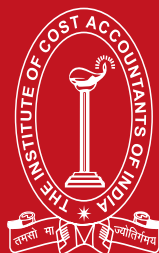


Peer - Reviewed Quarterly Journal

www.icmai.in

RESEARCH BULLETIN



THE INSTITUTE OF COST ACCOUNTANTS OF INDIA

Statutory Body under an Act of Parliament

ISSN 2230 9241

Volume 44 • No. IV • January 2019

Mission Statement

The CMA professionals would ethically drive enterprises globally by creating value to stakeholders in the socio-economic context through competencies drawn from the integration of strategy, management and accounting.

The Institute of Cost Accountants of India would be the preferred source of resources and professionals for the financial leadership of enterprises globally.

Vision Statement

www.icmai.in

RESEARCH BULLETIN



THE INSTITUTE OF COST ACCOUNTANTS OF INDIA

Statutory Body under an Act of Parliament

ISSN 2230 9241

Volume 44 • No. IV • January 2019

Disclaimer

The Institute assumes no responsibility for any act of copying or reproduction, whether fully or partially, of any write up/research paper which is not the original work of the author. The write up/research papers published in good faith on the basis of declaration furnished by the authors.

All rights reserved. No part of this publication may be used or reproduced in any manner whatsoever without permission in writing from The Institute of Cost Accountants of India.

<i>Price of Single Copy</i>	: ₹ 400.00 only
<i>Annual Subscription (for four volumes)</i>	: ₹ 1200.00 p.a.
<i>Courier Charges</i>	: ₹ 200.00 p.a. for four volumes
<i>Month of Publication</i>	: January, 2019

© 2019 The Institute of Cost Accountants of India

Printed and Published by

CMA Amit Anand Apte

President

The Institute of Cost Accountants of India

12 Sudder Street, Kolkata - 700016

Foreword

India has a diversified financial sector undergoing rapid expansion, both in terms of strong growth of existing financial services firms and new entities entering the market. The sector comprises commercial banks, insurance companies, non-banking financial companies, co-operatives, pension funds, mutual funds and other smaller financial entities. The banking regulator has allowed new entities such as payments banks to be created recently thereby adding to the types of entities operating in the sector.

Stressed assets in public sector banks have plagued the banking sector since long. It is in this context that growth in the banking sector can be envisaged through consolidation of weaker entities with strong players in the market. The recent successful merger of two public sector banks (PSBs), Dena Bank and Vijaya Bank, with Bank of Baroda NSE 2.33 % has paved the way for the future road map of PSB restructuring. It has created the right synergy, achieved scale & resulted in better shareholder value creation. To be globally competitive, we have to build banks that are bigger and stronger than what we have at this time. The faster we do it, the better it would be. The amalgamation of the three banks is the first step to achieving that goal. Amalgamations bring value and efficiencies.

Thus, it gives me an immense pleasure to present before you esteemed Research Bulletin of the Institute, Research Bulletin Vol.44, No. IV, January, 2019 issue.

This publication brings you in-depth research insights on a wide range of topics on contemporary issues like Banking, Capital Market, Internal Audit, Capital Structure, Green national Accounts, etc. well-written by researchers, academicians and professionals.

Wish you all a happy reading and hope you would find it to be an extremely useful tool to enrich your knowledge base.

CMA Amit Anand Apte
President
The Institute of Cost Accountants of India

Editor's Note

Indian financial services sector is set to dominate the Indian economy over the next few decades. Banking, capital markets, insurance and asset management are all set to significantly grow in the next few years. Learning from global financial disturbances and evolving financial technologies, the Industry leaders and the regulators are working on building a sustainable banking environment in India. Foreign institutional investors are back in business and keen to invest in India for the longer term. Large players in fund management industry are exploring investment opportunities and even setting up their business presence in India. The Mutual Fund (MF) industry in India has seen rapid growth in Assets Under Management (AUM). Along with the secondary market, the market for Initial Public Offers (IPOs) has also witnessed rapid expansion.

The Indian financial services sector is operating in a fast-evolving and dynamic regulatory and tax landscape with an ever growing demand for transparency and efficiency. This makes it extremely important for the industry players or the new entrants to understand the tax and regulatory framework which could have an impact on their business goals.

India is today one of the most vibrant global economies, on the back of robust banking and insurance sectors. The relaxation of foreign investment rules has received a positive response from the insurance sector, with many companies announcing plans to increase their stakes in joint ventures with Indian companies. Over the coming quarters there could be a series of joint venture deals between global insurance giants and local players.

Research Bulletin, Vol.44, No. IV, January 2019 issue comprises of various blazing topics on Finance, Banking, Capital Markets, etc. would surely improve the knowledge base of readers. Inputs are mainly received both from academicians and professionals. Further, next issue of Research Bulletin, i.e., Vol.45, No. I will be Non-theme too.

We look forward to constructive feedback from our readers on the articles and overall development of the Research Bulletin. Please send your mails at research.bulletin@icmai.in. We express thankfulness to all the contributors and reviewers of this important issue and wish our readers get requisite insight from the articles.

Warm regards,

CMA (Dr.) Debaprosanna Nandy
Senior Director (Studies & Advanced Studies)
Editor, Research Bulletin
The Institute of Cost Accountants of India
E-mail: studies.director@icmai.in

Journal & Publications Committee: 2018-19

CMA Dr. I. Ashok
Chairman

CMA Avijit Goswami
Member

CMA Vijender Sharma
Member

CMA Papa Rao Sunkara
Member

CMA P. Raju Iyer
Member

CMA Biswarup Basu
Member

CMA Amit Anand Apte
President & Permanent Invitee

CMA Balwinder Singh
Vice President & Permanent Invitee

CMA Sucharita Chakraborty
Secretary, Journal & Publications
Joint Director & HoD, Journal & Publications

Editorial Board

Prof. Amit Kr. Mallick

Former Vice Chancellor, Burdwan University

CMA (Dr.) Asish K. Bhattacharyya

Director, Institute of Management Technology, Ghaziabad (IMTG)

Dr. Ashoke Ranjan Thakur

Vice Chancellor, Sister Nivedita University, West Bengal

Dr. Bappaditya Mukhopadhyay

Professor, Finance & Economics, Great Lakes Institute of Management, Gurgaon

Dr. Dilip Kr. Datta

Director, Sayantan Consultants Pvt. Ltd, Kolkata

Dr. Malavika Deo

Professor, Department of Commerce, Pondicherry Central University, Puducherry

Dr. G. Nagaraju

Associate Professor, National Institute of Bank Management, Pune

Dr. P. K. Jain

Professor Emeritus, Department of Management Studies, Indian Institute of Technology (IIT) Delhi

Dr. Sankarshan Basu

Professor, Indian Institute of Management, Bangalore

CMA (Dr.) Sreehari Chava

Director, Shantiniketan Business School, Nagpur

CMA V. S. Datey

Consultant, Corporate Laws & Taxation, Nashik

Editor: ***CMA (Dr.) Debaprosanna Nandy***

Sr. Director (Studies & Advanced Studies)

Our Contributors in this Issue

Arup Kumar Chattopadhyay

Supervisor, Department of Economics, The University of Burdwan, Burdwan, West Bengal

arup.chatto@yahoo.co.in

Debdas Rakshit

Supervisor, Department of Commerce, The University of Burdwan, Burdwan, West Bengal

debdas_rakshit@yahoo.co.in

Malay Kumar Paul

Vice President - Commercial Controls, Systems and Process, Birla Corporation Limited, Kolkata, West Bengal

mkpcalcutta@yahoo.co.in

Nabanita Khuntia

Research Scholar, Department of Tourism Studies, Pondicherry University, Pondicherry

khuntianabanita2010@gmail.com

Pankaj Inchulkar

Assistant Professor, School of Management, Ajeenkya DY Patil University, Pune

pankaj.inchulkar@gmail.com

Pranab Nag

Associate Professor, Deptt. of Commerce, Nabadwip Vidyasagar College, West Bengal

nag.pranab@yahoo.com

P. Siva Rama Prasad

Asst. General Manager (Retd.), State Bank of India, Hyderabad

cma.psrprasad@gmail.com

Rajbinder Kaur

Research Scholar, Department of Commerce, The University of Burdwan, Burdwan, West Bengal

itsraj13@gmail.com

R Kasilingam

Associate Professor, Department of Management Studies, Pondicherry University, Pondicherry

kasimeena@gmail.com

Sajal Kumar Maiti

Professor and Head, Post-graduate Dept of Commerce, Hooghly Mohsin College,
Chinsurah, West Bengal
maitisajal@rediffmail.com

Sanjay Kumar Mandal

Research Scholar, Department of Business Management, University of Calcutta,
Kolkata, West Bengal

Subhendu Kumar Pradhan

Assistant Professor, School of Management, Ajeenkya DY Patil University, Pune,
Maharashtra
subhenduam@gmail.com

.....

Contents

<i>Buyback Effects from Investors Perspective</i>	1
<i>Subhendu Kumar Pradhan, R Kasilingam, Nabanita Khuntia, Pankaj Inchulkar</i>	
<i>Conducting Internal Audit: Cement Industry</i>	12
<i>Malay Kumar Paul</i>	
<i>Interrelationship between Capital Structure and Dividend Policy with Reference to Select Indian Companies</i>	75
<i>Rajbinder Kaur, Arup Kumar Chattopadhyay, Debdas Rakshit</i>	
<i>Merger of ‘Bank of Baroda’ with ‘Vijaya Bank’ and ‘Dena Bank’ (Horoscopes of Three Banks)</i>	99
<i>P. Siva Rama Prasad</i>	
<i>Nature, Economics, Sustainability and India’s Green National Accounts</i>	113
<i>Pranab Nag</i>	
<i>Social Banking in India, a Journey Well Traversed: an Empirical Study in its Interrelation among Selected Semi Urban, Urban, and Rural Areas in the state of Maharashtra</i>	130
<i>Sanjay Kumar Mandal, Sajal Kumar Maiti</i>	

BUYBACK EFFECTS FROM INVESTORS PERSPECTIVE

Subhendu Kumar Pradhan
R Kasilingam
Nabanita Khuntia
Pankaj Inchulkar

Abstract:

The study attempted to find out the buyback effect from the investors perspective. To analyse this effect, primary data was used. The primary data was collected from the equity investors through interview method with the help of structured questionnaire. Total 444 samples were collected and used for the analysis. The mean analysis was used to identify which variable is influenced and which variable is not influenced by the buyback. Structural equation modeling is used to know whether buyback significantly influence the share price, timing of investment and shareholding or voting right and whether the investors react to it or not. The study concluded that buyback decrease the share price significantly. The study also concluded that buyback does not influence the shareholding and timing of investment. The study proves that the investors do not react to the buyback announcement.

Key Words:

Buyback, Price Reaction, Investors Reaction, Share Price



Introduction

Buyback program is a corporate action in which a company buys back its own shares from the existing shareholders. When a company buys its own shares from the shareholders, it reduces not only number of outstanding shares in the market but also affects market share prices. The market reaction to buyback announcement is positive (Comment and Jarrell, 1991; Ikenberry et al., 1995; Raad and Wu, 1995; and Vermaelen, 1981) or negative depends upon the market situation, motive of buyback and size of buyback etc. The buyback influences the share price positively (Ramsey 2000) but it does not create any sustained rise in the share price (Roosenboom, Gorjaev, Beemt 2001).

In theory, effect of buy back of shares is supposed to be positive, but it not so for all cases. For example, in 2011, out of 500 companies under BSE 500 index, 14 companies announced buyback program. Out of 14 companies, share prices of six companies (such as Onmobile Global, Zee Entertainment Enterprises, Rain Commodities, CRISIL, Reliance Infrastructure and Monnet Ispat & Energy) increased between the announcement date and the day the buyback started. On the other hand, share prices of Deccan Chronicle Holdings (DCHL), Jindal Poly Films, Amtek Auto and PrajIndusries, BalrampurChini and FDC fell 32.2 percent, 24.4 percent, 16.6 percent, 7.6 percent, 6.1 percent and 5.2 percent, respectively. The reasons for falling of the share price is probably due to mismatch between buy back prices announced by the company and investors'

expectations. Another example, in 2014, Mastercard approved a new buyback program of 3.75 billion dollars. During the buyback period, share price of the Mastercard increased approximately 25 percent at the end of 4th quarter of 2014. This aligns with market dynamics that typically dictate a rise in share price due to reduction of outstanding shares from the market. The buyback announcements may have short term effect and long term effect on share price. It increases the share price in short run (Mishra, A.K 2004) and produces long run returns (Ikenberry et al. 2000) as well.

The buyback influences the investment decision of the investors. When the share price is undervalued, the company buys back its own shares at higher price than the market price. The investors who desire to sell off their shares partially or completely to the company will get more returns. So, the investors may change their investment decision based on the price of the shares. On the other hand, the company buys its own share at high price to create the positive perception about its share price. In other words, it sends the positive message to investors that share valuation should be higher and it pushes the market price upwards. In this situation, the investors may change their investment decision.

When the company has enough free cash reserve and does not have any new investment opportunity, the company rewards the shareholders through the buyback program with the intention to rationalise the capital structure of the company. As a result, return on assets, return on equity capital and EPS are increased, without increase in operating



efficiency. Due to increase in the EPS, the investors may change their investment decision policy because individual investors select the company based on earnings of the company.

Sometime buyback influences the timing of the investments of the investors. The investors may make investment in same company immediate after the announcement or before the record date or after the recode date that depends upon the motive of the buyback and how does the market react to buyback. If the market react to buyback is favourable, then investors may purchase immediately or hold the same company's shares after the announcement. If the market reaction to the buyback is not favourable, then investors may sell the shares to the company.

Buyback also influences the shareholding of investors. As reduced the number of shares in effect of the buyback, those who have sold out their shares partially or fully to the company. Definitely it would affect their shareholding or voting right.

Therefore, the study attempts to analyse the buyback effect in the view point of investors.

Review of Literature

The finance literature examined many aspects of buyback activity including why firms go for buyback, how share prices react to buy back and how investors react to buyback. Early research clearly shows that buyback announcements are associated with stock price increases (Dann, 1981 & Masulis, 1980). The market reaction to share buyback announcements

is often quite strong with the size of the reaction depending on such factors as the form of the buyback method and the reason for the buyback (Vermaelen, 1981).

Loughran and Ritter (1995) argued that investor overreaction explains the negative long-run abnormal returns following a seasoned equity offering (SEO), a conclusion based on the good past performance of firms announcing an SEO. Investor reaction to the negative news conveyed by the SEO (Myers and Majluf 1984) is ignored in reaching this conclusion.

Ikenberry, Lakonishok, and Vermaelen (1995) argued that investor under reaction explains the positive long-run abnormal returns following a buyback. They concluded that the information conveyed by the share buyback itself. Investor reaction to the prior poor performance of firms announcing share repurchases is ignored in concluding that investor under reaction explains the long-run positive trend in returns.

Lie (2000) found that the market reaction to firms announcing repurchase tender offers is positively related to the amount of excess cash held by the announcing firms relative to their industry peers. Relative to lower-taxed institutional investors, individual investors have traditionally had a tax incentive for share repurchases as opposed to taxable dividends.

However, Brennan and Thakor (1990) the results show that institutional investors prefer firms that engage in larger share repurchases whereas individual investors



do not prefer share repurchases. Taken together, these results are inconsistent with (a) the predictions of the tax-based dividend clientele hypothesis and (b) the hypothesized preference of institutions for dividend-paying firms for non-tax reasons.

Kai Li and William McNally (2007) attempted to find out the impact of Canadian firm characteristics and insider private information on repurchase decision and with associated announcement period stock return. The study found that firms are more likely to buy back shares if they have enough free cash flows, lower market-to-book ratios, poor prior stock performance, and their insiders have large shareholdings. It is shown that the announcement period returns are strongly and positively related to the private information possessed by company insiders. The market reacts to the reason given for the repurchase and reacts less positively to repeat repurchases.

Comment and Jarrell (1991) tested the signaling and found that the announcement returns are positively related to the proportion sought in the repurchase and negatively related to pre-announcement stock returns.

McNally (1999) examined a more rigorous signaling model and found that the returns are positively related to the quantity of shares targeted, the stock's volatility, and the size of insider holdings. Grullon and Michaely (2004) examined a free cash flow hypothesis, and found that announcement returns are positively related to the proportion sought and cash (for low market-to-book firms), and

negatively related to the market-to-book ratio and size.

Masulis (1980) and Vermaelen (1981) proposed an optimal leverage hypothesis to explain the abnormal returns around repurchase announcements. If firms are below their optimal capital structure, then share repurchases increase leverage, increase the interest tax shield, and increase firm value.

Chanet al. (2007) confirmed the ability of managers to time the market in repurchase event, which implies that managers have superior information over the market, regarding the firms' fundamentals. In this case, the firm announcing repurchase program is genuinely mispriced and there is no need for managers to listen to the market. Managers with inside information will buy back shares and complete the buyback program as a positive net present value (NPV) self-investment. A negative announcement AR leads stock prices to further deviate from the true value of the firm, which gives managers more incentive to time the market by buying back more shares. It follows that the short run AR and the repurchase completion ratio will have a negative relationship. Moreover, once the manager actually buys back shares and achieves the announced repurchase ratio, then this repurchase could be regarded as a signal for the undervaluation of the firm, and outside investors will eventually positively react to the response (i.e., the actual buyback decision) of the manager. Thus, a positive long-term abnormal return for announcing firms is expected.



Hung-Kun Chen, Yan-Shing Chen, Chia-Wei Huan, and Yanzhi Wang (2009) many research investigated how the stock market reacts to announcements of corporate events but very few study the opposite, how namely, the manager responds to the information from outside investors. In this paper it examined this issue using open market share repurchases. Open market share buyback offers flexibility for the manager to decide whether or not to buy back shares. Therefore, the manager may refer to the opinions of outside investors and make the decision, based on actual buyback activities. We proposed learning, over-confidence and timing hypotheses to interpret the behaviour of the managerial response to initial market reaction on the share buyback announcement. Empirically, if a repurchase announcement abnormal return is low, then the manager tends to achieve the repurchase announced ratio by purchasing more shares.

Joost Hartholt (2012) many studies criticized that buyback creates no sustainable value. Results of prior studies show that the announcement of a buyback creates a positive but temporary effect in share price. The temporal effect is gone after thirty days. In this research, several different variables were analyzed to know its impact on the share performance. For this purpose, buybacks deals of DAX and Dow Jones firms between 2000 and 2010 were taken for analysis. The buyback size, motivation, and conjuncture were taken into account in relation to stock performance on abnormal returns in the end from announcement date until completion date. No evidence is found

that any of these variables has an impact on the share performance or abnormal returns. Further the influence of the period on the companies' motivation is examined. In the different periods, no evidence is found of different patterns of motivation. Roosenboom et al. (2001) and Mishra (2005) had similar results in their studies. The share buyback does not create a sustained rise in stock price. The result of Ramsey's (2000) study is the opposite: in his study based on Australian share buybacks, he found evidence that the share buybacks had a positive influence on the stock price. This is an interesting fact, as Ramsey studied share buybacks, which took place in the period from 1989 to 1995. The other two studies investigated share buybacks in the period from 1995 to 2001 and from 1999 to 2001. It could be possible that the shareholders changed in assigning value to a share buyback during that time. It is noteworthy that the share buyback announcement had a positive influence in the period from 1989 to 1995 and changed to no sustained rise in share prices in the period from 1995 to 2001 and from 1999 to 2001.

Roosenboom, Gorjaev, Beemt (2001) focused on whether the announcement of a buyback creates growth share performance. The study concluded that the announcement effect is positive temporally. After 30 days, the positive effect is gone. They also looked at motivations but found different motivations for the same patterns.

Mishra A.K (2005) had done an empirical study on buyback share in India. The objective of the study was to investigate the validity of long-term effect of share



buyback program on a company's share price and to assess which companies benefit more from these programs. The study concluded that buyback of share creates no sustained rise in stock price. So share price increases for a short period of time.

It can be observed from the above discussion that effect of buy back announcement is a positive reaction to the market but it is not applicable for all companies due to size of the buyback offer, mode of buyback offer and market situation. Besides, there is an evidence of mixed effect (positive and negative effect) during the 2011 in Indian market, out of 14 companies, share price of 6 companies fall on the day of announcement and after the announcement of buyback. Therefore, researcher attempts to find out the relationship between the buyback announcement, share price reaction and investors reaction.

Variables Identified and Developed for the Study

The researcher developed the four constructs for the study. The variables under a construct were identified from the past literatures and on the basis of theory of buyback program. The buyback is measured by their intentions such like surplus cash distribution intention or share under valuation intention or increasing EPS intention. The first construct is share price reaction to buyback announcement under which three variables are there such as "share price increases", "share price decreases" and "no change in share price". The second construct is investor's reaction to

buyback announcements under which three variables are there such as after buyback announcement "I will continue to hold the shares", "I will buy additional shares from the same company" "I will sell the shares and invest in other company" and "I will just encash the shares". The third constructs is timing of investment which consists of four variables such as "I will purchase the shares immediately after the announcement of buy back of share", "I will purchase the shares after the initial fluctuations after buy back announcement subsidized", "I will purchase the shares after record date. The fourth construct is effect of buyback on shareholding which consists of "My Shareholding or voting right will be increased", "My Shareholding or voting right will be decreased" and "My Shareholding or voting right will be remain unchanged".

Objective of the Study

1. Buyback announcement influences the share price movement
2. Buyback announcement influences the investment decision of investors
3. Buyback announcement influences timing of investment decision of investors
4. Buyback announcement influences shareholding or voting power of the investors

Research Hypothesis

1. H₁₁: Share price changes after buyback announcement



2. H₁₂: Investors consider time factors for his investment decision after announcement.
3. H₁₃: Investors shareholding or voting right changes after buyback.
4. H₁₄: Investors react to the buyback announcement.

Research Methodology

The study analysed the buyback effect using the primary data. The primary data were collected from equity investors of the three cities of the Odisha such as Bhubaneswar, Cuttack, Bhadrak. Data were collected with the help of structured questionnaire. Through interview method, investors were asked to give their view about buyback effect in respect to price changes, timing of investment, shareholding and investors reaction. The sample i.e. equity investors were choose through multistage random sampling method. Total 444 samples were collected and used for the analysis. Before analyse the data, we have checked the reliability and validity of the data for each construct. The mean is used for analysis to know which variable is most influenced and which variable is least influenced by the buyback program. As data is being construct form, structural equation modeling is used to test hypothesis and know the impact of buyback.

Data Analysis and Discussion

The researcher analysed the effect of buy back announcement in the investors' perspective. The variables taken for the study are investors' reaction to the buy back, timing of investment after the

announcement, impact of buy back on share price, impact of buy back on shareholdings and voting rights. Simple mean analysis is used to analyse all the constructs.

Table 1:
Share Price reaction to Buyback

Share Price	Mean	Rank
Share price will decrease	3.20	I
Share price will increase	2.71	II
There will not be any change in share price	2.74	III

Table 1 shows the mean values of the impact of buy back announcement on the share price movement. The mean value is highest and above three for the variable "Share price will increase" which means that the investors' feel share price will decrease after the announcement. The mean value is lowest and less than three for the variable "Share price will increase" followed by the variable "There will not be any change in share price" which means that the investors disagree with these two statements. Therefore, it can be concluded that the share price will decrease due to buy back announcement.

Table 2:
Investors Reaction to Buy Back

Reaction	Mean	Rank
I will continue to hold the shares	3.05	II
I will buy additional shares from same the company	2.54	IV
I will sell the shares	3.23	I



and invest in other company		
I will just encash the shares	2.73	III

Table 2 shows the reaction of the investors after the buyback announcement. The mean value is highest with 3.23 for the variable “I will sell the shares and invest in other company” and mean value is 3.05 for the variable “I will continue to hold the shares”. The mean values are more than three for those two variables which indicates that the investors are interested to hold the shares or sell the shares and invest in other companies. The mean value is less than three for other two variables which means that the investors are not interested to buy additional shares in the same company or they may encash the shares after announcement. Therefore, it can be concluded that investors would like to hold the shares or sell the shares and invest in other company.

Table 3:
Effect of Buy Back on Timing of Investment

Time	Mean	Rank
I will purchase the shares immediately after the announcement of buy back of share	2.82	I
I will purchase the shares after the initial fluctuations after buy back announcement subsidised	2.59	II

I will purchase the shares after record date	2.50	III
--	------	-----

Table 3 shows the time of investment preferred by the investors after the buyback announcement. The mean value is highest with 2.82 for the variable “I will purchase the shares immediately after the announcement of buy back” and the mean value is lowest with 2.50 for the variable “I will purchase the shares after record date”. Moreover, the mean value is less than three for all variables which indicates that the investors disagree with all the statements. Hence, it can be concluded that investors are not interested to purchase the shares after the buyback announcement.

Table 4:
Impact of Buy Back Program on Shareholding and Voting Right

Shareholding or Voting Right	Mean	Rank
My Shareholding or voting right will be increased	2.55	III
My Shareholding or voting right will be decreased	3.41	I
My Shareholding or voting right will be remain unchanged	2.64	II

Table 4 shows the impact of the buyback announcement on shareholding and voting right of the investors. The mean value is highest and more than three for the variable “My shareholding or voting right will decrease” which means that the investors have opinion that shareholdings and voting rights will decrease after the

buyback program. The mean value is lowest and less than three for the variable “My shareholding and voting right will increase” followed by the variable “My shareholding and voting right will remain unchanged” which means the investors do not agree with these two variables. Therefore, it can be concluded that the investors feel their shareholding and voting right will decrease after buy back the shares.

according to the mean value. The mean analysis is not enough today there is a significant change in price and voting right etc. So, it is necessary to use the advanced techniques that structural equation modeling to test whether buyback has significant impact or not and test hypothesis as well. Result has been given in the figure 1 and Table 5.

STRUCTURAL RELATIONSHIP BETWEEN THE BUYBACK AND INVESTORS REACTION, INVESTMENT TIMING, PRICE REACTION AND SHAREHOLDING RIGHT

The mean analysis explains that the share price increases after buyback, investors reacts to buyback and decreases the voting right and timing of the investment

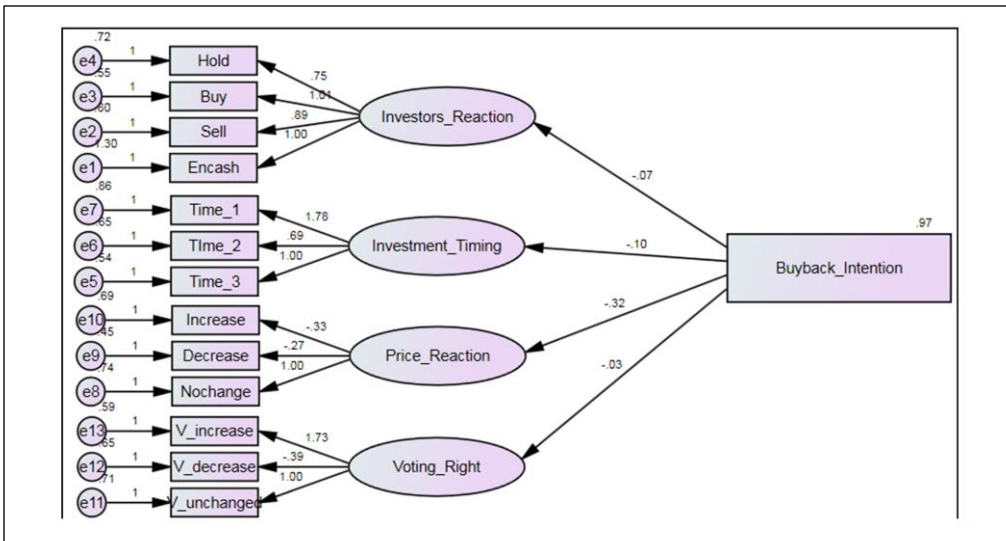


Figure 1: Path analysis between Buyback, price reaction, investors reaction, timing of investment and Voting right



Table 5: Results of Path Analysis

Hypothesis	Relation	Estimate	S.E.	C.R.	P
H ₁₁	Price Reaction<---Buyback Intention	-.31873	.05559	-5.73348	0.000
H ₁₂	Investment Timing<---Buyback Intention	-.09859	.05613	-1.75659	.07899
H ₁₃	Voting right<---Buyback Intention	-.02811	.06611	-.42513	.67074
H ₁₄	Investor Reaction<---Buyback Intention	-.07344	.06311	-1.16363	.24457

Table 5 shows the result of path analysis between buyback intention and price reaction, investor’s reaction and timing of investment and voting right. The significant value for buyback intention on price reaction is 0.000 which is less than 0.05 which indicates that there is a significant relationship between buyback intention and price reaction. So the H₁₁ is accepted. On the other hand H₁₂, H₁₃, H₁₄ are rejected that means buyback does not have significant impact on investors reaction and voting right, timing of the investment. Therefore it can be concluded that buyback has only significant influence on the share price.

Conclusion

The company goes for buyback programme mainly for the two reasons, one is due to undervaluation of share price and another reason is of surplus cash but no investment opportunity. If we take a case of share price is undervalued, the company announces the buyback program to improve the share price. In this case, share price may increase if market responses to buyback positively or share price may decrease if market responses to buyback negatively. The study concluded that buyback influences the share price, in particularly it decreases the shares price significantly (Beta negative) after announcement

which indicating the investors conceive the buyback negatively. In case of there is a surplus cash but no investment opportunity for the company, the investors will sell the share and invest in the other company but some time the investors willing to hold the share even after buyback announcement due to have favourable effect. The mean analysis concluded that the investors do like to change the investment decision but they do not like purchases the same company’s shares after buyback program. However structural equation modeling concluded that investor does not react to the buyback significantly. The study also concluded that buyback does not affect the shareholdings or voting right of investors and timing of investment.

Reference

1. Anderson, S., (1995), *More Share Buy-backs Expected with New Law*", *Australian Financial Review*, September issue, 33.
2. Brennan, M. J., & Thakor, A. V. (1990). Shareholder preferences and dividend policy. *Journal of Finance*, 45, 993-1018.
3. Comment, R. and Jarrell, G.A. (1991). The relative signaling power of dutch-auction and fixed



- price self-tender offers and open-market share repurchases. *Journal of Finance*, Vol. 46, 1243-1271.
4. Dann, L. Y. (1981). Common stock repurchases: An analysis of returns to bondholders and stockholders. *Journal of Financial Economics*, 9, 113-139.
 5. Ferguson. A. (1995). Share Buybacks to Have Easier Path. *Business Review Weekly* .3 July 1995.
 6. Grullon, G. and Michaely, R. (2002). Dividends, share repurchases, and the substitution hypothesis. *Journal of Finance*, Vol. 57, 1649-1684.
 7. Grullon, G. and Michaely, R. (2004). The information content of share repurchase programs. *Journal of Finance*, Vol. 59, 651-680.
 8. Hung-Kun Chen, Yan-Shing Chen, Chia-Wei Huan, and Yanzhi Wang (2009). Managerial Responses to Initial Market Reactions on Share Repurchases. *Review of Pacific Basin Financial Markets and Policies*, Vol. 12(3), 455-474.
 9. Ikenberry, D. L., Lakonishok, J., & Vermaelen, T. (1995). Market underreaction to open-market share repurchases. *Journal of Financial Economics*, 39, 181-208.
 10. Joost Hartholt (2012). Is a buyback program an effective instrument to create shareholder value?" ERASMUS UNIVERSITY ROTTERDAM, ERASMUS SCHOOL OF ECONOMICS, MSc Economics & Business, January 17, Master Thesis.
 11. Kai Li and William McNally (2007). The information content of Canadian open market repurchases announcements. *Managerial Finance*, Vol. 33 (1), 65-80.
 12. Kalay. A., (1982). The Ex-Dividend Day Behavior of Stock Prices: A Re-Examination of the Clientele Effect. *Journal of Finance*, 37(4), 1059-1070.
 13. Lie, E. (2000). Excess funds and agency problems: An empirical study of incremental cash disbursements. *Review of Financial Studies*, 13, 219-248.
 14. Masulis, R. W. (1980). Stock repurchases by tender offer: An analysis of the causes of common stock price changes. *Journal of Finance*, 35, 305-321.
 15. McNally, W.J. (1999). Open market stock repurchase signaling. *Financial Management*, Vol. 28, 55-67
 16. Mychasuk, E., Companies Eye Buyback Schemes', *Australian Financial Review*. 17 April 199
 17. Myers, S.C. (1977). *Determinants of Corporate Borrowing*. *Journal of Financial Economics*, 5, 147-175.
 18. Vermaelen, T. (1981). Common stock repurchases and market Signalling: An empirical study. *Journal of Financial Economics*, 9, 139-184.



CONDUCTING INTERNAL AUDIT: CEMENT INDUSTRY

Malay Kumar Paul

Abstract:

Cement is, by far, the most organic element of infrastructural development. Massive initiatives for infrastructural enhancements through multiple long term plans played critical role in intensifying demand of cement. The magnificent growth story has not yet yielded its maturity signifying the immense potential for mammoth investment. Presence of multiplicity of investors both Indian and multinational, escalated the issue of competitive edge to, be sustainable in industry. The everlasting prominence of governance and risk continues to critical in dealing with matters like protection of investors and cost rationalization.

The institution and application of contemporary Internal Audit tools can fasten the achievement of strategic milestones in managing multitudes of issues relating to governance and risk. The intent of this research lies in sincerely realizing and applying the basic nuances of the cement industry and activities; which calls for adequate control and how to exercise the same in different entities. The activity-wise 'check lists' are provided as ready reference to conduct the audit.

It is our utmost endeavour to present this paper to a variety of readers who can actively implement the propositions enumerated here in their own domain.

Key Words:

Cement, Indian Cement Industry, Internal Audit, Risk, Control in Operations.



Introduction

Cement as a product was first introduced by Joseph Aspdin at England in 1824. Lot of research work has been carried out in the area of 'Concrete technology' since then to develop various type and grades of cement to cater multiple requirement of the construction sector.

Cement is an inorganic, non-metallic substance with hydraulic binding properties, and is used as a bonding agent in building materials. It is a fine powder, usually grey in colour, that consists of a mixture of the hydraulic cement minerals to which one or more forms of calcium sulphate have been added. Mixed with water it forms a paste, which hardens due to formation of cement mineral hydrates. Concrete is a key building material for a variety of applications.

India is the second largest producer of cement in the world. No wonder, India's cement industry is a vital part of its economy, providing employment to more than a million people, directly or indirectly. Ever since it was deregulated in 1982, the Indian cement industry has attracted huge investments, both from Indian as well as foreign investors.

Cement plants are typically located in areas with substantial raw material deposits (e.g. 50 years or more). Fuel costs are the single largest variable production cost at cement plants. Variable costs are typically about 50% of overall operating costs, so energy is frequently the single largest production cost, besides raw materials.

India has a lot of potential for development in the infrastructure and construction sector and the cement sector is expected to largely benefit from it. Some of the recent major government initiatives such as development of 98 smart cities are expected to provide a major boost to the sector. Government's infra push and housing for all by 2020 also to help the industry in a big way. Moreover, infra push through removing negative GST impacts, will surely enhance Cement consumption.

Expecting such developments in the country and aided by suitable government foreign policies, several foreign players such as Lafarge-Holcim, Heidelberg Cement and Vicat have invested in the country in the recent past. A significant factor which aids the growth of this sector is the ready availability of the raw materials for making cement, such as limestone and coal.

Market Size

India's cement demand is expected to reach 550-600 million Mt. per annum (MTPA) by 2025. The housing sector is the biggest demand driver of cement, accounting for about 67 per cent of the total consumption in India. The other major consumers of cement include infrastructure at 13 per cent, commercial construction at 11 per cent and industrial construction at 9 per cent.

To meet the rise in demand, cement companies are expected to add 56 million tonnes (MT) capacity over the next three years. The cement capacity in India may register a growth of eight per cent by next year end to 395 MT from the current

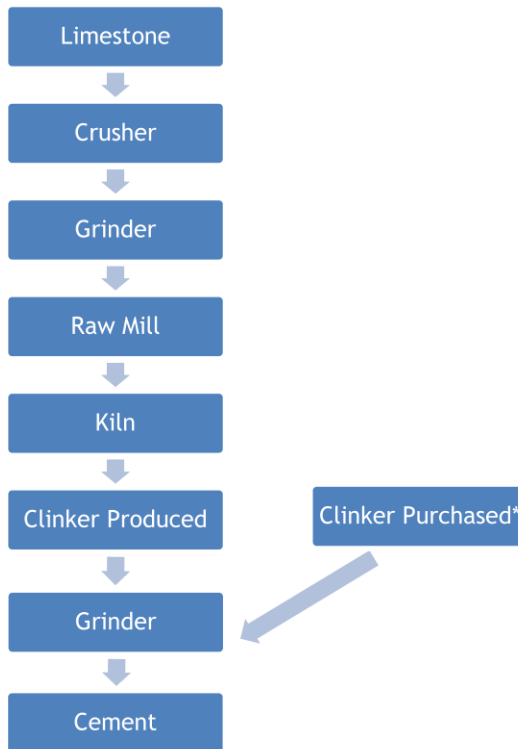


level of 366 MT. The country's per capita consumption stands at around 190 Kg. Portland and masonry cements are the chief types produced in India.

The Indian cement industry is dominated by a few companies. The top 20 cement companies account for almost 70 per cent

of the total cement production of the country. A total of 188 large cement plants together account for 97 per cent of the total installed capacity in the country, with 365 small plants account for the rest. Of these large cement plants, 77 are located in the states of Andhra Pradesh, Rajasthan and Tamil Nadu.

Process schematic for Cement Making



** In case of short fall in Clinker production*



The most common raw materials used for cement production are limestone, chalk and clay. The major component of the raw materials, the limestone or chalk, is usually extracted from a quarry adjacent to or very close to the Plant. Limestone provides the required calcium oxide and some of the other oxides, while clay, shale and other materials provide most of the silicon, aluminium and iron oxides required for the manufacture of Portland cement.

The quarried material is reduced in size by processing through a series of crushers. Normally primary size reduction is accomplished by a jaw or gyratory crusher, and followed by secondary size reduction with a roller or hammer mill. The crushed material is screened and stones are returned. More than 1.5 Mt. of raw materials are required to produce 1 (one) Mt. of Portland cement.

Clinker is produced through a controlled high-temperature burn in a kiln of a measured blend of calcareous rocks (usually limestone) and lesser quantities of siliceous, aluminous, and ferrous materials. The Kiln feed blend (also called raw meal or raw mix) is adjusted depending on the chemical composition of the raw materials and the type of cement desired.

After primary and secondary size reduction, the raw materials are further reduced in size by grinding. The grinding differs with the pyro processing process used.

Clinker is produced by pyro processing in large kilns. These kiln systems evaporate the inherent water in the raw meal,

calcine the carbonate constituents (calcination), and form cement minerals (Clinkerization).

After cooling, the clinker can be stored in the clinker silos, bins, or outside. The material handling equipment used to transport clinker from the clinker coolers to storage and then to the finish mill is similar to that used to transport raw materials (e.g. belt conveyors, deep bucket conveyors, and bucket elevators). Where the lime stone sourcing is not possible, the manufacturers transports Clinker through Trucks/Rail Wagons to grinding units for cement production. To produce powdered cement, the nodules of cement clinker are ground to the consistency of face powder. Grinding of cement clinker, together with additions (3-5% gypsum to control the setting properties of the cement) can be done in Ball Mills, Ball Mills in combination with roller presses, roller mills, or roller presses. Coarse material is separated in a classifier that is re-circulated and returned to the mill for additional grinding to ensure a uniform surface area of the final product.

We are capturing below the types of Cement and basic operations required to perform for manufacturing and distribution (sale) of Cement.

Different variety of Cements -

Coloured Portland cement

Coloured Portland cement is manufactured by adding special type of Pigments (2 % to 10% of weight of the Cement) with the white Portland cement. The 28-day compressive strength is



required to gain at least 90% of the strength of a pigment-free control mix and the water demand is required to be not more than 110% of the control mix. It is required that Pigments are insoluble and not affected by light. They should be chemically inert and do not contain Gypsum that is harmful to the concrete.

Anti-bacterial Portland Cement

It is a Portland cement interground with an anti-bacterial agent which prevents microbiological fermentation. This bacterial action is encountered in concrete floors of food processing Plants where the leaching out of cement by Acids is followed by fermentation caused by bacteria in the presence of moisture.

Hydrophobic Cement

It is prepared by mixing certain materials (stearic acid, oleic acid etc. by 0.1% to 0.4%) with ordinary Portland cement clinker before grinding, to form water repellent layer around the cement particles, so as the cement can be stored safely for a long period. This layer is removed during mixing process with water.

Expansive Cement

It has the property of expanding in its early life so as to counteract contraction induced by drying shrinkage.

Types of Pozzolona

- Natural Pozzolanic materials, such as - volcanic ash

- Industrial Pozzolanic materials, such as - fixed clay, rice husks, ash

Properties and uses

They are similar to those of Portland blast furnace cement.

White Portland cement

White Portland cement is made from raw materials containing very little 'iron oxide' (less than 0.3% by mass of Clinker) and 'magnesium oxide' (which give the grey colour in ordinary Portland cement). China clay (white Kaolin) is generally used, together with limestone, free from specified impurities.

- Its manufacture needs higher firing temperature because of the absence of iron element that works as a catalyst in the formation process of clinker. In some cases, Kreolite (sodium-aluminum fluoride) might be added as a catalyst.
- The compounds in this cement are similar for those in ordinary Portland cement, but C₄A_F % (hydrated cement paste) is very low.
- Contamination of the cement with iron during grinding of clinker has also to be avoided. For this reason, instead of the usual Ball Mill, the expensive nickel and molybdenum alloy balls are used in a stone or ceramic-lined mill. The cost of grinding is thus higher and this coupled with the more expensive



- raw materials, makes white cement rather expensive.
- It has a specific gravity (3.05-3.1), lower than ordinary Portland cement.
- The strength is usually somewhat lower than that of ordinary Portland cement.

Portland Blast Furnace Cement

This type of cement consists of an intimate mixture of Portland cement and ground granulated blast furnace slag (a waste from pig iron manufacturing).

The sulphate resistance of this cement is high. Its early strength is lower than that of ordinary cement, but their strength is equal at late ages (about 2 months). The requirement for fineness and setting time and soundness are similar for those of ordinary cement.

Sulphate resistant Cement

It contains lower p.c of C3A and C4AF - which considers as the most affected compounds by sulphates.

This cement contains higher p.c of silicates - in comparison with ordinary Portland cement.

For this type of cement - C2S represents a high proportion of the silicates.

Salient properties of different Grades of Cement

Physical Property	Grades of Cement - OPC		
	33	43	53
Relevant IS	IS : 269	IS : 8112	IS : 12269

3 - Days Strength MPA	16	23	27
7 - Days Strength MPA	22	33	37
28 - Days Strength MPA	33	43	53

Chapter I: Internal Audit

“Planning an internal audit” is the primary course of action for initiating the activities. An internal audit plan is a document defining the scope, coverage and resources, including time, required for an internal audit over a defined period. For the purpose of planning, many a times ‘Finger On The Pulse- FOTP’ approach on ‘Risk’ is adopted, which in other words means planning for audit without detailed risk assessment pertaining to the entity. Business risks need to be understood, considered as yardstick for selection of ‘audit areas’.

Lexically the term ‘Risk’ being defined as a chance or possibility of danger, loss, injury or other adverse consequences. This clearly indicates the term is associated with negativity impact to bring down the Organization from the present level. Cloud of uncertainty is the concern for a corporate life in fulfilling set out goals. With respect to an ‘unbiased coin’, the chance of turning ‘Head (Observe)’ or ‘Tail (Reverse)’ is equal, similar as to ‘success (achievement of objectives)’ and ‘failure (non- achievement of objectives)’. In this background, the word ‘Risk’ is of phenomenal importance, which connotes as follows.



- Risk is the possibility that an event will occur and adversely affect the achievement of objectives
- Events that may have a positive impact represent natural offsets or opportunities.

In today's dynamic scenario, RBIA (Risk Base Internal Audit) concept having limited appeal for marshalling of audit resources and timeliness of completion against already committed areas which typically being selected in the backdrop of risk perceived at the beginning of plan period/area selection. In today's scenario, instead of committing to fixed plan at the beginning of the audit period/scheduling; 'risk base' can be validated even by possible re-visiting to same 'area of audit'. As an outcome, for an already mitigated risk or down gradation of 'risk already conceived' the coverage can be tweaked. Moreover, for areas where 'risk validation' indicated 'upgrade required' i.e from 'Low' risk to 'Medium' or from 'Medium' to 'High', coverage for multiple times in a year (annual Audit Plan) needs to be insisted as part of audit planning process.

Internal audit is fundamentally concerned with evaluating an organization's **management of risk**. Risk Management and Internal Control are two sides of the same coin, as risk management focuses on the identification of threats and opportunities, and controls are designed to effectively counter threats and take advantage of opportunities. Successful organizations seek to integrate risk management and internal control into all activities, through a framework of risk

identification, risk assessment and risk response.

Any Industry is dominated by four 'M's viz. Man, Machine, Materials and Money; Cement Industry is also no exception in this regard. The aforesaid four basic inputs coupled with Outputs create Operational Systems/Processes /Activities for the Industry. Each such Operational System is again conglomeration of many sub-systems /activities.

The basic purpose of the Internal Audit activity is to examine adequacy of controls related to each of the 'Operational System/Activities' to pre-empt possibilities of any leakage which results in 'loss' in monetary terms as well as 'mitigation of risk 'prevalent to the concerned area of activity. Moreover, to ensure beyond 'risk and control', the Internal Audit function is to create 'value add' with the prevalent System/ Processes.

However, vastness of activities of cement business calls for high requirement of audit resources and consequential cost. Hence, to put a balance between the two; the concept of 'Risk Based Internal Audit' is in place in most of the Organizations. Through this process, the resources are marshalled for the areas with 'High Risk', then 'Medium Risk' and if permits; the 'Low Risk' areas on annual axis.

There are different schools of thought, where the Organization believes in 'Continuous Audit'. In this concept, the 'risk basket' is constantly challenged till the risk being mitigated. A typical RBIA Plan (based on generic risk profile with



High/Medium/Low categorization of the industry) is dispensed with a dynamic plan as per need of the hour.

It is pertinent to mention here that RBIA Plan addresses the activities based on audit resource availability to complete the areas within the planned period. Flexibility to address areas where vulnerability is more, can't be revisited since the RBIA include coverage for once in the planned period.

Let's have a look at the 'Key Risks' in Indian Cement Sector. They are -

- ✚ Resource Risk
 - Raw Material and ingredients
 - Industrial relations/Labour
- ✚ Demand and supply Risk (Revenue)
 - Competition
 - Macro-economic factors
- ✚ Financial Risk
- ✚ Compliance Risk

✚ **Resource Risk - Raw Material and ingredients**

- Limestone is a vital raw material for Cement production. As per estimate of Indian Bureau of Mines, the reserve of cement grade lime stone worked out to 90000 million metric tonne (approx.) and the same to last upto 30-40 years more.
- Gypsum is another important raw material. India having a reserve of 115 million metric

tonne of Gypsum reserve and annually about 5 million metric tonne of natural Gypsum also produced by different industries.

- Coal of high grade is also required, in case of captive coal based power plant to feed Clinkerization and grinding.
- Royalty payment on mining and movement of material for Clinker /Cement production having high cost impact.

✚ **Resource Risk - Industrial relations/ Labour**

- Local sourcing of workmen without any supply constraint
- Safety and health related measures to mitigate irregular availability
- Social security measures to make a congenial labour relation

- **Demand and supply Risk (Revenue) -**

- Real Estate and Construction sector drives the demand and 'hardening of price' for Cement. Seasonality e.g monsoon having a dampening impact on price almost in every regional market.



- As production and supply bequeathed in hands of few players, Indian Cement market is organized and oligopolistic in nature. Due to high transportation cost, regional players are in advantageous position. Low bargaining power of buyers also contributes to 'hardening of price'.
- Macro- economic factors like pay revision, 'housing for all scheme', lower rate of interest for housing loan are booster for demand or vice versa. Government thrust on affordable housing for realizing its vision of "Housing for All" by 2022 and Smart City program should also help in demand growth for cement.

Financial Risk

- Cost containment with respect to Power/Fuel, Rail Freight, Road transportation (diesel rate hike), Raw Material supply cost etc. causing challenges in operational level and impacts financial performance of the entities.
- It's a capital intensive sector and hence any

borrowing for greenfield/brownfield at high interest rate (under fluctuating interest scenario) may cause financial stretch.

Compliance Risk

- Safety, Health and Environmental (including Mining) issues always plays important role in operations of Cement sector.
- Cartelization, competition commission requirement etc. also needs focused attention.

Chapter - II: Risk and Control in Operations

One of the prime objective of audit is to ensure that controls are in place and effective at process/sub-process/activity level to avoid any negative impact on 'Operational Control' and effectively 'Financial Control'. The generic risk profile is also applicable for Cement entities, with Changes w.r.t Mining Operations, Non-trade Cement sale and handling, Safety measures etc. In view of the same, we are reproducing hereunder some of the generic 'areas of operations' with 'risk control map', which are supposed to be considered for 'audit data validation' and forms part of 'audit checklist'.



N.B Risk and Control mapping examples in Annex - I

Example for control existence/ effectiveness:

- 1) Production
- 2) Deployment of workmen on contractual basis
- 3) Fixed Assets
- 4) Inventory Management

Chapter III: Internal Audit (IA) Plan

The major areas of annual risk based plan include the following:

1. Post capitalization
2. Human Resource
3. Stores (Engineering Stores)
4. Inventory
5. Title Deeds
6. Safety, Health and Environment (SHE)
7. Fixed Assets
8. Production
9. Quality Control
10. Payroll
11. Scrap
12. Bagging
13. Electrical Maintenance
14. Mechanical Maintenance
15. Warehousing (C & F Agent)
16. Despatch/Transportation
17. Sales Promotion and Marketing Schemes
18. Procurement
19. Accounting (Receivable/ Payable and Book closure)
20. Captive Power Plants
21. Mining Operations

Note:

1. Since Organisations use different ERP Platforms, it is difficult to make an identical checklist for all.
2. Relevant checklists are in Annex-II

Chapter - IV: Internal Audit Report

The end product of audit activity is reporting. The purpose of the Standard on Internal Audit (SIA) 4, Reporting is to establish standards on the form and content of the internal auditor's report issued as a result of the internal audit performed by an internal auditor of the systems, processes, controls including the items of financial statements of an entity. This SIA describes the basic elements of an internal audit report such as opening, objectives, scope paragraphs, and executive summary. This SIA also deals with the different stages of communication and discussion of the report and describes the reporting responsibilities of the internal auditor when there is a limitation on the scope. The Standard also lays down the reporting responsibilities of the internal auditor when there is restriction on usage and circulation of the report.

IA Report is prepared for number of stakeholders relating to an Organization. They are -

- 1) Auditee
- 2) Head of Function/ Department
- 3) Top Management
- 4) Statutory Auditor
- 5) Audit Committee

For different level of persons involved, the Report length and presentation may differ e.g for Audit Committee members the Report may be summarized maintain the crux of the Observation while a detail version with 'list of examples' may be preferred method for Auditee/Head of the function responsible for the audit area.



XYZ Ltd.	
Internal Audit Report	
Report No.	XYZ/IA Review/15-16/
Date	March 2016
Area	Order to Cash
Location	Chennai
Period Covered	APRIL 2017 TO SEPTEMBER 2017

Audit Team:

- 1.
- 2.
- 3.

Signature:

Name:
Designation: Partner
Membership number:
Firm Regn. No.
Date:
Place:

Table of Contents:

Particulars	Page Ref.
Background	
Scope and Objective	
Audit Coverage	
Rating Scale	
Root Cause	
Executive Summary	
Detailed Observations	



Brief background

The Company is a Cement manufacturer and seller having multiple Grindingng and Clinker manufacturing facilities.

Local	Revenue Rs	Export	Revenue Rs
Clinker			
Cement			
Dealer Sale			
Sale to Govt. Projects			

*Sample basis only for presentation purpose

Scope and Objectives

Revenue Cycle:

- Understanding and verification of controls over Order to Cash cycle
- Process adequacy to provide reasonable assurance as
 - ✓ Policies and procedures are implemented and followed.
 - ✓ Controls in place are adequate and effective
- Compliance with respective statutory requirements.
- Testing & review of transactions on judgmental basis.

Objective:

- To ensure adequacy and effectiveness of controls
- Streamlining of process / process development
- Benchmarking amongst units and industry
- Suggest Improvement opportunities by way of cost reduction / opportunity for savings



Audit Coverage

Revenue Cycle Process:

- Policies and Procedures
- Master data Maintenance
- Sales bidding process for contracts
- Customer Purchase Order (PO) data and agreements
- Resource Utilisation
- Invoicing process
- Credit Control Process
- Receivables Analysis
- Collection process
- Statutory Compliances where applicable

Rating Scale

Observation grading

Critical- High Risk (H)	<ol style="list-style-type: none">1. High frequency and high magnitude ,value involvement of 10% or more for the area reviewed.2. Control weakness requiring prompt /immediate action to mitigate.3. Regulatory non-compliances involving penalties /prosecutions.4. Higher value improvement/opportunity loss/savings exist through improving operating efficiency.
Major - Medium Risk (M)	<ol style="list-style-type: none">1. High magnitude, low frequency/high frequency, low magnitude ; value 5%-10% of area reviewed.2. Moderate control weakness requiring near term focus for strengthening existing controls.3. Medium opportunity for value improvement/opportunity loss/savings through effective operations.4. Minor regulatory non-compliances.
Important- Low Risk (L)	<ol style="list-style-type: none">1. Low frequency and low magnitude ,value upto 5% of area reviewed.2. Minor control weaknesses.3. Opportunities exist for enhancing existing controls.4. Need to draw management attention.



Report Snapshot : 'Observations Grade' ; 'Control Areas' and 'Root cause'			
Area of Review	No. of Issues as per Observation Grade		
	High	Medium	Low
Order to Cash	3	4	1
	Control Areas in Question		
	O F	O F	O F M C
	Root Cause		
	M P	M P E	P

Operational - O	A B B R E V I A T I O N S	ERP Configuration -- E
Financial - F		Statutory Non-compliance -- S
Compliance - C		Non existence of Process -- P
Human Resource - M		Process deviations -- D
		Absence of Monitoring -- M
		Liquidity -- L
		Resource under deployed -- R

Executive Summary								
Key Observations by Process								
Observations	RR	Risk Category				Root Cause		
		O	F	M	C	P	M	E
1.Pending Recovery from Sales	H	✓	✓			✓	✓	
2.Credit Control needs to be bettered	H	✓	✓				✓	✓
3.Collection Process needs betterment	H	✓	✓				✓	✓
4.Need standard T&C for Customers	M	✓				✓		
5.Debtors Reconciliation needs improvement	M	✓	✓				✓	
6.Revenue recognition and tracking	M	✓	✓				✓	✓
7.Periodical scrutiny of unidentified receipts	M	✓	✓				✓	✓
TOTAL		7	6	-	-	2	6	4



Detailed Observations						
TITLE: Pending recovery of Export Sales Rs 10 Cr	RR	Risk Category			Root Cause	
OBSERVATION: Sales recovery pertaining to Invoice 'D / 016 / 14-15 dated 1 April 2014' amounting to Rs 10 Cr. pending since for more than 3 years.						
IMPLICATION: <ul style="list-style-type: none">• Longstanding Accounts Receivable• Opportunity loss to earn interest Rs.XXX Lacs (approx.) @ 8% p.a.						
RECOMMENDATION: Necessary steps need to be initiated after considering recoverability of the amount						
Management Response:						
Responsibility Assigned To:				Target Date:		



Annex - I

N.B. Yes = Y; No = N for “Existing/Effective” Controls. It can be “YY”, “NN” or “YN”

Production

Risk	List of Controls	Existing	Effective
<u>Production Planning</u>			
1. Untimely production as compared to the marketing requirements resulting in holding of inventory 2. Excess/ short production as compared to plan 3. Loss of production due to non-consideration of sales forecast/ raw materials availability	Timely compilation of Production budget/plan for each of the product variety (e.g OPC, PPC, Non-Trade etc.)		
	Pre-defined authority level for review and modification in the production plan		
	Periodic review of Production Plan vis-à-vis changes in Sales Plan or availability of raw materials & documentation thereof		
	Compilation & documentation of reasonable analysis of actual consumption vis-à-vis standard consumption		
	Shift-wise production data logging in place		
<u>Consumption standard/norms & actual consumption</u>			
Excess production cost due to excess consumption of raw materials, ingredients, utilities or high process wastage	Compilation of documented consumption standards i.e BOM		
	Periodic comparison of actual capacity utilization		
	Review of periodicity of comparison of actual consumption and standard consumption and compilation of reasonable variance analysis for deviation in consumption		
	Identification of controllable and non-controllable factors resulting in variation in the consumption norms and department's action plan to remedy the controllable factors		
	Verification of overall material reconciliation highlighting total material consumed, standard input-output norms and actual		



<u>Capacity Utilisation</u>			
1. Opportunity loss due to inadequate capacity utilization 2. Excessive utilization of production capacity 3. Interruption in production process	Periodic comparison of actual capacity utilization with the synchronized 'sales plan'		
<u>Documentation & record maintenance:</u>			
1. Inadequate documentation of prodn. data/ results, may result in incorrect decision or non-availability of timely information 2. ambiguous authority levels/ access for generation of production documentation resulting in unauthenticated generation of production data	Compilation of Daily Production Report from DCS & its validation by the authorized personnel		
	Periodic review of conformance to the ISO requirement		
	Pre-defined authority levels to generate, add, and modify production data in DCS/SAP		
<u>Quality control and inspection report:</u>			
1. Absence of standard quality control parameters resulting in sub- standard production/ high re-work cost 2. Non-standardized Inspection Reports resulting in inconsistency in inspection of parameters	Standard Operating Procedures for quality control and inspection including in-built process controls		
	Review of QC norms periodically to ensure their validity		
	Adherence to the pre-determined sampling techniques & exception reports for the results deviating from the QC norms		
	Review of complaints received by the Production department pertaining to quality/quantity of cement sold in the market or lying at godown/s		
	Customer-complaints closed in time for amicable solution		
	Engagement of external agency for quality validation are approved and reports are reckoned to pre-empt possibility of quality non-conformity issues.		
	The process for re-working QC failed products exists after obtaining due approval from appropriate authority against QC failed product.		
	All products are bagged after the same being qualified for /passed by QC		
	Variations over standard Bag		



	consumption is measured and monitored		
Review of process losses and recycling			
Excessive process losses or inadequate recycling of materials due to improper monitoring of process parameters	Process loss incurred during the period are compared with the standard		
	System exists of analyzing the reasons for abnormal process losses, if any and documentation of remedial action plan		
	Identification of quantity of material non-conforming to the specification and sent for recycling.		
	Preparation of comparative analysis of percentage increase or decrease in the recycling materials and reasons thereof		
Preventive & break-down maintenance:			
Non-adherence to the preventive maintenance schedule resulting in process bottleneck / plant shut down/ loss of production.	Compilation of preventive maintenance schedule & its adherence		
	Compilation of report on breakdown maintenance and opportunity loss of production are measured		
	Ascertainment of the impact of breakdown maintenance on the production schedule		
MIS Reports			
1. Inadequate MIS reports resulting in unauthenticated/ unreliable production details resulting in improper decision 2. Inconsistency in compilation of production reports due to non-standardized definition of periodicity	Compilation of MIS reports from the source data & their approval by the authorized personnel		

Deployment of Workmen on Contractual basis

Risk	List Of Controls	Existing	Effective
Assessment of requirement and approval			
1. Unskilled labour engaged at the rate applicable for skilled labour; 2. Labour called without requirement for the same; 3. Jobs to be done not approved by appropriate authority;	Skill profiles of labourers are available/maintained and Job Requisitions raised against the specific skill requirement availability.		
	Requisitions are raised with job description indicating requirement (number of heads) for manpower.		



4. Actual engagement not in tandem with requirement	All job requisitions are approved by appropriate authority.		
	Excess/short engagement in comparison to Requisition is traced, compared for deviations with reasoning.		
	Purchase/Service Orders are released against approved Requisitions.		
Selection of Contractors and their approval			
1. Non-standard P.O terms; 2. Un-competitive rates; 3. High Rates; 4. Delay due to non-availability of Contractor, who can handle the assignment	Standard order terms as to job nomenclature, payment terms etc. are maintained.		
	Contractors for a job is selected on competitive basis.		
	List of Contractors are maintained for jobs on offer and addition/ deletions are considered on approval by appropriate authority.		
Labour identification and authentication			
1. Ghost Workmen; 2. Same workmen deployed by multiple Contractors	Each labour is traceable against identification/ employment number with photograph.		
	Periodical "parole" to identify dummy workmen is conducted by HR and Engaging Dept..		
	Change/transfer of workmen from one Contractor to another is traced and records updated accordingly.		
Wage agreements and adherence			
1. Un-competitive /high rates ; 2. Rates applicable are higher than prevalent local rates; 3. Non-update of labour rates for a long time	Systematic study as to rate contract fixation is carried out periodically and rates finalized accordingly.		
	Benchmarking with local rates for pricing/labour contract rate is carried out.		
	Effectiveness of fixed rate schedule verified periodically and it's validated from time to time.		
	Labour rate agreements with Unions against specific skill/trade etc. are validated from time to time.		
Fulfilment of safety requirements			
1. Unsafe working environment; 2. No formal training to safe work mode; 3. Inadequate training and	Details of safety training to be imparted to Contract Workers with varied skill/ work engagement is documented.		
	Safety Dept. certifies the training		



follow-up resulted in non-adherence to safety rules/guidelines	completion of the workmen before allowing to work/job.		
	Adequacy of safety requirements are validated from time to time for ensuring compliance.		
Engagement - Requirement vs. Actual			
1. High rates due to dependency on single Contractor; 2. Un-benchmarked rates; 3. Dismal 'work permit' mechanism; 4. Uncertified jobs paid for; 5. Booking for labour supply and turnkey engagement for the same workmen; 6.Uncontrolled entry-exit mechanism	List of multiple Contractors as per engagement in different Job area is available.		
	Rates applicable are benchmarked and applied for rate fixation/PO.		
	'Work permits' are issued with predetermined strength required for the job and maintained in seriatim.		
	Work permits on job completion are signed-off and jobs in Contractor Bills be traced therefrom.		
	Actual engagement is certified by the engaging Dept.		
	Same contractor workforce is not allowed to work under 'turnkey' as well 'labour supply' to pre-empt possibility of multiple booking against same attendance.		
	Lower or higher engagement against requirements or extra time required/booked is compared and deviation with reasoning documented.		
	Gate Security certifies entry/exit of workmen or "time recorder "and the same tallied with billing/hours booked/claimed.		
Bill Payment and booking			
1. Non-deduction for drawing Co. material; 2. Attendance record not verified causing excess payment; 3. Penalty not inflicted; 4. Wrong passing of bills resulted in extra payment to Contractors; 5. Quality of jobs performed not reflected in certification as well payment; 6. Performance guarantee/ BG/	Reconciliation of materials supplied to Contractors and passing on of appropriate impact against their billing is ensured before payment.		
	System as to verification of 'Attendance Record' of the labourers maintained by Contractors and reconciliation with time billed/ engaged, for actual booking and that paid by the Contractor exists.		
	Penalty for non-fulfilment of contractual obligation i.e. delay, quality adherence etc. are duly accounted for.		
	Checks are carried out before making		



SD not applied on Contractors for poor quality of jobs	payment of bills as to :Rates, Attendance, Job, Quality etc.		
	All appropriate taxes are levied / deducted and deposited in time.		
	System of collecting Security Deposit or 'performance guarantee' or 'bank guarantee' to bind the contractor against quality issues exists.		
Legal compliances under labour laws			
1. Relevant licenses (by Company as well as Contractor) not obtained; 2. Failure in filing statutory returns; 3. Engagement over stipulated working hours; 4. Breach of statues in engagement/ payment/ Factories Act	System in place to ensure necessary Licenses under relevant laws prior to engagement is obtained by the Contractor.		
	All necessary returns are filed timely by the Company.		
	Engagement of labourers over stipulated hours are tracked.		
	Overtime work is regulated through adequate and timely supply of labour at the 'job area'		
	All Applicable statues e.g Minimum Wages, Factories Act etc. are followed and adhered to.		
Principal employer's liability			
1. Wage distribution not certified; 2. Workforce interest not protected by Principal Employer; Fines / Penalties may be inflicted by appropriate authority	Lack of proof for payment to workmen		
	P.F, E.S.I (Employee State Insurance) and other statutory dues are monitored by HR/ Admin. to ensure timely deposit and protection of workforce interest.		

Fixed Asset

Risk	Controls	Actual Control	
		Existing	Effective
Assets Management Policy/Documentation/SOP			
Policy/SOP for fixed assets not available	Documented SOP's for fixed assets		
Capital Budget & Approvals			
Capital Expenditure Policy not available	There is a Capital Expenditure Policy highlighting the procedures to be followed for estimation of Capex & pre-defined authority for sanction of the Capital Expenditure budget with		



	value limits.		
Inaccurate estimation of capital expenditures	Estimation of capital expenditures /sanction approved.		
Technical & commercial feasibility studies not done	Technical & commercial feasibility studies are done before initiation of the specific Capex proposal.		
Unauthorized capital expenditure	The Capex is approved as per DOA.		
Excessive delays	There is an internal mechanism to ascertain tracking of capital proposals till raising of POs to identify excessive delays.		
Fixed Assets Register			
Missing Assets	A register of all fixed assets (including fully depreciated assets) is maintained and updated.		
	There is adequate description of all assets to identify assets physically available.		
	The FA Register is periodically reconciled with the financial records.		
No Policy/SOP on physical verification	SOP is established and all procedures are complied with.		
Company's assets physically not available	Physical verification of assets is carried out every year.		
	There is a set procedure for verification and confirmation of fixed assets lying with third parties.		
Discrepancies observed during physical verification not adjusted.	All discrepancies are adjusted after taking approval as per DOA within time.		
Title deeds not available	Physical verification of title-deeds is carried out periodically by officers not connected with assets accounting/assets administration.		
Assets not being used	Periodic verification of Assets not in use is being done.		
Fixed Asset Additions			
Purchase of asset not authorised properly/ Non tracking of indent	Request for capital expenditure from user is received in standardized form. There is a separate identification number for each form.		
	Formal documented approval as per DOA		



	For every acquisition, Purchase order giving full details of fixed asset requirement.		
	Every P.O. authorised as per DOA		
	Actual transaction is as per P.O.		
Lack of audit trail in ERP	Availability of audit trail in ERP/ SAP for all transactions		
Unauthorised master record of asset	Master data (class, useful life, rate of depreciation) of new asset created subject to approval		
Asset capitalised at WIP stage	Capitalisation only on the basis of 'put to use certificate' by proper person (technical person) only after inspection		
Actual utilisation exceed the budgeted allocation	Approval as per DOA is obtained wherever actual utilisation exceed the budgeted allocation		
No clear and correct distinction between capital and revenue expenditure	There is clear and correct distinction drawn between capital and revenue expenditure		
Unduly delay in installation/ commissioning/ commencement of warranty	Reasons are documented for delay in installation/ commissioning/ commencement of warranty.		
Valuation of Assets			
Wrong valuation of assets	System to ensure that cost consist of purchase price, import duties (if any) , other non-refundable taxes & direct attributable cost for bringing the asset to its working condition for its intended use.		
	Self-generated asset consist of direct as well as allocable factory expenses allocated on systematic basis.		
Wrong valuation of assets	Fixed assets are revalued on adequate independent evidence.		
Sale Of Assets			
Possibility of sale of performing assets	Disposal request from user.		
Unauthorised sale	Approval as per DOA		
Items replaced, scrapped or sold not removed/written off.	Items replaced, scrapped or sold are removed / written off from the books?		
Profit or loss on sale of fixed assets	Profit or loss on sale of fixed assets is properly disclosed in the accounts		



Movement/Transfer of Assets			
Loss of asset / non accountability of asset	The standard form filled by user as well as sending and receiving locations.		
	There is a system to track the assets transferred on a temporary basis.		
Unauthorized transfer	Transfer of asset should be approved as per DOA.		
Transfer not recorded in books	Transfer is properly recorded in the books.		
Identification of Idle Assets			
No system to identify idle assets	Documented process in place to identify the idle assets		
	Identification always from user documenting the reason to classify asset as idle asset.		
Write Off of Assets			
Write off approval for shortage/ missing asset is not obtained	Write off note for any shortage/missing asset is put up for approval as per DOA.		
Capital WIP			
Delay in capitalisation leading to deferment of depreciation charge. Under statement of F.A. / depreciation	Capitalisation of asset within two days of its ready to use certificate obtained		
	Ageing analysis to find out old WIP & reasons for non- capitalisation		
	Projects scrapped is charged off.		
Capital Advance			
Advance is given to unauthorized vendor	Request from vendor for capital advance, which should be approved as per DOA		
	Analysis of vendor history before granting of any advance		
Non availability authentic documentary evidence	Signed agreement for purchase of fixed asset mentions all the terms including advance to be given		
	Analysis of unadjusted advances.		
Excess payment to capital creditor	System to check any balance in advance account before making any payments.		
Security of Assets			
Company's asset not properly Safeguarded	Controls to ensure Physical Safeguarding of Assets.		
Company's asset wrongly owned by third party	All invoices/registration cards (for motor vehicle)/title deeds(for land,		



	building etc.) clearly specifies the TCL ownership.		
Encroachment of land	Adequate provisions to protect the asset from encroachment.		
Tracking of Internal Rate of Return			
Gaps between the projected NPV/ IRR and actual asset performance	Analysis of asset performance against the projected NPV/IRR is being done.		
	Reasons for gaps between the projected NPV/IRR and actual asset performance are documented.		
Statutory-Compliances			
Non identification of Impairment to the asset	Documented & approved process in place for identification of Impairment & implementation of same		
	Periodical review of the assets for the impairment.		
Non-compliance with Companies Act	Depreciation is charged as per provisions of the Companies Act.		
No/under cover of insurance for Assets	Sum insured justifies the replacement value of Assets		

Inventory Management

Risk	List Of Controls	Existing	Effective
<u>System Controls through ERP/ SAP</u>			
1. Inaccurate inventory data base, 2. Unauthorized changes (a-d-c), 3. Undetected mistakes in Inventory Ledger, 4. Accumulation due to absence of ordering levels	For each category of inventory, procedures are implemented to ensure the reliability of items' classification and codification.		
	For each category of inventory, changes to item master files are authorized based on the appropriate documentation/ DOA.		
	A regular review of all database modification is performed e.g exception reports are generated and authorized.		
	Access rights are set-up and maintained according to appropriate segregation of duties and reviewed periodically.		



	Inventory Ledger is periodically scrutinized and authenticated.		
	Ordering levels are popped-up from system and orders placed accordingly.		
	Open Orders are tracked to avoid untimely and unwanted inwardation.		
	Inventory levels with Min. /Max level is defined in system and exceptions are recorded/ reported.		
Maintenance of physical stock/inventory			
1. Stock mix-up, 2. Stock discrepancies not noticed and mitigated, 3. Uninsured stock, 4. Un-reconciled stock, 5. Un-updated stock position	All storage areas are locked/protected and regularly verified to avoid any mishap.		
	All items are visible/accessible for count, obsolete items and items with quality problems stored separately; storage ensures that two products cannot be mixed together i.e one item kept per place.		
	“Kardex” is maintained at the warehouse to indicate updated stock position.		
	Stocks are kept under insurance coverage and/or stock losses are realizable from the custodian.		
	Shelf life record is maintained for managing validity of the product usage.		
	Volume reconciliation for each type of stock is carried out and different categories of discrepancies are clearly identified (production/stock-take).		
Costing and accounting of Inventory			
1. Wrong absorption/ allocation of overheads, 2. Wrong inventory valuation, 3. Cut-off process not followed, 4. High level of obsolescence, 5. Unreconciled and confirmed stock lying with 3P	Stock issues and transfers are tracked and approved based on appropriate supporting documents and according to DOA.		
	Classification of spare parts between Fixed Assets and Inventory is reviewed for consistency with Co. accounting policy/INDAS 16.		
	Valuation of each type of inventory is reviewed for consistency with accounting standards.		
	Allocation of costs when performing		



	cost calculation is reviewed for completeness.		
	Provisions are approved according to delegations of authority.		
	Write-off of obsolete parts are authorized on the basis of appropriate supporting documents (e.g obsolete inventory report) and according to DOA.		
	Cut-off process is in place to ensure that all movements are recorded at the date they occurred.		
	Methodology for calculating overhead in inventory is reviewed at least annually to ensure compliance with Company Policy.		
	Procedures are in place, including document accountability to control the receipt and transfer of inventory into, within, and out of the facility. Monthly cut-off procedures observed and coordinated with the finance/accounts to ensure all receipts and disbursements of inventory are properly recorded.		
	Procedure for identification of obsolete inventory is in place and reported accordingly.		
	Confirmation obtained for stock on consignment/3P Locations.		
Others			
1. Damaged stock not identified, 2. Additional expenses with warranty period	Material received in damaged condition or short receipt considered with proper qualified discharge on CN and/or short/damage certificates obtained from Carrier.		
	Warranty/Guarantee against the items are maintained in database for appropriate action/claim.		



Process-wise Audit Programs - Annex - II

We are giving hereunder process-wise 'Audit Programme' for each of the above.

1. Post Capitalization

This area is specifically important where further investments are made for revamping the Plant bagging operation, Grinding Unit (Including mining and/or Power Plant operation), capacity expansion etc.

Capitalization of Assets

- Whether all projects are approved with pre-calculation (IRR/NPV/ Pay Back Period etc.) by Investment Management Committee/ Corporate Investment Management Committee.
- Whether all assets are capitalized after 'successful trial run',' certification of put to use 'by appropriate authority.
- Whether completed and under progress assets are separately tracked/identified.
- Whether AUC (Assets Under Construction) is reviewed periodically to set target/modified target for completion and 'put to use'.
- Whether Responsibility for the project and its completion are given to identified persons and progress being tracked.
- Whether Age analysis of AUC is carried out and reported.
- Whether system of obtaining financial closure of projects from appropriate authority exists.
- Whether All WBS (Work Break-down Sheets) is examined and related expenses being verified before declaring financial closure.
- Whether Control (system/ manual) exists to stop further expenditure after declaration of completion/ capitalization excepting that required for running and repairing /maintenance.
- Whether Asset number is allotted for each of the identifiable items for granularity with appropriate location identity/code.
- Whether Assets register corroborates immediately the date of 'put to use' for computation of depreciation against the identified asset number.

Measurement of results against projections

- Whether 'Projections' are compared with 'actual benefits' derived and shortfalls are analysed for corrective action, if any, on monthly basis.
- Whether Post calculation' of Internal Rate of Return, Pay-back period etc. is available for tracking the performance on monthly basis against the projected return conceived.



- Whether such 'post calculations' are approved and presented to MRC (the capital assets budget approving committee) for their perusal.
- Whether correct 'depreciation key'/classification is assigned for the asset.
- Whether Responsibility of 'depreciation key' allotment and asset booking is mapped and followed accordingly.
- Whether Shelved projects requires approval from the sanctioning authority.
- Whether Surplus materials are kept separately, evaluated periodically and considered for valuation.
- Whether savings against cost projection are factored while declaring financial closure.

2. Human Resource

Since market demand of Cement is seasonal and due to very nature of the product can't be stored for a reasonably long period, the Plant capacity monitoring is done based to near term requirement. The activities for Clinkerization, Bagging, Workshop i.e maintenance (Engineering, Plant in general) etc. mostly carried out through contractual deployments.

Review of Engagement of Contract Labour

1. Assessment of requirement and approval

- Whether skill profiles of labourers are available/ maintained and Job Requisitions raised against the specific skill required.
- Whether Requisitions are raised with job description indicating requirement (number of heads) for manpower.
- Whether appropriate authority approves Job Requisitions.
- Whether comparison for excess/ short engagement is traced, compared for deviations with reasoning.
- Whether Purchase/ Service Orders are released against approved Requisitions.

2. Selection of Contractors and approval process

1. Whether standard order terms as to job nomenclature, payment terms etc. are maintained.
2. Whether Contractors for a job is selected on competitive basis.
3. Whether Contractor empanelment is done w.r.t -
 - Financial strength
 - Past performance
 - Market credentials
 - Strength of workforce against each Contractor
4. Whether removal of the name of Contractor/s from Company's list of approved Contractors are Documented and authorized by appropriate authority.



3. Labour identification and authentication

- Whether each labour is traceable against identification/ employment number with photograph.
- Whether HR and the engaging Dept. conduct periodical “parole” to identify dummy workmen.
- Whether inclusion/ deletion of workforce are immediately notified and monitored by HR Dept.
- Whether transfer of workmen from one Contractor to another duly regulated.

4. Wage agreements and adherence

- Whether systematic study as to rate contract (Minimum Wages as per statute) fixation is carried out periodically.
- Whether benchmarking with local rates for pricing/labour contract rate is carried out.
- Whether effectiveness of fixed rate schedule verified periodically and it’s validated from time to time.
- Whether labour rate agreements with Unions against specific skill/trade etc. are validated from time to time.

5. Fulfilment of safety requirements

- Whether details of safety training to be imparted to Contract Workers with varied skill/ work engagement is documented.
- Whether Safety Dept. certifies the training completion of the workmen before allowing to work/job.
- Whether adequacy of safety requirements are validated from time to time for ensuring compliance.

6. Engagement - requirement vs. actual

- Whether multiple Contractors are engaged in the same Job/job area.
- Whether rates applicable are benchmarked and applied for rate fixation.
- Whether ‘work permits’ are issued with predetermined strength required for the job.
- Whether work permits on job completion are signed-off and jobs in Contractor Bills be traced therefrom.
- Whether actual engagement is certified by the engaging Dept.?
- Whether same contractor is allotted job under ‘turnkey’ as well ‘labour supply’.
- Whether lower or higher engagement against requirements or extra time required/ booked is compared and deviation with reasoning documented.



- Whether Gate Security certifies entry/ exit of workmen and the same tallied with billing.

7. Bill payment and booking

- Whether reconciliation of materials supplied to Contractors and passing on of appropriate impact against their billing is ensured before payment.
- Whether system as to verification of 'Attendance Record' of the labourers maintained by Contractors and reconciliation with time billed/ engaged, for actual booking and that paid by the Contractor exists.
- Whether penalty for non-fulfilment of contractual obligation i.e. delay, quality adherence etc. are duly accounted for.
- Whether checks are carried out before making payment of bills as to:
 - Rates specified in P.O
 - Certified attendance sheet
 - Job certification
 - Quality/performance guarantee
 - Deduction against materials not returned
- Whether system of collecting Security Deposit or 'performance guarantee' or 'bank guarantee' to bind the Contractor against any quality problem exists.
- Whether appropriate taxes e.g Works Contract, TDS etc. deducted accurately and deposited timely.

8. Legal compliances under labour laws

- Whether a proper system in place to ensure necessary Licenses under relevant laws prior to engagement, is obtained by the Contractor.
- Whether all necessary returns are filed timely by the Company.
- Whether engagement of labourers over stipulated hours are tracked.
- Whether Minimum Wages, Factories Act etc. are followed and adhered to.

9. Principal employers' liability

- Whether presence at the time of wage disbursements by contractor and certification of payment to labourers (Wage Register) by Company representative is done regularly.
- Whether P.F, E.S.I (Employee State Insurance) and other statutory dues are monitored by HR/ Admin. to ensure timely deposit and protection of workforce interest.
- Whether a check list of all relevant provisions are available for compliance by Company.



3. Stores (Engineering Stores)

Mining Equipment, Kiln, Bagging Plant etc. requires regular maintenance due to corrosive nature of the product. Moreover, to minimize the plant 'downtime' or in other words maximize plant 'uptime' spares are kept in stock to cater immediate requirement. Insurance spares, spares in 'bank stock' are maintained to control working capital requirement.

1. Stock built-up and maintenance

- Whether the engineering items in stock consist of items/spares of present operational plants only?
- Whether spares relating to disposable/idle plants are taken out/ segregated of stock/ inventory immediately on identification?
- Is there a system of obtaining list from respective plant maintenance department to supplement materials requirement and stocking.
- Is there a regular process of identifying requirement envisaged versus actual drawal by Departments, simultaneously by Engineering Stores and requisitioning Departments.

2. Procurement policy of engineering items

- Whether valid Requisitions are mooted from respective departments and the same approved by Chief Engineer/ Stores in-charge?
- Whether stock position is reckoned for the purpose of approval of requisitions?
- Whether life class of every major running machine/ spares are defined and procurement/ replacement/ requirements for repair and maintenance chalked out accordingly?
- Whether 'bank stock items' are regularly monitored?
- Whether stocking norms are set for holding inventory and reviewed from time to time?
- Whether Spares/ consumables are identifiable under 'required for maintenance including preventive maintenance' and 'break-down repairing'?
- Whether spares/ parts are identifiable under VED (Vital, Essential, and Desirable) category, Insurance Spares and stock norms are set accordingly?
- Whether previous maintenance cycle/consumption data, forms the basis of such categorisation?

3. Vendor selection and ordering

- Whether there exists a process of Vendor listing and item-wise Vendors are listed for future ordering?
- Whether materials are sourced from a single vendor?



- Whether process of competitive bidding is followed for procurement of Engineering Stores / spares?
- Whether for placing every new order, latest/ up-dated Price List of the Vendor is compared and rate agreed to?
- Whether orders in ERP/SAP can be raised without following the PR (Purchase Requisition) route?

4. Maintenance of stock levels and ordering

- Whether stock levels (minimum, maximum, re-ordering) are defined for all items.
- Whether 'bank stock' is maintained and reviewed periodically.
- Whether lead time is fixed and known to indenting/Purchases Dept. and configured in SAP database?
- Whether 'Lead time' specified and actual are compared for corrective/ reduction action?

5. Identification process of slow/non-moving items

- Whether slow and non-moving items are defined?
- Is there a system of periodical flagging of such items to respective indenter?
- Whether requirement for same items at other Units are explored?
- Whether appropriate value adjustment mechanism deployed for slow/non-moving materials on identification?

6. In/out/return of engineering store items

- Whether all in/out movements of parts/spares from Factory is governed by duly approved Gate Passes?
- Whether issue to Departments for their consumption immediately reflected/ recorded in stock of Engineering Stores?
- Whether 'Gate Passes' are ERP/SAP module configured/ number controlled to identify non-return of material sent out?
- Whether list of pending items is circulated and followed-up on regular basis?
- Whether appropriate tax adjustment is carried out in case of non-return/ partial return and return after stipulated period?

7. Up-keep of Stores

- Whether guideline for physical ambience, rack height, storage and handling etc. are available and deployed?
- Whether items are kept properly arranged to ensure easy identification, movement and counting while carrying out physical verification.



8. Physical verification and status of materials

- Is there a system of periodical verification of items/Spares kept at Engineering Stores?
- Whether a documented process of assessing periodically the physical condition of materials exists?
- Whether spares of machines which are presently in use are only kept at stock?
- Whether stock discrepancies are adjusted in Books after due approval within a reasonable time?

9. Quality assessment and process of receipting

- Whether all materials are acknowledged after the same being complied with the requisite quality standard?
- Is there a DOA fixed for approving deviations of quality?
- Whether all quality deviations are brought to the knowledge of 'GM-Engineering' and approval/ cognisance also obtained from him.
- Is there any defined procedure for return of 'quality failed' materials to suppliers? If so, tracking of such returns and resultant.

10. Accounting of Engineering store items

- Whether all issues are charged out and consumed immediately after issue from stores?
- Whether all discrepancies arising out of physical shortages are adjusted in Books immediately after the same being noticed?
- Material issued for project jobs are duly accounted for in time?
- Whether Spares etc. received with the Capital items on FOC basis are kept in store with proper identification and properly accounted?
- Whether all relevant costs are considered for valuation of inventory of Engineering Stores?

4. Inventory (Finished Goods)

In cement industry, there is hardly any scope of maintaining Finished Product (bagged or bulker supplies) inside the Plant. Logistic arrangement is made in such a way so that multiple handling in Plant can be avoided. Bagged product is directly loaded in Rail Wagons/Trucks from the Chute. The counting machines are also placed to validate the invoice /transfer quantity being loaded.

Raw materials (lime stone, coal etc.) are kept in stock to cater requirement during production run considering the pick demand. Requirement for clinker is maintained keeping in view of requirement at various Grinding Units. Excess Clinker produced can be sold to



other manufacturers of Cement. However, prolonged storage of Clinker deteriorates quality and requires further operation to crush.

1. System Controls through SAP/ERP:

- Whether for each category of inventory, procedures are implemented to ensure the reliability of items' classification and codification.
- Whether for each category of inventory, changes to item master files are authorized based on the appropriate documentation/DOA. A regular review of all database modification is performed (e.g use of exception reports).
- Whether user profiles and related access to the stock management application and its data files are defined by the application business owner taking into account segregation of duties. Access rights are set-up and maintained (periodical review) according to appropriate segregation of duties and to changes in personnel generic accounts are forbidden.
- Whether integrity and completeness of data transferred into inventory ledger is checked i.e the interfaces between all applications/systems and legacy systems leading to entries being posted in inventory ledger are checked.
- Whether inventory levels with Min./ Max level is defined in system and exceptions are recorded/reported.
- Whether ordering levels are popped-up from system and orders placed accordingly.

2. Maintenance of physical stock/ inventory:

- Whether proper areas and access rights are defined for receiving, delivering and storing raw materials, finished goods and spare parts (including consignment stock). Especially goods are protected against damage, bad weather and theft; high value items/explosives are stored in locked/protected area.
- Whether Inventory is kept according to a precise warehouse map wherein all items are visible/ accessible for count, obsolete items and items with quality problems stored separately, storage ensures that two products cannot be mixed together i.e one item kept per place.
- Whether inventory control have the following segregation of function:
 - Manufacturing and custodial responsibilities from accounting activities and segregation of supervising and verifying (compilation) the physical existence of inventory from individuals performing the actual count.
- Whether "Kardex" is maintained at the warehouse to indicate updated stock position.
- Whether all stocks are kept under insurance coverage or stock losses are realizable from the custodian.



3. Costing and accounting of Inventory

- Whether 'Production 'performs volume reconciliation for each type of stock. Different categories of discrepancies are clearly identified (production/ stock-take). Someone not involved in the stock management reviews the reconciliation.
- Whether Stock issues and transfers are tracked and approved based on appropriate supporting documents and according to DOA.
- Whether classification of spare parts between Fixed Assets and Inventory is reviewed for consistency with Co. accounting policy.
- Whether valuation of each type of inventory is reviewed for consistency with accounting standards.
- Whether allocation of costs when performing cost calculation is reviewed for completeness.
- Whether provisions are approved according to delegations of authority.
- Whether Inventory provisions are estimated according to accounting guidelines, based on appropriate supporting documents and applied consistently from one year to another.
- Whether write-off of damaged bags (godown outside Plant premises) are authorized on the basis of appropriate supporting documents and DOA. The accounting Dept. is timely informed for booking.
- Whether cut-off process is in place to ensure that all movements are recorded at the date they occurred.
- Whether the methodology for calculating overhead in inventory is reviewed at least annually to ensure compliance with Company Policy.
- Whether procedures are in place, including document accountability to control the receipt and transfer of inventory into, within, and out of the facility. Monthly cut-off procedures observed and co-ordinated with the finance/ accounts to ensure all receipts and disbursements of inventory are properly recorded.
- Whether excess and obsolete inventory is identified and where appropriate, disposed of by scrap, returns to Vendor or other suitable means in a prompt and timely manner.
- Whether inventory on consignment or in possession of engineering or 3 Party /other personnel must be confirmed in writing annually by the customer, supplier.
- Whether reconciliation of the results of the annual physical inventory to the General Ledger, with appropriate adjusting accounting entries, must be performed prior to the annual fiscal closing.

Others

- Whether material received in damaged condition or short receipt considered with proper qualified discharge on CN and/ or short/ damage certificates obtained from Carrier.



- Whether shelf life of chemicals is maintained and usage /movement followed the discipline to pre-empt expiry.

5. Title Deeds

The mining rights, lease deeds, site plans and own roads with differentiator for Panchayat/ municipal road rights etc. to be preserved for protecting company's /entities interest on the property and fight legal battle, if any, against encroachment.

Accounting and custodian of documents

- Whether lease period, renewal date etc. is captured in ERP/SAP database for follow-up and response?
- Whether custodian of physical copy of lease deeds/ agreements/ ownership title etc. is fixed and maintained properly.
- Whether proper accounting entries are passed for ensuring ownership of movable/ immovable assets in Books.
- Whether the lease/ownership title deed is properly executed and registered.
- Whether "Security Deposit" receipts are kept properly and refund/deposit etc. are captured properly in Books of Accounts as per stipulation of agreement.
- Whether lease with "buy back" option delved by Co. and pros and cons examined before exercising/ nullifying (not exercising) the same?
- Whether required amount has been remitted to the Authority or appropriate 'stamp duties' affixed on legal documents/title deeds.
- Whether the assets/leaseholds are in use for the purpose for which the same is acquired.
- Whether responsibility for acting on notices received regarding termination of lease etc. are fixed?
- Whether prior permission for laying pipeline, electric lines, and modifications etc. to leaseholds obtained from the concerned property under way-leave license?
- Whether prior consent in writing is taken before transfer/ assign/ sublet of land to any third party.
- Whether 'search report' for property acquired collected before striking the deal?
- Whether prior consent in writing is taken before mortgage of land as security.
- Whether rental enhancement over a stipulated period is tracked and considered as stipulated in the agreement.
- Whether "Register of Charges" includes all immovable with clear title in favour of the Company and subsidiary company.
- Whether facilities/ privileges/ obligations etc. as mentioned in the agreement is certified on possession?
- Whether authority to scrutiny/ verify property agreements/ Title deeds are laid down and acknowledgement obtained from the concerned before signing the agreement.



- Whether process of examining/ pointing lacuna in agreements and defective titles are in place?
- Whether performance against assets provided by state government/ local statutory bodies under long-term lease are tracked and reported?
- Whether list of solicitor, advocates are maintained along-with description of roles assigned against each of the “title deeds” for future references?
- Whether all agreements are renewed in time?

6. Safety, Health and Environment (SHE)

The primary concern of environment protection and safety in work place to be ensured through re-plantation and on/off job training, issuing regular guidance notes to plant workmen. Regular reporting parameters like ‘lost time injury’, ‘near miss’ etc. ensures monitoring and journey towards safe work place. Safety Officers, health centre etc. are placed to address SHE concerns.

Procedure for Safety Work Permit System:

- Whether schedule for safety round in the plant is available with Safety Department and the same is adhered to.
- Review the procedure of verifying types of work permits issued at the time of safety round vis-a-vis on field compliance and documentation thereof.
- Whether work instructions for various types of jobs are available with the Department and a competent person is authorized to verify the same.
- Whether the entire factors have been covered in Work Permit to avoid probable accidents.
- Whether unsafe practices are brought to the notice of the process owner / stopped as and when identified.
- Whether there exists a formal process for reporting unsafe practices, as and when identified.
- Whether action taken report on identified unsafe practices is documented.

Safety Training, Education and Awareness:

- Whether schedule for training (Employees + Contractors + Marketing Dept.) is available with the Safety department and the same is adhered.
- Whether works safety committee (as provided under Factories Act) has been set up to enhance the safety awareness among the direct / associated workforce.
- Whether there exists departmental safety committee, if so, its functioning is vetted by the safety dept. and the same is communicated to respective heads for improvement.
- Whether Visual display methods are followed to educate workforce.



- Whether clearly defined checklist is available with the department to distinguish between safe/ unsafe practices relating to their nature of job.

Procedure for Management of Accident, Incident, Near Miss, Emergency Planning and Preparedness:

- Whether a clear instruction is passed on to security to ensure that all the employees/contract persons wear safety shoes before entering into the company premises.
- Whether Root cause analysis of accidents and near miss accidents is carried out, so that corrective / preventive measures can be taken to avoid such incidents in future.
- Whether investigation report is prepared and the same is shared with respective department / functional heads and also displayed on main notice board.
- Whether schedule for safety round in the plant is available with Safety Department and the same is adhered to.
- Whether laid down schedule for periodic check / inspection of the mechanical & electrical equipment from safety point of view is adhered to, and it is documented with major OFIs.
- Whether non-compliance of safety norms is taken care of and same is documented thereof.
- Whether regular follow-up is done for pending corrective actions by the respective departmental heads. No objection certificate by safety department is obtained in case of jobs for which corrective action is pending.
- Whether presence of Safety department representative / issue of safety work permit by competent person is mandatory at the time of major breakdown & startup of critical equipment etc.
- Whether on and off site emergency plans are available and awareness thereof
- Review the frequency of mock-drills etc.

Procedure for Firefighting & Prevention:

- Whether established fire identification & fighting system is in place with all the departments.
- Whether all the fire extinguishers are regularly checked and refilled / replaced on a periodical basis.
- Whether Works areas have been sub-divided into class of fire zone.
- Whether a schedule is prepared to carry out the mock drill for Firefighting system and the same is adhered to.
- Review the fire-alarm system and adequacy/healthiness.
- Procedure for Selection, installation and maintenance of Fire & safety equipment
- Whether Plant modification jobs are carried out with due permission from safety department and non-adherence of the same is documented.



Procurement of Safety-items Procedures:

- Review the process of purchase requisitions related to procurement of safety equipment and Technical comparison done after receipt of quotations from vendors.
- In case of durable firefighting equipment whether department has a procedure of availing warranty / guarantee from the suppliers / manufacturers.

Health

Compliance to OHSAS

- Whether compliance to OHSAS requirements is adequate
- Periodic medical-checkup of employees including coverage (Company/ Contractor etc.), frequency and records thereof
- Special health checks for employees working in hazardous areas

Workplace Hygiene:

- Whether hygiene at workplace is adequate

Hygiene of Eatables and Drinkables:

- Whether quality & hygiene of served eatables, beverages and potable water is adequate with available checks

In-plant Clinic:

- Whether infrastructure is adequate for customer delight including first-aid and dealing minor emergencies

Health Programs:

- Whether health programs are conducted for employees and families

ENVIRONMENT

Storage and Handling of Hazardous Chemicals:

- Whether storage and handling of hazardous chemicals practices are adequate and safe



Hazardous Scrap Disposal:

- Whether monitoring and disposal of hazardous scrap is as per norms

Disposal of Bio-Medical Wastes:

- Whether monitoring, disposal and reporting of bio-medical wastes is as per norms and adequate

Stack Emissions:

- Whether monitoring and reporting practices are adequate

Effluent Disposal:

- Whether monitoring, disposal and reporting practices are adequate

Environment Friendly Measures:

- Whether environment friendly measures such as plantation etc. are adequate

OTHERS

Policies:

- Compliance to SHE (Safety, Health and Environment) policy

Improvement Initiatives:

- Review of initiatives such as Responsible Care for improvements

7. Fixed Assets

Plant, Equipment, Office Building, Road, Kiln, Vehicles etc. having life class beyond one year/accounting period are recorded in 'Fixed Assets Register' (FAR). Granularity in assets registers with proper 'componentization' needs to be considered for appropriate accounting and partial replacement of assets in use due to wear and tear.

Assets Management Policy/Documentation/SOP

Whether any documented policy/SOP for fixed assets management (e.g. asset creation, acquisition, transfer, retirement/disposal etc.) is available and followed consistently.



Capital Budget & Approvals

- Whether there is a Capital Expenditure Policy highlighting the procedures to be followed for estimation of Capex & pre-defined authority for sanction of the Capital Expenditure budget with value limits?
- Whether technical & commercial feasibility studies done before initiation of the specific Capex proposal.
- Whether there exists a pre-designed format for initiating capital proposal to include description of assets, justification for the expenditures, envisaged benefits, approval from authorized persons etc.
- Whether the capital proposals are supported with the adequate supporting documents such as, quotations, drawings/designs etc.
- Whether any amendments to CAPEX are approved as per DOA?
- Whether Budgets are uploaded in SAP database for tracking purposes?
- Whether internal mechanism for tracking of capital proposals till raising of POs to identify excessive delays are in place.
- Whether there exists a system of compiling pending list of Capex proposals to initiate necessary remedial measures

Fixed Assets Register

- Whether a register of all fixed assets (including fully depreciated assets) maintained and updated? Whether there is adequate description of all assets to identify physical assets?
- Whether the register periodically reconciled with the financial records?
- Whether assets are properly classified?

Physical Verification

- Whether any documented policy/SOP on Physical Verification is available?
- If yes, whether the same is being followed consistently?
- Whether the fixed assets are verified at regular intervals by the management?
- Whether there is a set procedure for verification and confirmation of fixed assets lying with third parties?
- Whether any material discrepancy on such verification properly adjusted in the books after taking approvals as per DOA?
- Whether Physical verification of title-deeds is carried out periodically by officers not connected with assets accounting/assets administration?
- Whether all major fixed assets are in use at the end of the year?

Fixed Asset Additions

- Whether there is a documented approval for all fixed assets additions as per DOA?



- Whether Purchase order is made for every acquisition, giving full details of fixed asset requirement?
- Whether every P.O. is authorized as per DOA?
- Whether actual transaction is as per approved P.O.?
- Whether Master data (class, useful life, rate of depreciation) of new asset created is correct?
- Whether Capitalization is done only on the basis of 'put to use certificate' by proper person (technical person) only after inspection?
- Whether actual utilization exceeds the budgeted allocation? Whether approval taken?
- Whether there is clear and correct distinction drawn between capital and revenue expenditure?
- Where there is unduly delay in installation/commissioning/commencement of warranty, inquire whether there are problems with the quality of goods supplied.
- Whether additions are supported by documents of title and other relevant records as required for transfer of property (For e.g. in case of vehicles, RC Book is to be obtained)

Valuation of Assets

- Whether all the attributable costs relating to acquisition of fixed assets capitalized?
- Whether Self-generated asset consist of direct as well as allocable factory expenses allocated on systematic basis?
- Whether Borrowing costs are capitalized?
- Whether Capital and Revenue spent justifications are dealt with properly?
- Whether Tax Credits are appropriately dealt with in Asset valuation?
- Whether the additions list checked to ensure that no revenue items have been capitalized?
- Where fixed assets have been revalued, is there adequate independent evidence to support for revaluation amounts? Examine the basis of revaluation.

Sale of Assets

- Form for assets sale/disposal request with details of assets, reason for sale, reference to assets detailed record, location, written down value, sales value expected and mode of disposal, whether replacement required and cost thereof. Whether any request pending for more than one year?
- Whether procedure for disposal of spares rendered surplus due to concerned assets sold off, are in place.
- Whether sale-approval and evidencing process in place.
- Whether separate maintenance of disposed- off assets records and removal of same from the main asset register exists.
- Whether items replaced, scrapped or sold removed/written off from the books?



- Whether there is a procedure for floating of enquiries for sale of assets, billing, realization and final accounting.
- Whether the profit or loss on sale of fixed assets been properly disclosed in the accounts?

Movement/Transfer of Assets

- Whether sending as well as receiving locations in all cases fills a standard form?
- Process of authorization for inter-location/inter-plant transfer of assets exists?
- Whether the transfer of assets are approved as per DOA
- Whether transfers are properly recorded in the books.
- Whether there is a system to track the assets transferred on a temporary basis?

Identification of Idle Assets

- Whether there is a documented process in place to identify the idle assets?
- Whether the request is always from the user documenting the reason to classify asset as idle asset.

Write Off of Assets

- Whether write off note for any shortage/missing asset is put up for approval as per DOA?
- Whether there is a standard form for “Write off” request?
- Whether the same is properly adjusted in the books after taking approvals as per DOA?
- Whether any write off requests are pending for approval for more than one year?

Capital WIP

- Whether there is any delay in capitalization?
- Whether a list of items of capital work in progress not completed for a long time obtained with explanation?
- Whether there are any old WIP & reasons for non-capitalization.

Capital Advance

- Whether Request from vendor for capital advance, which should be approved as per DOA
- Whether there are any unadjusted advances?



Insurance of Assets

- Whether procedure for insuring and adequacy of coverage covering all risks such as fire, flood, earthquake, malicious damage etc. exists.
- Whether justifiable Reasons for risks not covered.

Security of Assets

- Controls to ensure Physical Safeguarding of Assets exists.
 - Un-authorized use/movement of assets.
- Whether an examination of the ownership is done by verifying the title deeds or by obtaining direct confirmation from the custodian?

Tracking of Internal Rate of Return

- Whether any analysis of asset performance against the projected NPV/IRR is being done?
- Whether there are gaps between the projected NPV/IRR and actual asset performance?

Statutory-Compliances

- Whether there is any periodical review of the assets for the impairment?
- Whether accounting for impairment as per Accounting Standard is being followed?

8. Production

Production of Clinker (wherever applicable) and conversion to Cement, bagging (not applicable for sale in dumpers) activities are considered as production.

Planning & Execution

- Whether Production budget/plan for each of the product variety is duly compiled on a timely basis?
- Whether there exists Pre-defined authority level for review and modification in the production plan?
- Whether Production Plan vis-à-vis changes in Sales Plan or availability of raw materials & documentation thereof is done on a periodic basis?
- Whether compilation & documentation of actual consumption vis-à-vis standard consumption is done on a periodic basis?
- Whether review of periodicity of comparison of actual consumption and standard consumption is in place?



- Whether compilation of reason-wise variance analysis for deviation in consumption is done on a regular basis?
- Whether all controllable and non-controllable factors resulting in variation in the consumption norms identified?
- Whether department takes appropriate action plan to remedy the controllable factors?
- Whether material reconciliation highlighting total material consumed, standard input-output norms and actual verified?
- Whether variations over standard Bag consumption is measured and monitored?
- Whether Daily Production Report from DCS Compiled?
- whether the production report on a daily basis verified by the authorized personnel?
- Whether there exists pre-defined authority levels to generate, add, and modify production data in DCS/SAP?
- Whether there exists Standard Operating Procedures (SOP) for quality control and inspection?
- Whether there exists a system of review of Quality Control (QC) norms periodically to ensure their validity?
- Whether Adherence to the pre-determined sampling techniques & exception reports duly approved for the results deviating from the QC norms?
- Whether all complaints received by the Production department pertaining to quality/quantity are reviewed?
- Whether Customer-complaints closed in time for amicable solution?
- Whether Engagement of external agency for quality validation are approved and reports are reckoned to pre-empt possibility of quality non-conformity issues?
- Whether process for re-working QC failed products exists after obtaining due approval from appropriate authority against QC failed product?
- Whether all products are bagged after the same being qualified for /passed by QC?
- Whether the plant maintenance plan considered while development of production plans?
- Whether preventive maintenance schedule Compiled and duly adhered to?
- Whether breakdown maintenance and opportunity loss of production measured?
- Whether impact of breakdown maintenance on the production schedule ascertained?
- Whether cost accounting system is maintained to accurately accumulate and identify manufacturing cost (i.e. by cost centre or product)?
- Whether cost accounting system is provide adequate information to analyse actual manufacturing cost, standard cost and other information needed to properly safeguard and value inventory?
- Whether appropriate assumptions are made to allocate fixed cost?
- Whether periodic comparisons of standard costs to actual manufacturing costs are performed, and any discrepancies resolved in a timely manner?



- Whether adjustment to the standard cost, for whatsoever reason, are approved by the appropriate authority, adequately documented and reflected in accounting?
- Whether the cost of by product is taken into consideration in arriving at cost of production?
- Whether the scrap accumulated is within the approved limit and timely reported?
- Whether approval from competent authority is taken before disposal of scrap accumulated?

9. Quality Control

Quality control at each of the stage indicates process adherence at each production activity as well as ensuring raw material (mix) is supportive to the grade of cement manufactured with desired applicable strength.

Process

- Whether frequency of sample collection is adequate?
- Whether sample quantity collected is sufficient for inspection?
- Whether all samples are accompanied by "Sample testing request form" and entered in "Sample register"?
- Whether testing is carried out as per standard QC manual & relevant work instruction?
- Whether all purchase order contains quality norms and it is communicated to laboratory?
- Whether all test results are recorded by Laboratory in appropriate register for further scrutiny/analysis?
- Whether inspection reports are communicated to user department, Buyer/Purchases Dept.?
- In case abnormal result found whether it is re-analyzed after reasonable revision in sample size before issuing 'failed' report?
- In case of rejection, sampling frequency is increased / revised and maintained till the 'acceptance' of the product?
- Whether in case material is 'failed' during inspection the same is stored in a separate place & tagged clearly?
- Whether standard time limits for each type of test is defined, documented and adhered?
- Whether periodically samples are sent to external agencies to cross check the results?
- Whether all laboratory equipment calibration schedules is maintained and followed?
- Whether certificate of external agency is obtained about laboratory standards?
- Whether quality specifications required by customer is communicated in advance to production department for production planning?



- Whether customer's preferred specification is communicated to laboratory & such communication is available for verification?
- Whether quality related customer complaint resolution mechanism is available? Whether all quality related customer complaints are resolved in time and if not, it is escalated to higher authority?
- Whether all materials test certificates prepared by quality control laboratory are approved by Head - Laboratory?

10. Payroll

Attendance recording and payroll processing for permanent and contractual deployment (excluding job work) is very important w.r.t cost of cement and Net Cement Realization (NCR). In most of the organizations 'time recorder' machines are in use e.g bio-metric recorder, face reader etc. Time captured is downloaded for identification of absenteeism, short time booked (early exit), missing punch/recording etc. for appropriate action i.e leave deduction, approved early exit etc. for proper reflection in payroll. Appropriate statutory deductions needs to be mapped for payroll processing.

Process Review

- Whether information related to appointment/transfer/resignations given to the outsourced vendor have been duly checked and authorized and accurately captured.
- Whether only approved employee details are forwarded to Payroll processing/ outsourced vendor
- Whether statutory deductions are made as per the minimum requirements set forth in law
- Whether all statutory deductions are made automatically through reviewed Salary Structure
- Whether differences in statutory deduction between last month & current month salary are scrutinized through variance report
- Whether all compensation related payments data are sent by HR Dept. and cross verified by Accounts
- Whether after updating by the outside vendor, the data is validated by accounts by scrutinizing the variance report
- Whether retirement benefits like superannuation, PF, gratuity computation is authorized by appropriate authorities
- Whether retirement benefits are given as per the Company's policy
- Payment statement is authorized by Manager-Accounts before payment is released
- Whether the amount disbursed matches with salary computed by outsourced vendor
- Whether salary is credited to the bank account of the employees as per list /sent by outside vendor and tallied with the net pay.



- Whether Manager Accounts checks the list and authorizes and releases the payment through E payment system
- Whether salary payment is released through two authorized signatories
- Whether the list of signatories does not have resigned/retired employees name
- Whether salary list has names, bank account number and net pay of the employees
- Whether internet access system is given to employees of outsourced vendor handling salary processing account
- Whether intrusion detection system is in place at outsourced vendor/in-house processing Team
- Whether back up of payroll data is taken on a daily basis by outsourced vendor /in-house Team and kept at different location
- Whether non-disclosure agreement has been signed by all employees of the outsourcing vendor handling client account
- Whether salary related complaints are resolved within 7 days in all cases
- Whether copy of appointment letters are sent by HR Dept. to Accounts dept. as well as the outsourced vendor.
- Whether Accounts Dept. checks the data and verifies it with uploaded data in SAP/other ERP
- Whether date of joining is uploaded in SAP /ERP by HR department and is sent to the outsourced vendor as per the appointment letter based on which proportionate salary for the month is processed.
- Whether appointment letters are issued by authorized persons
- Whether details of final settlement such as gratuity, leave encashment given by personnel dept.
- Whether PF and SA calculation checked and all outstanding dues recovered from the final payment
- Whether the amount of final settlement duly authorized
- Whether information regarding separation of employee is sent to outsourced vendor for final settlement on a monthly basis
- Whether the SAP/ERP/System Data is updated for resigned employees immediately after last date
- Whether all Transfer related data is updated along with change in cost centre in SAP immediately on the date of new reporting
- Whether the information regarding transfer given to outsourced vendor immediately with effective date
- Whether transfer letters are issued by authorised persons
- Whether attendance details are captured correctly and on a timely basis
- Whether leave details are submitted in a proper format and is captured correctly
- Whether leave and out of office travel is updated on a monthly basis
- Whether balance leave is carried forward as per company policy
- Whether calculation of balance leave is done correctly and verified



- Whether all leave details including leave without pay is informed to the outsourced vendors on monthly basis
- Whether overtime rates fixed are as per law
- Whether all overtime sheets are approved by appropriate authority
- Whether calculation of perquisites of employees is done correctly and is verified
- Whether the calculation of bonus is done accurately and as per company policy
- Whether the calculation is verified by Accounts Dept.
- Whether the bonus amount is updated by the outsourced vendor accurately and paid with salary
- Whether bonus is disbursed to all employees on time
- Whether the changes in compensation structure is informed to the outsourced vendor on time
- Whether the variance report is checked for the inclusion of amended salary structure by Accounts Dept.
- Whether changes in salary structure is approved as per DOA and updated in SAP by authorised person
- Whether all loans and advances given to employees are as per company policy
- Whether all loans and advances are approved as per DOA
- Whether loans and advances are accounted correctly in books immediately
- Whether deductions for loans and advances is intimated to the outsourced vendor
- Whether the deductions are verified by the Accounts Dept.
- Whether annual confirmation of outstanding loans and advances is taken before finalisation of accounts
- Whether TDS is calculated and deducted as per declaration submitted by employee
- Whether proofs of investment are submitted by the employees against the declaration
- Whether TDS is deducted for all employees on timely basis
- Whether the TDS deducted is deposited with the authorities on timely basis -before due dates
- Whether TDS return is filed on quarterly basis without default
- Whether TDS is correctly accounted in the books
- Whether all statutory deductions like PF, superannuation etc are authorised and deposited with authorities on time
- Whether penalty has been paid for short deduction of TDS
- Whether penalty has been paid for late deposit of TDS

11. Scrap

Reactor vessels, worn out Plant parts, factory and office equipment, Bags (failed) etc. are accumulated as 'scrap' for disposal.



Generation, Handling and Disposal

- Whether scrap generated at various departments is listed, physically verified by authorised person & approved by respective HOD?
- Whether scrap approved by HOD is referred to general store department through "Request for dumping at salvage yard" at proper interval (at least half yearly)?
- Whether all scrap is classified for general scrap, NPA, hazardous scrap requiring legal compliance for disposal before giving approval of dumping at salvage yard?
- Whether for Asset scrapped classified as NPA, respective department are advised to follow 'procedure for disposal of NPA/ Assets scrapped'?
- Whether all hazardous scrap requiring legal compliance before disposal is stored at separate identified location?
- Whether dumping request is accepted/ rejected after appropriate verification?
- Whether scrap is finally classified as "Saleable scrap", "Usable scrap" & "Non saleable scrap"?
- Whether all accepted 'request for dumping scrap' is entered in to scrap register and an identification number is assigned having running serial number?
- Whether concerned departments are permitted to dump scrap based on accepted & signed dumping request?
- Whether all dumping request is maintained in separate file at general stores & available for verification?
- Whether information for inviting competitive Bid/Offer for 'saleable scrap' is published in local newspaper and / or notified on Company notice board?
- Whether comparison statement of Bid/Offer is prepared for commercial evaluation & available for verification?
- Whether based on commercial evaluation contract is awarded to best buyer upon mutual agreement/ recommendation of the salvage committee members?
- Whether contractor is permitted to lift scrap from salvage yard upon deposit of specified security deposit as per contract?
- Whether loading of truck is done under strict supervision & instruction? Whether safety & security requirement is complied with?
- Whether after loading the scrap, the same is weighed and weighment slip is obtained?
- Whether based on weighment slip non-returnable gate pass & bill is generated through SAP system in quadruplicate?
- Whether Gate Pass & bill is handed over to customer only on receipt of payment from customer in the form of DD/Bankers cheque, Credit Balance confirmed by accounts department?
- Whether two copy of Gate pass & Bill is retained at General Stores in Master file?
- Whether one copy of bill is sent to accounts department for record?
- Whether 'Usable scrap' is issued to prospective user department based on approved "Request note"? Whether 'Request note' is approved by authorised person?



- Whether special request for issue of 'usable scrap' on non-chargeable basis for community / for an employee is considered only if such request note is approved by appropriate authority scheduled in DOA
- Whether std. Rate are fixed for 'domestic sale' i.e. sales to employees?
- Whether non-returnable gate pass for 'domestic sales' is issued only after payment is made by employee with accounts department?
- Whether all legal requirements for disposal of scrap materials are complied with?
- Whether safety related precautions are taken for storage of hazardous scrap items?
- Whether disposal process is commensurate for compliance of environmental norms?
- Whether item-wise quantitative details for scrap items are maintained on a regular basis by general stores department?
- Whether all incoming scrap materials is regularly recorded in 'spares stock register'?
- Whether all types outward of scrap items is properly recorded? (O/w type: Sale of "Saleable scrap", Disposal of "Non- Saleable scrap", Domestic sale of "Usable scrap", Free issue of "Usable scrap" to prospective user department, Free issue of "usable scrap" for community, Employee etc.)
- Whether process of physical stock verification of scrap at proper interval is in place? Deviations during physical verification, if any, properly recorded and approved?

12. Bagging

Major part of the cement manufactured is sold in bags. Different product variety i.e OPC, PPC etc. are sold having identity in bags. Moreover, cement is also differentiated as per market segment i.e Trade and Non-trade (due to difference in MRP). Hence, Bags for Trade and Non-trade segment in use is also different. Adherence to the metrological act (Weights and Measures) is of higher magnitude and hence calls for appropriate care while bagging the product. Customer compliant for short weighed bags are considered for penal action, on the contrary, 'give away' by way of extra material putting in bags is a loss. The electronic weighment system fitted with Packers requires regular calibration to avoid vulnerability in operation.

Process and Activities

- Whether entire production of Cement (excluding Bulker supplies) is bagged on the same day?
- Whether packing in HDPE /paper bags is planned as per production, marketing requirement, stock of empty bags?
- Whether month-wise/rake-wise/truck-wise/ target received from supply Chain Department?
- Whether all the HDPE/paper bags accepted as per Standard Quality norms for packing of Cement produced?



- Whether the packaging is done as per "Work Instruction for Cement bags Filling, Stitching and conveying"?
- Whether the "shift In-charge Daily Report" reflecting the previous day's performance, problems, stoppage and breakdowns is prepared?
- Whether the above report is reviewed for various plant/machinery problems, and necessary action taken?
- Whether there is a supervisory review of the daily production /dispatch?
- Whether monthly consumption report for HDPE /paper bags, thread, etc. is prepared and reconciled with volume of cement bagged?
- Whether inventory stock of packing materials in ERP/SAP is reviewed and indenting/follow up action is initiated whenever required?
- Whether minimum-maximum criteria for packing materials are defined?
- Whether Product Packaging plant arranges the unloading of bags as per the process of handling, storage, and preservation?
- Whether samples from the lot are drawn by 'Product & Quality assurance' as per advice from Materials?
- Whether information in relation to receipt of empty bags being maintained?
- Whether there is any process in place for 'Bag Drop test'?
- Whether Quality of Cement checked while filling into bags?
- Whether filled bags after filling, closing and conveying are inspected as per 'Quality Plan'?
- Whether all the rejected bags as per 'Quality Plan' are segregated?
- Whether all the bags carry the print appropriate for the category e.g Non-trade, Trade, OPC, PPC etc.in bold letter for clear identification before packing?
- Whether reason-wise analysis is compiled on a periodic basis for idle time?
- Whether weightment procedure followed for Cement bags and tolerance limits set for the same?
- Whether the access rights for setting weight is given to authorised person?
- Whether Counters are fixed for counting number of bags loaded on Truck, Rakes etc. and tallied with 'bagging report'?

13. Electrical Maintenance

Power lines (from captive Power Plant to Clinkerization/Grinding Units) require regular vigil to avoid any shutdown/disconnection. The maintenance of 'wheeling zone', power polls on 'Right Of Way' also requires specific maintenance on periodical basis. The consumption level checks, power bought from national grid/state grid and their maintenance also needs to be considered on regular basis.

Planning & Execution

- Whether preventive Maintenance Plan is prepared for all critical equipment?



- Whether shutdown Maintenance Plan is prepared for equipment after preparing shutdown job list?
- Whether all maintenance plan cost (ABP) are compared with actual and corrective action taken for major deviations, if any?
- Whether for new equipment maintenance schedule is entered in ERP/SAP system?
- Whether revised maintenance schedule of old equipment has been entered in ERP/SAP system?
- Whether Shift Schedule for Department Electricians is prepared on monthly basis and communicated to Personnel Department and to all Electricians?
- Whether purchase of stores items are routed through PR, if stock is not available in stores and approved as per DOA?
- Whether all PO's relating to electrical spares including service orders are supported with PR and approved as per DOA?
- Whether site policies pertaining to work permit etc. is in place before carrying out the maintenance job?
- Whether electrical jobs are allocated to electricians as per knowledge, skill and competency levels.
- Whether equipment is energized after the completion of job and return?
- Whether 'MEN AT WORK' tag is put in the starter of the equipment in case of electrical isolation?
- Whether Breakdown is investigated by Assistant managers to assess the cause of failure and spares needed for replacement?
- Whether all Personal Protective Equipment (PPE) norms are compiled before starting electrical maintenance job?
- Whether job is executed as per the work instruction and check list?
- Whether job is supervised by company officials?
- Whether all safety guards are put back and area is cleaned after completion of job?
- Whether contract labour used for shut down /break down maintenance are adequately insured?
- Whether supervisors are signing off the notifications for closure?
- Whether after completion of job, work permit is returned for equipment energisation and trial?
- Whether check list are filled up after job completion?
- Whether equipment history card and log books is maintained in SAP for any major modification or any major spares used?
- Whether periodical review has been done for electrical maintenance activities.

14. Mechanical Maintenance

Maintenance activity includes regular activities to increase uptime of Plant. The gang can visit places in Plant, rotary kilns, bagging zone, mining area, Chute in dispatch yard etc. as routine regular checking points to 'Look, Listen and Feel' the Plant operations. Planned



maintenance activity also includes annual shut down. Breakdown maintenance at times requires critical attention and outside specialists services are also called for.

Process & Execution

- Whether Look, Listen & Feel (LLF) schedule/check list and lubrication schedule/check list for preventive maintenance is in place?
- Whether job list for preventive maintenance from pending job list, Previous Look, Listen & Feel (LLF) report, Condition based monitoring system (CBMS) reports and circulated to plant Manager?
- Whether Shut down maintenance plan is prepared and approval obtained from Plant Head.
- Whether root cause analysis for failure is carried out on regular basis?
- Whether repair/maintenance parameters to efficiency in place? (Mean Time To Repair, Mean Time Between Failures, Mean Time To Fail etc. are budgeted and compared periodically)
- Whether proper Planning for minimum time to repair is in place?
- Whether procurement of material for maintenance job is supported by PR and subsequently routed through PO, if not available in stock and approval as per DOA?
- Whether communication/Arrangement of specialise vendor for special break down jobs are made after obtaining approval as per DOA?
- Whether work is carried out only after obtaining valid work permit?
- Whether Checking the site and authorising work permit with Task Hazardous Analysis (THA) is in place?
- Whether equipment is energised after the completion of job and return of valid work permit?
- Whether contract labour used for shut down /break down maintenance are adequately insured?
- Whether Equipment History Card and log books is maintained?

15. Warehousing: storage and sale (C & F)

Cements produced are not stored in the Plant site and hence demand assessment and production planning is of vital importance. To ensure timely 'on demand' availability at 'market place', storage facility is built by hiring godown and supervised through outsourced agency i.e. C & F. Handling rate is fixed for unloading and loading of bags at godown. Overall stock movement (inwardation) and invoicing (sales despatch) is monitored by the Company. Godown rental and handling cost are the elements of spent to ensure regular supply.

Process and Activities

- Whether Vehicle requisitions are made as per warehousing/despatch plan.



- Whether warehouse locations selected are mapped in Company electronic database.
- Whether Rental Agreements with Landlord entered into with specific area and facilities.
- Whether photograph for the facility is captured and available for validation.
- Whether appropriate authority level is fixed for rental amount and period of occupancy.
- Whether vetting by legal dept. is mandatorily carried out.
- Whether capacity for the area occupied is calculated and known to dispatch Dept. for maximum utilization.
- Whether warehouse is maintained properly i.e moisture free, water leakage free etc.
- Whether Bags are kept properly to ensure count and tallying with book balance.
- Whether every variety with trade and non-trade identification is kept separately in warehouse.
- Whether all sales affected are against 'Sales Bill' only.
- Whether all inwardation is updated immediately for accuracy in stock at hand.
- Whether transfer between one Warehouse to another takes place and system captures the movement to ensure accuracy in stock position.
- Whether 'cut and torn (C & T)' bags are identified and physical kept separately with identification in system database.
- Whether damaged cement (solidify) kept separately and marked in Inventory.
- Whether regular validation for C & T is carried out by Company officials for initiating appropriate disposal action.
- Whether handling Bills are validated by Warehouse personal and parallel checking of system data for receipt/invoicing/return etc.
- Whether time for Order and execution is maintained with time lag therefor.
- Whether 'short weight' bags are identified on random basis?
- Whether 'height of bags kept', distance from Wall, and keep walk-way between two rows to facilitate count etc. is maintained.
- Whether MRP compared between Bill and actual stock, while effecting dispatch/sale.
- Whether FIFO process followed for physical movement.
- Where the Warehouse is responsible for collection, if so, timeliness of deposit of Cheques /Return instrument collection etc. to be monitored for appropriate trigger of action.
- Whether warehouse agreement includes responsibility for stock loss/damage due to breaking of Walls etc.
- Whether volume is measured for each location to influence decision on continuation of the facility.
- Whether Bills are timely booked for liability.



16. Dispatch/Transportation

Transportation is one of the major costs of cement industry. Mostly, to cater local demand; cement grinding Units are located near to consumption areas/market. Outward logistics is very important w.r.t response to market demand (timely availability of product) and pricing (basically from competition). Inland movements are carried out through Rail and road transports based on cost involved, volume and distance.

Dispatch Planning

- Review the procedures followed for finalizing Dispatch Plan.
- Ensure that Dispatch Plan is finalized according to the market condition (demand and competition) requirements at various locations and considering the production schedule.
- Ascertain other factors considered while finalizing Dispatch Plan (tax implications etc.).
- Verify authority levels for finalization of Dispatch Plans & their adherence.
- Study the system followed for communication of dispatch Plan to the Works and its follow-up.
- Verify whether changes in dispatch plans are authorized and are promptly conveyed to the Works.

Dispatch Arrangement at the Works

- Identify the system of receiving dispatch Plans/instructions at the works and their documentation.
- Review actual dispatches in comparison with budgeted dispatches.
- Check dispatch of goods through non-regular modes (Road shifted to Rake or vice versa) of transports & reasons thereof.
- Ensure that dispatch schedules are given to the transporters /railway authority well in advance according to the Dispatch Plan.
- Check whether placement of trucks is as per the required schedule.
- Whether movements of goods have been affected due to non-availability of trucks/rakes.
- Check monthly bills of the transporter and identify instances, where clubbing of DO (Delivery Orders) two or more trips are made to the same place on the same day and reasons thereof.

Secondary Transport

- Identify the system of finalizing secondary transport contracts, selection of transporters/mode of transport and controls over the same.



- Ensure that documented authority levels for finalization/selection of transporters and mode of transport exist and are properly adhered to.

Transportation Budgets

- Compare the budget for transportation/freight cost (transport mode-wise) with actual transportation expenses and review variances, if any.
- Ascertain periodicity of comparison of Transportation Budgets & initiation of remedial measures.

Transport Contracts

- Whether quotations are called for from various transporters for fixation of rates.
- Ensure that a proper agreement duly vetted by the Legal department is entered into with the transporters & renewed on time.
- Whether the agreements are comprehensive in all respects including common carrier liability.
- Whether the transport rate is based on per Mt. load per Km. basis.
- Check whether freight charges and transit time from all the relevant locations across the country are defined in the agreement and delivery is made within the normal time mentioned in the contract. Abnormal delays to have approval mechanism.
- Ensure transshipments and diversions are properly authorized after considering cost/expense reimbursement.
- Ensure that, acknowledgement copies confirming receipt of materials are submitted by the transporters within specified time limit.
- Ensure that, security deposits are collected from all the transporters.
- Transit losses are recovered from Transporters at appropriate local cement rates.

Bill Passing Procedure

- Authority level for processing transport bills is fixed and certified by competent authority.
- Compare contracted rates and actual rates charged by the transporters and proof of receipt of goods by the receiving location/intended receiver.
- Ensure shortages and damages are checked and the same are duly deducted from the transporter bills.
- Review of time lag in receipt and payment of bills and reasons for excess time, if any.
- Whether liabilities are acknowledged immediately with the transportation.
- In respect of freight borne by customers, whether the same is recovered immediately.



Other Areas

- Examine the Company policy pertaining to transit insurance cover and its adherence.
- Whether transporters performance is evaluated periodically with respect to the timely delivery of consignment and the amount of shortages and damages in transit.
- Whether periodic review is undertaken for the pending dispatches with reasons therefor.

17. Sales Promotion and Marketing Schemes

Both direct and indirect way, the Company used to create market for the product/brand. Mason meets, Builder meet etc. are organized to create awareness of the Brand. Hoarding, Banner, Display, Wall Painting, Shop Painting, Dumper/Truck/Vehicles with Company logo and name/brand etc. are commonly used methods for product/brand awareness. Radio, Television time slots are also taken to reach locally/nationally.

In cement market, dedicated Dealership is a rarity. To attract Dealers towards Companies Products; per bag incentives are allowed. Moreover, special incentives, Gold /Silver coin schemes (Diwali/ Puja etc.), foreign trips etc. are announced based on off-take volumes in different markets.

Process and Activities

- Whether appointment of Dealers /Stockists is made based on selection criterion e.g experience, market reach, financial strength etc. laid down by Company.
- Whether agreement entered into with dealers/stockiests etc. specifically mentions rights and liabilities including payment to be made to Company from sales through retail outlets.
- Whether appropriate Security Deposits are obtained from Dealers /Stockiest before initiation of trade.
- Whether validation of Customer Master is carried out at regular intervals.
- Customer categorization between trade sector and non-trade are made to apply appropriate pricing.
- Whether price revisions are made/captured timely to apply on deliveries/despatches at appropriate rate/s for realization of correct value.
- Whether appropriate inco terms are captured for ensuring billing accuracy.
- Whether 'Credit Notes' for cash discount (prompt payment) are considered separately based on actual payment made against the relevant Invoice.
- Whether target based volume discount, regional discount, trade discount, scheme discount (construction week, Diwali bumper etc.) are dealt separately for each market/ dealer /stockist etc.
- Whether 'credit limit' is appropriately fixed and monitored.



- Whether collections are monitored Dealer-wise and reversals for bouncing instruments are passed immediately for giving ensuring accuracy in outstanding balance and denial of prompt payment incentive.
- Whether evaluation of dealers is taken place periodically to assess potential to cater, off-take during relevant period, growth, payment habit etc. and ranked accordingly.

18. Procurement

Engineering Spares, Fuel (Coal, Diesel etc.), Additives, and Chemicals etc. are major items procured. Purchases Department controls the procurement activities including Vendor selection, price negotiation, Purchase Order release etc. to avail best obtainable price.

Process and Activities

- Whether requirement of material/ goods/ services is identified based on purchase requisition (PR) from user department for all purchases? (except small value purchases up to Rs. 5000/-)
- Whether all dept. covered under release strategy is generating PR.
- Whether general stock items purchase requirement is identified based on previous consumption trend?
- Whether all PR are duly approved / released by functional head as per release strategy?
- Whether all PR are scrutinised for accuracy of material code, quantity, cost centre, expected delivery date, specification, source of supply, services required etc. by Purchase Dept.?
- Whether availability of stock & buffer stock requirement for requisitioned items are checked before creating RFQ (Request For Quote)/ purchase enquiry?
- Whether Purchase inquiry / Request for quotation is mandatorily made PR?(except where Annual Rate Contract is available)
- Whether vendor applications evaluation is made against pre-set norms and deviations, if any, are duly approved?
- Whether all technical quotation/bids are first sent to user depts. for evaluation?
- Whether comparison statement of all quotation/ bid is prepared for scrutiny of tender & available for verification?
- Whether final purchase approval is done as per DOA (Delegation Of Authority)?
- Whether all PO contains applicable 'acceptance criteria' as stipulated in Quality standard.
- Whether GIN (Goods Inward Note) is prepared for all material supplied by supplier & received at Stores?
- Whether material is inspected by user, in case of technical items, before acceptance of delivery?



- In case of rejection whether material is sent back to supplier & rejection note is forwarded to purchase dept. to avoid wrong payment?
- Whether contract is vetted by legal department to scrutinize legal aspects?
- Whether penalty clause in case of non/under supply of contracted quantity exists in contract?
- Whether Vendor Enlistment Forms are scrutinized for requisite Tax and Compliance matters.
- Whether before importing any kind of fuel, indigenous/domestic availability is rechecked?
- Whether internal efficiency of procurement is measured by PR to PO cycle time & it is within target cycle time?

19. Accounting (Receivable/Payable and Book Closure)

Accounting is one of the critical function, since results of many activities are reflected through accounting information. Accuracy of accounting information depends on control aspects embedded in accounting processes.

Process and Activities

- Whether 'modules closure 'timelines with performer responsibility is fixed and adhered.
- Whether timeline for monthly/yearly book closure with defined responsibility is fixed for adherence.
- Whether Provisions, Advances and Adjustment entries are approved as per responsibility matrix agreed upon.
- Whether Addition/Deletion/Change (ADC) in accounting system are handled by appropriate authority.
- Whether 'Chart of Accounts', Code creation in Debtor/Creditor Ledger are handled as per 'Delegation Of Authority'.
- Whether AR /AP Modules control Ledgers and sub-ledgers are aligned and tallied on real time basis, else reconciled for establishing accuracy.
- Whether updation in AR/AP for amount received/paid/payable are made immediately on occurrence of transaction.

20. Captive Power Plants

Power is a significant element of cost in Cement production. A focused 'check list' in this area of review is a pre-requisite for measuring 'control effectiveness' and 'operational improvement'.



Operation of CPP

- Whether proper records are maintained for Captive power plants (CPP) / DG sets, w.r.t generation / distribution for ascertaining 'transmission and distribution' loss.
- Whether cost of CPP operation are benchmarked with other Power sources like State Grid/ participation in Power Exchange rates etc.
- Whether comparison made between different fuel avenues like bagasse based, diesel, bio mass, pet coke, coal etc. to find out most cost effective one.
- Whether ROW (Right Of Way) obtained for distribution lines laid outside own /occupied area.
- Whether equipment installed for metering, control room are of standard original equipment manufacturer to pre-empt vulnerability and redressal of specific requirement.
- Whether Unit cost of power generated includes Equipment depreciation and interest cost of borrowing, if any.
- Whether appropriate wheeling facility being arranged for transmission to different Units (locations) e.g Grinding Unit, Clinkerization, Ball Mill, staff quarter etc.
- Whether installed generation capacity is achieved? If not documented variation to be accessed.
- Whether daily 'load management' as per requirement of different Users are mapped and maintained for reference.
- Whether 'shut down' and/or maintenance schedules are in place to ensure uninterrupted usage of CPP.
- Whether fuel inventory levels are monitored on daily basis to avail continuous output.

21. Mining operations

Cement manufacturers normally owns or extract limestone from leased mines. Despite commercial considerations for royalty and/or cost of extraction, the following controls needs to be examined.

Operations

- Whether quality of lime stones and excavate-able storage etc. are examined/assessed before deciding /zeroing on a mining area.
- Whether Survey Reports, Geophysical, Geochemical, Stream Sediment etc. are gathered/examined for the mine selected.
- Whether mines are owned or leased for use?
- Whether appropriate ownership documents are available with the entity to protect it's interest on ownership.
- Whether environmental and necessary Government clearances are obtained before decision on the mining spot.



- Whether royalty and other statutory payments are factored for lease right.
- Whether Explosive Record, detonator etc. license are obtained before initiating operation.
- Whether drilling pads, roads, staff quarters and other necessary infrastructural expenses are budgeted for operations.
- Whether lifting volume and grade is decided for the usage in Clinkerization.
- Whether appropriate Heavy Earth Moving Equipment (HEMM) are purchased or taken on lease to ensure smooth mining operations.
- Whether appropriate screens are used to segregate different sizes of stones for requisite usages.
- Whether rope-ways are placed to easy movement of excavated material to Crusher.
- Whether appropriate record for quantification of lifting and quality are maintained at each stage till movement to Clinker Unit.
- Whether maintenance cost of mines (stowing)/equipment are budgeted and actuals are reviewed against the same.
- Whether mining cost is absorbed properly in Clinker.



INTERRELATIONSHIP BETWEEN CAPITAL STRUCTURE AND DIVIDEND POLICY WITH REFERENCE TO SELECT INDIAN COMPANIES

Rajbinder Kaur
Arup Kumar Chattopadhyay
Debdas Rakshit

Abstract:

The present article examines the interrelationship between capital structure and dividend policy company-wise. In an earlier study (Kaur, Chattopadhyay, & Rakshit, 2018) this interrelation was empirically analysed taking BSE listed 40 sample companies. In the present study sample size is extended from 40 to 90 sample companies comprising 5 companies from each of 10 industries (namely, Automobile, Cement, Large Heavy Engineering, Fertilizer, Oil Exploration, Pharmaceutical, Refineries, Large Tea, Large Textile and Large Tyre) and by including 5 sample companies from each of 8 additional industries (namely, Computer Hardware, Computer Software, Construction, FMCG, Large Heavy Electricals, Mining/Minerals, Large Steel and Telecommunication) which are chosen from BSE listed companies on the basis of highest turnover for the year 2011. As per the non-fulfilment of criterion of availability of continuous data for the 15 year's study period i.e., from 1999-2000 to 2013-14 the study has not omitted 11 sample companies from the study. For analysing the said interrelationship, the study has applied Akaike's Information Criterion (AIC), Granger Causality Test and Panel Data Regression technique. From the estimated results of Granger Causality Test, we observe that F-Statistic value, using Dividend Payout Ratio as independent variable, is significant for 14 sample companies, while F-Statistic value, using Leverage as independent factor, is significant for other 11 sample companies. In the cases of other 4 sample companies, both Dividend Payout Ratio and Leverage Ratio are Granger cause of other. Next, we have estimated two regression equations as per the prescription obtained from Granger Causality Test along with other control variables. On considering both the regression results jointly we may come to the final conclusion that leverage statistically negatively depends on dividend payout ratio, but the converse is not true. But this conclusion is valid for the sample companies, which cannot be generalised with certainty.

Key Words:

Capital Structure, Dividend Policy, Interrelationship, Akaike's Information Criterion (AIC), Granger Causality Test, Panel Data Regression Technique, Dividend Payout Ratio, Leverage



1. Introduction:

The two main financial policies undertaken by any company are capital structure and dividend policy. These two topics are the foremost controversial and arguable issues in corporate finance and as yet occupy a significant place in finance literature of developed and developing economies. There are various beliefs to the question, why capital structure and dividend policy are so much attracting the attention of scholars. One of the main causes is that a company's dividend payout influences its capital structure. Simply, if a company increases its dividend payout, reduced amount of internal resources is available for financing investment projects and subsequently, further equity capital is required. So, it influences company's capital structure.

Capital structure reveals how a company's assets are financed by shareholders' net worth, debt or hybrid securities. Companies attempt to achieve optimal capital structure which is, however, hard to determine as capital structure is influenced by many variables like, profitability, size, liquidity, non-debt tax shield, tangibility, income variation, growth, uniqueness, dividend pay-out etc. At the end of the financial year, when a company earns profits, management has to take decision about utilization of previous or present year's profits. In other words, dividend policy is the decision of determining the amount of a company's profits to be distributed as dividends and amount of profits to be retained for reinvestment. This decision relies on certain variables known as determinants of dividend policy which

comprises profitability, size, liquidity, business risk, tangibility, investment opportunities, leverage etc. Hence, for making financial policy the determinants of capital structure and dividend policy along with their interrelations should be analysed, which is the research problem of this study. Capital structure and dividend policy are interrelated and cannot be examined separately as these two aspects influence each other. This relation is confirmed by residual theory which explains that after financing equity part of an investment opportunity, the residual amount of profits if any, is distributed as dividend. This implies that companies whose dividend pay-out ratio is larger they incline to raise funds by means of debt issue having larger debt ratio.

In case of studies [like the study of Alli, Khan and Ramirez (1993)], where dividend payout is considered as explanatory variable, it is reported that companies having stability in dividend policy and also having financial flexibility are likely to make high dividend payout. However, Agarwal and Jayaraman (1994) observe that sample companies with equity content in their capital structure, i.e., unlevered companies have high dividend payout ratio compared to levered companies. Further, Aivazian, Booth and Cleary (2003) and Ahmed and Javid (2008) observe that leverage has significant negative influence on dividend policy. Whereas, Naceur, Goaid and Belanes (2006) found no significant relation between financial leverage and dividend policy.

In view of this brief discussion, the current study made an effort to find out



the interrelation between capital structure and dividend policy (using Granger Causality test) with their determining factors (applying panel data regression analysis) for the select Indian companies in a given study period.

2. Objectives of the Study:

The key objective of the present study is to examine the interrelationship between capital structure and dividend policy across selected Indian companies under control variable setting.

3. Hypotheses of the Study:

In compliance with the objective of the study following statistical hypothesis has been set for testing the said interrelationship:

Null Hypothesis, H_0 : There is no relationship between leverage and dividend payout ratio. Against the Alternative, H_1 : There is relationship between leverage and dividend payout ratio.

This hypothesis has been set to examine cause-effect relationship between leverage and dividend payout, when most of the earlier studies took one as determinant of other without paying attention to their causal relation.

4. Data Base and Research Methodology:

4.1 Data Collection Procedure and the Period under Study:

In this study sample size is extended from 40 (which was taken in our earlier study, 2018) to 90 selected sample companies,

taking 5 companies from each of the purposively selected 10 industries (namely, Automobile, Cement, Large Heavy Engineering, Fertilizer, Oil Exploration, Pharmaceutical, Refineries, Large Tea, Large Textile and Large Tyre) and also by including 5 sample companies from each of the predetermined 8 additional industries (namely, Computer Hardware, Computer Software, Construction, FMCG, Large Heavy Electricals, Mining/Minerals, Large Steel and Telecommunication) and in each case of industry BSE listed companies are chosen on the basis of highest turnover in that industry for the year 2011 and also as per the continuous availability of data for the 15 year's study period (i.e., from 1999-2000 to 2013-14). Therefore, these sample companies are purposively selected from a diverse set of 18 industries comprising manufacturing, infrastructure, plantation and service sectors. Out of the initially selected 90 sample companies 3 companies namely, PCS Technology Ltd, Uttam Galva Steels Ltd and Tata Teleservices (Maharashtra) Ltd are not paying dividend at all and for other 3 sample companies, Housing Development & Infrastructure Ltd paid dividend only in 2007-08, W S Industries Ltd paid dividend only for 2 years (i.e., 2007-08, 2008-09) and Idea Cellular Ltd paid dividend in 2012-13 and 2013-14: so for these six companies we do not get adequate data for analysis. Apart from this, 5 sample companies namely, Infosys Ltd, Oracle Financial Services Software Ltd, Procter & Gamble Hygiene and Health Care Ltd, Moil Ltd and NMDC Ltd are dividend paying companies but their leverage ratio is found to be zero (as they are financing their entire capital structure using internal resources).



Therefore, the study has taken into account 79 sample companies for examining the said interrelationship during 15 years study period.

4.2 Data Source:

The study has used secondary data gathered from corporate database package of 'CAPITALINE 2000'. The gathered data have been complied according to the requirement of the study and analytical method is employed to explain the data. Apart from that, statistical software packages, like, EViews 9 SV and STATA 12.1 have been applied.

4.3 Measurement of Variable:

The explanatory variables of the study are scaled using following formulae as measured in financial literature.

Table 1: Explanatory Variables Related to Leverage

VARIABLES	MEASURES
DIVIDEND PAYOUT RATIO (DPR)	Ratio of Dividend Per Share to Earnings Per Share
PROFITABILITY (Profit)	Ratio of EBIT to Total Assets
SIZE (Size)	Natural Logarithm of Net Sales
GROWTH (GR)	Percentage Change in Total Assets
TANGIBILITY (Tan)	Ratio of Fixed Assets to Total Assets
NON-DEBT TAX SHIELD (NDTS)	Ratio of Annual Depreciation Expenses to Total Assets
LIQUIDITY	Ratio of Current Assets

(Liq)	to Current Liabilities
UNIQUENESS (Uni)	Ratio of Selling Expenses to Sales
INCOME VARIATION (IV)	Natural Logarithm of Standard Deviation of EBIT

Table 2: Explanatory Variables Related to Dividend Payout Ratio

VARIABLES	MEASURES
LEVERAGE (LEV)	Ratio of Total Debt to Total Assets
PROFITABILITY (Profit)	Ratio of Profit After Tax to Total Shareholders' Funds
SIZE (Size)	Natural Logarithm of Total Assets
INVESTMENT OPPORTUNITIES (Inv)	Ratio of Market Value to Book Value
LIQUIDITY (Liq)	Ratio of Current Assets to Current Liabilities
BUSINESS RISK (BR)	Difference Between Operating Profit in the Current Year and Previous Year divided by Operating Profit in the Previous Year

4.4 Granger Causality Test:

From financial theories we do not get any guidance regarding selection of explained and explanatory variables definitely between leverage and dividend payout ratio. But Time Series Econometrics helps us in this regard devising a specialized test termed as Granger Causality Test.

To establish temporal cause-effect relationship between two variables having their time series data Granger prescribes



a test popularly known as Granger Causality Test. This test involves estimating a pair of regression as noted below:

$$Y_t = \sum_{i=1}^n \alpha_i X_{t-i} + \sum_{j=1}^n \beta_j Y_{t-j} + \mu_{1t}$$

.....Equation (1) and

$$X_t = \sum_{i=1}^n \lambda_i X_{t-i} + \sum_{j=1}^n \delta_j Y_{t-j} + \mu_{2t}$$

.....Equation (2)

Where X and Y are two variables under consideration, and μ_1 and μ_2 are two uncorrelated disturbances having constant variance each. Here equation (1) postulates that current value of Y depends on its past values as well as values of X. If this regression gives good fit then it signifies that X is the Granger cause of Y. Similarly, good fit of equation (2) signifies that Y is the Granger cause of X. If both equations give good fit, we get two directional causality, i.e., each is the Granger cause of other. Here it is to be noted that good fit implies significance of the parameters related to lagged values of the explanatory variable (say, X) for other as explained variable (say, Y).

The Granger Causality Test is sensitive to the selection of lag structure in the Granger Equation. This lag structure has been selected in our study on the basis of lowest value of Akaike's Information Criterion.

4.5 Panel Data Analysis:

The data structure in our study pertains to panel data which requires Panel Data Regression Analysis. In Panel Data Regression method, there are widely used three models, viz., Pooled Regression Model, Fixed-Effects Model and Random

Effects Model. To make selection between the Fixed-Effects Model and the Random Effects Model, we have employed popular Hausman Specification test. If test statistic value of Hausman Specification test is significant, the Fixed-Effects Model is suitable model for choice; otherwise, the Random Effects Model should be selected. On the other hand, for choosing between the Pooled Regression Model and the Random Effects Model, we have applied the famous Breusch and Pagan Lagrange Multiplier test. If the test statistic value of the Breusch and Pagan Lagrange Multiplier test is found to be significant, the Random Effects Model is appropriate model for selection, in case of insignificant value of test statistic one should choose the Pooled Regression Model. In case of contradiction in results obtained from these two tests, in accordance with textbook prescription, we have used Fixed-Effects Model. If Hausman Specification test fails, then we have applied the result of Breusch and Pagan Lagrange Multiplier test for model selection.

5. Data Analysis and Findings:

5.1 Relation between Capital Structure and Dividend Policy using Granger Causality Test:

In this section we analyses the interrelationship between capital structure and dividend policy across 79 dividend paying sample companies using Granger Causality test. Lag structure is chosen on the basis of minimum value of Akaike's Information Criterion (AIC) presented in TABLE-4. After selection of lag structure, we have next applied Granger Causality test on the time series data for each company.



Table 3: Choice of Lag Structure on The Basis of AIC Value

COMPANY NAME	LAG 1	LAG 2	LAG 3	LAG 4	CHOSEN LAG STRUCTURE
ASHOK LEYLAND	- 3.178	- 2.455	- 2.312	- 4.409	LAG 4
EICHER MOTORS LTD	- 0.187	- 0.347	- 0.247	- 2.839	LAG 4
FORCE MOTORS LTD	- 2.445	- 2.169	- 1.607	- 2.168	LAG 1
SML ISUZU LTD	- 3.034	- 3.066	2.654	- 11.832	LAG 4
TATA MOTORS LTD	- 0.225	- 0.319	- 0.871	- 3.580	LAG 4
BIRLA CORPORATION LTD	- 4.885	- 4.593	- 4.358	- 5.541	LAG 4
JK LAKSHMI CEMENT LTD	- 5.550	- 7.145	—	—	LAG 2
PRISM CEMENT LTD	- 1.624	- 2.527	- 2.716	- 3.470	LAG 4
SHREE CEMENT LTD	2.064	2.734	- 0.227	- 3.630	LAG 4
ULTRA TECH CEMENT LTD	3.381	0.801	- 0.222	—	LAG 3
CMC LTD	- 5.700	- 5.627	- 5.807	- 8.936	LAG 4
HCL INFOSYSTEMS LTD	- 1.058	- 0.920	- 1.162	- 1.418	LAG 4
SMARTLINK NETWORK SYSTEMS LTD	- 3.479	- 9.414	- 11.866	- 19.364	LAG 4
ZENITH COMPUTERS LTD	2.167	2.399	1.391	- 0.628	LAG 4
HCL TECHNOLOGIES LTD	- 1.453	- 1.144	- 0.547	- 2.503	LAG 4
TECH MAHINDRA LTD	- 1.914	- 1.415	- 1.199	- 3.274	LAG 4
WIPRO LTD	- 2.320	- 1.866	- 1.244	- 10.115	LAG 4
DLF LTD	0.439	0.881	0.895	- 4.766	LAG 4
PARSVNATH DEVELOPERS LTD	5.508	5.750	2.863	—	LAG 3
SOBHA LTD	- 0.916	- 0.555	- 4.936	—	LAG 3

Contd.....

Note: AIC implies Akaike's Information Criterion whose lowest value is picked up for choosing the lag length.

Table 3 Contd.

COMPANY NAME	LAG 1	LAG 2	LAG 3	LAG 4	CHOSEN LAG STRUCTURE
UNITECH LTD	- 3.245	- 3.779	- 3.616	- 5.405	LAG 4
BEML LTD	- 1.660	- 1.337	- 1.868	- 4.185	LAG 4
CMI FEP LTD	- 2.237	- 1.873	- 2.483	- 2.984	LAG 4
ISGEC HEAVY	- 3.979	- 4.216	- 5.623	- 7.339	LAG 4



ENGINEERING LTD					
MANUGRAPH INDIA LTD	- 2.224	- 2.299	- 1.907	- 3.600	LAG 4
PRAJ INDUSTRIES LTD	- 3.877	- 4.127	- 5.412	- 7.476	LAG 4
CHAMBAL FERTILIZERS & CHEMICALS LTD	- 4.129	- 4.136	- 4.780	- 12.569	LAG 4
COROMANDEL INTERNATIONAL LTD	- 4.969	- 4.955	- 5.270	- 8.283	LAG 4
GUJARAT STATE FERTILIZERS & CHEMICALS LTD	- 5.432	- 4.707	- 4.959	- 7.259	LAG 4
NATIONAL FERTILIZERS LTD	1.294	1.881	- 3.006	- 9.286	LAG 4
RASHTRIYA CHEMICALS & FERTILIZERS LTD	- 2.314	- 1.588	- 1.254	- 3.321	LAG 4
COLGATE - PALMOLIVE (INDIA) LTD	- 5.829	- 9.062	- 9.197	- 9.918	LAG 4
DABUR INDIA LTD	- 4.849	- 4.470	- 5.926	- 11.113	LAG 4
GILLETTE INDIA LTD	- 2.722	- 28.077	—	—	LAG 2
HINDUSTAN UNILEVER LTD	- 0.464	- 0.054	- 36.572	—	LAG 3
ALSTOM INDIA LTD	- 11.147	- 12.056	- 15.778	—	LAG 3
BHARAT HEAVY ELECTRICALS LTD	- 8.585	- 10.175	- 9.933	- 10.983	LAG 4
CROMPTON GREAVES LTD	- 3.718	- 3.295	- 2.786	- 11.548	LAG 4
SIEMENS LTD	- 7.628	- 12.528	- 13.390	- 25.130	LAG 4
GUJARAT MINERAL DEVELOPMENT CORPORATION LTD	- 2.522	- 3.448	- 4.005	- 8.713	LAG 4
HIMADRI CHEMICALS & INDUSTRIES LTD	- 4.050	- 4.212	- 6.250	—	LAG 3

*Contd.....***Table 3 Contd.**

COMPANY NAME	LAG 1	LAG 2	LAG 3	LAG 4	CHOSEN LAG STRUCTURE
SESA STERLITE LTD	- 1.825	- 1.340	- 0.911	- 3.069	LAG 4
ABAN OFFSHORE LTD	- 2.945	- 3.699	- 3.547	- 5.457	LAG 4
GAIL (INDIA) LTD	- 8.785	- 8.701	- 10.571	- 12.172	LAG 4
HINDUSTAN OIL EXPLORATION	- 2.072	- 2.436	- 3.313	- 5.555	LAG 4



COMPANY LTD					
OIL INDIA LTD	- 5.832	- 6.020	- 6.327	—	LAG 3
OIL & NATURAL GAS CORPORATION LTD	- 5.922	- 6.104	- 7.366	- 11.159	LAG 4
CADILA HEALTHCARE LTD	- 5.317	- 6.498	- 6.158	- 8.521	LAG 4
CIPLA LTD	- 5.747	- 6.187	- 5.554	- 5.823	LAG 2
DR. REDDY'S LABORATORIES LTD	- 2.427	- 3.234	- 4.396	- 7.591	LAG 4
SUN PHARMACEUTICALS INDUSTRIES LTD	- 0.102	- 0.728	- 2.895	- 2.862	LAG 3
TORRENT PHARMACEUTICALS LTD	- 3.986	- 3.955	- 3.681	- 4.232	LAG 4
BHARAT PETROLEUM CORPORATION LTD	- 4.756	- 4.297	- 4.457	- 8.009	LAG 4
HINDUSTAN PETROLEUM CORPORATION LTD	- 4.314	- 3.958	- 4.621	- 5.715	LAG 4
INDIAN OIL CORPORATION LTD	- 5.306	- 4.982	- 6.472	- 11.026	LAG 4
MANGALORE REFINERY AND PETROCHEMICALS LTD	- 3.127	- 3.741	- 3.164	- 3.804	LAG 4
RELIANCE INDUSTRIES LTD	- 9.000	- 8.978	- 9.084	- 9.807	LAG 4
BHUSHAN STEEL LTD	- 6.557	- 6.448	- 6.473	- 9.062	LAG 4
JSW STEEL LTD	- 5.003	- 4.623	- 4.250	- 6.247	LAG 4
STEEL AUTHORITY OF INDIA LTD	- 3.710	- 3.708	- 3.569	- 5.781	LAG 4

Contd.....

Table 3 Contd.

COMPANY NAME	LAG 1	LAG 2	LAG 3	LAG 4	CHOSEN LAG STRUCTURE
TATA STEEL LTD	- 3.357	- 2.793	- 6.678	- 6.698	LAG 4
BOMBAY BURMAH TRADING CORPORATION LTD	- 1.305	- 1.147	- 3.324	—	LAG 3
HARRISONS MALAYALAM LTD	- 4.447	- 3.845	- 3.529	- 5.608	LAG 4
JAY SHREE TEA & INDUSTRIES LTD	- 3.555	- 2.937	- 2.974	- 6.320	LAG 4
TATA GLOBAL	- 3.623	- 3.659	- 4.282	- 7.400	LAG 4



BEVERAGES LTD					
WARREN TEA LTD	- 1.547	- 1.193	- 1.312	—	LAG 1
BHARTI AIRTEL LTD	- 6.166	- 5.755	- 5.544	—	LAG 1
MAHANAGAR TELEPHONE NIGAM LTD	- 3.222	- 2.564	- 2.143	- 7.971	LAG 4
TATA COMMUNICATIONS LTD	- 0.850	- 0.693	- 3.974	- 7.913	LAG 4
BOMBAY RAYON FASHIONS LTD	- 3.708	- 3.849	- 3.790	43.850	LAG 4
GAREWARE-WALL ROPES LTD	- 5.474	- 5.153	- 6.445	- 9.046	LAG 4
HANUNG TOYS & TEXTILES LTD	- 5.702	- 5.125	- 4.952	- 7.042	LAG 4
NANDAN DENIM LTD	- 2.119	- 2.333	- 2.188	- 9.644	LAG 4
RAYMOND LTD	- 4.564	- 4.247	- 4.495	- 9.039	LAG 4
APOLLO TYRES LTD	- 3.125	- 4.573	- 5.053	- 12.279	LAG 4
BALKRISHNA INDUSTRIES LTD	- 3.705	- 4.484	- 5.531	- 9.653	LAG 4
CEAT LTD	- 1.199	- 0.565	- 2.718	- 2.812	LAG 4
MRF LTD	- 4.354	- 4.226	- 4.022	- 7.279	LAG 4
TVS SRICHAKRA LTD	- 4.780	- 5.285	- 5.879	- 9.478	LAG 4

Contd.....

Table 4: Company-Wise Estimated Results of Granger Causality Test

NAME OF THE COMPANY	VALUE OF F STATISTIC RELATED TO CONCERNED VARIABLE		RESULT
	DIVIDEND PAYOUT RATIO	LEVERAGE	
ASHOK LEYLAND	0.09814 (0.9731)	8.77413 (0.1049)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
EICHER MOTORS LTD	1.55372 (0.4276)	1.79881 (0.3877)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
FORCE MOTORS LTD	2.09909 (0.1753)	3.52176*** (0.0873)	Dividend Payout Ratio does not Granger cause Leverage. Leverage is the Granger cause of Dividend Payout Ratio.
	3450.20*	0.20672	Dividend Payout Ratio is the



SML ISUZU LTD	(0.0003)	(0.9144)	Granger cause of Leverage. Leverage does not Granger cause Dividend Payout Ratio.
TATA MOTORS LTD	0.40494 (0.7998)	28.7620** (0.0339)	Dividend Payout Ratio does not Granger cause Leverage. Leverage is the Granger cause of Dividend Payout Ratio.
BIRLA CORPORATION LTD	2.27918 (0.3275)	0.24078 (0.8944)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
JK LAKSHMI CEMENT LTD	0.13566 (0.8762)	2.89024 (0.1465)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio
PRISM CEMENT LTD	0.70629 (0.6572)	4.56745 (0.1876)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
SHREE CEMENT LTD	0.90558 (0.5849)	1.45042 (0.4470)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
ULTRA TECH CEMENT LTD	0.78428 (0.5617)	60.2509* (0.0009)	Dividend Payout Ratio does not Granger cause Leverage. Leverage is the Granger cause of Dividend Payout Ratio.

Contd.....

Note: For the significant value of F-Statistic, the variable concerned will be the Granger cause of the other (i.e., variable concerned will be the independent variable and another variable will be the dependent variable).

Table 4 Contd.

NAME OF THE COMPANY	VALUE OF F STATISTIC RELATED TO CONCERNED VARIABLE		RESULT
	DIVIDEND PAYOUT RATIO	LEVERAGE	
CMC LTD	21.9993** (0.0440)	1.24930 (0.4900)	Dividend Payout Ratio is the Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
HCL INFOSYSTEMS	1.76573	1.30597	Dividend Payout Ratio does not



LTD	(0.3927)	(0.4771)	Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
SMARTLINK NETWORK SYSTEMS LTD	0.65442 (0.6786)	0.80124 (0.6209)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
ZENITH COMPUTERS LTD	8.99812 (0.1025)	0.10949 (0.9677)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
HCL TECHNOLOGIES LTD	3.88486 (0.2151)	0.68873 (0.6643)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
TECH MAHINDRA LTD	5.89900 (0.1502)	0.10568 (0.9696)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
WIPRO LTD	7.04772 (0.1281)	95.8642** (0.0104)	Dividend Payout Ratio does not Granger cause Leverage. Leverage is the Granger cause of Dividend Payout Ratio.

Contd.....

Table 4 Contd.

NAME OF THE COMPANY	VALUE OF F STATISTIC RELATED TO CONCERNED VARIABLE		RESULT
	DIVIDEND PAYOUT RATIO	LEVERAGE	
DLF LTD	6.38194 (0.1400)	5.05548 (0.1719)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
PARSVNATH DEVELOPERS LTD	8.43194** (0.0333)	0.32385 (0.8094)	Dividend Payout Ratio is the Granger cause of Leverage. Leverage does not Granger cause Dividend Payout Ratio.
SOBHA LTD	5.01420 (0.1092)	8.17202*** (0.0591)	Dividend Payout Ratio does not Granger cause Leverage. Leverage is the Granger cause of Dividend Payout Ratio.
UNITECH LTD	1.20189 (0.5013)	3.32148 (0.2446)	Dividend Payout Ratio does not Granger cause Leverage.



			Leverage does not Granger cause Dividend Payout Ratio.
BEML LTD	0.83128 (0.6101)	2.09794 (0.3479)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
CMI FEP LTD	0.65993 (0.6763)	5.33951 (0.1639)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
ISGEC HEAVY ENGINEERING LTD	12.2159*** (0.0771)	0.30993 (0.8536)	Dividend Payout Ratio is the Granger cause of Leverage. Leverage does not Granger cause Dividend Payout Ratio.
MANUGRAPH INDIA LTD	2.62939 (0.2940)	0.43046 (0.7860)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
PRAJ INDUSTRIES LTD	1.48445 (0.4404)	6.93190 (0.1300)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
CHAMBAL FERTILIZERS & CHEMICALS LTD	3.57004 (0.2306)	0.94282 (0.5730)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
COROMANDEL INTERNATIONAL LTD	0.72355 (0.6503)	0.61493 (0.6958)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.

Contd.....

Table 4 Contd.

NAME OF THE COMPANY	VALUE OF F STATISTIC RELATED TO CONCERNED VARIABLE		RESULT
	DIVIDEND PAYOUT RATIO	LEVERAGE	
GUJARAT STATE FERTILIZERS & CHEMICALS LTD	16.7997*** (0.0570)	0.27866 (0.8719)	Dividend Payout Ratio is the Granger cause of Leverage. Leverage does not Granger cause Dividend Payout Ratio.



NATIONAL FERTILIZERS LTD	1.38646 (0.4598)	8.51758 (0.1078)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
RASHTRIYA CHEMICALS & FERTILIZERS LTD	0.16175 (0.9403)	2.37950 (0.3171)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
COLGATE - PALMOLIVE (INDIA) LTD	0.72243 (0.6507)	0.17553 (0.9325)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
DABUR INDIA LTD	48.0453** (0.0205)	1.43727 (0.4496)	Dividend Payout Ratio is the Granger cause of Leverage. Leverage does not Granger cause Dividend Payout Ratio.
GILLETTE INDIA LTD	14.3566* (0.0085)	4.59700*** (0.0736)	Dividend Payout Ratio is the Granger cause of Leverage. Leverage is the Granger cause of Dividend Payout Ratio.
HINDUSTAN UNILEVER LTD	0.16365 (0.9101)	1.44327 (0.5337)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
ALSTOM INDIA LTD	4.09851 (0.1385)	13.0529** (0.0315)	Dividend Payout Ratio does not Granger cause Leverage. Leverage is the Granger cause of Dividend Payout Ratio.
BHARAT HEAVY ELECTRICALS LTD	0.31217 (0.8523)	1.08447 (0.5315)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
CROMPTON GREAVES LTD	48.0330** (0.0205)	51.9971** (0.0190)	Dividend Payout Ratio is the Granger cause of Leverage. Leverage is the Granger cause of Dividend Payout Ratio.
SIEMENS LTD	1.32692 (0.4725)	0.00646 (0.9998)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.

*Contd.....***Table 4 Contd.**



NAME OF THE COMPANY	VALUE OF F STATISTIC RELATED TO CONCERNED VARIABLE		RESULT
	DIVIDEND PAYOUT RATIO	LEVERAGE	
GUJARAT MINERAL DEVELOPMENT CORPORATION LTD	1.67718 (0.4066)	4.79706 (0.1799)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
HIMADRI CHEMICALS & INDUSTRIES LTD	10.1327** (0.0243)	4.36181*** (0.0944)	Dividend Payout Ratio is the Granger cause of Leverage. Leverage is the Granger cause of Dividend Payout Ratio.
SESA STERLITE LTD	0.58686 (0.7084)	3.53591 (0.2324)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
ABAN OFFSHORE LTD	2.26189 (0.3293)	0.39367 (0.8060)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
GAIL (INDIA) LTD	2.12078 (0.3452)	0.76858 (0.6329)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
HINDUSTAN OIL EXPLORATION COMPANY LTD	0.69599 (0.6613)	10.5596*** (0.0884)	Dividend Payout Ratio does not Granger cause Leverage. Leverage is the Granger cause of Dividend Payout Ratio.
OIL INDIA LTD	29.6190* (0.0034)	1.02281 (0.4712)	Dividend Payout Ratio is the Granger cause of Leverage. Leverage does not Granger cause Dividend Payout Ratio.
OIL & NATURAL GAS CORPORATION LTD	3.90201 (0.2143)	115.302* (0.0086)	Dividend Payout Ratio does not Granger cause Leverage. Leverage is the Granger cause of Dividend Payout Ratio.
CADILA HEALTHCARE LTD	3.13491 (0.2562)	4.62214 (0.1857)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
CIPLA LTD	3.20349*** (0.0951)	1.13488 (0.3682)	Dividend Payout Ratio is the Granger cause of Leverage. Leverage does not Granger



			cause Dividend Payout Ratio.
DR. REDDY'S LABORATORIES LTD	1.81929 (0.3847)	1.62049 (0.4160)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.

Contd.....

Table 4 Contd.

NAME OF THE COMPANY	VALUE OF F STATISTIC RELATED TO CONCERNED VARIABLE		RESULT
	DIVIDEND PAYOUT RATIO	LEVERAGE	
SUN PHARMACEUTICALS INDUSTRIES LTD	2.09091 (0.2201)	4.62546*** (0.0662)	Dividend Payout Ratio does not Granger cause Leverage. Leverage is the Granger cause of Dividend Payout Ratio.
TORRENT PHARMACEUTICALS LTD	0.34597 (0.8328)	1.12556 (0.5206)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
BHARAT PETROLEUM CORPORATION LTD	0.73983 (0.6439)	5.53016 (0.1590)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
HINDUSTAN PETROLEUM CORPORATION LTD	0.52755 (0.7364)	1.07388 (0.5344)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
INDIAN OIL CORPORATION LTD	35.4277** (0.0276)	7.71370 (0.1180)	Dividend Payout Ratio is the Granger cause of Leverage. Leverage does not Granger cause Dividend Payout Ratio.
MANGALORE REFINERY AND PETROCHEMICALS LTD	1.87247 (0.3771)	0.76207 (0.6324)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
RELIANCE INDUSTRIES LTD	0.52013 (0.7400)	0.46272 (0.7690)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
BHUSHAN STEEL	0.98197	13.3718***	Dividend Payout Ratio does not



LTD	(0.5609)	(0.0708)	Granger cause Leverage. Leverage is the Granger cause of Dividend Payout Ratio.
JSW STEEL LTD	0.83909 (0.6074)	3.63247 (0.2273)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
STEEL AUTHORITY OF INDIA LTD	0.53697 (0.7319)	1.12418 (0.5209)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
TATA STEEL LTD	0.83858 (0.6075)	1.71145 (0.4011)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.

Contd.....

Table 4 Contd.

NAME OF THE COMPANY	VALUE OF F STATISTIC RELATED TO CONCERNED VARIABLE		RESULT
	DIVIDEND PAYOUT RATIO	LEVERAGE	
BOMBAY BURMAH TRADING CORPORATION LTD	1.64891 (0.3456)	44.9631* (0.0054)	Dividend Payout Ratio does not Granger cause Leverage. Leverage is the Granger cause of Dividend Payout Ratio.
HARRISONS MALAYALAM LTD	0.23070 (0.9003)	7.41435 (0.1224)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
JAY SHREE TEA & INDUSTRIES LTD	36.6137** (0.0268)	0.22008 (0.9066)	Dividend Payout Ratio is the Granger cause of Leverage. Leverage does not Granger cause Dividend Payout Ratio.
TATA GLOBAL BEVERAGES LTD	2.36410 (0.3187)	8.18201 (0.1119)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
WARREN TEA LTD	17.2921* (0.0016)	0.44182 (0.5199)	Dividend Payout Ratio is the Granger cause of Leverage. Leverage does not Granger



			cause Dividend Payout Ratio.
BHARTI AIRTEL LTD	0.63629 (0.4436)	0.03316 (0.8591)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
MAHANAGAR TELEPHONE NIGAM LTD	51.3314** (0.0192)	6.81387 (0.1321)	Dividend Payout Ratio is the Granger cause of Leverage. Leverage does not Granger cause Dividend Payout Ratio.
TATA COMMUNICATIONS LTD	4.47445 (0.1909)	3.78096 (0.2200)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
BOMBAY RAYON FASHIONS LTD	2.33762 (0.4512)	7.16908 (0.2723)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
GAREWARE-WALL ROPES LTD	84.4617** (0.0117)	0.07123 (0.9845)	Dividend Payout Ratio is the Granger cause of Leverage. Leverage does not Granger cause Dividend Payout Ratio.
HANUNG TOYS & TEXTILES LTD	0.29881 (0.8601)	3.05031 (0.2618)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.

Contd.....

Table 4 Contd.

NAME OF THE COMPANY	VALUE OF F STATISTIC RELATED TO CONCERNED VARIABLE		RESULT
	DIVIDEND PAYOUT RATIO	LEVERAGE	
NANDAN DENIM LTD	6.28986 (0.1419)	0.63233 (0.6882)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
RAYMOND LTD	1.01620 (0.5508)	0.73074 (0.6475)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.



APOLLO TYRES LTD	6.31210 (0.1414)	1.63071 (0.4143)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
BALKRISHNA INDUSTRIES LTD	33.6742** (0.0290)	0.13244 (0.9561)	Dividend Payout Ratio is the Granger cause of Leverage. Leverage does not Granger cause Dividend Payout Ratio.
CEAT LTD	1.47935 (0.4414)	0.08629 (0.9783)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
MRF LTD	6.88457 (0.1308)	0.67655 (0.6693)	Dividend Payout Ratio does not Granger cause Leverage. Leverage does not Granger cause Dividend Payout Ratio.
TVS SRICHAKRA LTD	25.2624** (0.0384)	12.0952*** (0.0778)	Dividend Payout Ratio is the Granger cause of Leverage. Leverage is the Granger cause of Dividend Payout Ratio.

The estimated results of Granger Causality Test [presented in Table-2] show that out of 79 dividend paying sample companies, F-Statistic value using Dividend Payout Ratio as independent variable is significant for 14 sample companies [viz. SML ISUZU Ltd, CMC Ltd, Parsvnath Developers Ltd, ISGEC Heavy Engineering Ltd, Gujarat State Fertilizers & Chemicals Ltd, Dabur India Ltd, Oil India Ltd, Cipla Ltd, Indian Oil Corporation Ltd, Jay Shree Tea & Industries Ltd, Warren Tea Ltd, Mahanagar Telephone Nigam Ltd, Gareware-Wall Ropes Ltd and Balkrishna Industries Ltd], while F-Statistic value using Leverage as independent factor is significant for other 11 sample companies [namely, Force Motors Ltd, Tata Motors Ltd, Ultra Tech Cement Ltd, Wipro Ltd, Sobha Ltd, ALSTOM India Ltd, Hindustan Oil Exploration Company Ltd, Oil & Natural Gas Corporation Ltd, Sun Pharmaceuticals Industries Ltd, Bhushan Steel Ltd and Bombay Burmah Trading Corporation Ltd]. Therefore, out of 79 dividend paying sample companies we observe that dividend payout ratio is explanatory variable for leverage in 14 cases and leverage is explanatory variable for dividend payout ratio in 11 cases. Whereas, leverage and dividend payout ratio are both endogenous factors in the cases of 4 sample companies, namely, Gillette India Ltd, Crompton Greaves Ltd, Himadri Chemicals & Industries Ltd and TVS Srichakra Ltd. From sample observations we see that for the rest 50 companies (out of 79 companies) we do not get any statistically significant relationship between dividend payout ratio and leverage, as neither leverage is the granger cause of dividend payout ratio nor dividend payout ratio is the granger cause of leverage.



5.2 Interrelationship between Capital Structure and Dividend Policy using Panel Data Regression Technique:

For analysing empirically, the relationship between dividend payout ratio and leverage, we have estimated the regression equation as per results derived from Granger Causality Test along with other control variables. For 18 companies we have estimated the following regression equation:

$$Lev_{it} = \alpha + \beta_1 DPR_{it} + \beta_2 Profit_{it} + \beta_3 Size_{it} + \beta_4 GR_{it} + \beta_5 Tan_{it} + \beta_6 NDTs_{it} + \beta_7 Liq_{it} + \beta_8 Uni_{it} + \beta_9 IV_{it} + \epsilon_{it}$$

Where, except dividend payout ratio (DPR) all other explanatory variables are applied here as control variables and ϵ_{it} is the disturbance term. Here α 's and β 's are regression parameters.

Likewise, for other set of 15 sample companies we have empirically estimated regression equation, where leverage is found to be Granger cause of dividend payout ratio (DPR): -

$$DPR_{it} = \alpha + \beta_1 Lev_{it} + \beta_2 Profit_{it} + \beta_3 Size_{it} + \beta_4 Liq_{it} + \beta_5 Inv_{it} + \beta_6 BR_{it} + \epsilon_{it}$$

Where, excluding leverage (Lev) all other explanatory variables are control variables and ϵ_{it} is the disturbance term. Here α 's and β 's are regression parameters.

Further, $Profit_{it}$ denotes Profitability of i^{th} sample company over period t ($t = 1, 2, \dots, 15$), $Size_{it}$ denotes Size of i^{th} sample company over period t ($t = 1, 2, \dots, 15$), GR_{it} denotes Growth of i^{th} sample company over period t ($t = 1, 2, \dots, 15$), Tan_{it} denotes Tangibility of i^{th} sample company over period t ($t = 1, 2, \dots, 15$), $NDTs_{it}$ denotes Non-Debt Tax Shield of i^{th} sample company over period t ($t = 1, 2, \dots, 15$), Liq_{it} denotes Liquidity of i^{th} sample company over period t ($t = 1, 2, \dots, 15$), Uni_{it} denotes Uniqueness of i^{th} sample company over period t ($t = 1, 2, \dots, 15$), IV_{it} denotes Income Variation of i^{th} sample company over period t ($t = 1, 2, \dots, 15$), Inv_{it} denotes Investment Opportunities of i^{th} sample company over period t ($t = 1, 2, \dots, 15$) and BR_{it} denotes Business Risk of i^{th} sample company over period t ($t = 1, 2, \dots, 15$).

These two regression equations are estimated using Panel Data Regression Technique, the detail of which was explained earlier in methodology section.

The estimated regression equations are analysed below: -

In case of first set of 18 sample companies (where Dividend Payout Ratio is the Granger cause of Leverage) we have applied Breusch and Pagan Lagrange Multiplier test and the related chi-square value is found to be 154.63 which is statistically significant at 1% level. This specifies the selection of the Random-Effects Model. But the asymptotic assumptions of the Hausman Specification test for these sample companies are not satisfied as here the Hausman Specification test fails. Therefore, by considering the results of both the Breusch



and Pagan Lagrange Multiplier test and the Hausman Specification test, we have selected the Random-Effects Model. The estimated regression results of the Random-Effects Model are presented below: -

$$\text{Lev}_{it} = 0.2991^* - 0.1417 \text{DPR}_{it}^* - 0.6032^* \text{Profit}_{it} + 0.0587^* \text{Size}_{it} + 0.0006^* \text{GR}_{it}$$

(0.1059) (0.0485) (0.0714) (0.0207) (0.0002)

$$- 0.0143 \text{Tan}_{it} + 0.0557 \text{NDTS}_{it} + 0.0039 \text{Liq}_{it} - 0.1107 \text{Uni}_{it}$$

(0.0622) (0.0981) (0.0095) (0.1797)

$$- 0.0658^* \text{IV}_{it} \dots\dots\dots \text{Equation (1)}$$

(0.0190)

$$\chi^2 = 109.72^*$$

The estimated regression results suggest that dividend payout ratio, profitability and income variation have negative and statistically significant influence on leverage. Whereas, size and growth are positively and significantly related to leverage. The overall significance of the model is determined by Wald χ^2 value which is statistically significant at 1% level. Therefore, the estimated Random-Effects Model suggests that a significant portion of the dependent variable is explained by the selected independent variables collectively. So, Leverage for this set of sample companies decreases due to increase in their Dividend Payout Ratios and vice versa.

For the other set of 15 sample companies (where Leverage is the Granger cause of Dividend Payout Ratio), we have likewise first used the Breusch and Pagan Lagrange Multiplier test and its chi-square estimation is 0.91 with probability value 0.1698 which implies that it is statistically insignificant. Thus, the Pooled Regression Model is relevant model for selection here. Further, the test statistic value provided by the Hausman Specification test is 4.61 with probability value 0.5947 which signifies that it is statistically insignificant, that means the Random-Effects Model is suitable model for choice. By comparing the results of both the tests we have found contradiction in selecting appropriate model. To resolve this issue, we have applied the Fixed-Effects Model in consistency with the econometric practices. The estimated regression equation of the Fixed-Effects Model is as follows: -

$$\text{DPR}_{it} = 0.1702 - 0.0082 \text{Lev}_{it} - 0.1573 \text{Profit}_{it} + 0.02002 \text{Size}_{it} - 0.0017 \text{Liq}_{it}$$

(0.2071) (0.2247) (0.1966) (0.02805) (0.0027)

$$+ 0.0014^* \text{Inv}_{it} + 0.00006 \text{BR}_{it} \dots\dots\dots \text{Equation (2)}$$

(0.0002) (0.00012)

$$R^2 = 0.1675^*$$

[6.61]



The estimated regression analysis indicates that investment opportunities is positively and statistically significantly related to dividend payout ratio. On the other hand, leverage, profitability, size, liquidity and business risk are found to be statistically insignificant. The overall explanatory power of selected independent variables is measured by F statistic value (i.e., 6.61 drawn from R^2 value of 0.1675) which is statistically significant at 1% level. From this statistical analysis, however, we could not establish any significant causal relation between Leverage and Dividend Payout Ratio.

6. CONCLUSION:

Considering both the regression results jointly, we may come to the final conclusion that leverage statistically negatively depends on Dividend Payout Ratio, but the converse is not true. Further among eight control variables we get significant relation with only four variables, namely profitability (supporting Pecking Order Theory), income variation (supporting Pecking Order Theory and Trade-Off Theory) size (supporting Trade-Off Theory and Agency Cost Theory) and growth (supporting Pecking Order Theory) in case of regression equation on leverage and only one variable, namely, investment opportunities (supporting Signalling Theory) in case of regression equation on dividend payout ratio. Also, there are a good number of sample companies for which no such statistically significant relationship is found.

Thus, our study establishes that increasing Dividend Payout Ratio leads to declining Leverage, but no conclusive result is obtained in regard to their determinants. That means Dividend Payout Ratio and Leverage vary company-wise most in unique manner. However, one should repeatedly attempt this kind of study for larger sample size with larger study period before deriving any conclusive outcome.

References

1. Agarwal, A. & N. Jayaraman. (1994). The dividend policies of all-equity firms: A direct test of the free cash flow theory. *Managerial and Decision Economics*, 15(2), 139-148.
2. Ahmed, H. & Javid, A. Y. (2008). Dynamics and determinants of dividend policy in Pakistan: Evidence from Karachi stock exchange non-financial listed firms. *International Research Journal of Finance and Economics*, 25, 148-171. Retrieved from <https://mpra.ub.uni-muenchen.de/37342/>
3. Aivazian, V. A., Booth, L, & Cleary, S. (2003). Do emerging market firms follow different dividend policies from U.S. firms? *Journal of Financial Research*, 26(3), 371-387.
4. Alli, K. L., Khan, A. Q., & Ramirez, G. G. (1993). Determinants of corporate dividend policy: A factorial analysis. *Financial Review* 28(4), 523-547.
5. Naceur, S. B., Goaid, M, & Belanes, A. (2006). On the determinants and dynamics of dividend policy. *International Review of Finance* 6(1-2), 1-23.



6. Maddala, G.S. (2007). *Introduction to econometrics* (3rd ed.). New Delhi, India: Wiley India Private Limited.

Annexure

Table: List of Selected Companies across the Industries

INDUSTRY	SAMPLE COMPANIES
AUTOMOBILE	Ashok Leyland Ltd.
	Eicher Motors Ltd.
	Force Motors Ltd.
	SML ISUZU Ltd.
	Tata Motors Ltd.
CEMENT	Birla Corporation Ltd.
	JK Lakshmi Cement Ltd.
	Prism Cement Ltd.
	Shree Cement Ltd.
	Ultra Tech Cement Ltd.
COMPUTER HARDWARE	CMC Ltd.
	HCL Infosystems Ltd.
	PCS Technology Ltd.
	Smartlink Network Systems Ltd.
	Zenith Computers Ltd.
COMPUTER SOFTWARE	HCL Technologies Ltd.
	Infosys Ltd.
	Oracle Financial Services Software Ltd.
	Tech Mahindra Ltd.
	Wipro Ltd.
LARGE HOUSING	DLF Ltd.
	Housing Development and Infrastructure Ltd.
	Parsvnath Developers Ltd.
	Sobha Ltd.
	Unitech Ltd.
LARGE HEAVY ENGINEERING	BEML Ltd.
	CMI FPE Ltd.
	ISGEC Heavy Engineering Ltd.
	Manugraph India Ltd.
	Praj Industries Ltd.
FERTILIZER	Chambal Fertilizers and Chemicals Ltd.
	Coromandel International Ltd.
	Gujarat State Fertilizers and Chemicals Ltd.
	National Fertilizer Ltd.



	Rashtriya Chemicals and Fertilizers Ltd.
FAST MOVING CONSUMER GOODS	Colgate-Palmolive (India) Ltd.
	Dabur India Ltd.
	Procter & Gamble Hygiene and Health Care Ltd.
	Gillette India Ltd.
	Hindustan Unilever Ltd.
LARGE ELECTRIC EQUIPMENT	ALSTOM India Ltd.
	Bharat Heavy Electricals Ltd.
	Crompton Greaves Ltd.
	Siemens Ltd.
	W S Industries (India) Ltd.

Contd.....

Table Contd.

INDUSTRY	SAMPLE COMPANIES
MINING / MINERALS	Gujarat Mineral Development Corporation Ltd.
	Himadri Chemicals & Industries Ltd.
	MOIL Ltd.
	NMDC Ltd.
	Sesa Sterlite Ltd.
REFINERIES	Bharat Petroleum Corporation Ltd.
	Hindustan Petroleum Corporation Ltd.
	Indian Oil Corporation Ltd.
	Mangalore Refinery and Petrochemicals Ltd.
	Reliance Industries Ltd.
LARGE STEEL	Bhushan Steel Ltd.
	JSW Steel Ltd.
	Steel Authority of India Ltd.
	Tata Steel Ltd.
	Uttam Galva Steels Ltd.
LARGE TEA	Bombay Burmah Trading Corporation Ltd.
	Harrisons Malayalam Ltd.
	Jay Shree Tea & Industries Ltd.
	Tata Global Beverages Ltd.
	Warren Tea Ltd.
TELECOMMUNICATION	Bharti Airtel Ltd.
	Idea Cellular Ltd.
	Mahanagar Telephone Nigam Ltd.
	Tata Communications Ltd.
	Tata Teleservices (Maharashtra) Ltd.



TEXTILE	Bombay Rayon Fashions Ltd.
	Garware-Wall Ropes Ltd.
	Hanung Toys and Textiles Ltd.
	Nandan Denim Ltd.
	Raymond Ltd.
LARGE TYRES	Apollo Tyres Ltd.
	Balkrishna Industries Ltd.
	CEAT Ltd.
	MRF Ltd.
	TVS Srichakra Ltd
OIL EXPLORATION	Aban Offshore Ltd.
	GAIL (India) Ltd.
	Hindustan Oil Exploration Company Ltd.
	Oil India Ltd.
	Oil & Natural Gas Corpn Ltd.
PHARMACEUTICAL	Cadila Healthcare Ltd.
	Cipla Ltd.
	Dr. Reddy's Laboratories Ltd.
	Sun Pharmaceuticals Industries Ltd.
	Torrent Pharmaceuticals Ltd.



MERGER OF 'BANK OF BARODA' WITH 'VIJAYA BANK' AND 'DENA BANK'

(Horoscopes of Three Banks)

P. Siva Rama Prasas

Abstract:

The Cabinet has approved the Merger of Vijaya Bank (VB) and Dena Bank (DB) with Bank of Baroda (BOB). Merger gives more benefits to the acquiring bank particularly to reduce "Fixed and Variable Costs" and to control wastages of the bank to a large extent. But one important factor is to be look into by the acquiring bank in merging process i.e., Strengthen the Organizational Structure i.e., Centralization and Decentralization of various operational areas of the Bank, span of control of various operating units of the Bank. This research article is mainly focus on analysis of financial and organization strengths of three banks and also various benefits accrue to the acquiring bank after merger.

Key Words:

Cutting-Edge, Synergy, Rationalization, Economies of Scale, Span of Control, Burden Ratio, Spread, Net Interest Margin, CASA Deposits, CAMELS Rating



Mergers and Acquisitions are like Marriages. Lack of willingness to work on it could make the Merger Process and the New Entity a tragic and painful experience of destroyed dreams.

At the beginning it is always with a hope and vision about the combined entity and greater Market Share, Diversification into New Products or Services, Expansion up, gaining Cutting-Edge Expertise for New Product Development and so on.

The Cabinet has approved the Merger of Vijaya Bank (VB) and Dena Bank (DB) with Bank of Baroda (BOB)

The move will help to create a strong globally Competitive Bank with Economies of Scale and enable the realization of wide-ranging synergies, leveraging of Networks and Low-Cost Deposits and substantial rise in customer base and Operational Efficiency. After merger, Bank of Baroda will become the Third Biggest Bank in India.

The scheme will come into effect from 1st of April, 2019.

The pay and allowances and services of the employees of all Three Banks will remain the same as earlier.

In general, the following are the advantages of the mergers either in service or in manufacturing organizations:

- ✓ **Synergy:** The synergy created by the merger of two companies is powerful enough to enhance business performance, financial gains, and overall shareholders value in long term.

- ✓ **Cost Efficiency:** The merger results in improving the purchasing power of the company which helps in negotiating the bulk orders and leads to cost efficiency. The reduction in staff reduces the salary costs and increases the margins of the company. The increase in production volume causes the per unit production cost resulting in benefits from economies of scale.
- ✓ **Competitive Edge:** The combined talent and resources of the new company helps to gain and maintain a competitive edge.
- ✓ **New Markets:** The market reach is improved by the merger due to the diversification or the combination of two businesses. This results in better sales opportunities.

‘Rationalization’ AND ‘Economies of Scale’ are the TWO biggest Advantages in the proposed merger of VB and DB with BOB, thereby huge Cost Reduction, Increase in Productivity Levels and it strengthens the Balance Sheet of acquiring Bank.

While finalizing the marriage alliance by Ministry of Finance (MOF), Government of India, New Delhi the following financial parameters of both bridegroom and brides were studied and finalized the Muhurat for the Merger.

About Bridegroom (Bank of Baroda):

Bank of Baroda is an Indian State-owned International banking and financial services company headquartered in Vadodara (earlier known as Baroda) in



Gujarat, India. It's Headquarters is in Vadodara, it has a Corporate Office in Mumbai.

The bank was founded by the Maharaja of Baroda, Maharaja Sayajirao Gaekwad III on 20 July 1908. The bank, along with 13 other major commercial banks of India, was nationalized on 19th July 1969, by the Government of India.

About 1st Bride (Vijaya Bank):

Vijaya Bank, was founded on 23rd October 1931 by late Shri A.B.Shetty and other enterprising farmers in Mangaluru, Karnataka. The objective of the founders was essentially to promote banking habit, thrift and entrepreneurship among the farming community of Dakshina Kannada district in Karnataka State. The bank became a scheduled bank in 1958.

Vijaya Bank steadily grew into a large All India Bank, with nine smaller banks merging with it during the 1963-68. The credit for this merger as well as growth goes to late Shri Mulki Sunder Ram Shetty, the then the Chief Executive of

the bank. The bank was nationalized on 15th April 1980. The bank has built in network of 2136 Branches and 2155 ATMs as on 31.03.2018, that spans all States and Union Territories in the country.

About 2nd Bride (Dena Bank):

Dena Bank was founded on 26th May, 1938 by the family of Devkaran Nanjee under the name of Devkaran Nanjee Banking Company Ltd.

It became a Public Ltd. Company in December 1939 and later the name was changed as Dena Bank Ltd.

In July 1969 Dena Bank Ltd. along with 13 other major banks was nationalized and it is now a Public Sector Bank constituted under the Banking Companies (Acquisition & Transfer of Undertakings) Act, 1970. Under the provisions of the Banking Regulations Act 1949, in addition to the business of banking, the Bank can undertake other business as specified in Section 6 of the Banking Regulations Act, 1949.

Assets, Liabilities and other parameters of Bridegroom and Brides (Three Banks) as on 31.03.2018

Particulars	Name of the Bank			Ranks		
	BOB	VB	DB	1	2	3
Number of Employees	55,662	16,079	13,613	BOB	VB	DB
Number of Branches	5,573	2,136	1,872	BOB	VB	DB
Deposits (Cr.)	5,91,315	1,57,288	1,06,130	BOB	VB	DB
Advances (Cr.)	4,27,432	1,18,677	74,239	BOB	VB	DB
Total Business (Cr.)	10,18,747	2,75,965	1,80,369	BOB	VB	DB
Net Profit / Loss (Cr.)	-2,432	727	-1,923	VB	DB	BOB
Per Branch Business (Cr.)	182.80	129.20	96.35	BOB	VB	DB



Per Employee Business (Crs.)	18.30	17.16	13.25	BOB	VB	DB
CASA Deposits (% in Total Deposits)	41.18	25.04	40.03	BOB	DB	VB
Non-performing Assets (Crs.)	56,480	7,526	16,361	VB	DB	BOB
% of NPAs in Total Advances	13.21	6.34	22.04	VB	BOB	DB
Capital to Risk Assets Ratio - Basel III	12.13%	13.90%	11.90%	VB	BOB	DB
Number of ATMs	9,704	2,155	1,685	BOB	VB	DB

Analysis:

Among three banks, Vijaya Bank earned profit for the financial year ending 31.03.2018 and the rest of the TWO Banks incurred losses. The percentage of CASA Deposits out of the Total Deposits is highest in Bank of Baroda. Non-performing Assets amount, percentage-wise and Capital Risk Assets Ratio (CRAR) is Good in Vijaya Bank when compared to other TWO Banks. Per Employee / Branch Business is highest in Bank of Baroda followed by Vijaya Bank and Dena Bank.

(Rs. In Crs.)

Particulars	Name of the Bank		
	BOB	VB	DB
Equity	530	1,304	2,259
Reserves & Surplus	42,864	9,323	6,944
Total Equity	43,394	10,627	9,203
Net Profit / Loss	(-)2,432	727	(-)1,923
Deposits	5,91,315	1,57,287	1,06,130
Total Liabilities	7,19,999	1,77,632	1,20,860
Advances	4,27,432	1,16,165	65,582
Total Assets	7,19,999	1,77,632	1,20,860
Interest Income	43,649	12,589	8,932
Non-Interest Income	6,657	1,601	1,164
Total Income	50,306	14,190	10,096
Interest Expenses	28,127	8,287	6,456
Non-Interest Expenses	10,173	2,805	2,468
Total Expenses	38,300	11,092	8,924

Key Financial Parameters: The following ratios denotes the financial health position of the three Banks. This is based on the balance sheets of Bank of Baroda, Vijaya Bank and Dena Bank as on 31.03.2018. On the basis of performance ranks allotted.



(i) **Return on Equity-ROE (%) = (Net Profit / Capital + Reserves & Surplus) * 100**

Name of the Bank	2018	Rank
Bank of Baroda	-5.60	2
Vijaya Bank	6.84	1
Dena Bank	-20.90	3

Analysis:

Return on Equity or ROE denotes to Bank Stockholders how effectually their money is being utilized or reinvested. It is a useful ratio while analyzing bank profitability or the management effectiveness with the given capital invested by the shareholders. ROE shows how efficiently a bank utilizes its equity for loans and advances, investments to generate income.

Earlier in most of the public and private sectors banks, the Return on Equity (ROE) is in the range of 10% and 20% and these are considered desirable to provide dividends to owners and have adequate funds for future growth of the bank. Investors should be very careful while using ROE as the only efficiency indicator because of ROE can be high if a bank is heavily leveraged.

Vijaya Bank is a profit earned bank for the financial year ending 31.03.2018 and ROE is 6.84%. Whereas Dena Bank and Bank of Baroda ROE is negative and high negative ROE is in Dena Bank. Low rate of ROE is a barrier to mobilize additional share capital through IPOs, less growth rate in Market Value of the Share and also low market capitalization in stock exchanges etc. After merger, the new

entity should focus on these areas to improve the ROE:

- ✓ Mobilize Low Cost Deposits.
- ✓ Control the Controllable Costs / overheads.
- ✓ Rationalization of Branches and Administrative Offices to decrease the overheads and Capital Expenditure.
- ✓ Re-deployment of staff to needy branches from surplus branches to improve the productivity.
- ✓ Control NPAs including probable NPAs to increase bottom-line and to earn good rating in the industry.
- ✓ Focus to increase Non-Interest Income etc. to cover the Non-Interest expenditure.

(ii) **Equity Multiplier-EM (Number of Times) = Total Assets / Total Equity[^]**

Name of the Bank	2018	Rank
Bank of Baroda	16.59	2
Vijaya Bank	16.72	3
Dena Bank	13.13	1

[^]Total Equity = Equity + Reserves and Surplus

Analysis:

The equity multiplier is calculated by dividing a bank's total assets by its shareholders' equity. This ratio measures the total assets a bank owns per rupee of its stockholders' equity. The equity multiplier of a bank should only be used in comparison to the industry standard or with other banks in the banking industry.



For example, suppose ABC Bank has total assets of Rs.10 million and stockholders' equity of Rs.2 million. Its equity multiplier is 5 ($\text{Rs.10 million} \div \text{Rs.2 million}$), which means that Bank ABC uses equity to finance 20% of its assets and the remaining 80% is financed by Deposits / Debt.

On the other hand, DEF Bank, which is in the same industry as Bank ABC, has total assets of Rs.20 million and stockholders' equity of Rs.10 million. Its equity multiplier is 2 ($\text{Rs.20 million} \div \text{Rs.10 million}$), which means that Bank DEF uses equity to finance 50% of its assets and the remaining half is financed by Deposits / Debt.

Bank ABC has a higher equity multiplier than company DEF, indicating that ABC is using more Deposit / Debt to finance its asset (Loans and Advances). A lower equity multiplier is preferred because it indicates that the bank is taking on less Deposits / Debt to Loans and Advances. In this case, Bank DEF is preferred to Bank ABC because, by not owing as much money, it carries less risk.

The purpose of equity multiplier is to see how much assets of a bank are financed by the total shareholders' equity, so that we can find out how much assets of the bank are financed by the external sources of finance (Deposits / Debt).

This is one of the financial leverage ratios which helps an investor to find out how much assets are being financed by the shareholders' equity.

If the ratio is higher, the financial leverage is lower. And if the ratio turns

out to be lower, the financial leverage is higher.

There is a marginal gap between BOB and VB. DB equity multiplier is very less when compared to other Banks. Dena Bank uses more capital funds for loans and advances when compared to Bank of Baroda and Vijaya Bank. To improve this ratio the banks, should control the Non-performing Assets to increase in profits. Thereby reserves will be created after declaration of dividends. Effective utilization of equity share capital in addition to utilization of deposits mobilized by the bank improves to pay dividends to the shareholders and also reduces the risk to the bank. To achieve this ratio, banks should increase the performance in all respects in order to build confidence level among the shareholders.

(iii) Liability Mix (%) : Total Deposits / Total Liabilities

Name of the Bank	2018	Rank
Bank of Baroda	82.13	3
Vijaya Bank	88.55	1
Dena Bank	87.81	2

Analysis:

Liability Mix Ratio: Among Three Banks, Vijaya Bank Liability Mix is in Top. The difference between liability mix of VB and DB is marginal. This ratio show out of the total liabilities of the banks which the deposits percentage. If the Ratio is good, it denotes that public is interested to invest their surplus funds with the Bank.

As deposits are source of funds to the bank for doing lending activity, banks should focus to increase this ratio. Poor



ratio means that public is not interested to invest their funds with the bank.

Good Customer Service, innovation of deposit product development, digital banking, good publicity, instant services, complaints free / low, increase in rating of the bank like CAMELS rating etc. contributes to increase in Liability Mix percentage of Banks.

Year-on-Year, this ratio should be increased. Branding is also contributed to some extent to increase this ratio. Once public prefers to open the deposit accounts with the bank due to the abovementioned factors, this ratio will increase without much efforts. If above mentioned factors are positive in banks, Bank's CASA deposits will also increase. Thereby it is dual benefit to the bank i.e., to increase in Low Cost Deposits and also percentage of Deposits in Total liability of the Bank.

(iv) **Asset Utilization Ratio (%) = Total Income[^] / Total Assets**

Name of the Bank	2018	Rank
Bank of Baroda	6.99	3
Vijaya Bank	7.99	2
Dena Bank	8.35	1

[^]Total Income = Interest Income + Non-Interest Income

Analysis:

The asset utilization ratio measures management's ability to make the best use of its assets to generate revenue or income. Thus, the more effectively a bank utilizes its assets, the more profitable the bank will be.

The asset utilization ratio has been calculated by dividing Total Income by Total Assets. In Dena Bank the Asset Utilization Ratio is high when compared to the other Banks. Due to price war is going-on in Banking Industry, spreads are thinning Year-on-Year basis. Banks should focus more on Non-interest income in order to increase the Asset Utilization Ratio and also to increase the bottom-line of the bank.

There is a scope to increase in non-interest income of the banks with its huge network of Branches spread from Metros to Rural Areas of the country through cross-selling of third party products to the existing customers, increase business in remittance products, Foreign Exchange transactions, Hiring of Lockers, Bank Guarantees and Letters of Credit etc. Innovate new financial products to suit requirements of existing and prospective customers to increase business and income levels.

(v) **ROA (Return on Assets) (%) : (Net Profit / Total Assets) * 100**

Name of the Bank	2018	Rank
Bank of Baroda	-0.34	2
Vijaya Bank	0.41	1
Dena Bank	-1.59	3

Analysis:

Returns on asset ratio is the net income (profits) generated by the bank on its total assets (including fixed assets). The higher the proportion of average earnings assets, the better would be the resulting returns on total assets and to assess the profitability of the bank based on the assets.



ROA of Vijaya Bank is in No: 1 position among three, as Bank of Baroda and Dena Bank the net result is negative (loss) hence these TWO Banks ROA is in negative. But still Vijay Bank ROA is considered as very low and indicates that banks deployment of the funds is not upto the mark.

Factors contribute to increase in ROA of the banks are mobilization of Low Cost Deposits, High Yield Interest Rate on Advances, low NPAs, No income leakages, increase in non-interest income business etc. The minimum percentage ROA in Banking Industry should be 1%.

(vi) **Credit Deposit Ratio (%) :**
(Credit / Deposits) * 100

Name of the Bank	2018	Rank
Bank of Baroda	72.28	2
Vijaya Bank	73.86	1
Dena Bank	61.79	3

Analysis:

This ratio indicates how much of the advances lent by banks is done through deposits. It is the proportion of loan-assets created by banks from the deposits received.

The higher the ratio, the higher the loan-assets created from deposits and also it increases the profits / bottom-line of the bank through positive spreads. Deposits would be in the form of current and saving account as well as term deposits.

The outcome of this ratio reflects the ability of the bank to make optimal use of the available resources. Ratio of Vijaya

Bank is high when compared to the other TWO banks.

Banks have to tap the lending opportunity available in the market which gives more margins to the bank in future. To increase this ratio, Banks are to be introduced more Innovative digital products both in deposit and advance segments.

(vii) **Net Interest Margin (NIM) (%) :**
(Net Interest Income ^ / Total Assets) * 100

Name of the Bank	2018	Rank
Bank of Baroda	2.16	2
Vijaya Bank	2.42	1
Dena Bank	2.05	3

^Net Interest Income = Interest Income - Interest Expenses

Analysis:

The difference between interest income and interest expense is known as net interest income. It is the income, which the bank earns from its core business of lending. As such, NIM is the net interest income earned by the bank on its assets. These assets comprises of advances, investments, balance with the RBI and Money-at-Call Notice etc. Hence it is calculated as,

$$NIM = (Interest\ income - Interest\ expenses) / Total\ Assets$$

The difference between the revenue generated by interest bearing assets and cost of borrowed fund gives the Net Interest Income (NII) of the bank. The NII



when expressed as a percentage of the assets gives the NIM of the bank.

NIM of Vijaya Bank is more and Bank of Baroda and Dena Banks is less. To increase in the NIM Ratio, Bank should give more focus on CASA deposits, where the cost of deposits is low when compared to Time Deposits. The other strategy to increase in Net Interest Margin is to sanction High Yield Interest Rates Advances.

Once the loan account turns into NPA, accrued Interest on NPAs should not be taken as Interest Income. Hence, banks should minimize the Non-performing Assets and it should be within 3% of Total Advances. If NPAs are on increasing trend, "Recycling of Funds" will stop; thereby it decreases the Interest Income to the Bank.

(viii) $\text{Interest Expenses Ratio} = \frac{\text{Interest Expenses}}{\text{Total Income}^\wedge} * 100$

Name of the Bank	2018	Rank
Bank of Baroda	55.91	1
Vijaya Bank	58.40	2
Dena Bank	63.95	3

^Total Income = Interest Income + Non-Interest Income

Analysis:

Interest Expenses Ratio: Net Profit in turn is influenced by the interest and non-interest income and expenses of the bank. Interest expenses ratio shows interest expenses to total income. Interest expenses means interest paid on

deposits and funds borrowed by the banks through various sources.

Interest expenses is to be minimized drastically by developing new deposit products, focus more CASA Deposits. On the other side the banks are to give more focus on increasing interest income i.e., on advances. If performing assets are more, then performing assets will generate interest to the bank. Slippages of Standard Assets to NPA should be arrested through better NPA Management strategies.

Increase in Non-Interest Income is also important to banks due to decrease or thinning in interest spreads on account of price war in the market. Sources of non-interest income to the banks is Commission and Exchange income.

Commission earns by the banks by offering various services to their existing customers and non-customers. Banks are getting Exchange income by selling remittance products and foreign exchange business. The percentage of interest expenditure of Dena Bank is more out of the income generated by the bank. Among three, Bank of Baroda is incurred 55.91% as Interest Expenses out of Total income earned by the bank.

(ix) $\text{Efficiency Ratio (\%)} : \frac{\text{Non-Interest Expenses}}{\text{Net Total Income}^\wedge} * 100$

Name of the Bank	2018	Rank
Bank of Baroda	45.88	1
Vijaya Bank	47.52	2
Dena Bank	67.80	3



\wedge Net Total Income = Net Interest Income
(Interest Income - Interest Expense) +
Other Income

Analysis:

This ratio really helps to understand how banks earn income and from what sectors they earn from. The ratio also helps to breakout the expenses that a bank can have and the impact they can have on the bottom line.

The Efficiency Ratio is calculated by dividing the bank's Non-interest Expenses by their Net Income. Banks strive for lower Efficiency Ratios since a lower Efficiency Ratio indicates that the bank is earning more than it is spending. A general rule of thumb is that 50 percent is the maximum optimal Efficiency Ratio,

A bank's efficiency ratio is essentially equivalent to a regular bank's operating margin, in that it measures how much the bank pays on operating expenses, like marketing and salaries. By and large, lower is better.

The *efficiency ratio* is a quick and easy measure of a bank's ability to turn resources into revenue. The lower the ratio, the better (50% is generally regarded as the maximum optimal ratio). An increase in the efficiency ratio indicates either increasing costs or decreasing revenues.

It is important to note that different business models can generate different efficiency ratios for banks with similar revenues. For instance, a heavy emphasis on customer service might lower a bank's

efficiency ratio but improve its net profit. Banks those focus more on cost control will naturally have a higher efficiency ratio, but they may also have lower profit margins.

In addition, the more a bank generates in fees, the more it may concentrate on activities that carry high fixed costs (and thus create worse efficiency ratios). The degree to which a bank is able to leverage its fixed costs also affects its efficiency ratio; that is, the more scalable a bank is, the more efficient it can become. For these reasons, comparison of efficiency ratios is generally most meaningful among banks within the same model, and the definition of a "high" or "low" ratio should be made within this context.

In Dena Bank efficiency ratio is high and it is low in Bank of Baroda. The two ways the banks should focus to fulfil this issue i.e., to control the non-interest expenses or to increase spread and other income. Due to increase in alternate delivery channels, there is a possibility to the bank to decrease further in non-interest expenses as alternative delivery channels per transaction cost is low when compared to the branch channel.

(x) **Burden Ratio (%) = (Non-Interest Income / Non-Interest Expenses) * 100**

Name of the Bank	2018	Rank
Bank of Baroda	65.44	1
Vijaya Bank	57.08	2
Dena Bank	47.16	3

**Analysis:**

The Burden Ratio is the measure of the difference between Non-Interest Income and Non-Interest Expenses. Breaking it down, the Burden Ratio measures how the Net Asset Yield (Net Interest Income / Total Assets) will be burdened by the net expenses of the Bank. How much of Net Interest Margin must you give up to run the Bank?

While many Banks have the benefit of constrained infrastructure and costs, most will not be able to “cut their way to greatness” to improve this ratio. The options to lever impact upon the Burden Ratio most often will lead to the need for expanded Non-Interest Income.

In the current and evolving regulatory environment, fee income sources from deposit and loan accounts have become restrained and they will seemingly continue to decline as consumerist policies, competition in the market etc. The answer to improve the Burden Ratio lies in the need to expand fee income sources on existing and new products and services.

If non-interest income to non-interest expenses are matched or equal, the positive spread of the bank i.e., net interest margin or (yield on advances minus cost of deposit) is a profit to the bank after providing provisions on NPAs etc. This is low in Dena Bank when compared to Bank of Baroda and Vijaya Bank. To match the non-interest income and non-interest expenses, banks should make efforts or to focus either to increase the non-interest income (Commission and Exchange Business) or to

decrease non-interest expenses (Controllable costs like overheads). This strategy to be followed from Branch to Region and bank as a whole.

Financials of Combined entity (Post Merger):

Particulars	Combined Entity Financials / Other Key Parameters
Number of Employees	85,354
Number of Branches	9,581
Deposits (Cr.)	854733
Advances (Cr.)	620,348
Total Business (Cr.)	1475081
Net Profit / Loss (Cr.)	-3,628
Per Branch Business (Cr.)	153.96
Per Employee Business (Cr.)	17.28
CASA Deposits (% in Total Deposits)	35.62
Non-performing Assets (Cr.)	80,367
% of NPAs in Total Advances	41.59
Capital to Risk Assets Ratio - Basel III	12.96%
Number of ATMs	13,544

Merits of Merger:

1. In combined entity the manpower is 85,354 - due to rationalization of the Branches / Administrative Offices on account of merger surplus staff will arise, thereby NO further recruitment for the next 2 to 3 Years, thereby lot of savings will arise in manpower cost of the



Bank and also per employee business will increase in future by optimum utilization of manpower.

2. Due to rationalization of Branches, organization restructure, reduction in Administrative offices, there is a scope for substantial reduction in Overhead like Rent, Electricity and Taxes. Thereby the loss of the combined entity will reduce.
3. There is a scope to reduce Number of ATMs or shifting of ATMs to Strategic locations on account of merger. This results optimum utilization of alternate delivery channel like ATM.
4. Instead of 3 banks control by Government of India (being PSBs) and pumping of additional capital as and when required by these banks, single entity results more control both by regulator (RBI) and owner (Government of India) i.e., after merger.
5. There is a scope for substantial reduction in Advertisement costs of merged entity, as banks are spending more amount on advertisement to mobilize both liability and asset products from time to time.

Demerits of Merger:

1. There is a scope for reduction of branches (In Western Part of the country) on account of rationalization of Branches particularly Dena Bank and Bank of Baroda Branches due to presence

of more Branches in Western part of the Country due to Head Offices of these banks were located in Maharashtra State and Gujarat State. In number of places in this zone Dena Bank and Bank of Baroda Branches were located less than 1 Km.

2. Public opinion of merger is “Weak Banks are to be merged in healthy Bank”, this results for scope of reduction in deposits of merged bank. To overcome this problem, positive features of merger communication should reach to the public by way advertisement / publicity.
3. Stabilization of merged entity will take a minimum of 1 Year, during this period there is a scope for increase in overheads and less control on recovery of NPAs. These two factors are to be taken care of by the merged entity from day on onwards.
4. To arrive uniformity in systems and procedures (including Asset and Liability Products of the 3 Banks), combined entity may incur additional costs for giving training to staff members and also additional capital expenditure for information technology of Core Banking System etc.
5. Uniformity of Service Rules particularly promotion policy / transfer policy of personnel in combined entity may result HR Issues.



Advantages of Bank Mergers to various stakeholders:

- ✓ Rationalization of Branches - It reduces overheads and also capital expenditure.
- ✓ Rationalization of Regional & Zonal offices / Business Networks - It reduces overheads.
- ✓ Manpower Adjustments with existing manpower (By deploying surplus to needy branches).
- ✓ Minimization in Recruitment Costs (By following productivity norms).
- ✓ Minimization of overall Overheads (Focus on Controllable Costs).
- ✓ Control of wastages in Advertisement Costs.
- ✓ Benefits through Large Scale Economies.
- ✓ Better NPA Management (By initiation of SARFAESI, DRT, IBC, 2016 etc.)
- ✓ Better Asset Liabilities Management (ALM).
- ✓ Better Treasury Management (By minimizing borrowing costs and Non-performing Investments).
- ✓ Better Implementation of Basel III (Through reduction of Credit, Market and Operational Risks).
- ✓ Technology up-gradation with less Capital Expenditure through Cloud Computing.
- ✓ Optimum utilization of existing Alternate Delivery Channels (Identify strategic locations to shift ATMs, CDMs etc.).
- ✓ Avoid Duplicate / Double of Finance (Through Data Warehousing).

- ✓ Better implementation of Risk Focused Internal Audit (RFIA).
- ✓ Better Control by Regulator and Government of India.
- ✓ Better implementation of Corporate Governance (Increase efficiency by following ethics).
- ✓ Increase in Productivity Ratios of the Bank (Through Inter or Intra Firm Comparisons).

Conclusion:

Merger gives more benefits to the acquiring bank particularly to reduce “Fixed and Variable Costs” and to control wastages of the bank to a large extent. In public sector Banks, ‘Expenses Share’ and ‘Manpower Cost’ in Total Income (NIM + Other Income) are in the range of 15% to 23% each. Hence, these costs will reduce drastically through merger process. In addition to this, acquiring bank can use Information Technology in a big way i.e., optimum utilization of existing Alternate Delivery Channels like ATMs, Mobile Banking, CDMs, POS Machines, Internet Banking, Business Correspondents / Customer Service Points and Call Centres etc. thereby it not only reduces per transaction cost of the bank but also to increase the bottom line. This can be possible through mergers. The end result is the acquiring Bank may charge “**Low Rate of Interest**” on Advance Products (MCLR). Lower Rate of Interest on advances boosts the economic growth of the country further and also it increases the Business Levels, market share and bottom-line of the acquiring Bank.



(Synopsis of Financial Health Ratios of THREE Banks)

Ratios	Ranks		
	BOB	VB	DB
Return on Equity-ROE (%)	2	1	3
Equity Multiplier-EM (Number of Times)	2	3	1
Liability Mix-LM (%)	3	1	2
Asset Utilization Ratio-AUR (%)	3	2	1
Return on Assets-ROA (%)	2	1	3
Credit Deposit Ratio-CDR (%)	2	1	3
Net Interest Margin-NIM (%)	2	1	3
Interest Expenses Ratio-IER (%)	1	2	3
Efficiency Ratio-ER (%)	1	2	3
Burden Ratio-BR (%)	1	2	3

But one important factor is to be look into by the acquiring bank in merging process i.e., **Strengthen the Organizational Structure** i.e., Centralization and Decentralization of various operational areas of the Bank, span of control of various operating units of the Bank. Undoubtedly merger gives number of advantages to the acquiring bank, at the same time **Controlling is very difficult** due to increase in size of the Organization, Business Operations and Volumes of transactions etc. To overcome this problem, from the day one of merging processes, the acquiring bank should give more focus on Control Function aspects for each and every business processes / functions i.e., how effectively and efficiently control the Bank Branches located in **nook and corner** of the country. Other-wise, the objective of merger will be defeated, if control systems are not well established / placed by the acquiring bank. Due to availability of advanced Information Technology Systems in the country, controlling Branches located faraway from the Head Office is not a big problem to acquiring Bank. To mitigate **THREE** important Risks of the Banks i.e., Credit Risk, Market Risk and Operational Risk, the acquiring bank should strengthen the Risk Management Department, Risk Focused Internal Audit, System & Procedures etc. then fulfil the objective of merger and the required Capital Adequacy Ratio (CAR / CRAR) is not a problem to acquiring bank.

References:

Annual Reports of Public Sectors Banks.



NATURE, ECONOMICS, SUSTAINABILITY AND INDIA'S GREEN NATIONAL ACCOUNTS

Pranab Nag

Abstract:

Nature is alienated from the study of classical and neo-classical economics as both the schools were motivated by the self-interest of the individuals. It is Georgescu-Roegen who opens the boundaries of economics for collective interest and introduces the laws of thermodynamics in economics. Sustainable development recognises the need for sustainability analysis. It requires proper accounting and valuation of natural resources and environmental degradation, and the incorporation of the same in national accounts system. The present paper discusses these issues along with a description of the green national accounts scenario of India.

Key Words:

Green National Accounts, Laws of Thermodynamics, Nature, Sustainable development, Sustainability



I

Introduction

The first energy crisis in Europe at the end of 17th century, the decline of soil fertility in Europe and America at the end of 19th century, the problem of exhaustibility of non-renewable resources resulting in oil crisis in the seventies of the last century, global warming for greenhouse gas emission in the present century are the threats against the global environment. In 1987, the Brundtland Commission talked about sustainable development. It recognises the need for sustainability analysis. Proper accounting and valuation of natural resources, environmental degradation, and the incorporation of these in the national accounts system are needed for helping the sustainability analysis. The present paper discusses these issues. The location of nature in classical and neo-classical economics and the introduction of laws of thermodynamics in economic theory are discussed in section II and III respectively. The philosophy of sustainable development and the sustainability analysis are discussed in section IV. Section V describes the green national accounts scenario of India. Section VI concludes.

II

Classical & Neo-classical Economics and Nature

The use of natural resources in production activities is indispensable as the mankind is dependent on nature. Though the natural resources are used in

production, the classical and neo-classical economic theories did not think of their valuation. The received wisdom was that the natural resources were free gifts of the nature. That is why natural resources were valued at cost of extraction or collection only. The cost of extraction or collection was determined on the basis of capital and labour employed in the extraction or collection work. A natural resource, whether it is used or not, always carries an intrinsic value. It is also known as non-use value. This intrinsic value or non-use value had not been determined in classical and neo-classical economics. That is why nature had been alienated from the discussion in classical and neoclassical economics.

The classical and neo-classical economic theories developed in Europe as the economic expansion had been taken place in European countries first. Right from the hunting to the feudal- ages mankind experienced the abundance in supply of natural resources. Regenerative resources like fruits, crops, timber & non-timber forest resources and live stocks were the basis for all human activities. So the economy was regenerative resource-based.

After that, people learnt to produce different goods in their house premises. These satisfied their individual consumption. Then they learnt to exchange. In the 17th century production was organised in bigger scale compared to the production in house premises. This century was marked of the real beginning of capitalist production with the co-operation¹ and manufacture¹ production system. This system was..... *both historically and logically the starting*



point of capitalist production (Marx, 1986, Vol.1:305). At that time fuelwood was used in the production process and man's belief was that wood was abundant in supply from the nature. Due to unlimited use of fuelwood forests were destroyed. At the end of 17th century, mankind confronted the first energy crisis and experienced the slow economic growth due to lack of supply of fuelwood.

Mankind tided over the first energy crisis by means of technological innovation and discovery of coal mines. The use of fuel in production activities was met by the supply of coal. With the invention of steam-engine railways had been expanded. It helped to expand the market through the carrying of goods from one place to another. Previously there were isolated markets near the production places - small markets in the country side. With the development of towns, there developed bigger market compared to the previous one. There developed common market in place of many small markets. Two qualitative changes were occurred in the 18th century. Firstly, under this new industrial system, with the emergence and development of common market the consumer and producer became separated. Secondly, the mankind became dependent on non-renewable natural resources, i.e., on mineral resources.

The foundation of classical economics was based on the economic contribution of Adam Smith (1776, 1937) who viewed that the market system is driven by the self-interest of the individuals. In this market, consumer and producer both are unknown to one another and both are independent.

They enter the market for self-interest and do exchanges upon which they have no total control. This is the invisible hand as described by Smith-the hand that is contacting the buyers and sellers. The invisible hand is playing the vital role in determining the price of a good through the equilibrium between demand and supply of that good. He utilised the concept of equilibrium theory of Newtonian Mechanics in case of equilibrium in market. According to Newtonian Mechanics, a mass continues to remain in stationary state or in motion unless an external force is applied upon it. Smith worked out his analysis that the forces of demand and supply converges into equilibrium at a specific price by the invisible hand that forces free competition among the producers. This equilibrium is distorted due to the intervention of non-market forces. The value of a product in economic theory is based on raw material, labour and capital used to produce it. It was assumed that materials were available from nature as free goods having no intrinsic value. The classical economics thus excluded the valuation of natural resources from its theoretical discussion.

Smith was conscious of the limitation of the market system that was based on self-interest. He realised that it would not be possible for the market system to provide public services to the society. According to him, there were two objects of political economy: *first, to provide a plentiful revenue or subsistence for the people, or more properly to enable them to provide such a revenue or subsistence for themselves; and secondly, to supply the state or commonwealth with a revenue sufficient for public services*



(Smith, 1937:397). So there was no separation and no conflict between ethics and economics in the classical economics. The ethics and economics both were simultaneously discussed in the classical political economy.

In the 19th century, a qualitative change occurred due to the application of several scientific inventions in manufacturing activities. This was the era of modern factory production system². There developed neo-classical school of economics. It emerged with the separation of ethics from economics, separation of politics from economics. As a consequence the role of state was ignored in economic thought³. Inspiring with the achievements of science and technology in production, the neo-classical economists sought to restructure the economic theories independent of ethics. They discarded the Ricardian theory. According to Ricardo, with technological fix production might increase but with diminishing returns to scale. Thus economic growth would be limited. They developed their theories that technological substitution in production activities could increase growth-- an unlimited growth, assuming like classical economists that natural resources were abundance in supply. But the strength of neo-classical economics, i.e., the technological substitution in production activities became a hindrance to develop the theory further when they claimed that man-made capital could substitute the natural resources. This thought alienated much the neo-classical economics from nature. The neo-classical economic theories could not include the laws of nature in its domain. Nature became alienated from economic thought

for exclusion of ethics and politics from economics. Thus it was incapable of accounting for degradation of the environment that was not owned individually. The development of physics of mass and energy, and the laws of thermodynamics was ignored in modern economics. It is Nicholas Georgescu-Roegen (1971) who explored first this problem.

III

Nicholas Georgescu-Roegen And The Laws of Thermodynamics

Georgescu-Roegen opens the boundaries of economics for collective interest and explains how the laws of thermodynamics is related to economics. The first law of thermodynamics is that matter and energy cannot be created but matter can be transformed into energy and energy into matter. The second law is entropy law. It states that the natural tendency of matter and energy is to change from a state of order (low entropy) to that of disorder (high entropy). A part of matter or energy is dissipated in the form of solid or chemical wastes during production. It creates disorder in a system. For example, when power is generated by burning coal all the quantity of coal is not transformed into power. A portion of coal is converted into solid waste (i.e., fly ash). It is Georgescu-Roegen who said for valuation and pricing of wastes, and to include a part of it into product cost.

In neo-classical production function two factors of production were considered, i.e., capital and labour. The proportion of capital and labour could be substituted for maximising the output so that there is



no limit to growth. The characteristic of this model is that capital and labour remained intact by virtue of maintenance for wear and tear (charging depreciation for fixed resources and providing wages for subsistence of the labour force). As natural resources were not considered as a factor of production, the problem of exhaustibility of the natural resources remained undiscussed. The capital and labour could be treated as fixed fund elements providing services for transformation of inputs into outputs including the wastes generated in the production process. Its failure to include the natural resources as input in the production and output along with wastes isolated the economic system from the eco-system. (Bose, 2004: 46). Georgescu-Roegen includes natural resources and wastes in the production function that relates the economic system with the eco-system in a logical manner.

The neo-classical production function was effective upto the middle of the 20th century. Technological substitution in the production helped the growth of the economy with the assumption that natural resources, the basic form of raw materials were abundant in supply. After that there appeared the problem of exhaustibility of non-renewable resources and economic growth due to excessive use of minerals particularly after the oil crisis in 1970's.

The neo- classical production function with capital and labour became inadequate to encounter the problem of environmental degradation. It occurred for not considering the second law of thermodynamics in the production activity. Georgescu-Roegen considered

the thermo dynamical constraint along with capital and labour. He states: *The factor of production can now be divided into two categories: the fund elements, which represent the agents of the process, and the flow elements, which are used or acted upon by the agents* (Georgescu-Roegcu, 1971: 230). Capital, labour, land and natural resources are fund elements. Products and services and wastes are flow elements generated from fund elements. Capital and labour, in the production process, which is embodied in the product, remain intact by virtue of maintenance of wear and tear. But the natural resources in the form of matter and energy are not embodied fully in the product. A part of natural resources are wastes, i.e., degraded matter and energy lost in the process of production and this degraded matter and energy are dissipated in the environment. Georgescu-Roegen also measured the time period of production. In his words : *'To describe what a factory did yesterday or what it does every day, we need on additional coordinate,This co-ordinate is the time during which the factory works each day. We may refer to this time interval as the working day of the factory and denote by δ . If the ordinary day is taken as time limit, then $\delta \leq 1$. The daily output of a factory, $Q = \delta q$ (Ibid: 245).* Following this the production function is:

$$Q = \delta f(L, K, H)$$

Where Q is output, L stands for natural resources, K for capital and H for labour. Neo-classical production function did not consider the time factor assuming that all processes of production were to be



completed instantaneously so that time had no relevance.

Economic activities are undertaken with an expectation of return on investments within a reasonable period. The period is generally shorter period. As the principle of neo-classical economics is motivated with individual self-interest a shorter period is considered. If the period is considered for a longer duration, say, 20 or 30 or 50 years using the market rate as discount rate, the return would turn into a negligible small figure and an entrepreneur would not be interested in investment. The economic benefit arising from the shorter period would be enjoyed by the current generation. The future generation would suffer from the environmental degradation in the long run. As pointed out by Georgescu-Roegen, time is a seamless continuum and no economic decision would be appropriate without considering the long term effects on natural resources and energy in the global environment. The longer period would help to realise the effects of second law of thermodynamics, i.e., high entropy in the nature.

IV

The Philosophy of Sustainable Development

The history of the last 500 years has been the history of unsustainable development (Foster, 2003:80). The environment has been considered as a tap from which resources can be extracted and a sink in which wastes can be dumped. In 1987, the World Commission on Environment and Development (popularly known as the Brundtland Commission) defined

“Sustainable development” to be *development that meets the needs of the present without compromising the ability of future generations to meet their own needs*. Sen (2010) extends the idea of needs from need-fulfilment to freedom and capabilities. He opines that sustainable development not only would meet the needs but also extend the freedom and capabilities for human lives and well-being of the present generation without compromising the capability of future generations (Sen, 2010:248-252). After five years of Brundtland Commission, all the countries participating in the 1992 Earth Summit in Rio de Janeiro declared their support for sustainable development. The discussions remained confined to the realm of Economics, It is necessary to address the question of sustainable development in the realm of Philosophy.

Long before Brundtland Commission the question of sustainability in development was conceived in the philosophical thought of Rabindranath Tagore (2010) and Karl Marx (1986). Tagore's realisation was that if we use moderately the stock of natural resources, to which every human being has a share, those will not be exhausted and we also have to return something to the nature. He writes: *when our wants are moderate, the rations we each claim do not exhaust the common store of nature and the space of their restoration does not fall hopelessly behind that of our consumption. This moderation leaves us leisure to cultivate happiness, that happiness which is the artist soul of the human world, and which can create beauty of form and rhythm of life* (Tagore, 2010: 47). He initiated the ploughing festival



(*halakarshan utsav*) for using nature for our livelihood; and tree plantation festival (*brikharapon utsav*) for returning something to the nature. His belief was in friendly companionship with nature. In the analysis of the process of capitalist production as a whole Marx conceived the society in the third volume of *Capital* in this way: *Even a whole society, a nation, or even all simultaneously existing societies taken together, are not the owners of the globe. They are only its possessors, its usufructuaries, and, like boni patres familias as, they must hand it down to succeeding generations in an improved condition.* (Marx, 1986, Vol.3:776).

It seems that the preface of sustainable development that we presently discuss was composed by Tagore and Marx. The ideas of Tagore (2010), Marx (1986), Sen (2010) and the views of Brundtland Commission help us for sustainability analysis of the development process of a society.

Sustainability Analysis

Now the question is how one would understand that the development of a country has been sustained. So a sustainability analysis has to be done. An object remains sustained only when the quality of the object exists for a long time. We discuss this part of the section and the next section, i.e., section v mainly on the basis of the report on Green National Accounts in India of the Govt. of India(2013)[hence Report], and Dasgupta's view (2013) on sustainability.

GDP and HDI (Human Development Index) could improve by utilising the natural

capital for a time period. But it can't be continued forever. Both GDP and HDI will decline in due course. Human capabilities will decline in a degraded natural environment. Because nature is vital to the development of human capabilities, it's worth is deeply embodied in the value of the capabilities. So a trade-off is necessary between development and nature. Two trade-offs should have to be satisfied for sustainable development. The first is: trade-off between different goods and services at present for present generation. GDP is incapable of recording the trade-off. If a wetland is destroyed and upon it a township is developed, GDP will record the contribution made by the township but it will not record the value of destruction of wetland. So GDP does not play a measure of welfare index. Though it has a role in economic analysis and policy analysis. GDP does not record the degradation of natural capital. The term 'Green GDP' is an utter misnomer (GOI, 2013: 7). The second is: trade-off between present growth and future well-being for future generation. In the name of competitive advantage, GDP of a country could be increased by extracting mineral and forest resources excessively. But its natural resources base would fall. GDP growth by destructing or extracting natural resources excessively may invite tragedy of the commons overtime.

These two trade-offs are supported by the Brundtland Commission Report (1987). So, for sustainability analysis of a country resource base (i.e. wealth) between two periods can be compared, not GDP or NDP. That is why valuation of wealth is necessary.



Wealth means the social value of an economy's stock of capital assets comprising (I) reproducible capital (i.e., man-made or manufactured capital like roads, factories, dams, etc.), (II) human capital and knowledge (i.e., health, education) and (III) natural capital (i.e., land, soil, forests, eco-system, minerals, etc.). Investment includes not only the reproducible assets but also human capital (expenditure on health and education), knowledge and growth of regenerative natural resources. If a forest remains unmolested or a fishery is restricted to catch fishes for a certain time period, then the forest and fishery would be an investment. If a forest remains unmolested for a certain period the forest timber and non-timber forest resources will change and increase. This change is an investment.

Wealth is to be valued at shadow price. *A resource's shadow price is the sum of its market price and the externalities that are associated with its use* (GOI, 2013: 9). Externality arises from the benefits or otherwise enjoyed or suffered by the community or society. For example, the carbon sequestration function provided by a tree. The quantity of carbon that can be absorbed by a tree is to be estimated. Unfortunately the empirical work on shadow prices of natural capital are little. The lives and habitable environment of the people are tied to their local environmental resource-base. It means shadow prices of natural capital are site specific. So collection and maintenance of local-level data is of the utmost importance. For this purpose a system may be developed that can be followed by the panchayats and municipalities (Nag, 2011: 919).

An asset's shadow price is the present discounted value (PDV) of the flow of social benefits from the services it is forecast to provide.⁵

Following Daspupta (2013),⁶ let $K_i(t)$ be the economy's stock of asset i at time t and $P_i(t)$ its shadow price. Economy's wealth at t be $W(t)$. So

$$W(t) = \sum [p_i(t)K_i(t)] \dots\dots\dots (1)$$

Changes in wealth is an index in sustainability analysis. Consider a short interval of time Δt that starts at t and change in wealth be $\Delta k(t)$ over the time interval. From equation (1) it follows that the change in wealth over the time interval is:

$$\Delta W(t) = \sum P_i(t) \Delta K_i(t) \dots\dots\dots (2)$$

Human well-being depends upon some factors. The determinants of well-being may be classified into direct and indirect. Direct well-being depends upon the flow of goods and services and the indirect determinants are safety & security, freedom of thought and expression, self-actualisation from work, friendship with the fellows and neighbours. The social well-being is the sum of individual well-being. As discussed in the Report, considering only the goods and services (direct) as the measure of well-being, the well-being of j th individual at present time t is $U_j(t)$. So the social well-being at t is $V(t) = \sum U_j(t)$. To satisfy the condition of sustainable development over a period $t + \Delta t$, the value at $t + \Delta t$ should not be less than value at t , i.e., $V(t + \Delta t) > V(t)$. We can draw another equation.



$$\Delta V(t) = \Delta W(t) = \sum P_i(t) \Delta K_i(t) \dots \dots \dots (3)$$

From these three equations, Dasgupta (2013) made four propositions. These are:

Proposition 1: Social well-being increases during a short interval of time if and only if wealth increases.

Proposition 2: Social well-being increases during a short interval of time if and only if aggregate consumption does not exceed net domestic product.

Proposition 3: Social well-being increases during a short interval of time if and only if consumption per head does not exceed net domestic product per capita.

Proposition 4: Average social well-being increases during a short interval of time if and only if wealth per capita increases in the same period. It makes the equivalence. This equivalence forms the basis for what may be called sustainability analysis.

Average well-being increases if the total wealth is properly and equitably distributed among the population. The aim should be to reduce intra-generational and inter-generational inequality in the society.

But the calculation of social well-being, the estimation of stock of wealth and their valuation, the calculation of shadow price of each item of asset are no doubt hard work. India is taking initiative in this regard. In this perspective, let us see the scenario of India on green national accounts.

V

India's Green National Accounts

In 1992, the Earth Summit of United Nations Conference on Environment and Development, as per Agenda 21, resolved that the countries will implement environmental-economic accounts as early as possible. In 1993, the UN Statistical Commission (UNSC) recommended the preparation of satellite accounts (supplementary accounts) for natural resources with core accounts. The UN-SNA (United Nations System of National Accounts) published a Handbook on System of Integrated Environmental and Economic Accounting (SEEA). The SEEA 1993 was revised in 2003 and as such SEEA 2003 represented a considerable step in harmonisation of different concepts, definitions and methods in environmental and economic accounting. In 2007, the UNSC in its 38th session resolved that a second revision of SEEA be started to prepare the international statistical standard for environmental and economic accounting, and be completed within five years. In 2012, the 43rd session of UNSC formally accepted the SEEA Central Framework.

Under System of National Accounts (SNA), assets are classified into two categories, i.e., produced assets (man-made capital) and non-produced economic assets. Under SEEA, assets are classified into three categories, i.e., produced assets, non-produced economic assets and other non-produced environmental assets including intangibles. Non-produced economic assets are those upon which ownership rights are enforced and economic benefits are accrued to their owners, e.g., land,



agricultural land, associated surface water, etc. Other non-produced environmental assets are those upon which there are no ownership rights and everybody of the society shares the economic benefits. These include air, ocean, rivers, wild biota, infertile soil, etc. These assets are not used for economic purposes (Nag, 2011:918). The proponents of globalization suggest export-led growth strategies for the developing countries to reduce their poverty and stagnation. This creates serious environmental problems in some developing countries who export natural resources like minerals, forest resources, wood products and fishes. Taking the opportunities of lower barriers to foreign investments, the MNCs are expanding their business in those countries. It results in extensive exploitation of natural resources and environmental degradation. It seems that proper accounting for non-produced economic assets and other non-produced environmental assets is necessary for controlling the export of natural resources and environmental degradation.

SEEA Central Framework consists of three parts: (i) *physical flows of materials and*

energy within the economy and between the economy and the environment; (ii) stocks of environmental assets and changes in these stocks, and (iii) economic activity and transactions related to the environment. (GOI, 2013:123). Environment from the perspective of stock includes all living and non-living natural resources that are existing. When any natural stock is used as input in the economy it is a flow. The SEEA classification of environmental assets are given below (Table 1). Implementation of the SEEA does not require to follow every table and to account for all environmental assets or environmental themes. A country can implement the SEEA in a modular way that are needed for it.

It is to be noted that there are slight differences between the SEEA Central Framework and the SNA. In SNA, land and soil resources are considered as a single asset, whereas land and soil resources are considered as separate assets under SEEA (Table 1). In SNA, the depletion is not recognised as cost against income. But in the SEEA depletion is considered cost against income, and hence deducted from value added, income and savings.

Table 1: SEEA Central Framework Classification of Environmental Assets

1.	Mineral and Energy resources
1.1	Oil resources
1.2	Natural gas resources
1.3	Coal and peat resources.
1.4	Non-metallic mineral resources (excluding coal and peat resources)
1.5	Metallic mineral resources
2.	Land
3.	Soil resources



4.	Timber resources
4.1	Cultivated timber resources
4.2	Natural timber resources
5.	Aquatic resources
5.1	Cultivated aquatic resources
5.2	Natural aquatic resources
6.	Other biological resources (excluding timber resources and aquatic resources)
7.	Water resources
7.1	Surface water
7.2	Ground water.
7.3	Soil water

(Source: GOI, 2013, p. 124)

In the previous section it is mentioned in the proposition 1 that an economy is sustained over a period of time if and only if its wealth increases. For calculating the value of wealth and its changes adequate data is needed. It requires the detailed physical data on produced assets, non-produced economic assets and other environmental assets. Where market price is not available for any asset item, shadow price is to be calculated. But till now the adequate data for all items are not available to calculate the latest values. That is why the Report tries to present some illustration on framework methodology and valuation techniques and to prepare the physical supply and use table (PSUT) and monetary supply and use table (MSUT) as far as possible with the existing data. We now present a physical account of natural resources (Table 2). The accounts are based on quick estimates.

The land use account represents the physical area by specific type of land use and land utilisation. The Report classified

the land accounts into nine fold. We rearrange the same into four-fold. Generally the total area of land remains more or less constant. It may be changed for soil erosion (decreased); alluvion (increased) on the river or ocean; natural disasters like Tsunamis (decreased). The important thing is the transformation of land from one classification to others. Forest area may be transformed into agricultural land or agricultural land may be changed into non-agricultural land for industrial development, urbanization or roads constructions and so on. Land not available for cultivation includes area under non-agricultural uses and barren & uncultivable land. Table 2 shows that agricultural lands, pastures and grazing lands and forests have been decreased; and land area not available for cultivation has been increased during the period 2000-2009. Forest accounts shown in Table 2 are quick estimates done by the Forest Survey of India (FSI). Forest area has been decreased for depletion/degradation due to economic activities and transfer to non-forest.

**Table 2: Physical Accounts of Natural Resources**

Items	Units	Opening Stock	Net change (+/-)	Closing stock
1. LAND (2000-2009)				
Agricultural lands	000Ha	1,41,461.34	-96.85	1,41,364.49
Pastures and other Grazing lands.	"	14,877.00	-614.00	14,263.00
Land Not available for Cultivation	"	42,965.01	+358.90	43,326.91
Forests.	"	69,688.25	-53.46	69,634.79
2. FORESTS (2009-2011)				
Area	Sq. K.m.	6,92,394	-367	6,92,027
Volume Accounts	Million cu.m	4,498.66	+4.61	4,503.27
Carbon Accounts	Million tC	6,813.16	+5.89	6,819.05
3. MINERALS (2000-2010)				
Coal	Million tons	2,45,583	+81,185.1	3,26,768.1
Iron ore	"	17,712	+10,814.15	28,526.15
Bauxite	"	5,052.9	-1,573.28	3,479.62
Lime stone	"	1,69,941	+5,403.9	1,75,344.90
Copper ore	"	712.52	+845.94	1,558.46
Oil	"	732	+25.44	757.44
Natural Gas	"	763	+477.92	1,240.92

Source: GOI, 2013, pp. 152-160, Complied from different Tables.

purposes, and has been increased by afforestation or natural regeneration. Finally the forest area has been decreased by 367 sq km. The physical volume of timber has been decreased by 17.47 million cu.m. for depletion/degradation due to economic activities, 34.69 million cu.m. for transfer to non-forest purposes and 0.21 million cu.m. for other volume change. Physical volume has been increased for afforestation 32.10 million cu.m. and for natural regeneration 24.88 million cu.m. Though the above data is not reported in the table, finally the net change in the volume accounts has been 4.61 million

cu.m (+)(Table2). India has several minerals. The items which are important in terms of gross value added are coal, oil, iron ore, copper ore, bauxite, limestone and natural gas. The physical account includes opening stock or reserve, changes during the period (10 years in the Table 2) and the closing stock. The changes during the period may be due to extraction (-) and new discoveries (+). If a mineral resource is both known and economically profitable to exploit with the existing technology and price it is categorised as 'reserve' (GOI, 2013:160).



For valuing the natural resources different methods have been used depending on the nature of the asset. Lands have been generally valued at market prices. Where market price is not good indicator, net present value of the future benefits accruing from holding or using the asset has been used. For calculating the future benefits shadow price is required to be determined. Forest land is seldom marketed. It has been valued on the basis of economic value (user value + non-user value). In case of timber and fuelwood the prices realised per cubic meter of timber for different states were obtained from the CSO. From each price the corresponding cost of logging is deducted to find out the net price of timber and fuelwood of different forests. Then the value of timber and fuel wood have been calculated by multiplying the volume with net price. For valuing the carbon sink services, marginal social damage or abatement cost approaches have been used. Marginal social damage costs refer to the economic value of the damage caused by the emission of an additional metric ton of carbon to the atmosphere. Abatement costs refer to the costs of maintaining/reducing carbon emissions, which can vary depending on the abatement measure used (GOI, 2013:162). In case of mineral resources net price method has been followed. Net price is the resource rent after deducting the cost of extraction. Value of stock or reserve is the net present value of the stream of future resource rents the resource will yield until it is exhausted. Finally the monetary estimates of natural resources are integrated with the main national accounts aggregates. Due to non-availability of data, it has not been possible to calculate the value of all the

items of non-produced economic assets and non-produced environmental assets. Thus there is a limitation till now to make a comparative study of wealth between two periods. However, with the limited data monetary accounts of natural resources (though it is incomplete) is presented in an appendix for illustrative purposes. The Report observes that in the foreseeable future wealth estimates should be attempted only at the sector level, i.e., man-made capital, human capital, natural capital, and that too *within bands*, instead of presenting them at precise figures. Because the calculation of shadow prices depends to some extent on subjective judgement. These are too fragile to support point estimates. It seems that the accountant has a role for calculation of fair value by imposing shadow prices on the natural resources.

However, Arrow et al (2012) [Vide Dasgupta (2013)] provides estimates of wealth per capita for the period 1995 and 2000 and its changes (Table 3). The value of natural capital included land, timber, oil and minerals. But it did not include the value of many ecological services that forests provide and ecosystems such as fisheries, wetlands, water bodies and mangroves. So the values given in the table are underestimates. Table 3 shows that the total per capita wealth increased by \$5170 during the period 1995-2000.

**Table 3: Per Capita Wealth and its Growth in India (1995-2000, '000\$)**

	1995 Stock (1)	2000 Stock (2)	Change (1995-2000) (3)	Growth Rate (% per year) (4)
(1) Reproducible Capital	1,530	2,180	650	7.30
(2) Human Capital 1 (education)	6,420	7,440	1,020	3.00
(3) Human Capital, 2 (Health)	5,00,000	5,03,750	3,750	0.14
(4) Natural Capital	2,300	2,280	-20	-0.15
(5) Oil (net capital gains)			-140	
(6) Carbon damage			-90	
(7) Total	5,10,250	5,15,650	5,170	0.20
(8) TFP				1.84
(9) Wealth per capita				2.04

Source: Dasgupta, P. EPW, December 21, 2013, p.46

It means annual growth rate is 0.20% which is near about zero and as such it is alarming. It has been calculated excluding the improvements in knowledge and institutions. Considering knowledge and atmospheric carbon as enabling assets and including it in the total wealth (not shown in Table3), total factor productivity (TFP) growth rate and the growth rate of wealth per capita in India have been 1.84% and 2.04% respectively. Due to non-availability of data and complexities, calculation of average well-being has not been possible. During 1995-2000, the global carbon emission into the atmosphere was over 38 billion tonnes. Taking the global shadow price of carbon emission -\$50 per ton (negative as it is a public bad), the total carbon damage estimated to be -\$1900 billion. India's share was taken to be per capita -\$90.

Concluding Remarks

Mankind has been alienated and is being alienated from the nature for their unsustainable economic activities. Georgesku-Roegen's laws of thermodynamics in production function should be recognised. The Government should restrict the environmental degradation and pollution through regulatory measures. 'Other non-produced environmental assets' should have to be protected from the commodification of nature through proper accounting and policy analysis. To achieve sustainable development wealth per capita and average well-being should have to be increased over a period of time. Average well-being increases if total wealth is properly and equitably distributed among the population. The aim should be to reduce intra-generational and inter-generational inequality in the society. For



sustainability analysis natural resources should have to be properly included in the national accounts. Fortunately India

is taking an initiative to incorporate the natural resources in the national accounts as per SEEA Central Framework.

Appendix

**Table: Greening of National Accounts: an illustration for the resources considered in the study
(Units in Rupees Crores) for the year 2009**

	Economics activities			Economic assets					Environm ental assets
	Production	Rest of world	Final Cons.	Produced assets	Errors & omissions	Non-produced assets (forests)a	Non-produced assets (agricultural Land)b	Non-produced assets (minerals)c	Other non-produced natural assets
Opening stock of Assets (i)				Kop.ec		6966158	4310843.2	36912824	
Supply (ii)	13102022	1639872							
Economic uses (iii)	6551751	1298371	4567456	2016186		13526.9		132266	
Other									
Accumulations of Assets (iv)				113374		17420.58		3905953	-lnp.env
Holding gains/ losses (v)				214619			35934.02	Rev.np.ec	
Other changes in volume of Assets (vi)				Volp.ec		160.97	-748.11	-855184	Vo1. np.env
Errors and omissions (vii)				45034					
GDP (viii)	6550271	-341501	4567456	2389213	-64897				
CFC (ix)	-655673			-655673					
Net domestic product (NDP) (x)	5894598	-341501	4567456	1733540	-64897				
Use of Non produced natural assets (xi)	-3893.6					-13526.9			-83397
Environment adjusted domestic product(EDP)	5807307.4	-341501	4567456	1733540	-64897	-3893.6		5892726	-83397



(xii)									
Closing stock of assets (xiii)						6962465	4470173	43812493	

Source: GOI, 2013, p.169

- a. The stock changes for forestland are for the assessment year 2007-09 but the flows are annualised.
- b. The stock changes for agricultural land are for the period 2000-2009 but the flows are annualised.
- c. The stock changes for minerals are for the period 2000-2009 but the flow of minerals is annualised. Extraction of minerals is recorded under intermediate consumption

(economic use). However, the appreciation or depreciation might have to be adjusted in the EDP expression.

Notes:

- 1. Under co-operation a greater number of labourers worked together in a definite place under the mastership of one entrepreneur. Under manufacture the detailed division of labour is increased more. The main advantage of this system was that since the means of production were consumed by the workers in common, consumption of means of production per unit of output was reduced. But handicrafts continued to be the basis in manufacture.
- 2. Along with the science and technology, another reason for the development of modern factory production system was the large volume of capital that was accumulated by the English capitalists through plundering from their colonies. For detailed discussion, see Marx, K.1986, Vol.1:667-724.
- 3. Keynes and his followers admitted the role of state in economic activities and public policy.

- 4. According to Georgescu-Roegen(1971), as matter and energy in the form of natural resources are used-up more in the production activities the entropy increases more. High entropy results in more non-usable energy and wastes in the environment. So economic growth cannot be unlimited. But there is no limit for expansion of human knowledge. So human capital can be considered as wealth.
- 5. Murty (2004) suggests for cost-based shadow price in general and benefit-based shadow price for special case where irreversibility of resource is present.
- 6. Dasgupta(2010) in his paper discussed five equations and from these equations six propositions. We have referred those equations and propositions that are required for the present discussion.



References:

- Bose, D.K (2004) : *Essays on Environmental Economics*, K.P. Bagchi & Co., Kolkata.
- Dasgupta, Partha (2003) : The Nature of Economic Development and the Economic Development of Nature, in *Economic & Political Weekly*, Dec. 21, pp. 38-51.
- Foster, John. Bellamy (2013) : *Ecology Against Capitalism*, Cornerstone Publications, Kharagpur.
- Govt. of India (2013) : *Green National Accounts in India: A Framework*, Ministry of Statistics and Programme Implementation, C.S.O.
- Georgescu-Roegen, Nicholas (1971) : *The Entropy law and the Economic Process*, HUP
- Marx, Karl (1986) : *Capital Vol. 1&3*, Progress Publishers, Moscow.
- Murty, M.N. (2014) : Measuring Well-being and Accounting Prices of Environmental Resources, in *EPW*, August 30, pp.64-69.
- Nag, Pranab (2011) : Sustainable Development and An Outline of Environmental Accounting, in *The Management Accountant*, October, pp.916-922.
- Sen, Amartya (2010) : *The Idea of Justice*, Penguin Books
- Smith, Adam (1937) : *The Wealth of Nations, Vol. 1 (1776)*, Edwin Cannan (ed), The Modern Library, New York
- Tagore, Rabindranath (2010) : *The Robbery of the Soil*, Mukto Man Prakashan, Kolkata.



SOCIAL BANKING IN INDIA, A JOURNEY WELL TRAVERSED: AN EMPIRICAL STUDY IN ITS INTERRELATION AMONG SELECTED SEMI URBAN, URBAN, AND RURAL AREAS IN THE STATE OF MAHARASHTRA

Sanjay Kumar Mandal
Sajal Kumar Maiti

Abstract:

Social Banking, an expression that gained prominence in India since the mid-2000, refers to the process of making the benefits of banking available to those sections excluded from them due to a variety of reasons. Connectivity to banking services is major factor impacting sustainable and inclusive growth. Banking sector needs to function with a social conscious apart from business point of view if the economy has to come out of poverty and inequalities. The Reserve Bank of India Deputy Governor “Dr. K.C. Chakrabarty” has defined Social Banking as the “Process of ensuring access to appropriate financial products and services needed by all sections of the society in general and vulnerable groups such as weaker sections and low income groups in particular, at an affordable cost in a fair and transparent manner by regulated, mainstream institutional players”. The principal objective of this paper is to test empirically whether financial knowledge level of any area, viz., semi urban, urban or rural, may be influenced by social banking of that area along with other demographic variables. A comprehensive questionnaire is designed to cover major aspects of financial knowledge and household financial planning for the purpose of collection of primary data relating to calculation of financial knowledge score. A total of 150 respondents, 42 from semi urban, urban and 108 rural areas could be finally reached from Nagpur and its two adjoining districts - Bhandara and Gondia. The mean financial knowledge of semi urban and urban respondents is found to be much lower than that of rural respondents. The CRISIL Inclusix score of the selected districts is taken as a



measure of social banking. The findings of analysis show that Age, Occupation, Educational Background and Household Income are significant demographic factors influencing financial knowledge. Social Banking Index emphasizes on achieving a statistically significant relationship with financial knowledge. Principal Component Analysis results moreover support the same findings.

Key Words:

Social Banking, Financial Knowledge, Self Help Groups and Bank Linkage, No Frill Accounts, Swarnajayanti Gram Swarajgar Yojana, General Credit Cards, Delivery Channels

Introduction

The traditional self-centered, profit-oriented commercial banking concept is fading and a modern socio-economic role is emerging as a result of a revolution of expectations of the society on the role and responsibilities of business community as a whole. A commercial bank can no more be considered a strictly economic institution trading in money. The 'social control' over banks imposed for the first time in 1967 has evolved into the philosophy of 'social banking'. A bank is now expected to meet the growing needs of not merely the rich and urban class of people, the organized industrial and commercial ventures and people who have sound security to offer, but to cater to the various types of needs of 'masses', most of whom live below the poverty line. It is also expected to sponsor innovative non-banking social welfare schemes to improve the quality of life of the society as a whole.

Banks have to act as a catalyst of 'economic growth with social justice' banks is expected to make a direct rather than an indirect attack of the problem of

poverty and to eradicate the various social ills afflicting the society.

Poverty and exclusion continue to dominate socio-economic and political discourse in India as they have done over the last six decades in the post-independence period. Various anti-poverty, employment generation and basic services programs have been in operation for decades in India. In developing economies like India, banks are playing a very critical role as mobilizers of saving and allocators of credit to production and investment. Nationalization of banks in 1969 and creation of Regional Rural Banks (RRBs) in 1975 (Kalkundrikar, 1990) were the two milestones in inculcating banking habits among the semi-urban and rural people.

The process of social banking in India can broadly be classified into three phases.

(i) During the First Phase (1960-1990), after nationalization of banks wherein main emphasis was on channeling of credit to the neglected sectors especially weaker sections of the society through



“Branch multiplication and Priority Sector Lending”.

(ii) Second Phase (1990-2005) focused mainly on strengthening the financial institutions as a part of financial sector reforms. During this period social banking was exercised mainly through Self Help Group (SHG) Bank Linkage Programme and Kisan Credit Cards (KCC) etc. Self Help Group (SHG) Bank Linkage Programme was launched by NABARD in 1992, backed by Reserve Bank of India, to assist cohesive group activities by the poor so as to provide them easy access to banking.

(iii) During the third phase i.e. from 2005 onwards, the financial inclusion was extensively exercised on national level with main emphasis on providing basic banking facilities through no frill accounts.

A properly designed and developed banking system with adequate social orientation such as Aadhar card, unique identification mechanism, Pradhan Mantri Jan DhanYojana and various associated schemes has helped social banking in India scale new heights. These new technologies and innovations are simplifying the barriers to financial inclusion for banks. Especially, mobile banking or branchless banking has helped in areas, where progress has been curtailed by lack of necessary infrastructure and transportation.

Over the recent years, financial literacy has become a major area of concern in India. The state of Maharashtra has been selected for the purpose of the study. Maharashtra has seen historic progress

and economic growth in the past decade. But, concerns like poverty and lack of access to the financial system forces the under privileged to borrow from informal sources like the usurious moneylenders. Despite the expansion of bank branches in rural areas and all other efforts, a significant proportion of households in rural areas and semi urban areas remain outside the coverage of the banking system. Estimate says that roughly 40% of Indians lack access even to the simplest kind of financial services like a Bank account.

The major barriers to provide banking services to the poor, apart from poverty, illiteracy etc. are the lack of reach and higher cost of transactions. Products designed by the banks are targeted for the upper strata and not for the low income families. To augment the reach and fasten the inclusive growth process, RBI from its part has taken a series of steps like:

- Mandating of opening of no-frill accounts.
- Relaxation on know-your-customer (KYC) norms
- Free hand in engaging business correspondents (BCs)
- Use of technology and adoption of Govt benefit Payments or Electronic Benefits Transfer (EBT)
- Providing General Cash Credit for Consumer purposes.
- Simplified branch authorization for opening of branches in rural and semi urban centres.

As also reported in the news, people from rural and semi-urban areas, particularly comprising the daily earners and others



engaged in the unorganized labour market were mostly affected in the latest financial turmoil.

Banking being therefore a sub system of the business system and an integrated part of the overall social system, could not escape from being influenced by the 'revolution of expectations' and the resultant 'revolution of changes' in its supra system which ultimately led to the currently popular concept of corporate social responsibilities. This article humbly tries to investigate how the no-frills accounts scheme is able to target the financially excluded.

Review of Literature

This section reviews some of the literature on social banking and financial inclusion, with a focus on banking sector specific. After considering a few general analyses of financial inclusion, it turns to specific dimensions of inclusion, including access to banking, microcredit and microfinance. Various researches have been conducted on the financial inclusion of bank in the context of social banking reach to the low income strata progress in the development of the nation. Further as our study pertains to study of social banking and its interrelation between selected urban, semi-urban and rural areas in the State of Maharashtra, we have reviewed literature related to identify supply and demand side reasons for the lack of penetration of banking services in these areas. These are implicit in many of the studies of financial services that are discussed more explicitly.

Social banking stands for the orientation of the various activities of commercial banks towards the up-liftment of the poor and downtrodden with the aim of achieving 'Socialistic pattern of society (H.S Dua, 1996). While choosing a cost effective model for financial inclusion will require banks to significantly free up human resources, apart from using a banking correspondent model. Further with increase in financial inclusion and digitalization of banking, requirement of cash in the economy will reduce thereby helping in controlling unaccounted money in the economy.

According to Wright (1999), some of the key issues in offering savings products to poor households include the following: 1) balancing between convenience and returns, 2) balancing terms and needs, and 3) compulsory locked-in savings requirement. Poor households prefer savings products that offer easy accessibility, security, liquidity and assured returns.

In order to offer savings products to the poor in a sustainable way, it is essential to offer such products in collaboration with registered financial institutions like commercial banks, regional rural banks and credit cooperatives.

Hilgert, Hogarth and Beverly (2003) have observed in an US based study that financial knowledge could be statistically linked to financial practices related to cash-flow management, credit management, savings and investment.

Cracknell (2005), the first and foremost step in this regard is identification of the right bank and branches and then



optimizing use of bank branches to offer savings products at a “low unit cost” to the poor. This is possible only when banks’ operations department, marketing and brand management departments work in tandem to achieve operational sustainability.

Thorat (2007) in her paper opined that one common measure of Financial Inclusion was the percentage of adult population having bank accounts. On the basis of available data, it was found that on an all India basis, 59 per cent of adult population in the country has bank account or in other words 41 per cent of the population is unbanked. In rural areas the coverage is 39 per cent against 60 per cent in urban areas. The extent of exclusion from credit markets is much more, as number of loan accounts constituted only 14 per cent of adult population.

Nirupam Mehrotra, Dr. V. Puhazhendhi, Gopakumaran Nair G, Dr. B. B. Sahoo, (2009) in their Paper on FINANCIAL INCLUSION -AN OVERVIEW” have stated that despite the creditable achievements in the field of rural banking, issues such as slow progress in increasing the share of institutional credit, high dependence of small and marginal farmers on non-institutional sources, skewed nature of access to credit between developed regions and less developed regions appear larger than ever before. Therefore, the key issue now is to ensure that rural credit from institutional sources achieves wider coverage.

Lusardi and Mitchell (2011) measured financial knowledge across eight countries, i.e., Germany, New Zealand,

United States, Japan, Sweden, Russia, Netherlands and Italy. He concluded that financial literacy is very low around the world, irrespective of the level of financial market development and the type of pension provided. They have further found that women and relatively older population were having less knowledge in respect of financial matters.

Social banking is rightly defined by **Dr. Roland Benediktar (2011)** as banking with a conscience. Here the bank focuses on investing in community, providing opportunities for the disadvantaged, and supporting social, environmental and ethical agenda. Rather than just concentrating on traditional bottom line i.e. profits, bank emphasizes on achieving triple bottom line of profit, people and planet.

Bhushan and Medury (2013) observed that overall financial literacy level among the salaried individuals in India is not encouraging. The level of financial literacy varies significantly among respondents based on various demographic and socio-economic factors like gender, education, income, nature of employment and place of work whereas it does not get affected by age and geographic region.

Hameedu (2014) has shown the issues in measurement and analysis of financial inclusion by way of building up suitable indicators such as access to and usage of financial services as well as their coverage and penetration. It deals with understanding the barriers of financial inclusion and development of the indicators for assessing the same. One of



the most important ways to achieve financial inclusion in a cost effective manner is through linkages with microfinance institutions and local communities.

Bhushan (2014) has inferred that Indians with low level of financial literacy invest their money in traditional financial products instead of new age financial products with higher returns.

Dr Kaur & Singh, (2015) have positioned financial inclusion as a business opportunity to banks and the launch of PMJDY strengthens the resolve that when coordination, dedication, commitment trust, satisfaction and continuity is provided by all constituents and stakeholders, a frame work of construct is created which acts as a dominant force for accomplishment of the mission.

Objectives of the study

The principal objective of this paper is to test empirically whether social banking level of any area, viz., urban, semi urban or rural, may be influenced by financial inclusion of that area along with other demographic variables. In aiming so, the study assesses the status of social banking in the selected areas in the state of Maharashtra. Other objectives are:

- To study the relative importance whether banking services access to the rural people focusing the marginalized and deprived groups/ communities who are financially “unreached”.
- To examine whether social banking provides credits to create income

and employment opportunities for the poor and help to reduce poverty level among the rural population in general and women of the target group in particular.

- To identify whether social banking develops an institutional mechanism to link/ graduate various informal community groups, Co-operatives and CBOs into the formal banking institution and enhance their counseling, entrepreneurial consultation, financial/ banking literacy etc.
- To identify measures to promote self-employment by exploring the areas of investment in indigenous knowledge and traditional skills.
- To study that social banking helps in rehabilitation and social reintegration of under-privileged, landless, war victim, freed kamaiyas and haliyas and displaced people through financial services and other social intermediations.
- To analyze on financial inclusion objective that the working of banking sector is in tandem with social banking.

Research Methodology

Sample and data source

For the purpose of the study, a survey has been conducted amongst individuals residing in the state. Out of 35 districts of Maharashtra, the study covers 3 districts, viz., Nagpur, Gondiya and Bhandara. The first two districts would mainly cover city



and urban areas whereas the last one has many rural and remote places, giving an ideal background to compare the literacy level based on domicile. Primary data from the respondents have been collected by using a structured questionnaire. A total of about 150 respondents have been interviewed to constitute the sample of this study. On an average, 50 respondents have been found for each of the above districts. Apart from this primary source, books, journals and reports were consulted.

Analysis and Interpretation

Questionnaire for finding out Financial Knowledge and Social Banking Index

A comprehensive questionnaire has been designed to cover major aspects of financial knowledge and household financial planning for the purpose of collection of primary data. It includes questions to examine the individual's financial knowledge in matters related to general awareness, savings, borrowings, insurance, investment and retirement planning. The respondents have been asked questions on demographic issues, issues concerning general awareness on financial matters, personal finance and household finance. A financial knowledge score and a household financial planning score have been calculated for each individual and based on these two scores, a composite financial knowledge score has been calculated with equal weightage to both the components. The mean financial knowledge scores of rural, semi urban and urban samples were calculated separately and compared to each other.

Methodology for arriving scores:

A financial literacy score is to indicate the financial literacy level of a population under study. Individuals could score up to seven points in **financial knowledge**, five points in **financial attitudes/ planning**, and nine points in **financial behaviour**. The Financial Literacy Score (**Composite financial knowledge score**) was composed of the sum of the three scores, with which an individual could obtain a maximum of 21 points in total.

Financial Knowledge Score: There are seven knowledge check questions to test individual's understanding of basic financial concepts covering inflation, simple interest, compound interest, risk and return and risk diversification. Financial knowledge was one of the three core components of financial literacy. A good level of financial knowledge was crucial for individuals to make well-informed financial decisions.

Financial Attitude/ Planning Score: The financial attitude/ planning score uses three attitude statements to gauge people's attitudes towards long-term planning. Individuals reported their agreement with the three attitude statements on a scale of 1-5, with 1 denoting strongly agree and 5 strongly disagree. Higher scores indicate stronger disagreement with these short-term views and thus a more long-term planning mindset. The overall score is obtained by averaging an individual's score of the three statements.

Financial Behaviour Score: The Financial Behaviour Score was measured on a scale of 0-9, where individuals were given



points if they reported ideal behaviour over different areas of day-to-day money management and financial planning, such as active saving, insurance, consider personal affordability before purchase, setting long-term financial goals, shopping around, etc.

The **Composite/ Overall financial literacy score** is obtained as the sum of the three previous scores (financial knowledge (7), financial behaviour (9) and financial attitudes (5)). It can take any value between 1 and 21 and can be normalized to 100 for reporting by multiplying by 100/21.

A measure of Social Banking is obtained from CRISIL Inclusix Scores in the selected districts.

CRISIL Inclusix is comprehensive measure of social banking in the form of an index. It incorporates various forms of basic financial services into a single metric. The method combines four very tangible and critical parameters of basic financial services, viz., branch penetration (BP), deposit penetration (DP), credit penetration (CP) and insurance penetration (IP). It enables districts, states and regions to track the progress made with respect to financial inclusion in their jurisdiction.

Dimensions and parameters used to measure financial inclusion			
	Parameters	Significance	Interpretation
Branch penetration (BP)	No. of branches per lakh of population in a district	Measures the ease with which people in a particular territory can access financial services	The higher the better
Credit penetration (CP)	No. of loan accounts per lakh of population in a district	Measures the extent of access to loan products offered in a particular territory	The higher the better
	No. of loan accounts classified in "personal loans" occupation group as per the RBI's definition or number of microfinance loans per lakh of population in a district	Measures access to credit for retail borrowers, who typically face financial non-inclusion	The higher the better
	No. of agricultural advances per lakh of population in a district	Measures farmers' access to credit	The higher the better



Deposit penetration (DP)	No. of deposit accounts per lakh of population in a district	Measures the extent of access to deposit products offered by banks in a particular territory	The higher the better
Insurance penetration (IP)	No. of life insurance policies per lakh of population in a district	Measures the extent of access to insurance services offered by insurance companies in a particular territory	The higher the better

Source: CRISIL An S&P Global Company: Equifax Credit Information Services Pvt Ltd

CRISIL inclusix has been enhanced with the incorporation of granular district-wise data for MFIs (Micro Financial Institutions) beginning fiscal year 2013. The index is better representation of ground level penetration of social banking in the country. The latest available scores for 2013 for the 3 selected districts have been considered for the purpose of the study.

CRISIL Inclusix is a composite index that measures financial inclusion i.e., social banking as an aggregate of above four parameters.

CRISIL Inclusix is measured on a scale of 0 to 100, where 100 is the maximum score achievable.

State	District	CRISIL Inclusix scores				CRISIL Inclusix ranks			
		2016	2015	2014	2013	2016	2015	2014	2013
Maharashtra	Nagpur	92.8	89.5	77.7	65.5	22	43	79	106
Maharashtra	Bhandara	62.6	54.7	50.8	50.5	229	280	279	249
Maharashtra	Gondiya	47.3	41.5	33.6	34.4	380	425	489	491

CRISIL Inclusix score	Level of financial inclusion
>65.0	High
Between 50.1-65.0	Above average
Between 35.0-50.0	Below average
<35.0	Low

The above table analyzes that CRISIL Inclusix is below average in Gondiya district, above average in Bhandara district and high in Nagpur District.

Step 1

Every parameter is first normalised using the Min-Max method of normalization



$$[X_i \text{ (Normalised)} = X_i - X(\text{min}) / X(\text{max}) - X(\text{min}) * 100]$$

X_i value for a particular parameter for the district 'i'

$X(\text{min})$ minimum value for a particular parameter observed across all 3 districts

$X(\text{max})$ maximum value for a particular parameter observed across all 3 districts

Step 2

The four dimension indices - BP, CP, DP and IP - may be represented in a four-dimensional space with 0 as the minimum value and 100 as the maximum (ideal) for each dimension.

Each district may be represented by a particular point in the four dimensional space (0, 0, 0, 0 and 100, 100, 100, 100)

CRISIL Inclusix is measured as the inverse of the Euclidean distance from the ideal point (100, 100, 100, 100). The Euclidean Distance Method is used to calculate the distance between any two points in an n-dimensional space.

$$\text{CRISIL Inclusix - District (I)} = 100 - \frac{\sqrt{(100-BP_i)^2 + (100-CP_i)^2 + (100-DP_i)^2 + (100-IP_i)^2}}{\sqrt{4}}$$

In the formula, the numerator of the second component is the Euclidean distance of the district 'i' from the ideal point (100, 100, 100, 100), normalising it to make the value lie between 0 and 100, and the inverse distance is considered so that the higher value corresponds to higher financial inclusion.

Research Hypotheses

For the purpose of testing the relationship among financial knowledge of semi urban, urban and rural respondents and the relationship between demographic variables and social banking index with financial knowledge score, the following hypotheses are proposed:

Hypothesis 1: The mean financial knowledge score of semi urban, urban and rural samples is equal.

Hypothesis 2: Awareness of financial inclusion i.e., Social Banking is related to the consumer reference for opening bank account.

Hypothesis 3: Psychological factors like security, demographic variables, personal finance, household finance, retirement planning, investment and creation of awareness on financial products has no relationship with Social Banking.



Statistical tools

The t-test for the difference in means has been used to test the null hypothesis that the means for both sample groups (semi urban, urban and rural) are equal, versus the alternative hypothesis that the mean for one of the groups is larger than the mean for the other group (1-tail).

As the sample size is large, for the non-parametric one tailed test - Chi square analysis has been used to test the second and third hypotheses framed. In order to understand the magnitude of relationship between variables, co-efficient of contingency test is being conducted.

Data Analysis (Testing of Hypothesis 1)

Levene's Test for Equality of Variances and t-test for Equality of Means

The mean financial knowledge score of 42 semi urban, urban and 108 rural respondents were computed.

μ_1 (mean financial knowledge score of 42 semi urban, urban respondents) = 6.65

μ_2 (mean financial knowledge score of 108 rural respondents) = 22.0345

The null hypothesis (H_0) and alternative hypothesis (H_1) of the independent samples T test can be expressed as:

$H_0: \mu_1 = \mu_2$ (the two sample means are equal)

$H_1: \mu_2 > \mu_1$ (the sample mean for semi urban & urban respondents is greater than the sample mean for rural respondents)

Table A

Group Statistics					
	Domicile	N	Mean	Std. Deviation	Std. Error Mean
Financial knowledge score	Semi Urban & Urban	42	6.65	4.93936	0.98787
	Rural	108	22.0345	8.98267	1.11416



Table B

Independent Sample Test										
		Levene's Test of Equality of variances			t-test for Equality of Means					
		F	Sig	t	df	Sig (1-tailed)	Mean diff	Std. Error Diff	95% Confidence Interval of the Diff.	
									Upper	Lower
Financial knowledge score	Equal variances assumed	33.925	.000	-13.678	148	.000	-15.3845	1.92125	-19.29036	-11.71476
	Equal variances not assumed			-17.381	129.533	.000	-15.3845	1.48185	-18.4620	-12.54313

It has been observed through Levene's Test for Equality of Variances, the null hypothesis may be rejected and conclusion can be drawn that the mean financial knowledge score for semi urban & urban respondents and rural respondents is significantly different.

Further t-test for Equality of Means, the sign of the mean difference corresponds to the sign of the t value. The negative t value indicates that the mean financial knowledge score of the 1st group, that is semi urban and urban respondents, is significantly lower than the mean for the 2nd group which is rural respondents. The associated *p* value is very small, so we can reject the null hypothesis.

Confidence Interval of the Difference is [-19.29036, -11.71476], which does not contain zero; therefore agreeing with the small *p*-value of the significance test.

Table C: Social Banking in Surveyed identified unbanked Blocks/ Villages

Name of the Block		Number of villages having population above 2000	Number of villages surveyed	Number of households surveyed	Number of socially banked households	Number of excluded households in social banking
Blocks in Bhandara	Bhandara	138	6	24	15 (62.06)	9 (37.94)
(Semi Urban)	Lakhandur	86	4	16	13 (80.50)	3 (19.50)
	Lakhani	92	4	16	11 (67.00)	5 (33.00)
	Mohadi	102	5	20	11 (54.23)	9 (45.77)
	Pauni	145	7	28	16 (57.85)	12 (42.15)
	Sakoli	94	4	16	15 (92.86)	1 (7.14)
	Tumsar	138	6	24	16 (66.25)	12 (33.75)
Blocks in Gondia	Amgaon	82	3	12	6 (47.37)	6 (52.63)
(Rural)	Arjuni Morgaon	139	6	18	9 (50.30)	9 (49.70)
	Deori	11	2	6	4 (74.00)	2 (26.00)
	Gondia	141	5	13	10 (76.00)	3 (24.00)



	Goregaon	98	4	10	5 (52.20)	5 (47.80)
	Sadak Arjuni	99	4	18	15 (83.00)	3 (17.00)
	Salekasa	91	3	9	6 (62.84)	3 (37.16)
	Tirora	122	5	20	15 (73.67)	5 (26.33)
Blocks in Nagpur (Urban)	Bhiwapur	123	4	16	6 (35.19)	10 (64.10)
	Hingna	157	6	20	10 (48.12)	10 (51.88)
	Kalmeshwar	108	5	15	6 (42.94)	9 (57.06)
	Kamptee	77	3	11	9 (80.15)	2 (19.85)
	Katol	165	7	24	14 (60.18)	10 (39.82)
	Kuhi	169	7	18	14 (77.13)	4 (22.87)
	Mauda	114	5	19	7 (39.00)	12 (61.00)
	Nagpur Rural	161	6	18	8 (46.60)	10 (53.40)
	Narkhed	143	5	10	6 (59.50)	4 (40.50)
	Parseoni	110	3	6	4 (73.57)	2 (26.43)
	Ramtek	138	5	10	8 (82.69)	2 (17.31)
	Saoner	128	4	16	14 (90.25)	2 (9.75)
	Umred	172	8	5	4 (72.36)	1 (27.64)
	Nagpur City	150	5	18	16 (88.69)	2 (11.31)
Grand Total			141	456	293 (64.32)	163 (35.68)
Mean				16	10	6
S.D.				6	4	4
C.V.				36.84%	41.44%	63.68%
r (Semi Urban)					0.66	0.69
r (Rural)					0.89	
r (Urban)					0.68	

Source: Compiled

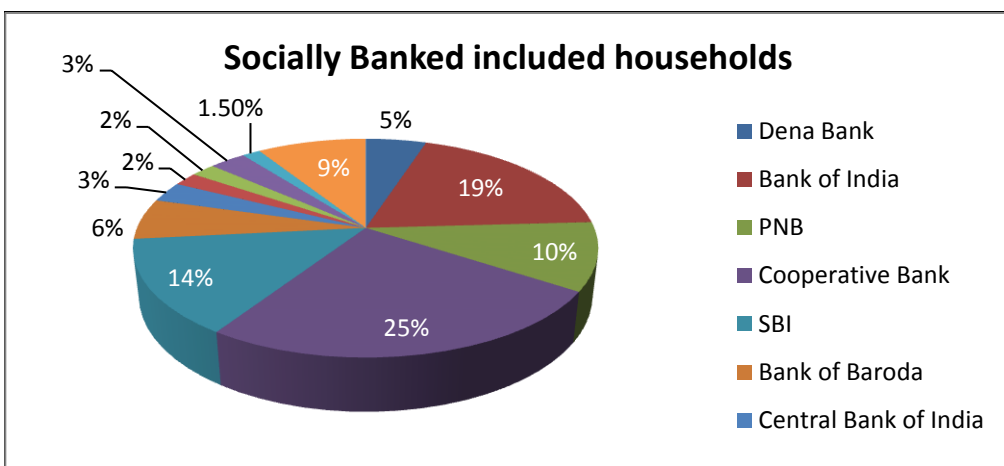
An observation of block level data reveals that the rate of inclusion is better in Sakoli, Saoner and Nagpur City blocks. The scenario is depressing in Mauda, Bhiwapur and Kalmeshwar blocks. The rate of inclusion varies from 92.86% in Sakoli to 35.19% in Bhiwapur. The level of financial inclusion in the worst performing block is only 37.89% of the level of inclusion achieved in the best performing block. A variation in social banked household is manifested by a coefficient of variation of 41.44% across blocks.

A supply-side improvement in terms of increase in bank branches is a tool to reach the goal of 100% social banking. The respondents in this survey were asked whether they felt they had a bank nearby. Less than 70% of respondents in eight out of 29 blocks - Mohadi, Paoni, Amgaon, Arjuni Margaon, Goregaon, Bhiwapur, Hingna and Kalmeshwar - reported that they did have a bank nearby.

Further, a very small proportion of respondents reported that banks, local self-government institutions or the administration have tried to motivate them to open an account.

Therefore, this is a clear sign that these institutions are playing an effective role to attain the stated objective in social banking.

Coverage of Social Banked included Households by Different Banks



It was found that above 55% of households have accounts with a cooperative bank or Bank of India followed by State Bank of India (SBI). This enumerates the importance of cooperative banks in social banking in our sample districts.

Testing of Hypothesis 2 (Awareness of financial inclusion i.e., Social Banking is related to the consumer reference for opening bank account) i.e., evenly distributed across sample consumers.

Financial inclusion/ Social Banking	Known	Not known	Total
Types of Bank Accounts	23	3	26
Minimum Balance Charges	14	2	16
Minorities, underprivileged castes, marginal workers, uneducated and the poor encouraged to open account	5	9	14
Opening of No-Frill Accounts	15	1	16
Access to easy credit provided by Banks	20	2	22
Financial Services Costly	16	5	21
Business Facilitators (BFs) and Business Correspondents (BCs) as intermediaries for providing doorstep financial and banking services	6	8	14
Access to Rupay Card and Alternative Banking Channels	17	4	21
Total	116	34	150

Source: Compiled



Chi-square statistic based on known ($X^2=18.896$)
Degrees of freedom (d.f). = 6
Level of significance = 0.05
Tabulated value = 24.21
(Co-efficient of contingency) C = 1.17

Consumers prefer opening bank account is related to the investment preference and financial knowledge on banking products of the respondents.

Testing of Hypothesis 3 Psychological factors like security, demographic variables, personal finance, household finance, retirement planning, investment and creation of awareness on financial products has no relationship with Social Banking

Psychological factors	Yes	No	Total
Security	36	6	42
Personal savings	18	2	20
Household finance	21	3	24
Retirement planning	31	5	36
Investment	23	3	26
Financial Services	0	2	02
Total	129	21	150

Source: Compiled

$r = 0.998$. The range of correlation co-efficient is from -1 to 1. Our result is 0.998, which means the variables have a moderate positive correlation.

T-Test $t = 0.328$ (2 sample unequal variances) Level of significance = 0.05

Psychological factors therefore affect relationship with Social Banking. This may be the reason for security aspect gets prime importance in individual's life.

Conclusion

The 'Social Banking' of selected districts of Maharashtra is not just a decorative phrase but the guiding principle for all its actions. The selected districts are a hallmark of 'Responsible Business'. It has

effortlessly inculcated the 'triple bottom line' approach of "People, Planet & Profit' without even bothering to highlight the same. The study, in fine, concludes about a very low level of financial knowledge in the selected districts of Maharashtra which is far from satisfactory. The concepts as developed in the study as the key constituents of 'financial knowledge' and 'financial planning ability' are thus proven to be poor too among the sample respondents. This may well be one of the major reasons why the recurrent financial frauds have hit the state time and again. The mean financial knowledge of rural respondents is found to be much higher than that of semi urban and urban respondents. This can be related to the fact that social banking in the semi



urban, urban areas is lower in comparison to that in the rural areas.

Social Banking is not a onetime effort, it is an ongoing process. It is a huge project which requires concerted and team efforts from all the stake holders - the government, financial institutions, the regulators, the private sector and the community at large. Apart from that technology plays a vital role in bringing about integration in society of all social and economic classes. Accessibility, affordability, appropriateness and benefits determine how deep the social banking penetrates the social fabric.

Therefore, financial literacy and social banking are complimentary to each other. Further, occupation, educational background, household income is found to be statistically significant demographic factors which have an association with financial literacy.

Commercial banks should acknowledge that the high volume of deposits that these poor households bring in together can make them profitable customers, even though the transaction cost of serving them is high and the per account profit margin is low.

Suggestions

Social Banking initiatives were introduced in the state long back through various measures. With sustainable development social banking has given a big boost in the state and greater efforts have been laid on inclusive banking. Initiatives adopted for inclusive growth:

- To encourage banks which provide extensive services while disincentivizing those which are not responsive to the banking needs of the community, including the underprivileged.
- 'Connecting' people with the banking system and not just credit Dispensation.
- ICT based Business Correspondent (BC) Model for delivery of low cost door step banking services in remote villages is to be implemented.
- Roadmap to be implemented in order to cover semi urban and villages with population above 2000.
- A Basic Savings Bank Deposit Account (formerly termed as No-Frills account) with Overdraft Facility.
- Financial Inclusion Advisory Committee required to be constituted by all the Commercial Banks.
- Pricing for Commercial Banks needs to be totally freed. Further interest rates on advances required to be deregulated.
- Efficient business/ delivery model that is capable of delivering banking services to the masses in a cost effective manner.
- All backward sections and informal sectors should be included to a large extent.
- Rural people are not much aware of financial inclusion because of illiteracy and the access to financial services should be increased
- Use multiple channels such as civil service organizations, NGOs, post offices farmers' clubs, panchayats, MFIs, etc. as Business Facilitators to expand the outreach of banks.



- Continuous evaluation, sharing of experiences, feedback and improvement.

References

Books:

- Rangarajan, C (2008): "Report of the Committee on Financial Inclusion", Ministry of Finance, Government of India, available at www.nabard.org, viewed on 17 January 2010.
- RBI (2006): "Annual Report 2005-06", Reserve Bank of India, Mumbai (2010): "Report on Trend and Progress of Banking in India 2009-10", Reserve Bank of India, Mumbai.
- RHS (2005): Rural Household Survey, Hooghly, viewed on 14 May 2011 (<http://www.wbprd.org/rhs>).
- Subba Rao, K G K (2007): "Financial Inclusion: An Introspection", Economic & Political Weekly, 42(5): 355-60.
- (2008). Report of the Committee on Financial Inclusion 2008.
- A Study on Current Status of Regional Rural Banks in India. (2012). Journal of Research in Commerce and Management.
- A Study on Current Status of Regional Rural Banks in India. (2012). Journal of Research in Commerce and Management.
- (2014). Inclusion, Growth and Governance- Issues and Way Forward. Speech Dr. K.C. Chakrabarty, Deputy Governor, Reserve Bank of India at the 35th SKOCH Summit in New Delhi on March 21, 2014, RBI.
- The Role of Regional Rural Banks in Financial Inclusion: An Empirical

Study in India. (2014, January). PARIPEX-Indian Journal of Research, 3(1).

- Basu, Priya. "Improving Access to Finance for India's Rural Poor." Washington, D.C.: The World Bank, 2006. Retrieved from <http://siteresources.worldbank.org/INTTOPCONF3/Resources/364480PAPER01N101OFFICIAL0USE0ONLY1.pdf>
- George, Denny and Venkata N. A. "MicroSave India Focus Note 66: What Do Clients Want in E/M-Banking Agents?." India: MicroSave, 2011. Retrieved from http://microsave.org/sites/files/technicalBriefs/indiaFocusNotes/IFN_66_What_Do_Clients_Want_in_E_M_Banking_Agents-PC.pdf.
- Kalkundrikar, A.B. (1990): Regional Rural banks and Economic Development. Daya Publishing house, India
- PMJDY (2016) Progress Report retrieved on 15 Feb 2016 from <http://www.pmjdy.gov.in>.
- CRISIL Inclusix February 2018| Volume 4 Financial inclusion surges, driven by Jan-Dhan Yojana

Web References

- www.rbi.org.in
- www.nabard.org.in
- www.iba.org.in
- dco-mah.rgi@censusindia.gov.in
- <http://www.censusindia.gov.in>

Index

Akaike's Information Criterion (AIC)	75,79
Bank Linkage	131, 132
Burden Ratio	99,10,81,09,112
Buyback	1-3, 5-11
CAMELS Rating	99,105
Capital Structure	2,4,75-77,79,93
CASA Deposits	99, 102,105,107,109
Cement	12-20, 28, 40, 45, 46, 56, 58, 59, 63, 64, 66-70, 72, 73, 75, 80, 84,92,96
Control in Operations	12,20
Cutting-edge	99,100
Delivery Channels	108, 111, 131
Dividend Payout Ratio	75-78,83-95
Dividend Policy	10,75-77,79,93
Economies of Scale	99,100
Efficiency Ratios	107, 108, 112
Financial Knowledge	130,131,133,134, 136,137, 139-141, 144
General Credit Cards	131, 132
Granger Causality Test	75,77-79,83,92,93
Green National Accounts	113, 114, 119, 121, 129
Indian Cement Industry	12,13,14
Internal Audit	12,17,18,21,111,112
Interrelationship	75,77-79,93
Investors Reaction	1,6,7,9,10
Know-Your-Customer (KYC)	132
Laws of Thermodynamics	113, 114, 116, 126
Leverage	4,75-78, 83-95,103,104,108
Merger	99, 100, 101, 103, 109-112
Nature	20, 40, 43, 50, 113, 114, 115, 116, 118, 119, 125, 126, 129, 134
Net Interest Margin	99, 106, 107, 109, 112
No Frill Accounts	131, 132, 143

Panel Data Regression Technique	75,93
Price Reaction	1,6,7,9,10
Rationalization	99,100,103,109-112
Risk	12,17, 18-21, 27, 29, 32, 36, 56, 76, 78, 93, 95, 102, 104, 109,111,112,136
Self Help Groups (SHGs)	131, 132
Shadow Price	120, 121, 123, 125, 126, 128
Share Price	1-3, 5-7,9,10
Social banking	130,131, 132-139, 141-145
Social Banking Index	131, 136, 139
Span of Control	99,112
Spread	99,105-109
Sustainability	113, 114, 118, 119, 120, 121, 127, 134
Sustainable Development	113, 114, 118, 119, 120, 126,129, 145
Swarnajayanti Gram Swarojgar Yojana	131
Synergy	99,100

Digital Object Identifier (DOI) - Research Bulletin Vol. 44 No. IV January 2019 issue

Name of the Article	Author's Name	Vol.	No.	Issue	DOI Number
Buyback Effects from Investors Perspective	Subhendu Kumar Pradhan R Kasilingam Nabanita Khuntia Pankaj Inchlurkar	44	IV	Jan-19	10.33516/rb.v44i4.1-11p
Conducting Internal Audit: Cement Industry	Malay Kumar Paul	44	IV	Jan-19	10.33516/rb.v44i4.12-74p
Interrelationship between Capital Structure and Dividend Policy with Reference to Select Indian Companies	Rajbinder Kaur Arup Kumar Chattopadhyay Debdas Rakshit	44	IV	Jan-19	10.33516/rb.v44i4.75-98p
Merger of 'Bank of Baroda' with 'Vijaya Bank' and 'Dena Bank' (Horoscopes of Three Banks)	P. SivaRama Prasad	44	IV	Jan-19	10.33516/rb.v44i4.99-112p
Nature, Economics, Sustainability and India's Green National Accounts	Pranab Nag	44	IV	Jan-19	10.33516/rb.v44i4.113-129p
Social Banking in India, a Journey Well Traversed: an Empirical Study in its Interrelation among Selected Semi Urban, Urban, and Rural Areas in the state of Maharashtra	Sanjay Kumar Mandal Sajal Kumar Maiti	44	IV	Jan-19	10.33516/rb.v44i4.130-146p

.....

About the Institute

The Institute of Cost Accountants of India (ICAI) is a statutory body set up under an Act of Parliament in the year 1959. The Institute as a part of its obligation, regulates the profession of Cost and Management Accountancy, enrolls students for its courses, provides coaching facilities to the students, organizes professional development programmes for the members and undertakes research programmes in the field of Cost and Management Accountancy. The Institute pursues the vision of cost competitiveness, cost management, efficient use of resources and structured approach to cost accounting as the key drivers of the profession. In today's world, the profession of conventional accounting and auditing has taken a back seat and cost and management accountants increasingly contributing towards the management of scarce resources like funds, land and apply strategic decisions. This has opened up further scope and tremendous opportunities for cost accountants in India and abroad.

After an amendment passed by Parliament of India, the Institute is now renamed as "The Institute of Cost Accountants of India" from "The Institute of Cost and Works Accountants of India". This step is aimed towards synergizing with the global management accounting bodies, sharing the best practices and it will be useful to large number of trans-national Indian companies operating from India and abroad to remain competitive. With the current

emphasis on management of resources, the specialized knowledge of evaluating operating efficiency and strategic management the professionals are known as "Cost and Management Accountants (CMAs)". The Institute is the 2nd largest Cost & Management Accounting body in the world and the largest in Asia, having more than 5,00,000 students and 78,000 members all over the globe. The Institution operates through four regional councils at Kolkata, Delhi, Mumbai and Chennai and 99 Chapters situated at important cities in the country as well as 10 Overseas Centre headquartered at Kolkata. It is under the administrative control of Ministry of Corporate Affairs, Government of India.

Our Institute apart from being a member of International Federation of Accountants (IFAC), South-Asian Federation of Accountants (SAFA), Confederation of Asian & Pacific Accountants (CAPA), National Advisory Committee on Accounting Standards (NACAS), and National Foundation for Corporate Governance (NFCG) is also a member of Government Accounting Standards Advisory Board (GASAB).

Detailed Guidelines for Contribution in 'Research Bulletin'

- The Research Bulletin (ISSN No. 2230-9241) is the official publication of The Institute of Cost Accountants of India.
 - The authors must declare that the article is the result of their faithful work.
 - The article should preferably be relating to the research work carried out during the last five years and not being considered for publication in any other research bulletin or journal.
 - The manuscript including figures, table & references should be preferably within 5000 words for Research Papers including an abstract, 2000 words for Case Studies and 1000 words for Book Reviews.
 - Soft Copy of the full paper should be submitted in double space, 12 fonts, Times New Roman, keeping a margin of 1 inch in four sides, MS Word (.doc) format.
 - The Cover Page should contain the title of the paper, author's name, designation, official address, contact phone numbers, e-mail address.
 - An abstract of not more than 150 words should highlight the findings of the research work. It should be in clean and concise English. Abbreviations should be avoided in the abstract.
 - Title should be short, specific and informative.
 - The main text should not contain name of the author and footnotes. References should be given at the end of the manuscript and should contain only those cited in the text of the manuscript.
 - 5-6 key words suitable for indexing should be given in the alphabetical order.
 - Figures and tables should be numbered consecutively and should appear near the text where they are first cited. The figures should be accommodated within two thirds of A4 size paper. Captions of the tables/figures/charts at the top and sources at the bottom are to be given. The heading of sections & sub-sections should start from the left hand margin.
 - Soft copy (in MS Word format) of the manuscript is to be sent.
 - The contributions sent for publication may be referred for review. Correspondence and proofs for correction, if required, will be sent to the first named author unless otherwise indicated. Corrected proofs should be returned within specified days as may be communicated from Editorial Desk.
 - The final decision on the acceptance or otherwise of the paper rests with the Advisory Board and it depends entirely on its standard and relevance. The final draft may be subjected to editorial amendment to suit the bulletin's requirement.
 - No reprints of the published article will be supplied to the authors. However the authors will get a copy of the bulletin free of cost immediately after the publication.
 - The contributors will receive the structured honorarium fixed by the institute.
 - The copy rights of the articles published in the bulletin lie with The Institute of Cost Accountants of India.
 - All communications are to be sent at *research.bulletin@icmai.in*.
-



THE INSTITUTE OF COST ACCOUNTANTS OF INDIA

(Statutory Body under an Act of Parliament)

www.icmai.in

Research Bulletin, Vol. 45, No. I (ISSN 2230 9241)

Call for Research Papers/Articles

We invite you to contribute research paper/article for “**Research Bulletin**”, a peer-reviewed Quarterly Journal of The Institute of Cost Accountants of India. The aim of this bulletin is to share innovative achievements and practical experiences from diverse domains of management, from researchers, practitioners, academicians and professionals. This bulletin is dedicated to publish high quality research papers providing meaningful insights into the management content both in Indian as well as global context.

Guidelines to submit full Paper

- Soft Copy of the full paper should be submitted in double space, 12 font size, Times New Roman, keeping a margin of 1 inch in four sides, MS Word (.doc) format.
- Each paper should be preferably within 5000 words including all.
- An abstract of not more than 150 words should be attached.
- The cover page should contain the title of the paper, author's name, designation, official address, contact phone numbers, e-mail address.

Papers are invited on the following sub-topics, but not limited to:

- ⊙ Foreign Direct Investment (FDI): a Major Driver of Economic Growth
- ⊙ Smart & Digital Future for the Indian Manufacturing Industry
- ⊙ Industry 4.0 and its impact on India's job creation
- ⊙ Future workforce in the age of Artificial Intelligence (AI)
- ⊙ Startups: redefining healthcare scenario in India
- ⊙ Micro, Small & Medium Enterprises (MSMEs) – Perspectives, Challenges & Opportunities
- ⊙ Mutual Fund Investment
- ⊙ Crowd Funding
- ⊙ Forensic Accounting & Auditing
- ⊙ Digital disruptions in Banking Sector
- ⊙ Reforms in Public Sector Accounting
- ⊙ Taxation
- ⊙ Emerging issues in Capital Markets
- ⊙ Women Empowerment
- ⊙ Indian Infra Sector

Papers must be received within **1st July, 2019** in the following email id:

research.bulletin@icmai.in



THE INSTITUTE OF COST ACCOUNTANTS OF INDIA

Statutory Body under an Act of Parliament

HEADQUARTERS

CMA BHAWAN, 12 Sudder Street, Kolkata - 700016
Tel: +91-33-2252 1031/1034/1035/1492/1602/1619/7373/7143
Fax: +91-33-2252 7993/1026/1723

DELHI OFFICE

CMA BHAWAN, 3 Institutional Area, Lodhi Road, New Delhi - 110003
Tel: +91-11-24666100/24666124/24666129
Fax: +91-11-4358 3642

EDITORIAL OFFICE

CMA BHAWAN, 4th Floor
84, Harish Mukherjee Road, Kolkata - 700025
Tel: +91-33-2454 0086/87/0184
Fax: +91-33-2454 0063
www.icmai-rnj.in

Behind Every Successful Business Decision, there is always a **CMA**