that, the proportion of ownership by insiders and the government are important determinants of Dividend Payment decisions; other determinants are size, age, and profitability of the firm.

Naeem and Nasr (2007) concluded on the basis of their research on Pakistan based companies, that the companies are either reluctant to pay dividends or pay very less amount of dividend. The main determinants of Dividend are profitability of the companies and their previous year's Dividend Payment rate.

Kuwari(2009) researched on Determinants of Dividends in the context of Gulf Co-operation Council(GCC) countries, this particular study found that, the primary intention of paying dividend is reduction of agency cost. This study also found that, the firms do not look for long term target as far as Dividend Pay-out Ratio is concerned. The study concluded that, Dividend Pay-out Ratios have strong positive correlation with Ownership Structure, Firm Size, Firm Profitability, and negative correlation with the Leverage Ratio.

### **Objective of the Research:**

In this research endeavour, the objective is to check what determines the Dividend Payment decisions in the listed Indian cement companies. The primary objective of this

research is to understand the effect of Size, Profitability, PE Ratio, Leverage Ratio, and Liquidity Ratio of the companies on Dividend Payment decisions of the firms.

### **Hypotheses of the Research:**

The null hypotheses of the research are depicted below

H01- Size of the company has a no effect on the dividend policy.

H02- Profitability of the companies has no effect on the dividend policy.

H03- PE Ratio of the companies has no effect on the dividend policy.

H04- Leverage Ratio of the companies has no effect on the dividend policy.

H05- Liquidity Ratio of the companies has no effect on the dividend policy.

### **Research Methodology:**

#### **Variables Used:**

In this research endeavour Dividend Pay-out Ratio of the firm is taken as the dependent variable, whereas Size, Profitability, Risk, Leverage, and Liquidity of the firm are taken as the independent variables.

The Size of the firm is computed as the natural logarithm of the book value of the firm's Total Assets. This method is in accordance with Joseph (2001).

Profitability of the firm is measured by three parameters, i.e. Return on Equity(ROE), Return on Assets(ROA), Earnings per Share(EPS).

ROE= Net Profit after Preference Dividend/Book Value of Equity Capital

ROA= Net Profit/Total Assets

EPS= Net Profit/ Number of Equity shares outstanding. This is taken in terms of Indian Rupees.

The Risk is measured by PE Ratio.

PE Ratio= Market Price of One Share/ Earning per Share

Leverage =Total Debt (Short Term Debt as well as Long Term Debt)/Total Shareholder's Fund.

Liquidity = Current Ratio (CR) = Current Assets/Current Liabilities

Dividend Pay-out Ratio (DPR) = Cash Dividend/Net Profit \*100

Profitability, Risk, Leverage, and Liquidity are taken in accordance to the method adapted by Mehta(2012).

**Data Used:**

The source of the data for this research has been Capital Market and Securities Exchange Board of India (SEBI

databases. The companies are chosen from the Cement sector in India. The period of the study, which is taken into account is five years period starting from 1<sup>st</sup>. January, 2010 to 31<sup>st</sup>. December, 2014. In total 4 top listed cement companies are taken into account. These 4 companies are the top 4 cement companies listed in Indian stock exchanges, in terms of revenue. The companies considered for analysis in this study are Ambuja Cement (formerly Gujarat Ambuja Cement Ltd.), ACC Ltd., Ultra Tech Cement Ltd., and Grasim Industries Ltd.

**Empirical Results:**

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.414a	0.143	0.231	31.05
2	0.543b	0.295	0.219	32.87
3	0.556c	0.332	0.302	32.99
4	0.712d	0.519	0.442	33.97
5	0.682e	0.497	0.483	33.07

- a. Predictors: (Constant), PE Ratio, CR, LEV, EPS, ROA, LTA, ROE
- b. Predictors: (Constant), PE Ratio, CR, LEV, EPS, ROA, ROE
- c. Predictors: (Constant), PE Ratio, CR, LEV, EPS, ROE
- d. Predictors: (Constant), PE Ratio, LEV, EPS, ROE
- e. Predictors: (Constant), PE Ratio, LEV, EPS

**Table: Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error				Tolerance	VIF
(Constant)	0.014	3.452		0.406	.532		
PE Ratio	1.604	0.456	-0.224	4.346	0.021	0.674	1.548
LEV	3.402	0.345	0.354	5.462	0.015	0.542	1.688
EPS	4.065	0.455	0.456	7.080	0.000	0.754	1.243

Dependent Variable: DPR

The step wise regression model, used here, gradually removed the insignificant predictors one by one. The final model, with three predictors namely PE Ratio, LEV, and EPS

can explain 50.7% of the variations in the Dividend Payment decisions. This is quite an improvement over 20.7% explaining capability of the initial model, as depicted by the R-Square values.

The fitted regression equation is

$$\text{DPR} = 0.014 + 1.604[\text{PE Ratio}] + 3.402[\text{LEV}] + 4.065[\text{EPS}]$$

All the three predictors namely, PE Ratio, LEV, and EPS are statistically significant, even at 5% level. All the three factors have positive influence on the dependent variable (DPR).

### Conclusions:

Firms with higher PE Ratio are high growth firms, so it is natural that these firms pay higher dividend. Similarly higher Leverage for firm, results in higher portion of the profit is left for the equity holders. So it is no wonder that, firms with higher Leverage have higher DPR. EPS figure shows, how much money is available for the equity holders, so higher EPS results in higher DPR. These findings are in line with the existing literature. This study was done on a period, when Indian equity markets saw some of the exciting phases, and touched new all-time high. This research covered the 4 biggest cement companies in India. This should be an important addition to the existing literature on Dividend Payment decisions, especially in the context of the Indian capital market.

### References:

- Al-Twaijry, A.A. (2007) K. Dividend policy and Payout Ratio: Evidence from the Kuala Lumpur Stock Exchange. *The Journal of Risk Finance*, Vol. 8, No. 4, pp. 349-363.
- Al-Kuwari, D. (2009). "Determinants of the Dividend Payout Ratio of Companies Listed on Emerging Stock Exchanges: The Case of the Gulf Cooperation Council (GCC) Countries." *Global Economy & Finance Journal*, Vol. 2, No. 2, pp. 38-63.
- Al-Malkawi, H. (2007). "Determinants of Corporate Dividend Policy in Jordan: An Application of the Tobit Model." *Journal of Economics and Administrative Sciences*, Vol.23, No.2, pp.44-70.
- Asif, Rasool and Kamal(2011). Impact of Financial Leverage on Dividend Policy: Empirical Evidence from Karachi Stock Exchange-Listed Companies. *African Journal of Business Management*, Vol. 5, No.4, pp.1312-1324.
- Amidu, M. and Abor, J.(2006). "Determinants of Dividend Payout Ratios in Ghana." *Journal of Risk Finance*, Vol 7, pp.136-145.
- Brittain, J. A. (1966). "The Tax Structure and Corporate Dividend Policy." *American Economic Review*, Vol. 54, No.3, pp.1-10,
- Husam – A. N. and Al-Malkawi (2007). "Determinants of Corporate Dividend Policy in Jordan: An Application of the Tobit Model." *Journal of Economic and Administrative Sciences* Vol.23, No.2, pp.44-70.
- Kania, S.L. and Bacon, F.W.(2005). "What factors motivate the corporate dividend decision?" *American Society of Business and Behavioral Sciences E-Journal*, Vol. 1, No. 1, pp.97-107.
- Kanwal, A. and Kapoor, S.(2008). "Determinants of Dividend Payout Ratios-A Study of Indian Information Technology Sector." *International Research Journal of Finance and Economics*, Issue 15, pp.63-71.
- Mehta, A. (2012). An Empirical Analysis of Determinants of Dividend Policy- Evidence from the UAE Companies. *Global Review of Accounting and Finance*, Vol.3, No.1, pp.18-31
- Miller, M. H. and Modigliani, F. (1961). "Dividend Policy, Growth and the Valuation of Shares." *The Journal of Business*, Vol.34, No.4, pp.411-433.
- Naceur, S.B., Goaid, M. and Belanes, A.(2006). In the Determinants and Dynamics of Dividend Policy. *International Review of Finance*, Vol.6, No.1-2, pp.1-23.
- Naeem, S., and Nasr, M. (2007). "Dividend Policy of Pakistani Firms: Trends and Determinants." *International Review of Business Research Papers*, Vol. 3, No.3, pp.242-254.
- Pandey, M. (2004) *Financial Management*. Vikas publishing house Private Limited.
- Ross, S.A., Westerfield, RW and Jaffe, J.F.(2009). *Corporate Finance Fundamentals*, Eighth.Edition, McGraw Hill.

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# Impact of Macro-economic Variables : Dividend Policy of Indian Companies

Archana Goel

## A b s t r a c t

This paper made an attempt to investigate the impact of macro-economic variables on dividend policy of 319 Indian companies listed on Bombay Stock Exchange for the period of 10 years i.e. 2005-2015. Multiple Linear Regression is performed to know the significant variables affecting dividend decisions. For the purpose of the study, independent variables include inflation, interest rates, Index of industrial production and wholesale price index. The results indicates that only two variables affect dividend payout ratio i.e. Inflation and interest rates. Index of industrial production and wholesale price index are found to be insignificant in the Indian scenario.

**Keywords:** Dividend payout ratio, inflation, interest rates, macro-economic



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Almost all companies earn income. This income can be used to purchase operating assets, acquire securities, payoff the debt, or distributed to shareholders. The income distributed to shareholders is the dividend. Four decades ago, Black (1976) wrote, “*The harder we look at the dividend picture, the more it seems like a puzzle, with pieces that just don’t fit together.*” Till now, dividend payout policy had remained the puzzle. Many questions are still unsolved or these answers are controversial: why do firms pay dividends and why do shareholders pay attention to dividend? What are the factors which impact the dividend decision in a company? Whether the dividend policy affects the value of a firm. In spite of many descriptions in this area, the mystery still shrouds the dividend. The “dividend irrelevance” theory still mount large and not even a single explanation had provided an overwhelming support. It is one of the ten important unsolved problems in finance (Brealey and Myers, 2002). Allen and Michaely (1995) concluded that “*much more empirical and theoretical research on the subject of*

*dividends is required before a consensus can be reached.*" Frankfurter and Wood Jr. (2002) examined that no dividend model, either separately or jointly with other models, is supported invariably.

The seminal work of Modigliani and Miller theory postulated that given the perfect market assumptions, value of the company is not pertinent to its capital structure and dividend policy. Investors receive less in capital appreciation with the increase in dividends. Continuing studies Modigliani and Miller (1963) countermanded one of perfect capital market's assumptions and explained that by taking corporate taxes into account, capital structure and the value of the firm are related to each other. This leads to optimal capital structure of the firm. They established that as the debt level increases, the value of firm also increases. Miller and Scholes (1982) argue that in the real world, rather than capital gains and imperfections in the market, higher taxes on dividends inspire dividend decision more. Lintner (1962) and Gordon (1963) proposed the theory that price of shares of company (or its cost of capital) is dependent on the dividend rate. They proved that dividend policy is relevant, since the capital gains are least important than dividends and by paying more dividend, it becomes more valuable. This theory, known as "bird in hand theory," states that the money reinvested is less valuable than money paid to shareholders. Litzenberger and Ramaswamy (1979) talked differently. He argued that paying cash dividends would not give any advantage to investors. The researchers claim that due to tax reasons lower payout companies are preferred by investors. Therefore in order to increase the share prices, companies have to reduce their dividends. Along with those other prevailing theories for explaining dividend policies include lifecycle theory, signaling theory, agency theory and catering theory. The lifecycle theory posits that dividend policy is a function of firms' maturities. As the firm grows, due to accumulated cash balances and lesser growth opportunities, such firms pay more dividends as compared to less mature firms. The signaling theory maintains that if the financial managers are expecting future cash flows, this information is conveyed to financial managers by paying more dividends. Increase in dividends signal increase in future cash flows whereas decrease in dividends signals decrease in future cash flows. The catering theory depicts that firms cater to their investors when determining dividend distribution policies. Agency theory is polished by Rozeff

(1982) and Easterbrook (1984) to ground the role of dividends in controlling agency relationships between shareholders and managers. It is argued that by paying dividend firms are forced to raise additional funds from the capital market, thereby uncovering the firm to the discipline of the market and reducing the scope for agency conflicts. Jensen (1986) further generated the free cash flow hypothesis, which predicts that shareholders have preference for dividends because of no profitable investment opportunities managers may squander retained cash, especially when the firm faces a high level of information asymmetry. Indeed, La Porta, et al. (2000) proved that due to pressure by minority shareholders, corporate insiders are forced to disgorge cash by paying dividends. In the Indian context, a few studies have evaluated the dividend behaviour of corporate firms. To summarize, there are plenty of theories explaining the determinants of dividend policy and there is no consensus on which theory should guide the corporate dividend decisions. Clear guidelines for an 'optimal dividend policy' have not yet emerged despite the voluminous literature. The aim of this study is to find the validity of different views on determinants of dividend policy in the Indian perspective and empirically prove their significance using regression modelling.

### Literature Review

Many studies have been carried out to know the determinants of dividend policy. An extensive review over the last 15 years was attempted to comprehend the same. The prime source of the studies reviewed herein includes various websites, selected refereed national and international journals such as *Journal of Finance*, *Journal of Risk Finance*, *Managerial Finance*, *IUP Journal of Bank Management*, *Journal of Financial Economics*, *International Review of Financial Analysis*, *International Journal of Economics and finance*, *American Economic Review*, *Emerging Markets Review*, *Decision*, *Journal of Applied Accounting Research*, *Pacific Basin Finance Journal*, *Journal of Portfolio Management*. Lot many studies have been conducted in U.S., Australia, Japan, Ghana, Malaysia, Greece, Iran, Saudi Arabia, Pakistan, Indonesia, UAE, Bangladesh, Thailand, Canada, Poland, Turkey and little work in India.

Some prominent studies which deserve mention here include Amidu M. and Abor J. (2006), Naceur S.B. et al. (2006), Aldin

H and Malkawi A.(2008), Gupta A.(2010), Perretti G.F. et al. (2013), Baker H.K. et al. (2013), Arko A.C. (2014) who regarded profitability as significant variable. Ho H. (2003), Gupta A.(2010), Khan N.U.(2011), Abu S.T.(2012), Zameer H. et al.(2013) regarded liquidity as significant determinant of dividend policy. Pandey and Bhatt (2007), Pal K. and Goyal P. (2007), Basse T. and Reddemann (2011), Bokpin G.A.(2011), Singhania M.(2012), Pourheydari O. (2009), Denis

D.J.and Osobov I.(2008), Ajmi J.A. and Hussain H.A.(2011), Chazi A. et al. (2011), Baker and Powell (2012), Maladjian C. and Khoury R.E.(2014) regarded monetary policies, interest, inflation, foreign state ownership, market capitalization, industry type, firm size and growth, cash flows and life cycle, merger and acquisition strategy, the stability of earnings and the level of current and expected future earnings, risk as significant variables respectively.

Name of Author	Year of Study	Country of Study	Significant Variable
H. Kent Baker, Gary H. Powell	1999	US	The level of current earnings, expected future earnings and the pattern of past dividends
H. Kent Baker and Gary E. Powell	2000	NYSE listed firms	Previous year dividends, current profits, future prospects, stability of earnings
Klaus Gugler	2003	Austria	Ownership and control structure
Horace Ho	2003	Australia, Japan	<b>Australia</b> -Size, Industry effect ; <b>Japan</b> -Liquidity, Risk, Industry effect
I.M.Pandey	2003	Malaysia	changes in earnings, Past dividends
Mohammed Amidu and Joshua Abor	2006	Ghana	<b>Positive</b> -Profitability, cash flow and Tax; <b>Negative</b> -risk, institutional holding, growth, market to book value
Samy Ben Naceur, Mohamed goaied and Amel Belanes	2006	Tunisia	Profitability, size, growth, stock market liquidity
Karam Pal and Puja Goyal	2007	India	lagged dividend, profit after tax, interest, change in sales
Thomas A. Anastassiou	2007	Greece	Company's Income
I.M.Pandey and Ramesh Bhatt	2007	India	Monetary policies restrictions (macro-economic policies)
David J. Denis and Igor Osobov	2008	US, Canada, UK, Germany, France, Japan	Firm size, profitability, growth, earned / contributed equity mix
Husam-Aldin Nizar Al-Malkawi	2008	Jordan	size, profitability, and age -positive; leverage-negative
Omid Pourheydari	2009	Iran	the stability of cash flow, the availability of profitable investment opportunities, and stability of profitability, industry type
Amitabh Gupta	2010	India	leverage, liquidity, profitability, ownership structure and growth

M.Sudhaharand T.Saroja	2010	India	Previous year dividends, current depreciation, profit after tax, Volume of sales, return on investment, last year DPO
Tobias Basse and Sebastian Reddemann	2011	US	Inflation
Jasim Al-Ajmi and Hameeda Abo Hussain	2011	Saudi Arabia	Lagged Dividend Payments, Profitability, Cash flows, and Life cycle.
Godfred A. Bokpin	2011	Ghana	Age, income volatility, foreign state ownership, board size, highly leverage firms
N.U. Khan, B.M. Burton and D.M. Power	2011	Pakistan	Current earnings and liquidity of company
AbdelazizChazi , NarjessBoubakri , and Fernando Zanella	2011	UAE	Stability of future earnings, market price of stock, availability of extra cash, merger and acquisition strategy
N.U. Khan, B.M. Burton and D.M. Power	2011	Pakistan	Current earnings and liquidity of company
Monica Singhanian	2012	India	Market capitalization, Market to book value ratio
Sheikh Taher Abu	2012	Bangladesh	Current earnings and liquidity
H. Kent Baker and Gary E. Powell	2012	Indonesia	The stability of earnings and the level of current and expected future earnings, effect of dividends on stock prices and needs of current shareholders
Gizelle F. Perretti, Marcus T. Allen and H. Shelton	2013	US-ADR firms	Profitability and macro economic conditions,
JinhoJeong	2013	Korea	size, risk, growth and large shareholder ownership,(tax and interest rates)- macroeconomic factors, institutional factors
H. Kent Baker Bin Chang ShantanuDutta Samir Saadi	2013	Canada	Firm size, profitability, investment opportunities,and catering incentives
HashimZameer, ShahidRasool, SajidIqbal and UmairArshad	2013	Pakistan	Profitability, last year dividend and ownership structure-positive;negative-liquidity

Richard Fairchild, YilmazGüney , YordyingThanatawee	2014	Thailand	Free cash Flow, life cycle
Anastacia C. Arko and Joshua Abor; Charles K.D. Adjasi and Mohammed Amidu	2014	Sub-Sahara Africa	Profitability level, investment opportunity sets, taxation, leverage, institutional shareholding and risk.
Christopher Maladjianand Rim El Khoury	2014	Lebanese banks	positive-firm size, risk and previous year's dividends; negative - growth & profitability
Arindam Banerjee and Anupam De	2015	India	size of the firm and debt service capacity ratio
Joonho Moon, Won Seok Lee , John Dattilo	2015	Airline industry	firm size, cash holdings, financial leverage, and life-cycle
Bogna Kaźmierska-Jóźwiak	2015	Poland	profitability & leverage
Basil Al-Najjar Erhan Kilincarslan	2016	Turkey	Foreign ownership and state ownership, Domestic financial institutions, family involvement and minority shareholders

### Need of the Study

A large body of research has investigated the determinants of dividend policy; however there are visible gaps on impact of macro-economic variables on dividend payout policy in India. It has already been established that various Macro economic variables have affected dividend Policy (Basse T. and Reddemann S., 2011; Perretti G., 2013; Jeong J., 2013) and study pertinent to know whether dividend policy decisions are affected by macro-economic variables in India has not been found. One of crucial reason for failure of empirical test to support dividend determinants can be negligence of macro-economic variables. Therefore, it has become imperative to consider the macro-economic variables to know the exact determinants of dividend policy. (Basse T. and Reddemann S., 2011) The call of the hour is to undertake research on the impact of macro-economic variables on dividend policy in India.

### Objective of the Study

Via this study an attempt has been made to know whether the dividend policy is impacted by macro-economic variables. The dependent variable taken into consideration is the "Dividend payout ratio" and independent variables, which might have some affect on dividend policy, are "Inflation," "Interest Rates," "Index of Industrial Production," and "Wholesale Price Index."

### Research Methods

#### Data and sample selection

The necessary data has been drawn from Reserve Bank of India, World bank and websites of respective companies. The sample companies have been drawn from broad based BSE 500 Index. The period of study is ten years i.e. 1<sup>st</sup> April, 2005 to 31<sup>st</sup> march, 2015. Only those companies have been included in the sample whose complete data was available. This process gave us the sample of 319 companies out of 500. It is a Time series data.

#### Description of variables

##### Dependent variable

In line with previous studies that examined the main determinants of dividend payment, the dependent variable used in this study is the dividend payout ratio (DPR), defined as the dividend per share divided by earnings per share (D'Souza J. and Saxena A.K., 1999; Amidu M. and Abor J., 2006; Patra T. et al., 2012)

##### Independent variables

Over the years researchers have employed numerous macro economic variables on stock market and capital structure. Out of these, only four macro economic variables which have significant impact on stock market, capital structure and

dividend policy are taken into consideration. The justification for choosing these variables is as follows:

Inflation has positive significant impact on stock prices (Pal and Mittal R., 2011; Kalra R., 2012; Liu M.H. and Shrestha K.M., 2008) whereas Coleman A. K. and Tetey K.F.A, (2008) found that inflation has negative significant impact on stock prices and it takes time for this to take effect due to the presence of lag period. Chinese stock markets are not impacted by inflation rate (Soenen and Johnson, 2001). Bokpin G.A. (2009) supports the impact of inflation on capital structure decisions of firms. Basse T. and Sebastian R. (2011), Basse T. (2009) gave the indication of a positive relationship between inflation and dividend payments as inflation may increase the nominal value of corporate earnings and therefore the dividends paid.

Interest rates have positive significant impact on stock prices (Pal and Mittal, 2011; Srivastava A., 2010) whereas Japanese stock prices are not impacted by interest rates (Kurihara Y. and Nezu E., 2006). Adjasi, C.K.D. (2009) results show that higher volatility in interest rates increases volatility of the stock prices, Bokpin G.A. (2009) supports the impact of interest rates on capital structure decisions of firms. Jeong J. (2013) shows that the dividend smoothing decision is influenced by interest rates.

Kwon C.S. and Shin T.S. (1999) found that stock prices indices are cointegrated with industrial production index. Industrial production index have positive significant impact on stock prices (Srivastava A., 2010; Humpe and Macmillan, 2009). Pretti G.F.etal. (2013), Serflinga M. A. and Miljkonic D. (2011) indicate that macro-economic conditions i.e. industrial production index affect dividend payment. Wholesale price index have significant impact on stock prices. (Srivastava A., 2010).

We measure interest rates as 364 days Treasury bill rate. We employed general numbers as measure of Index of Industrial production. We used WPI of all commodities. Finally, as a measure of inflation, we used annual averages of consumer price index. In our analysis, we use the natural logarithm of the Wholesale price index and Index of Industrial Production, after that they are differenced to calculate their percentage change. (Serflinga M. A. and Miljkonic D. 2011).

**Methodology**

Statistical analysis was carried out taking the help of Statistical Software package SPSS 20. The data has been analyzed using a multiple linear regression.

**Multiple regression Analysis:**

The following multiple regression model has been used to test the theoretical relation between the dividend payout ratio and other independent variables of the companies.

$$y = \beta + \beta_1 x_1 + \beta_2 x_2 + \beta_3 x_3 + \beta_4 x_4$$

Where,

y= Dividend payout ratio

x1= Inflation

x2= Interest rates

x3= % age change in Index of Industrial Production(IIP)

x4= % age change in Wholesale price Index(WPI)

á = constant term of the model

β1, β2, β3, β4= are the coefficients to be estimated.

**ANALYSIS AND INTERPRETATION**

This section explains the analysis and interpretation of the study.

**Table-1 : Descriptive Statistics**

	Mean	Std. Deviation	N
dividend payout ratio	40.2276	12.98027	10
Inflation	8.4000	2.36643	10
interest rates	7.3095	1.23204	10
% age change in IIP	1.1572	1.04558	10
%age change in WPI	1.2224	.46428	10

Source-SPSS

Table-1 shows the descriptive statistics i.e. mean and standard deviation of all the variables taken under the study. The total number of observations taken under the study is 10. The mean value of dividend payout ratio, inflation, interest rates, percentage change in IIP and percentage change in

WPI is 40.2276, 8.4, 7.3095, 1.1572, and 1.2224. The value of standard deviation of dividend payout ratio, inflation, interest rates, percentage change in IIP and percentage change in WPI is 12.98, 2.366, 1.23, 1.04 and 0.464.

**Table-2: Results of Pearson Correlation**

	Dividend payout ratio	Inflation	Interest Rates	% age change in IIP	%age change in WPI
Dividend payout ratio	1.000	-.220	-.306	-.157	-.112
Inflation	-.220	1.000	-.582	-.250	.324
Interest Rates	-.306	-.582	1.000	-.125	.138
% age change in IIP	-.157	-.250	-.125	1.000	-.009
%age change in WPI	-.112	.324	.138	-.009	1.000

Source-SPSS

Table 2 indicates the results of correlation analysis. Karl Pearson Coefficient of correlation has been employed to find out the correlation between variables. The results indicate that all the variables taken under study have negative correlation with Dividend Payout ratio i.e. inflation (-0.220), interest rates (-0.306), percentage change in IIP (-0.157), and percentage change in WPI (-0.112). We can observe that Inflation has negative correlation with all

variables except percentage change in WPI (0.324). Interest rates has negative correlation with all except percentage change in WPI (0.138) variables. percentage change in IIP has negative correlation with all the variables. percentage change in WPI has positive correlation with inflation (0.324) and Interest rates (.138) and negative correlation with Dividend payout ratio, percentage change in IIP.

**Table-3: Regression results and Collinearity statistics**

Model	R	R Square	Adjusted R Square	Std. Error	Durbin Watson		
	0.791	0.626	0.327	10.64935	2.490		
		Unstandardized coefficients	Standardized coefficients				Collinearity Statistics
	B	Std. error	Beta	t	Sig	Tolerance	VIF
Constant	170.601	45.637		3.738	0.13		
Inflation	-6.184	2.417	-1.127	-2.558	0.051	0.385	2.597
Interest rates	-11.473	4.314	-1.089	-2.659	0.045	0.446	2.242
% change in IIP	-7.102	3.875	-0.572	-1.833	0.126	0.768	1.303
% change in WPI	11.169	9.266	0.400	1.205	0.282	0.681	1.469

Source: SPSS

Table 3 shows that the value of R square is 0.626 in the model. It means that 62.6 % of the variation in the dividend payout ratio is collectively explained by Inflation, Interest rates, percentage change in IIP and percentage change in WPI. In other words, 37.4% of the variation in dividend payout ratio prices is accounted for by other factors not taken in the study. The value of adjusted R square is 0.327. Durbin Watson test has been used to measure the assumption of auto-correlation. In the present study, the result of Durbin-Watson test showed that the value is 2.490 which is between 1.5 to 2.5 indicates that there is no first order linear auto-correlation in our multiple linear regression data. The assumption of multicollinearity is measured through Variance Inflation Factor(VIF). If this value is less than 10, researcher can conclude that there is no problem of multicollinearity exists in the data (Andy Field, 2005). In the present study, VIF values are all less than 10, it indicates that there is no collinearity in the data. The value of constant indicates that the value of Dividend payout ratio would be 170.601, even in the absence of the value of Inflation, Interest rates, percentage change in IIP and percentage change in WPI.

It is further observed from the regression analysis in Table 3 that "Inflation" (having P value of 0.051 and t value of -2.558) and Interest Rates (having p value 0.045 and t value of -2.659) are negative and significant variables determining "Dividend payout ratio" of BSE 500 index. That variable whose p-value is not less than 0.05 and t- values are within the range of -2 to + 2 seems not to be important enough in the model. Percentage change in IIP (having t-value of 0.126 and p-value of -1.833) and percentage change in WPI (having t-value of 0.282 and p-value of 1.205) is not significant variable influencing Dividend Payout ratio.

## Discussion

We undertook this research ensuing present day research calls for further research on dividend policy. Our extensive review in the literature on impact of variables on dividend policy include profitability, liquidity, leverage, size of firm, risk, growth, cash flows, life cycle, merger and acquisition strategy, the stability of earnings and the level of current and expected future earnings, market capitalization institutional factors (Pandeyand Bhatt, 2007; Pal K. and Goyal P., 2007; Basse T. and Reddemann, 2011; Bokpin

GA.,2011;Singhanian M.,2012;Pourheydari O.,2009; Denis D.J and Osobov I.,2008;, Ajmi J.A. and Hussain H.A., 2011; Chazi A. etal.,2011; Baker and Powell, 2012; Maladjian C. and Khoury R.E.,2014). We realized after a extensive literature review that there are few studies related to impact of macro-economic variables on dividend policy (Basse T. and Reddemann S.,2011; Basse T.,2009; Abor J. and Bobkin G. A.,2010;Jeong J.,2013) but study pertinent to know whether dividend policy decisions are affected by macro-economic variables in India has not been found. Therefore driven by the endorsement of researchers to know the impact of macro-economic variables on dividend policy, we made an attempt to know the same in India. The macro-economic factors included in the study were inflation, interest rates, percentage change in IIP and age change in WPI.

While testing the impact of four macro-economic variables on dividend payout ratio, we concluded that only two can explain dividend policy. Firstly, inflation is negative and significant, supporting the idea that increase in inflation may lead to decrease in real value of dividend payments. The findings are consistent with Basse T. and Reddemann S.(2011) and Basse T. (2009). Secondly interest rates are also negative and significant, supporting the idea that when firms face a costly financing environment, they may not increase dividends even if there are increased earnings to maintain adequate internal funds for future investments. The results are inconsistent with the findings of Abor J. and Bobkin G. A. (2010) and consistent with the findings of Jeong J. (2013).

Two variables found to be statistically insignificant: Index of industrial Production and wholesale price index. This suggests that these variables do not have a direct influence on the dividend payments.

## Conclusion

The main purpose of the study was to ponder the impact of macro-economic factors on dividend payout over ratio. Multiple Linear Regression was run on the sample of 319 companies listed on Bombay Stock Exchange between 2005 and 2015. Out of four variables taken under the study, only two can explain dividend policy i.e. inflation and interest rates. Two variables found to be statistically insignificant: Index of industrial Production and wholesale price index.

Understanding the determinants of dividend policy has significant implication on investors and portfolio analysts.

Investors who want to select the dividend paying firms might have to look into the two mentioned factors before selecting the bank. Furthermore, the board of directors of the Indian Companies should give consideration to Inflation and interest rates when they set the dividend policy as they are found to be the most significant variables that affect the dividend policy of Indian companies. This will help them to make an efficient, effective, and reasonable dividend payout decision which in the long run will help them to achieve their objective of maximizing profit and satisfying employees and shareholders' needs.

### Limitations

The data taken for the study is secondary data. Therefore, it includes all the limitations of the secondary data. It includes only four macro-economic variables. It is limited to 10 years only. As the data are historical in nature, they lose forecasting ability. The compilation of dividend data differs from person to person depending upon its purpose and availability. However, the researcher has adopted a balanced approach in the compilation of the data. Based on the aforesaid limitations, due care has been taken in deriving the result from regression model.

### Future Research Directions

The present study has taken into consideration only 4 macro economic variables. Various other macro economic variables like exchange rates, GDP, money supply and corporate governance can also be taken as independent variables to study its influence on dividend payout ratio.

### References

- Amidu, M. and J. Abor (2006). "Determinants of dividend payout ratios in Ghana." *The Journal of Risk Finance*. 7(2), (2006): 136-145.
- Anastassiou, T.A. (2007). "A dividend function for Greek manufacturing." *Managerial Finance*. 33( 5): 344 – 347.
- Abu, S.T.(2012). "Determinants of dividend payout policy: Evidence from Bangladesh." *International Journal of Economic Practices and Theories*. 2( 3).
- Aldin, H.andN.A. Malkawi (2008). "Factors Influencing Corporate Dividend Decision: Evidence from Jordanian Panel Data." *International Journal of Business*. 13(2), 174-195.
- Ajmi, J.A. and H.A. Hussain (2011). "Corporate dividends decisions: evidence from Saudi Arabia." *The Journal of Risk Finance*. 12 (1), 41 – 56.
- Arko, A.C., J. Abor, C.K.D. Adjasi and M. Amidu (2014). "What influence dividend decisions of firms in Sub-Saharan African?" *Journal of Accounting in Emerging Economies*. 4 (1), 57-78.
- Abor, J. and G.A. Bokpin (2010). "Investment opportunities, corporate finance, and dividend payout policy: Evidence from emerging markets." *Studies in Economics and Finance*. 27(3), 180 – 194.
- Allen, F. and R. Michaely (2003). "Payout policy." *Handbook of Economics*. 337-429.
- Baker, H.K. and G.H. Powell (1999). "Dividend policy issues in regulated and unregulated firms: a managerial perspective." *Managerial Finance*. 25(6), 1 – 20.
- Adjasi, C.K.D. (2009). "Macroeconomic uncertainty and conditional stock-price volatility in frontier African markets: evidence from Ghana." *The Journal of Risk Finance*, 10(4), 333-349
- Baker, H.K. and G.E. Powell (2000). "Determinants of Corporate Dividend Policy: A Survey of NYSE Firms." *Financial Practice and Education*. 29-40.
- Basse, T. and S. Reddemann (2011). "Inflation and the dividend policy of US firms." *Managerial Finance*. 37 (1), 34 – 46.
- Bokpin, G.A. (2011). "Ownership structure, corporate governance and dividend performance on the Ghana Stock Exchange." *Journal of Applied Accounting Research*. 12 (1), 61 – 73.
- Baker, H.K. and G.E. Powell (2012). "Dividend policy in Indonesia: survey evidence from executives." *Journal of Asia Business Studies*. 6 (1), 79-92.
- Baker, H.K., B. Chang, S. Dutta and S. Saadi (2013). "Canadian corporate payout policy." *International Journal of Managerial Finance*. 9 (3), 164 – 184.
- Banerjee, A. and A. De (2015). "Does Capital Structure decisions determine dividend Payout Policy in Indian Iron and Steel Industry? An Empirical Study." *Abhigyan*. XXXIII (2), 65-78.

- Black, F.(1976). "The dividend puzzle." *Journal of portfolio management*. 2, :5-8; <http://dx.doi.org/10.3905/jpm.1976.408558>
- Bokpin, G.A.(2009). "Macroeconomic development and capital structure decisions of firms: Evidence from emerging market economies." *Studies in Economics and Finance*. 26 (2): 129 – 142.
- Basse, T. (2009). "Dividend Policy and Inflation in Australia: Results from Cointegration Tests." *International Journal of Business and management*. 4(6),13-16.
- Brealey, R. A. and S.C. Myers (2003). *Principles of corporate finance* (7th ed.). New York: McGraw Hill.
- Chazi, A., N. Boubakri, and F. Zanella (2011). "Corporate dividend policy in practice: Evidence from an emerging market with a tax-free environment." *Pacific-Basin Finance Journal*. 19 , 245–259
- Coleman, A.K. and K.F.A. Tetey (2008). "Impact of macro-economic indicators on stock market performance. The case of the Ghana Stock Exchange." *The Journal of Risk Finance*. 9(4).
- D'Souza, J. and A.K.Saxena(1999)"Agency Cost, Market Risk, Investment Opportunities and Dividend Policy – An International Perspective." *Managerial Finance*. 25 (6),35-43.
- Denis, D.J. and J. Osobov (2008). "Why do firms pay dividends? International evidence on the determinants of dividend policy." *Journal of Financial Economics*. 89, 62– 82.
- Easterbrook, F. H. (1984). "Two agency-cost explanations on dividends." *American Economic Review*. 74, 650–659.
- Frankfurter, G.M and B.G. Wood Jr (2002)."Dividend policy theories and their empirical tests." *International Review of Financial Analysis*. 11, 111-138.
- Fairchild R., Y. Guney and Y. Thanatawee(2014). "Corporate dividend policy in Thailand: Theory and evidence." *International Review of Financial Analysis*, 31,129–151.
- Gugler K.(2003)."Corporate governance, dividend payout policy, and the interrelation between dividends, R&D, and capital investment." *Journal of Banking & Finance*. 27,1297–1321.
- Gupta A.(2010)."The Determinants of Corporate Dividend Policy." *Decision*. 37(2),63-77.
- Gordon, M. J. (1963)."Optimal Investment and Financing Policy." *Journal of Finance*. 18 (92), 264-272.
- Ho H.(2003) "Dividend Policies in Australia and Japan." *International Advances in Economic research* .9(2), 91-100.
- Humpe, A. and Macmillan, P. (2009)."Can macroeconomic variables explain long-term stock market movements? A comparison of the US and Japan." *Applied Financial Economics*, 19, 111–19.
- Jensen, M. C. (1986). "Agency costs of free cash flow, corporate-finance, and takeovers." *American Economic Review*. 76(2), 323–329. <http://dx.doi.org/10.2139/ssrn.99580>.
- Jeong, J. (2013). "Determinants of dividend smoothing in emerging market: The case of Korea." *Emerging Markets Review*. 17, 76–88.
- JóŹwiak, B.K. (2015) "Determinants of Dividend Policy: Evidence from Polish Listed Companies." *Procedia Economics and Finance*. 23,473 – 477.
- Khan, N.U., B. M. Burton and D.M. Power(2011). "Managerial views about dividend policy in Pakistan." *Managerial Finance*. 37(10),953 – 970.
- Kalra, R. (2012). "Impact of Macroeconomic Variables on Indian Stock Market." *IUP journal of financial risk management*. IX( 1),43- 54.
- Kwon, C.S. and T.S. Shin (1999). "Cointegration and causality between macro-economic variables and stock market returns." *Global Finance Journal*, 10(1).
- Kurihara, Y. and E. Nezu (2006). "Recent stock price relationships between Japanese and U.S. stock markets." *Studies in economics and Finance*. 23(3), 211-226.
- Lintner, J.(1962). "Dividends, Earnings, Leverage, Stock Prices and Supply of Capital to Corporation." *Review of Economics and Statistics*. 44,243-269.
- La Porta, R., L.D. Silanes, A. Shleifer and R. Vishny (2000) "Agency Problems and Dividend Policies around the World." *Journal of Finance*. 55, 1-33.

- Litzenberger, R.H. and K. Ramaswamy (1982). "The Effects of Dividends on Common Stock Prices Tax Effects or Information Effects?" *The Journal of Finance*. 37 (2), 429-443
- Liu, M.H. and K.M. Shrestha (2008). "Analysis of the long term relationship between macro-economic variables & Chinese stock market using heteroscedastic cointegration." *Managerial Finance*. 34(11), 744-755.
- Maladjian, C. and R. E. Khoury (2014). "Determinants of the Dividend Policy: An Empirical Study on the Lebanese Listed Banks." *International Journal of Economics and Finance*. 6 (4), 240-256.
- Moon, J., W.S. Lee and J. Dattilo (2015). "Determinants of the payout decision in the airline industry." *Journal of Air Transport Management*. 42, 282-288.
- Miller, M. and F. Modigliani (1958). "The Cost of Capital, Corporate Finance and the Theory of Investment." *American Economic Review*. 48, 261-297.
- Miller, M., and F. Modigliani (1961). "Dividend Policy, Growth and the Valuation of Shares." *Journal of Business*. 34, 411-433.
- Miller and Scholes (1982). "Dividends and Taxes: Some Empirical Evidence." *Journal of Political Economy*. 1118-1141.
- Naceur, S.B., M. Goaid and A. Belanes (2006). "On the Determinants and Dynamics of Dividend Policy." *International Review of Finance*. 6:1-2, 1-23.
- Najjar, B.A. and E. Kilincarslan (2016). "The effect of ownership structure on dividend policy: Evidence from Turkey." *The International Journal of Business in Society*. 16 (1), 1-31.
- Pandey, I.M. (2003). "Corporate dividend policy and behaviour: the Malaysian evidence." *Asian Academy of Management Journal*. 8(1), 17-32.
- Pal, K. and P. Goyal (2007). "Leading Determinants of Dividend Policy: A Case Study of the Indian Banking Industry." *Decision*. 34 (2), 87-112.
- Pandey, I.M. and R. Bhatt (2007). "Dividend Behaviour of Indian Companies Under Monetary Policy Restrictions." *Managerial Finance*. 33 (1), 14-25.
- Pourheydari, O. (2009). "A survey of management views on dividend policy in Iranian firms." *International Journal of Islamic and Middle Eastern Finance and Management*. 2(1), 20-31.
- Perretti, G.F., M.T. Allen and H. Shelton (2013). "Determinants of dividend policies for ADR firms." *Managerial Finance*. 39(12), 1155-1168.
- Patra, T., S. Poshakwale and K.O. Yong (2012). "Determinants of corporate dividend policy in Greece." *Applied Financial Economics*. 22, 1079-1087.
- Rozeff, M.S. (1982). "Growth, Beta and Agency Costs as Determinants of Dividend Payout Ratios." *Journal of Financial Research*. 5(3), 249-259.
- Sudhakar, M. and T. Saroja (2010). "Determinants of Dividend Policy in Indian Banks: An Empirical Analysis." *IUP Journal of Bank Management*. 9 (3), 63-75.
- Singhania, M. and A. Gupta (2012). "Determinants of Corporate Dividend Policy: A Tobit Model Approach." *Vision*. 16(3), 153-162.
- Serflinga, M. A. and D. Miljkovic (2011). "Time series analysis of the relationships among (macro) economic variables, the dividend yield and the price level of the S&P 500 Index." *Applied Financial Economics*. (21), 1117-1134.
- Srivastava, A. (2010). "Relevance of Macro Economic factors for the Indian Stock Market." *Decision*. 37(3), 69-89.
- Soenen, L. and R. Johnson (2001). "The interrelationship between macroeconomic variables and stock prices—the case of China." *Journal of Asia-Pacific Business*, 3(2), 67-81.
- Zameer, H., S. Rasool, S. Iqbal and U. Arshad (2013). "Determinants of Dividend Policy: A Case of Banking Sector in Pakistan." *Middle-East Journal of Scientific Research*. 18 (3), 410-424.

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# Determinants of Investment Decision-Making: Behavioral Perspective

Abdul Lathif and Syed Aktharsha

## Abstract

The people spend too much time to study investment behavior but do not enough time to focus on individual investor behavior. Regardless of what an investment does, it is the decision of the investor to buy or sell that ultimately determines success or failure. There are many individual behavioral factors that determine investment decision making. If the investor want to take right investment decision, it is important to understand the individual behavioral factors that influences there investment decision making. But there is an absence of understanding of such behavioral factors. In this regard, The study was undertaken to examine the individual behavioral factors namely, Investor Optimism, Investment Ability, Investor Effort, Risk Appetite and its impact on Investment Decision-making. A sample of 264 investors was drawn from the population of 300 investors using a structured questionnaire from investment avenues in karur district of Tamil Nadu. The result of analysis have shown that out of fourbehavioral factors, three factors viz., Investment Ability, Investor Effort and Risk Appetite are found to be significant predictors of investment decision-makingbehavior.

*Key Words: Augmented Dickey-Fuller, FII, GARCH, Random walk, Volatility*



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Investment depicts a real investment and not a financial one. It is a conscious act of an individual or any entity that involves development of money (cash) in securities or asset issued by any financial institution with a view to obtain the target returns over a specified period of time. Investment can be defined as commitment of funds that is expected to generate additional money. It may also be described as a vehicle into which funds are placed with the expectation that the funds would increase in value or would generate some return. An investor buys (invests) shares of a particular company in expectation of getting a dividend stream and/or getting a capital gain in terms of appreciation in the market price of his holding. Similarly, when an investor is subscribing to the debentures of a company or depositing money in fixed deposit scheme of a commercial bank, he is expecting a fixed interest stream for the given period and return of a redemption value at maturity. In case a person buys a house, he invests his money now and uses the house

for his own dwelling or for rental income. When he resells, he will get the market value. In these cases, there is a sacrifice or commitment of funds or other resources at present by an investor in expectation of some future return or benefits. So, an investment is commitment of current funds in anticipation of receiving larger inflow of funds in future, the difference being the income. There are three basic features which can be identified as common to all types of investment. They are: a) Commitment of present funds, b) Expectation of some return or benefits from such commitment in future, and c) Risk involved in respect of return and the initial amount invested.

Management of investment is a dynamic and continuous process. The investment decision process starts with initial investment and incorporates the challenging task of monitoring, evaluating and updating the investment in view of changing situation and environment. Decision making process in investment is concerned with the following aspects: a) What marketable securities to invest in? b) How diversified the investments should be? and c) When the investment should be made?

It has been observed that only few studies were undertaken in the field of the behavioral finance. In this context, it has been recognized as vital to understand some individual behavioral factors that will have potential impact on Investment Decision-making. Some of the behavioral factors are: 1) Investor Optimism, 2) Investment Ability, 3) Investor Effort, 4) Risk appetite.

But, there is an absence of understanding of the above said factors that influences the investment decision-making. Much study in the relationship between individual behavioral factors and Investment Decision-making has been less explored. Hence, the objective of the study is to examine the impact of individual behavioral factors on investment decision-making is contemplated here.

Investment decisions are made by investors and investment managers. Investors commonly perform investment analysis by making use of fundamental analysis, technical analysis and judgment. Investment decisions are often supported by decision tools. It is assumed that information structure and the factors in the market systematically influence individuals' investment decisions as well as market outcomes. Investor market behaviour derives from psychological principles of

decision making to explain why people buy or sell stocks. These factors will focus upon how investors interpret and act on information to make investment decisions.

### **Need of the Study**

It is explicitly known that demographic variables such as age, occupation, income and saving pattern and etc., play a vital role in Investment decision making. Many studies were already undertaken which highlighted the significance of demographic factors in the process of making investment decisions. Even though the demographic factors influence the investors' decision making, there are other behavioral factors which will have significant impact on Investment intentions and investment decision making. So it is important to understand those behavioral factors in order to devise correct investment strategies and select correct investment portfolio. From the previous studies, it has been observed that investor's optimism, investment ability, investor effort and risk appetites are individual investor behavioral factors which significantly support the individual investors with regard to investment decision making. In few previous studies, the relationship between Investor behavior and investment decisions was statistically examined. Even though, there are few earlier studies, the essence of individual behaviour factors such as investor's optimism, investment ability, investor effort and risk appetite are not fully understood. In other words, it can be said that the significance of individual behavioural factors on investment decisions are less explored in earlier studies. In this regard, an attempt has been taken to gain deeper understanding on the impact of individual investor behavioural factors on investment decision making.

### **Research Objectives**

- To study the demographic profile of respondents.
- To examine the impact of individual behavioural factors on investment decision-making in investment avenues.
- To test and validate the proposed research model.

### **Review of Literature**

In this paper, a comprehensive literature review about individual behavioural factors and Investment decision-

making has been carried out. (Chosen and Jaakko, 2011) shows that most investors had affected based on extra Motivation to invest in stock, over and beyond financial return expectations. (Zaghlami, 2009) study revealed that some psychological particularities that are not expected by the financial behavioral literature and the study were conducted on Tunisian investors. (Mahendra, 2008) study stated that irrational investment decision making is a widespread phenomenon. They study the perils of irrational decision-Making in investments choice which finally can lead to great risk. (Vera, 2008) identified the demographic profile and investor personality can be the two determinants for making perception about the investor psychology, which if scientifically studied could help the Wealth Management professionals to advice their clients to invest better stock. (Commines, 2009) in their article discussed the hedonistic psychology of investors. It cites that the pursuit of happiness becomes hedonistic when people want to get the Most of their investment and gaining wealth is no longer confining that one becomes overly materialistic. (Markowitz, 1952) proposes that a two-criterion approach when an investor is faced with the desire for higher returns but not wanting the uncertainty of returns, which he perceives as risk. Many other researchers have extended this discussion. The literature has developed into two schools of thought as researchers have sought to explain the choices investors make about risk within their investments. One group of scholars has used demographic features that relate the significance of gender, ethnicity, wealth, income, and a variety of other factors to the explanation of investment management decisions. (Kiran and Rao, 2005) revealed that whether demographic and psychographic variables were effective on risk-bearing capacity of Indian investors by conducting a sample survey. By evaluating the data they had seen a strong relationship between the risk attitudes, psychographic and demographic variables. (Lodhi, 2014), shows the impact of financial literacy use of accounting information, high experience and investment decision of any individual by applying a survey in Karachi, Pakistan. The authors revealed that financial literacy and accounting information were considered to be significant in lowering information asymmetry and allowing investors to invest in risky instruments. (Nagy and Obenberger, 1994) examined a survey on determining the underlying criteria that affect decisions of individuals of equity investors with substantial

holdings in 500 firms. The result of analysis have shown that out of five, wealth maximization were found significant among respondents while, the effect of recommendations of brokerage houses, family members, stock brokers and co-workers were identified as insignificant. (Bennet et al., 2011) tried to identify various factors that influence retail investor's attitude towards investing in equity stock markets. He collected a structured questionnaire to retail investors in Tamilnadu, India. The result of analysis have shown that out of the total 26 variables, it was found out that five factors namely, investor's tolerance, strength of the Indian economy, media focus on the stock market, government policy and political stability towards business had a very high influence the attitude towards in equity stocks. (Tabassum Sultana and Pardhasarathi, 2012) revealed a factors influencing Indian individual equity investors decision-making and behavior. As a result, out of 40 attributes, it was found 10 factors which represent investor's decision in common. (Obamuyi, 2013) investigated the socio-economic factors influencing investment decision of investors in the Nigerian capital market through a modified questionnaire developed by (Al-Tamimi, 2005). As a result, when taking investment decisions non-economic factors such as rumors, religious, loyalty and Opinion of members of family were found to be insignificant among investors. (Geetha and Vimala, 2014) examined the effect of demographic variables on the investment decisions in Chennai, India. As a result, they stated that age, income, education and occupation had an influence in the investment avenue. (Kerr, 2014) shows that the other group has its foundations in psychology, using investors' psychological characteristics to explain choices that are made concerning investment decisions. The theory of planned behaviour considers behavioural intention as immediate antecedent right before the future behavior. This relationship has been proved and strongly supported by many previous experimental studies (Sheppard, Hartwick et al.1988, Armitage and Conner 2001). (Ajzen, 1991) defines behavioural intention to be "assumed to capture the motivational factors that influence a behavior; they are indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior". Many studies also claim the strong involvement of intention in behavior performance in a way that increases the chance of the behavior being conducted. At the same time, they also agree that individual's investment

intention strongly affect behavior and may lead. He/she will perform his/her behaviour. (East, 1993), (Harrison and Mykytyn Jr et al., 1997), (Brown and Venkatesh, 2005), (Song and Zahedi, 2005), (Michael, 2011) In the case of investment on stock market, behavioural intention is considered to present individual investor's motivation to make a specific investing decision.

### Research Model

Through the literature review it is clear and evident that there could be interrelationships between the dimensions of individual behavioural factors and investment decision-making. But, there is few empirical support to prove that individual behavioural factors has a significant and positive effect on investment decision-making. This research curiosity has led to the construction of following research model **Figure 1** and its corresponding hypotheses.

**H1. Investor Optimism (IO) has significant positive association with Investment Decision-making (ID).**

**H2. Investment Ability (AB) has significant positive association with Investment Decision-making (ID).**

**H3. Investor Effort (IE) has significant positive association with Investment Decision-making (ID).**

**H4. Risk Appetite (RA) has significant positive association with Investment Decision-making (ID).**

### Research methodology

This basically is an empirical study and as the name suggests it relies on experience or observation alone, and it can even be without due regard for system and theory (Kothari, 2004). This is basically a data-based research, which can give conclusions based on observation. As far as the approach is concerned, it is both qualitative as well as quantitative in nature. Literature pertaining to individual behavioral factors and investment decision-making have been reviewed to understand the relevance of each one of them, and also, to examine their antecedents and consequences of the same and used in the formulation of the working hypothesis.

### Research Design

The study design is Descriptive in nature. Descriptive Research is a fact-finding investigation with adequate

interpretation. It is the simplest type of research and is more specific. It is mainly designed to gather descriptive information and provides information for formulating more sophisticated studies.

### The Questionnaire

The questionnaire consists of two parts namely part I and part II. The part I contained 7 questions on Demographic factors of users such as Name, Age, Gender, Marital Status, Educational Qualifications, Employment Status, Annual Income and Investment Preferences. Part II consists of the conceptual factors such as Investor Optimism with 4 questions, Investment Ability with 4 questions, Investor Effort with 2 questions, Risk Appetite with 4 questions and Investment Decision-making with 14 questions. The scaling values are 1-Strongly Agree; 2-Agree; 3-Neutral; 4-Disagree; 5-Strongly Disagree.

### Sources of Data

The sources of primary and secondary data were used for the collection of Information for the study. Primary data was collected through questionnaire and secondary data from Articles have been sourced from Magazines and journals dealing with the concepts of investment decision behavior.

### Sample Size and Sampling Method

The sample size of the study is 264 investors. Disproportionate simple random sampling was adopted. The reliability and convergent validity of the instrument have been verified. Finally, the metric in the form of a self-administrated questionnaire with 5-point Likert scale was distributed to 300 investors (response rate 88%), who are basically investors investing in the various investment avenues, to collect data.

### Procedure

With the support of stock brokers, the respondents were contacted during their free timings and the objective as well as the importance of the research was explained, and also, it was ensured that there would be no bias in their response. Several visits were made to the Brokerage firms until the desired sample size was obtained.

### Sample Characteristics

Out of 264 respondents, 55.7 percent of the investors were male. 34.1 percent of the investors were between the age

group of 41-50 years. 96.6 percent of the investors were married. 34 percent of the investors were UG degree holders. About 43.2 percent of the investors were doing business. About 35 percent of investors were drawing income of above 5 lakhs. About 27.3 percent of the investors were investing in Equity and Stock.

### Data Analysis

The study has employed 'Cronbach alpha coefficient' for assessing the reliability of the scale. According to Nunnally (1978), Cronbach alpha level of 0.60 or above is considered to be acceptable for construct. Also, Convergent validity of all the constructs was examined using the measure of Average Variance Extracted (AVE) that is the average variance shared between a construct and its items (Fornell&Larcker, 1981). Chin et al 1999&2003 indicated that a construct with an AVE of over 0.5 is expected to have adequate convergent validity.

**Table 1** presents that all the constructs namely Investor Optimism (IO), Investment Ability (AB), Investor Effort (IE), Risk Appetite (RA) and Investment Decision-making (ID) exhibit adequate reliability with internal consistency values of 0.78, 0.82, 0.79, 0.74, 0.77 respectively which is greater than recommended alpha value of 0.60. Also, The AVE of each of construct was over 0.40 which satisfies the standard values.

### Model Validation

In order to test the proposed Hypothesis, this study employed a construct level Correlation analysis as an initial verification. Visual PLS is used to compute the constructs scores. Using these constructs scores as a base, the study explored the relationship between the variables using SPSS package 21.0. The construct correlation has been presented in the **Table 2**.

The correlation table indicates that there exists a positive relationship between Individual behavioural factors and Investment decision-making. Staples et al (1998) indicated that through the bivariate correlation are significant between the construct, it is still required to assess the path coefficient in the structural model as a causal effect. (Efron 1979, Efron and Gond, 1983) expressed that in order to ensure that path coefficients are statistically significant, this study has

investors a bootstrap and jack knife re-sampling procedures to estimate standard errors for calculating values using visual PLS. The results are examined and the t-statistics value at the 0.05 level is 1.96. If the t-statistics value is greater than 1.96, the path is considered to be significant.

As presented in **Figure 2 and Table 3**, the path linking Investor Optimism (IO) to Investment Decision-making (ID) was insignificant at 0.05 level (beta = -0.187, t = -1.8019), indicating Investor Optimism has no significant effect on Investment Decision-making. This provided no support for H1.

The path linking Investment Ability (AB) to Investment Decision-making (ID) was significant at 0.05 level (beta = 0.313, t = 3.8934), indicating Investment Ability (AB) has a significant effect on Investment Decision-making (ID). This provided support for H2.

The path linking Investor Effort (IE) to Investment Decision-making (ID) was found to be significant at 0.05 level (beta = 0.239, t = 2.3141), indicating Investor Effort (IE) has a significant effect on Investment Decision-making (ID). This provided support for H3.

The path linking Risk Appetite (RA) to Investment Decision-making (ID) was found to be significant at 0.05 level (beta = -0.270, t = -3.3827), indicating Risk Appetite (RA) has a significant effect on Investment Decision-making (ID). This provided support for H4.

Collectively, Individual behavioural factors explained about 30 percent of the variance in the Investment Decision-making.

### Discussion

It is theorized that Investment Decision-making are to be predicted by Individual behavioural factors viz., Investor Optimism, Investment Ability, Investor Effort and Risk Appetite. In other words, it can be understood that Individual behavioural factors significantly predicts Investment Decision-making of investors.

The overall results of the structured model analysis revealed that out of four, three Individual behavioural factors viz., Investment Ability, Investor Effort and Risk Appetite act as significant predictors in Investment Decision-making among investors.

From the analysis, it is revealed that Investment Ability has a significant effect on Investment Decision-making. This finding is consistent with the findings of Roberto Mura and Maria-Teresa Marchica (2010). It implies that investor's level of confidence in their ability with regard to the selection of financial instruments influences the investment decision-making. Also, their nature of responsibility with regard to their investment decisions and Investment Management facilitates them to make better investment decisions. It is also understood that the complete and comprehensive knowledge of investors on financial instruments plays the key role in the every stage of Investment Decision-making. Among the factors, the investor ability is perceived to be dominant behavioural factor.

From the results, it is determined that Investor Effort has a significant effect on Investment Decision-making. From the analysis, it is understood that the active involvement of investors in trade activity determines the investment decision-making. Also, how fast the investors make observation on index is another parameter that enables them to make investment decision-making. From the results, it is also evident that the mentality of investors on quick return enables them to make better and quick investment decision-making.

It is further identified that Risk Appetite has significant effect on Investment Decision-making. This finding is consistent with the finding of Kailan Shang and Zhen Chen (2012). It implies that the risk appetite that investors are willing to take for, greatly influences their investment decision-making.

On Contrast, Investor Optimism did not have much impact on Investment Decision-making. This may be due to lack of knowledge in the stock market. Also, it is observed that young/new investors get in to some sort of confusion when they apply more than one investment selection process at a time. This type of confusion creates negative impact on investor optimistic behaviour. As a result, Investor Optimism does not influence the investment decision-making.

### Research Limitations and Future Research

There are few limitations to this research study. First, the research setting for the current study was limited to one particular District. Second, only the portion of variance (30%) has been shown by independent variables (Investor Optimism, Investment Ability, Investor Effort and Risk Appetite) on the dependent variable (Investment Decision-making). It means that there may be other factors on

individual behaviour which are hidden but may have significant influence on investment decision-making. Finally, the study's findings are based on the modest sample size of 264 respondents. Although PLS Graph can handle small size and generate valid results, a larger sample with more statistical power would have permitted the researcher to use other covariance based structural equation modelling tools. Future research may be focused with larger samples, in different context and different behavioural factors. Also, in future research, the findings of this research study can be verified using sophisticated structural equation modelling tools.

### Implications for practices

The study has highlighted the importance of individual behavioural factors and its corresponding impact on the investment decision-making of investors. It will enable the investors to pay special focus on these three individual behavioural factors such as Investment ability, Investor Effort and Risk Appetite, which plays a vital role in the process of investment decision-making. Since, the investor ability is found to be dominant predictor, this will encourage the existing investors in strengthening their level of confidence, which in turn, enhances the quality of Investment Decision-making.

The results have revealed that Investor Optimism does not support in investment decision-making. So, the investors are recommended to gain more knowledge regarding the various investment avenues and its selection process. This Knowledge base will give them clarity, with the help of which, they will select the appropriate investment avenues. In this regard, the brokerage firms also should take some initiatives by organizing awareness and training programs for investors.

### Conclusion

The purpose of this study is to investigate the associations between the Individual behavioural factors and Investment decision-making among the investors in particular district. A model is developed and tested using structured modelling approach. The empirical findings have revealed that Individual behavioural factors are associated with investment decision-making. Besides, Investment Ability, Investor Effort and Risk Appetite have a positive influence on Investment Decision-making. Among the behavioural factors, Investment Ability is found to be dominant behavioural factor and influences Investment Decision-making to great extent.

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**References**

- Ajzen, I. (1985). "Action-control: From cognition to behaviour". In: Kuhl, I.J., Bechmann, J. editors. *From Intentions to actions: A Theory of planned behaviour*. Berlin, Eidelberg: Springer: p. 11-39.
- Ajzen, I. (1991), "The theory of planned behaviour. *Organisational behaviour and human decision processes*, 50(1), 179-211.
- Al-Tamimi, H.A.H. (2005). "Factors Influencing individual investors' behaviour: An empirical study of the UAE financial markets." *IBRC Athens*, Aryan Hellas Limited.
- Bennet, E., Selvam, M., Indumathi. G., RAmkumar, R.R., Karpagam, V. (2011), "Factors Influencing retail investors' attitude towards investing in equity stocks: A study in tamilnadu. " *Journal of Modern Accounting and Auditing*, 7(3), 316-321.
- Bennet, E., (2011), "Stock-specific factors and its influence on investors' sentiment: evidence from Indian stock market." *financial markets & corporate governance conference*.
- Brahmabhatt. (2012). "A study of Investor Behaviour on Investment Avenues in Mumbai Fenil." *Asian journal of Marketing & Management Research* 1(1): 49-71.
- Cetin C. (2007). "Markowitz kuadraticprogramlamaile optimal portfeysecimi." *Suileymandemirel Universite siIktisadeIdari Bilimler fakultesi Dergisi*, 12(1), 63-81.
- Civan, M. (2007). "Sermaye Piyasasi Analizlerive Portfey Yonetimi." 1<sup>st</sup> Bask. Ankara: GaziKitabevi. p.306, 315.
- C.R. Kothari. "Research Methodology: methods and techniques." *vishwaprakshan*, New Delhi, 1999, pp.21-151.
- Demirtas, O., Gungor Z. (2004), "Portfeyyone timive portfeyseciminey one likuygulama. Havaclikve Uzay Teknoloileri Dergisi, 1 (4), 103-109.
- D. Cooper and Schindler, "Business research methods." Tata New Delhi, Mcgraw hill, 2007, pp.138-170.
- Ebenezer Bennet (2012). "The impact of Investors' sentiment on the equity market: Evidence from Ghanian stock market." *International journal of business administration*, vol.3 (5): 99-109.
- Geetha, S.N., Vimala, K. (2014). "Perception of household invidual investors towards selected financial investment avenues. *Proceida Economics and Finance* 11, 360-374.
- Gungor, B. (2003), "Finansliteraturunde anomaly kavramiveetkinpiyasalarhipotezi." *Ataturk UniversitesiIktisadeIdariBilimlerFakultesiDergisi*, 17, 109-133.
- Kahnemann, D., veTversky A. (1974). "Judgment under uncertainty: Heuristics and biases." *Science*, 185, 1124-1131.
- Kahnemann, D., veTversky A. (1979), "Prospect theory: An analysis of decision under risk." *Econometrica*, 47, 263-292.
- Kailan Shang and Zhen Chen (2012). "Risk Appetite: Linkage with Strategic Planning." *Society of Actuaries*, p. 2-57.
- Kourtidis, D., Sevic, Z., Chatzoglou, P. (2011), Investors' trading activity: A behaviouralperspective and empirical results". *The journal of socio-economics*, 40, 548-557.
- Lodhi, S. (2014). "Factors influencing individual investor behaviour: An empirical study of city Karachi." *journal of business and Management*, 16 (2), 68-76.
- Markowitz, H. (1952), "Portfolio selection." *The Journal of Finance*, 7 (1), 77-91.
- Mehmet Islamoglu, Mehmet Apan, AdemAyvali (2015), "Determination of Factors Affecting Individual investor behaviours: A study on Bankers." *International Journal of Economics and Financial Issues*, 5(2), 531-543.
- Nagy, R. A., Obenberger, R.W. (1994), "Factors influencing individual investor behaviour." *Financial analysts' Journal*, 50(4), 63-68.
- Obamuyi, T.M. (2013). "Factors influencing investment decisions in capital market: A study of individual investors in Nigeria". *Organisations and markets in emerging economics*, 4(7), 141-161.
- Reilly, F.K, Ve Brown, K.C. (1999), "Investment Analysis and Portfolio Management." 6<sup>th</sup> ed. Orlando: Harcourt College Publishers. P. 211.
- Shanmughama, R, Ramyab, K (2012). "Impact of social factors on individual investors' Trading behaviour." *procedia economics and finance*. 2<sup>nd</sup> Annual International Conference on Accounting and Finance. P. 237-246.
- Tabassum Sultana, S., Pardhasaradhi, S. (2012). "An empirical analysis of factors influencing Indian individual equity investors' decision making and behaviour." *European Journal of Business and Management*, 4 (18), 50-61.

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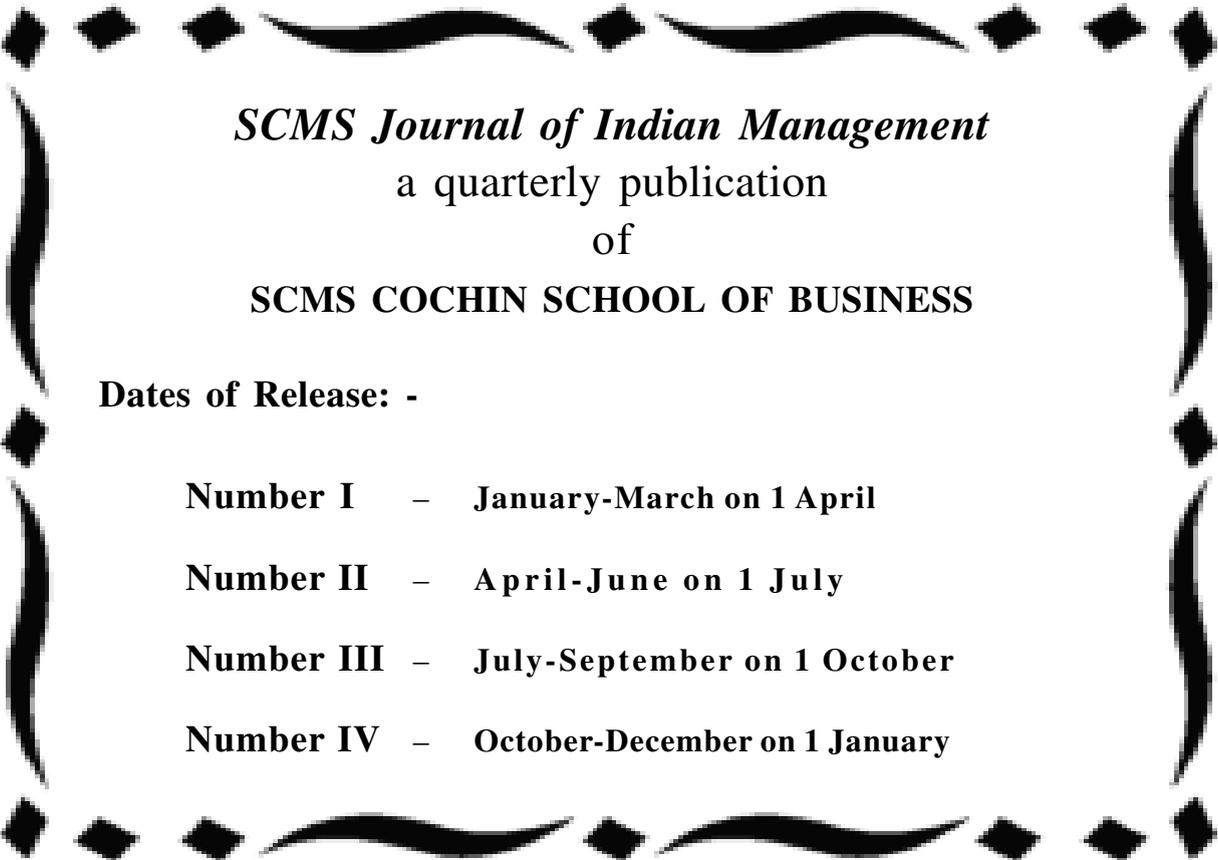
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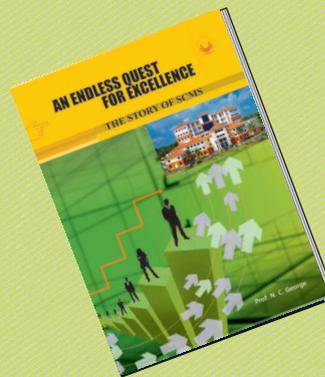
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