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## PRESIDENTIAL REMARKS

Dear Colleagues,

It is my honor and pleasure to address all the members as the President of Indian Accounting Association for the year 2014. I express my sincere thanks for the confidence reposed in me and convey my gratitude and regards to all the members, executive committee and past Presidents of the Association. They all are working as a team and are determined to work hard to keep IAA operating for the benefit of its members in particular and the society in general.

The Indian Accounting Association is an association that seeks to build an interface among academicians, professional and practitioners from various Universities, Business, Industry and the Government. The main function of IAA is to promote and disseminate the knowledge of accounting and the related subjects in India and abroad. Ever since its inception, the IAA has served as an important forum for raising the status of accounting both as a branch of knowledge and as an important tool for managerial decision-making.

The IAA aims to undertake and encourage research in the field of accounting. Therefore, IAA is engaged in many activities. To mention a few, IAA is publishing a prestigious bi-annual Journal entitled "Indian Journal of Accounting". Presently, Professor Umesh Holani, Jiwaji University, Gwalior is the Chief Editor of the Journal. I hope that the Journal will touch a new height during his academic leadership. IAA has also developed its own website ([www.indianaccounting.org](http://www.indianaccounting.org)) to provide ready update information to all the viewers. It is working very well in the supervision of Professor Sanjay Bhayani, Saurashtra University, Rajkot, who is devoting his valuable time for the website inspite of his responsibility as Treasurer of the IAA. Now the members can browse, download and send information on latest work done by them in the field of accounting for uploading it as well. IAA is making its best effort in searching talent in the field of Accounting in India. For this purpose IAA has been conducting 'National Accounting Talent Search' examination every year successfully under the hardwork and leadership of Prof. G. Soral, MLS University, Udaipur, alongwith holding responsibility of office of the General Secretary, IAA. Further, to develop the subject and the profession, every year an International Seminar is also being held at every Conference of the IAA.

This year also IAA is organizing its 37<sup>th</sup> all India Accounting Conference and International Seminar at Lucknow on November 8-9, 2014. I would like to invite our members to attend in large numbers. Preparations for the annual conference are in full swing under the leadership of Prof. Arvind Kumar, Conference Secretary and Head, Department of Commerce, University of Lucknow, Lucknow. It is my earnest request to you to prepare excellent research papers for presentation and have the healthy live discussion at the Seminar and the Conference.

IAA has grown all the way and has come to stay as a vibrant organization that promotes true learning and policy making in accounting. The validity of this organization is that it believes in quality that promotes value.

We continuously strive to create useful knowledge and disseminate the same to the users so as to support valid use of accounting information. I sincerely thank all our well wishers from the academics as well as the profession and the industry for their help and support in the making of IAA. My hearty compliments to all the branches across the country. I earnestly pray and hope that all our members will work as a team towards the cause of IAA. Let me believe that Accounting would promote accountability, transparency and fairness as a discipline and IAA the same as a organized body.

I solicit the support and involvement of all my colleagues and friends in furthering the cause of IAA.

Yours sincerely



**Prof. (Dr.) S.S.Modi**

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## EDITORIAL

Welcome to the volume XLVI number 1 of Indian Journal of Accounting, the Journal of Indian Accounting Association. The Journal has been already well accepted by academicians and researchers but to bring out the best your suggestions are always welcome.

I am pleased to remind you my presidential address in the 35<sup>th</sup> conference of IAA on Jan 5, 2013 about prospective political scenario and it has appeared in the same direction. It gives me immense pleasure to write that Indians have given their government a mandate to change and for reform. The bold plans and vision for India's future has grabbed the world's attention and this is the right time to prove this confront **"Good days awaits for us"**. It is possible only when all of us contribute and participate to create a new epoch full of innovation and optimism.

Transparency has become the catchphrase nowadays, and we should not compromise with it in the wake of emerging problems in the field of finance and accounting. The era of stewardship accounting has been replaced by social accountability. The concept of social accounting is growing in recognition and become one of the important foundations of good practices in CSR. To combat this challenge accountant has to play a major role. Isn't it the time has come to maintain the utmost transparency in our accounting system?

The current issue of IJA has the honor of including research papers by dedicated and devoted researcher of Accounting. Readers who are interested in knowing the Corporate reporting may find the paper of Nasiri and Raju in context of Global reporting Initiatives suitable. Those who wish for understanding the Panel data analysis of macroeconomic variables may look in to the research work authored by Anindita Chakraborty whereas auditor's independence can be perceived through a paper of Roy and Saha. Dipen Roy explained that how in a hidden way erosion of wealth occurs in a business because of using the valuation models without taking care of their limitations.

The study of Mondal and Khan can give deep insights in understanding the short run and long run persistence performance of Indian Equity mutual funds. Pramod and Ankita analysed the impact of macroeconomic variables on sensex. The quest of readers regarding stock market efficiency may be fulfill by the work of Mallikarjuna on IT stocks. Academicians who are interested in knowing the association of variables with Government securities may find the paper of Gurmeet interesting. Bhargava Pandya found that PAT turns out to be the most significant predictor of variation in MVA. The study of Kaur et.al on household expenditure and RBI liquidity decision may be imminent in the wake of rising inflation. At last, journal includes a case study based on challenges faced by a businessperson in family owned business.

We look forward to receiving more research papers for future issues and encourage further submissions. Hope you would like and appreciate the first effort of our editorial team and may enjoy this issue.

Looking forward for your valuable suggestions!

**Prof. Umesh Holani**  
**Chief Editor, IJA**  
**Journal of Accounting Association**

## CONTENTS

S. No.	Research Paper Title	Authors	Page Nos.
1.	ENVIRONMENTAL DISCLOSURE PRACTICES IN INDIA AND IRAN	Saeed Nasiri G.Raju	1-7
2.	EFFECT OF TRADE OPENNESS AND FOREIGN DIRECT INVESTMENT ON ECONOMIC GROWTH: EVIDENCE FROM DEVELOPING ECONOMIES OF ASIA	Anindita Chakraborty	8-18
3.	UNDERLYING FACTORS GOVERNING STATUTORY AUDITORS' INDEPENDENCE: AN EMPIRICAL ANALYSIS	Mitrendu Narayan Roy Siddhartha Sankar Saha	19-32
4.	VALUATION PITFALLS: THEORETICAL PRESCRIPTIONS, ACCOUNTING CONTRADICTIONS AND EXPERIMENTAL EVIDENCE	Dipen Roy	33-41
5.	A STUDY ON THE PERFORMANCE PERSISTENCE OF INDIAN EQUITY MUTUAL FUNDS	T. Mondal T.L. Khan	42-50
6.	IMPACT OF MACROECONOMIC VARIABLES ON INDIAN STOCK MARKET: AN EMPIRICAL ANALYSIS	Pramod Kumar Ankita Singh	51-57
7.	TESTING OF EFFICIENT MARKET HYPOTHESIS SPECIAL REFERENCE TO SELECTED INFORMATION TECHNOLOGY STOCKS IN INDIA	K. Mallikarjuna Rao	58-67
8.	VARIABLES INFLUENCING MOVEMENT OF G-SEC. YIELDS: AN EMPIRICAL APPROACH	Gurmeet Singh	68-73
9.	MARKET VALUE ADDED: AN EMPIRICAL ANALYSIS OF INDIAN BANKS	Bhargav Pandya	74-86
10.	RELATIONSHIP BETWEEN RBI LIQUIDITY DECISIONS AND HOUSEHOLD EXPENDITURES	Jaspreet Kaur Mamta Verma Neha Agrawal Kanika Narang	87-95
11.	CASE STUDY	Gaurav Jaiswal Ravindra Pathak	96-98
	RELIEVING TO RELAXING: A CASE OF BUSINESS EXPANSION		

# ENVIRONMENTAL DISCLOSURE PRACTICES IN INDIA AND IRAN

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## ABSTRACT

*Nowadays companies are looking for having a better corporate social reporting. Global Reporting Initiative (GRI) provides a framework for sustainability reporting that can be adopted by all types of organizations in all countries. GRI's Guidelines are developed with the expertise of the people in its network. International working groups, stakeholder engagement, and due process – including Public Comment Periods – help make the Guidelines suitable and credible for all organizations. According to GRI corporate social reporting involves six indicators which are labor practices, human rights, society, product responsibility, and environment and economy practices. Protection of the environment is needed due to various human activities. Waste production, air pollution, and loss of biodiversity are some of the issues related to environmental protection. In this paper based on the guideline researcher try to compare the environmental practices of Indian and Iranian companies. Content analysis is used to gather the data. Data collected from the annual reports of the selecting companies.*

**Keywords:** Environmental practices, Content analysis, Global Reporting Initiative (GRI)

## INTRODUCTION

Corporate Social Reporting (CSR) literature has grown in size over the last 30 years or so (Gray, 2001). Companies reports on their social activity in their annual report. Some of them have their own CSR and some other tried to follow from the guidelines. There are several guidelines on social report and responsibility or sustainability report. These guidelines provide a framework for companies to report on their activity. This activity can related to corporate governance, social practices, sustainability report and so on. Guidelines provided by the strongest skill persons. They tried to make the guidelines in a way that all companies from different sectors in different countries be able to use it. As reported by the Global Reporting Initiative (GRI, 2002), in their 2002 Sustainability Guidelines, “...the GRI recognises the limits of a one-size-fits-all approach and the importance of capturing the unique set of issues faced by different industry sectors”. Similarly, the Department of Environment and Heritage (DEH, 1999) has also recognised the need for further and more specific reporting frameworks to be developed at the industry level. They



recognise that a major problem with most reporting frameworks to date is that they have been broad and generic with the objective of being relevant to organizations across all types of industries. However, the levels of social and environmental impacts can vary greatly from industry to industry. A range of differences also exists across industries in relation to corporate requirements, the needs of stakeholders and mandatory reporting requirements (DEH, 1999).

Using of word “social report” becoming more familiar for any financier or even academican. Today’s the world facing a number of natural disasters. For examples floods, volcanic eruptions, earthquakes, tsunamis, drought, dust storm and other geologic processes are rising everywhere around us in this world. A clean environment helps in the healthy growth of biological species. But any disorder and chaos in the environ-ment has far reaching effects over all life forms including man. These disorders may be caused by natural hazards and pollution which have attracted our attention in recent years. The influence of individuals over environment should not be ignored.

It is seen that company size and the level of Corporate Social and Environmental Disclosure (CSED) are positively related in Honkong (Gao, 2005). Utility companies disclose more CSED than property and banking firms. Coupland (2006) examined web-based forms of reports of five banking groups. Study found that the organizations are beginning to articulate a stance with regard to CSR, as increasingly more attention is being paid to social and environmental issues, simple articulation is no longer sufficient. Jenkins (2006) also elaborated the development of social and environmental disclosure and the considerable variation in the maturity of reporting content and styles of these companies. Guthrie (2008) attempted to develop an industry-specific reporting framework to examine social and environmental (SE) performance. Researcher found that the sample companies reported more on industry-specific issues than general SE issues and found that the companies are getting prone to the use of social media to represent their SE responsibilities. The main focus of future Sustainability Reporting Guidelines should be that it is less prescriptive and allow companies to report about the internal sustainability of the company as well as its impacts and contribution to its external communities and environment (Jacobus, 2008). This study aims to compare one of the aspects out of six indicators (labour, human rights, society, product responsibility and economy) of social reporting according to Global Reporting Initiative guidelines between two countries India and Iran. This aspect is an environmental practice which is examine by seven main indicator and 22 sub variable.

### **Global Reporting Initiative**

GRI is a US based non-profit Coalition for Environmentally Responsible Economies (CERES) and Tellus Institute in collaboration with United Nations Environment Programme (UNEP) in 1997. This organization lays the agenda for environment sustainability reporting by countries globally.

### **Statement of the problem**

Population of human is rising very fast, instead that companies also are mushrooming. These companies of course first concerns are making profit. But today after dealing with different kind of global disaster in all over the world, paying attention to other aspect of making these companies also changes. Using word “social responsibility” is growing fast. Recently,

organizations have given greater consideration to sustainable development (Gray et al 1993). There is no consensus on what sustainability reporting means, nor a common shared framework to adopt. Instead there are a plethora of alternatives, which are generalised rather than industry specific, such as the Triple Bottom Line, Intellectual Capital, Global Reporting Initiative, Balanced Scorecard, etc. (Farneti & Guthrie, 2007).

## OBJECTIVE

The study is carried out to compare the current environmental reporting practices in India and Iran

## Hypotheses

H0: there is no significant difference in the mean score of current Environmental practices in India and Iran.

H1: there is significant difference in the mean score of current Environmental practices in India and Iran.

## METHODOLOGY

The research design chosen for the comparative study between two countries was based on descriptive research design. In Iran from the total population (340 companies) of Tehran Stock Exchange 60 companies selected in five different sectors (Auto, Oil/Gas/Petroleum and Chemical, Food, Cement, Metal) randomly. From the first 600 top companies in Mumbai Stock Exchange 60 companies were randomly selected simultaneously. The environmental checklist was prepared using content analysis. This check list was constructed for seven dependent variables. These seven variables consist of 22 measurement items (sub-variable). For comparing two countries, this study suggests the Global Reporting Initiative (GRI 3.1) guideline which was used as the basis for comparing the percentage of Environmental disclosure practices. Environmental practices was assumed as a dependent variable which contains seven independent variables, which are Materials, Energy, Water, Biodiversity, Emissions, Effluents, and Waste, Products and Services and Compliance with law and regulations. It is illustrated in Table 1

**Table 1: Brief of independent variables**

<i>Independent variable</i>	<i>Sub-variables</i>
Environment	Materials, Energy, Water, Biodiversity, Emissions, Effluents, and Waste, Products and Services, Compliance with law and regulations

Source: literature review

## ANALYSIS OF CSR PRACTICES IN AUTO INDUSTRY OF INDIA AND IRAN

Data were analyzed using the check list based on GRI guidelines which provided 22 items. Out of these 22 items, 2 items relate to Materials, six items relate to Energy, three items relate to Water,

three items relate to Biodiversity, 5 items relate to Emissions, Effluents, and Waste respectively and one items each for other remaining factors. The Annual reports of companies were collected from selected companies for the year 2011-12. Data have been analyzed using SPSS and the result is presented in Table 2.

Table 2 indicates that items Materials used by weight or volume, direct energy consumption by primary energy source and indirect energy consumption by primary source have got the highest percentage of disclosure with 98 percent in India. While for Iran it was highest for Materials used by weight or volume with 100 per cent of disclosure followed by Total energy consumed directly and indirectly. Energy saved and Direct energy consumption by primary energy source with 90 per cent of disclosure. Recycled materials had negligible disclosure percentage. And also there is no disclosure on items Indirect energy consumption by primary source, and initiatives to reduce indirect energy consumption and reductions achieved for Iranian selected companies. The lowest percentage for disclosure of Environmental practices in India was for Emissions of ozone-depleting substances by weight with two per cent followed by items Total water discharge by quality and destination and Total weight of waste by type and disposal method with three per cent and for Iran it was items Emissions of ozone-depleting substances by weight with three per cent followed by Percentage and total volume of water recycled and reused with seven per cent and Total direct and indirect greenhouse gas emissions by weight with eight per cent of disclosure.

### Percentage of Environmental practices disclosure in India and Iran

Figures in the parentheses showing in Table 2 explains the percentage of disclosure in selected companies following CSR practices in Environmental practices

The Z-test for proportion indicates that India and Iran presented difference in the case of Indirect energy consumption, Energy saved, Initiatives to provide energy-efficient, Initiatives to reduce indirect energy consumption, location and size of land and Initiatives to reduce greenhouse gas. In the case of location and size of land Iranian companies are reporting better than Indian companies. In all other items with significant difference, Indian companies were found to be reporting better than Iranian selected companies.

It is important to know that Iran is a country with a huge source of oil and gas. Thus these resources are available. Unfortunately the present time companies don't have enough courage to invest on new sources of energy like Heating and Cooling, Steam, Nuclear energy, Solar, Wind, Geothermal, Hydro energy etc. There are several reasons like, lack of financial support, lack of foreign investment, lack of knowledge and infrastructure and political issues on Iran nuclear plan are the other reasons because of which the companies have to use the easiest, cheaper and available source of energy.

**Table 2: Percentage of Environmental practices disclosure in India and Iran**

	No.	Items	country		Z value	Sig.
			India (n=60)	Iran (n=60)		
Materials	1	Materials used by weight or volume	59(98)	60(100)	1.004	0.317
	2	Percentage of materials used that are recycled input materials	0(0)	0(0)	0	0
Energy	3	Total energy consumed directly and indirectly and energy saved	58(97)	54(90)	1.464	0.144
	4	Direct energy consumption by primary energy source.(Coal; Natural gas; and Biofuels; Ethanol; and Hydrogen.)	59(98)	54(90)	1.947	0.052
	5	Indirect energy consumption by primary source. (Electricity, Heating and Cooling, Steam, Nuclear energy,Solar, Wind, Geothermal, Hydro energy)	59(98)	0(0)	10.773	0.000
	6	Energy saved due to conservation and efficiency improvements.	58(97)	50(83)	2.434	0.015
	7	Initiatives to provide energy-efficient and reductions in energy requirements	58(97)	48(80)	2.844	0.005
	8	Initiatives to reduce indirect energy consumption and reductions achieved.	58(97)	0(0)	10.595	0.000
Water	9	Total water withdrawal by source.	7(12)	11(18)	1.023	0.308
	10	Water sources significantly affected by withdrawal of water.	6(10)	8(17)	0.569	0.575
	11	Percentage and total volume of water recycled and reused.	3(5)	4(7)	0.389	0.704
Biodiversity	12	location and size of land	20(33)	45(75)	4.580	0.000
	13	habitats protected or restored	33(55)	35(58)	0.368	0.719
	14	Strategies, current actions, and future plans for managing impacts on biodiversity.	25(42)	15(25)	1.936	0.054
Emissions, Effluents, and Waste	15	Total direct and indirect greenhouse gas emissions by weight	4(7)	5(8)	0.347	0.734
	16	Initiatives to reduce greenhouse gas	44(73)	19(32)	4.570	0.000
	17	Emissions of ozone-depleting sub by wt.	1(2)	2(3)	0.585	0.562
	18	Total water discharge by qlty &destination.	2(3)	7(12)	1.733	0.084
	19	Total wt. of waste by type and disposal method	2(3)	6(10)	1.464	0.144
Products and Services	20	Percentage of products sold and their packaging materials that are reclaimed by category, paper packing, env. Friendly	0(0)	0(0)	0	0
Compliance with law and regulations	21	Monetary value of significant fines and total number of non-monetary sanctions for non-compliance with environmental laws and regulations	0(0)	0(0)	0	0
Transport	22	environmental impacts of transporting products and other goods	0(0)	0(0)	0	0

Source: survey field

For further analysis independent sample t-test is used and the result is shown in table 3:

**Table 3: Country wise M, SD, N and t-value of Current Environmental practices**

Country	Mean	S.D	Number	t-value	sig
India	0.42	0.08	60	5.004	0.000
Iran	0.32	0.13	60		

From Table 5-18, it is evident that the t-value is 5.004 with a level of significance at 0.05 and df = 118. It means that mean score of current Environmental practices in India and Iran is significantly different. The mean score of current Environmental practices in India is 0.42 which is significantly higher than Iran whose mean score of current Environmental practices is 0.32. In this context the null hypothesis that there is no significant difference in mean score of current Environmental practices in India and Iran is rejected and accepting the alternate hypothesis that there is significant difference in the mean score of current Environmental practices in India and Iran. It may, therefore, be said that India was found to have significantly higher level of Environmental practice in comparison to Iran (GRI guideline, 2011). Thus it can be inferred that based on percentage of Environmental disclosure practices, Indian selected companies were better than Iranian selected companies according to the GRI guidelines. From the analysis it is clear that Indian companies are reporting better than Iranian companies as far as Environmental practices are concerned.

## CONCLUSION

In case of India and Iran, from the finding suggested to both countries to start reporting on the Percentage of materials used that are recycled input materials. They should also try to increase disclosure of Materials used by weight or volume. These items directly related to report on materials.

It is found that Iranian companies don't have any report on items such as Indirect energy consumption by primary source (Electricity, Heating and Cooling, Steam, Nuclear energy, Solar, Wind, Geothermal, Hydro energy) and Initiatives to reduce indirect energy consumption and reductions achieved. It can be cause of availability of lots of source of oil and gas in the country. That's why companies have no encouragement to use another resource. As we know this resource will go end eventually and need of having the different kind of energy sources in country will suggested like Nuclear energy, Solar, Wind. The investment on the infrastructure for using from other resources should be raised and companies should be more connected with the new source of energy. From finding it is evident that Indian companies are reporting on all aspects of energy. It shows this country have a good view of using from all resources in the country. The good part is companies also willing to report on all aspects of energy too.

In case of reporting on items water, Emissions, Effluents, and Waste, Products and Services, Compliance with law and regulations and Transport both countries needed to follow from the guidelines. Both the countries were not reporting well on these items. Make a policy and increasing the level awareness on environmental activity and disclosure on these aspects should be raised.

In general, the view of writing reports on environmental activity should update according to new rules and regulations. Increasing the awareness on all aspects on environmental practices needed. Using from different kind of resource like Nuclear energy, Solar, Windetc. for environmental safety will suggested.

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# EFFECT OF TRADE OPENNESS AND FOREIGN DIRECT INVESTMENT ON ECONOMIC GROWTH: EVIDENCE FROM DEVELOPING ECONOMIES OF ASIA

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## ABSTRACT

*This paper used panel data and times series/cross section analysis to estimate the effect of Trade Openness and Foreign Direct Investment on economic growth for a sample of 6 developing economies of Asia. Panel data analysis was conducted for researching whether there is a significant impact of the two explanatory variables on growth (GDP) with the collected 21-year statistical data of India, China, Malaysia, Thailand, Singapore and Korea from 1992 to 2012. The result of pooled regression suggested that there was significant impact of Trade Openness and Foreign Direct Investment on GDP while fixed effect model is selected for conducting the panel data analysis suggested that FDI has significant impact on GDP.*

**Keywords:** Trade Liberalization, Trade Openness, Foreign Direct Investment, GDP

## INTRODUCTION

The relationship between trade openness, Foreign Direct Investment and economic growth has long been a subject of much interest and controversy in international trade literature. Jointly, these factors, along with the number of others, enhance the development process, and improve standard of living of a country. During last three decades there has been a growing concern among the developing countries to accelerate this process, for which they are implementing favorable policies for growth and overall welfare. One of these ways is trade liberalization and trade openness. By liberalizing trade and capitalizing on areas of comparative advantage, countries are benefiting economically. All countries that have had sustained growth and prosperity have opened up their markets to trade and investment. Use of resources - land, labour, physical and human capital - should focus on what countries do best. Trade liberalization measures have been taken by the countries on a multilateral basis and complemented by appropriate employment, labour and education policies, so that the benefits of trade can be shared among them.

Trade openness as a result of trade liberalization is the degrees to which countries permit or have trade with other countries. The trading activities include import and export, Foreign Direct Investment (FDI), borrowing and lending, and repatriation of funds abroad etc. The countries those open trade among them are making flow of foreign direct investment smooth. FDI flows are induced by environment in the host country. If they are successful to provide the large

consumer market, they cause greater economies of scale along with cost efficiency in these countries. On the other hand FDI raises the amount of available capital stock, encourages technological transfer, and enhances the process of competition (Ellahi and Khan, 2011). Open economies generally have greater market opportunities, at the same time they also face greater competition from businesses based in other countries. In terms of financial development trade openness enables a firm to obtain funds from other countries, and also invest its surplus funds in other countries.

Trade liberalization in recent years has also increased the importance of foreign direct investment around the world. There have been large numbers of theoretical and empirical studies aimed at investigating the relationship between trade openness, Foreign Direct Investment (FDI) and growth both in developed and developing countries. Trade openness and FDI are believed to be vital for the growth of the income and employment, technological advancement, socio-economic development parallel to improve income distribution or poverty reduction especially for the developing countries of the world like India, China, Malaysia, Thailand, Singapore and Korea (Constant and Yaoxing, 2010).

There have been numerous studies which support the proposition between trade openness and growth, that openness affects growth positively. The countries that are more open have a greater ability to catch up to leading technologies of the rest of the world (Romer, 1993; Grossman and Helpman, 1991; and Barro and Sala-i-Martin, 1995). Trade openness also promotes the efficient allocation of resources through comparative advantage, and allows the dissemination of knowledge and technological progress, and encourages competition in domestic and international markets. However certain literature also holds the opposed position (Chang et al. 2009).

Therefore, this study aims to address this problem and tries to re-examine the issue of effect of trade openness and FDI on economic growth using panel data analysis of 6 countries from developing Asian region over the period 1992-2012. Following the discussion, present study is aimed to test the hypothesis that trade openness and Foreign Direct Investment (FDI) together affect real output growth of India, China, Malaysia, Thailand, Singapore and Korea. The study has five sections. Starting with introduction, next section is an overview of literature review of previous studies. Section three is brief elaboration of data and methodology employed for empirical analysis. Section four is presentation of results and their interpretation and finally section five concludes this study.

## **REVIEW OF LITERATURE**

Previous literature consists of time series and cross-section studies, explaining the impact of trade openness and FDI on economic growth. Liu et al. (2001) examined the causal relationship between foreign direct investment and trade in China for the period 1984-1998. They concluded that the growth of China imports causes the growth in inward FDI from home country, which in turn causes the growth of exports from China to other countries. Mayanja (2003), investigated whether FDI is important for accessing foreign technology by using industry level panel data from the census of production for 205 industries in United Kingdom and found it is more important than trade in transfer of knowledge to UK industries. Authokorala (2003) observed the



## **Effect of Trade Openness and Foreign Direct Investment on Economic Growth: Evidence from Developing Economies of ASIA**

effect of FDI on economic growth indicators of Sri Lanka over the period 1959-2002 and reported that net effect of FDI on economic growth was not very much strong due to corruption, bad law and order situation and poor governance structure. Srivastava and Sen (2004) explored the causal relationship between FDI net inflows and service exports in the Indian economy over the period 1991 to 2002. The results suggested the presence of short-run unidirectional granger causality from FDI to services exports in the Indian economy in the post liberalization period. The study further concluded that FDI has positively contributed to the growth of services exports in the Indian economy after initiation of economic reforms in the country.

Zhang (2006) tested the growth driven by FDI for the China with panel data techniques and suggested that FDI is an important channel for economic growth. Miankhel et al. (2009) examined the impact of foreign direct investment and exports on economic growth for South Asian countries and suggested a causal link exists between exports and economic growth while in long run FDI is a driving force to enhance economic growth in Pakistan and India. Similarly, Iqbal (2010) found causality linkage between growth, openness to trade and capital inflow in Pakistan. The analysis revealed the long run relationship among the factors and found bidirectional causality between foreign direct investment and export. These were the two important factors responsible for enhancing economic growth in an economy. A similar analysis by Ramzan and Kiani (2012) suggested that FDI and trade promote growth of real sector of economy of Pakistan.

Nyoni (1997) in his paper examined the impact of foreign aid on economic growth of Tanzania. He included economic indicators like export performance, exchange rate, government expenses and economic growth. The results suggested that government spending cause high value of exchange rate, while foreign aid inflows cause devaluation and depreciation of local currency. Furthermore it was recommended that liberalization and openness of economy causes a positive impact in long run. Dritsaki (2004) investigated the association between trade, Foreign Direct Investment (FDI) and economic growth in Greece over the period 1960-2002. The co-integration analysis showed that there was a long-run equilibrium relationship. The results of the Granger causality test also suggested a causal relationship between the examined variables. Economic growth, trade and FDI appear to be mutually reinforcing under the open-door policy. Dasgupta (2009) examined the long run impact of export, imports and FDI inflows on the outflows of FDI in India. The results suggested the presence of unidirectional causality running from the export and import to FDI out flows. The results found no causality existed from FDI inflows to the outflows. Meerza (2012) on the investigation of the causal linkage between trade FDI and economic growth of Bangladesh between 1973 to 2008. In his study he found that in the co-integration test there was a long run relationship on the variables being analyzed while he also found that economic growth influences both FDI and export and that there was the existence of a unidirectional causal relation between FDI and export which runs from export to FDI.

Similarly, Malik (2008) applied co-integration analysis on a sample of six African countries and found that short run effects of investment, trade openness, foreign aid have been positive while the long run effects were found to be negative for foreign aid on economic performance.

From the review it was clear that trade openness and FDI mutually reinforcing economic growth of developing economies. Previous studies used co-integration analysis to study the causal relationship between the variables but they have used the data of single country. This study uses panel data analysis which capture a countries individual uniqueness behavior successfully incase more than one country is involved.

## DATA AND METHODOLOGY

The empirical relationship may be expressed as under:

$$Y_t = f(TO, FDI)$$

Where: Y = real GDP, TO = Trade Openness, FDI = Foreign Direct Investment.

Theoretically the relationship between trade openness and foreign direct investment with growth is positive. It depends on the efficiency and productivity of utilization of all factors. The study has utilized annual time series data on three variables over the period 1992-2012 of six developing economies of Southern Asia and Southern-Western Asia namely India, China, Malaysia, Thailand, Singapore and Korea. The dataset was compiled from UNCTAD official website and Eviews 6 was used to analyze the data. Brief introduction of variables includes:

- **Gross Domestic Product:** It is the market value of all officially recognized final goods and services produced within a country in a year, or other given period of time. GDP per capita is often considered an indicator of a country's standard of living. As economic growth is measured in terms of the annual percent change of gross domestic product (GDP), it has all the advantages and drawbacks of that measure.
- **Foreign Direct investment:** It is a direct investment into production or business in a country by an individual or company of another country, either by buying a company in the target country or by expanding operations of an existing business in that country. Entities making direct investments have a significant degree of influence and control over the company into which they have made investments. FDI is perhaps an important source of employment opportunities for developing countries. Open economies with skilled workforces and good growth prospects tend to attract larger amounts of foreign direct investment than closed, highly regulated economies.
- **Trade Openness:** Trade openness refers to the degrees to which countries or economies permit or have trade with other countries or economies. The trading activities include import and export, FDI, borrowing and lending, and repatriation of funds abroad. Open economies generally have greater market opportunities, at the same time they also face greater competition from businesses based in other countries. In terms of financial development trade openness enables a country to obtain funds from other countries, and also invest it's surplus funds in other countries.

## Estimation Methods

In order to examine the effect of Trade Openness and FDI on economic growth regression models using the ordinary least squares (OLS) method on cross-sectional data, pooled data

## Effect of Trade Openness and Foreign Direct Investment on Economic Growth: Evidence from Developing Economies of ASIA

and panel data have been employed. In a cross-sectional data, data on one or more variables is collected at the same point in time. A typical multiple regression equation is as follows:

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k + u \quad (1)$$

where,

'y' is the dependent variable,

' $x_1, x_2, \dots, x_k$ ' are the 'k' independent variables ,

$\beta_0$  (the constant term) is the intercept parameter of the regression line

$\beta_1 \dots \beta_k$  are the slope parameters which denote the partial effects of  $x_i$ s on y, holding all other factors constant, and u is the stochastic error or disturbance term.

In the present study, the indicators trade openness and FDI have regressed on the GDP.

In pooled data, data has elements of both time series and cross-section. Panel data is a special type of pooled data in which repeated measurements at different time periods on the same individual units such as persons, families, firms, cities, states, countries etc is considered. In a balanced panel data, all individual units are observed in all time periods. As panel data has both cross-sectional and time series dimensions, the general OLS regression model is:

$$y_{it} = \beta_0 + \beta_1 x_{it1} + \beta_2 x_{it2} + \dots + \beta_k x_{itk} + v_{it} \quad t=1,2,3,\dots,T \quad (2)$$

In the notation  $y_{it}$ , 'i' denotes the person, firm, city etc, and 't' denotes the time period. In the composite error term ( $v_{it}$ ) is composed of  $a_i$  and  $u_{it}$ . The  $a_i$  represents all unobserved, time-constant factors that affect  $y_{it}$  and is referred to as the unobserved effects, or fixed effects or unobserved heterogeneity while  $u_{it}$  represents unobserved factors that change over time and affect  $y_{it}$  and is called the idiosyncratic error or time-varying error. There are various ways of estimating the slope parameters ( $\beta_1, \beta_2, \dots, \beta_k$ ) of interest, depending upon the treatment of the unobserved effects ( $a_i$ ). In the fixed-effects (FE) model, the composite error ( $v_{it}$ ) comprises of  $a_i$  and  $u_{it}$ , out of which the unobserved effect, time-invariant error ( $a_i$ ) is permitted to be correlated with the explanatory variables ( $x_{itj}$ ) while the idiosyncratic error ( $u_{it}$ ) is assumed to be uncorrelated with explanatory variables ( $x_{itj}$ ). Further, it is assumed that the idiosyncratic error ( $u_{it}$ ) is homoskedastic and serially uncorrelated (across t). In fixed-effects model, the average of equation (2) for each 'i' is deducted from the equation (2) to get:

$$y_{it} - \bar{y}_i = \beta_1 (x_{it1} - \bar{x}_i) + \beta_2 (x_{it2} - \bar{x}_{i2}) + \dots + \beta_k (x_{itk} - \bar{x}_{ik}) + (u_{it} - \bar{u}_i) \quad t = 1, 2, 3, \dots, T$$

$$\ddot{y}_{it} = \beta_1 \ddot{x}_{it1} + \beta_2 \ddot{x}_{it2} + \dots + \beta_k \ddot{x}_{itk} + \ddot{u}_{it} \quad t = 1, 2, 3, \dots, T$$

Equation (4) is then estimated by pooled OLS and hence  $a_i$  is eliminated. Under fixed-effects model, any explanatory variable that is constant over time for all 'i' also gets swept away by the fixed effects transformation. Hence, explanatory variables which are constant over time (such as gender) need to be excluded from the fixed-effects model.

Under the fixed effects or the first-differencing models, the time constant error term ( $a_i$ ) is modeled as being correlated with the explanatory variables and is therefore eliminated away either by time-demeaning or first differencing.

However, in the random effects model (RE), it is assumed that  $a_i$  is purely random; a strong assumption implying that  $a_i$  is uncorrelated with the explanatory variables ( $x_{its}$ ). The advantage of the RE model is that it yields estimates of all coefficients and hence marginal effects, even those of time invariant explanatory variables. These estimates would, however, are inconsistent if the FE model is appropriate. However, as the time-constant error ( $a_i$ ) is included in the composite error ( $v_{it}$ ) in each time period, it ( $v_{it}$ ) is serially correlated across time i.e.

$$\text{Cov}(v_{it}, v_{is}) = \frac{\sigma_a^2}{\sigma_a^2 + \sigma_u^2}, t \neq s$$

where,  $\sigma_a^2$  is the variance in  $a_i$  and  $\sigma_u^2$  is the variance in  $u_{it}$ . This serial correlation in the error term may be substantial. The usual pooled OLS standard errors ignore this correlation and are therefore incorrect. This issue is resolved using the generalized least squares (GLS) transformation method, which eliminates serial correlation. Using GLS transformation, we have,

$$y_{it} - \lambda \bar{y}_i = \beta_0(1 - \lambda) + \beta_1(x_{it1} - \lambda \bar{x}_i) + \beta_2(x_{it2} - \lambda \bar{x}_{i2}) + \dots + \beta_k(x_{itk} - \lambda \bar{x}_{ik}) + (v_{it} - \lambda \bar{v}_i)$$

where,  $\lambda$  is the adjustment using the GLS transformation which quasi-demeans the data on each variable. While the fixed effects estimator subtracts the time averages from the corresponding variables, the random effects transformation subtracts a fraction of that time average, where the fraction depends upon  $\sigma_a^2$ ,  $\sigma_u^2$  and the number of time periods 'T'. The transformation allows for explanatory variables that are constant over time.

## RESULTS AND DISCUSSION

### 1. Descriptive Statistics

Table 1 summarizes the descriptive statistics on the Foreign Direct Investment, Trade Openness and Gross Domestic Product for the twenty one years under study. The skewness and Kurtosis is used to test whether the data is normally distributed or not. Skewness gives a measure of how symmetric the observations are about the mean. For a normal distribution the skewness is 0. Kurtosis gives a measure of the thickness in the tails of a probability density function. For a normal distribution the kurtosis is 3. The Jarque-Bera tests for normality. Consider testing the null hypothesis:

**H<sub>0</sub>: Normal distribution, skewness is zero and excess kurtosis is zero;**

**H<sub>1</sub>: Non-normal distribution.**

# Effect of Trade Openness and Foreign Direct Investment on Economic Growth: Evidence from Developing Economies of ASIA

**Table 1: Descriptive Statistics**

Measurements	LOGFDI	LOGGDP	LOGTO
Mean	3.945731	5.551617	1.986370
Median	3.929537	5.520738	1.970292
Maximum	5.093369	6.908183	2.648965
Minimum	2.401401	4.716098	1.273579
Std. Dev.	0.560739	0.499098	0.369490
Skewness	-0.009991	0.544846	0.100719
Kurtosis	2.729597	2.694505	2.049119
Jarque-Bera	0.385965	6.723974	4.959948
Probability	0.824496	0.034666	0.083745

For FDI and Trade Openness, the Jarque-Bera test statistic of 0.385965 and 4.959948 respectively does not exceeds the critical value at significance level of 5% (5.99) thus leads to the conclusion that the LogFDI and LogTO follow a normal distribution. Similarly, for GDP, the Jarque-Bera test statistic of 6.723974 exceeds the critical value at significance level of 5% (5.99) thus leads to the conclusion that the LogGDP does not follow a normal distribution.

## 2. Test for Heteroskedasticity

The first results of the Breusch-Pagan-Godfrey test for heteroskedasticity showed that the data was not homoskedastic. Therefore, the data of GDP which was also not normally distributed was tweaked and the test was again applied. The results showed that both the F test and the LM (obs\*R-squared of the auxiliary regression) conclude for the not rejection of the null of homoskedasticity.

**Table 2: Heteroskedasticity Test: Breusch-Pagan-Godfrey**

F-statistic	Prob. F(2,123)	0.0667
Obs*R-squared	Prob. Chi-Square(2)	0.0664
Scaled explained SS	Prob. Chi-Square(2)	0.1350

## 3. Pooled-OLS Regression

Further to analyze the relationship between TO, FDI and GDP by pooling in the data for the twenty one years and regressing the TO, FDI on GDP with a dummy variable representing the countries. The results of pooled OLS regression are presented in Table 3.

**Table 3: Pooled OLS regression estimates**

R-squared	0.729589
Adjusted R-squared	0.725192
F-statistic	165.9314
P value	0.0000
Durbin-Watson Statistic	0.168143

The Coefficient of determination  $R^2$  measure the explanatory power of the multiple regression model. There was good coefficient of determination (72.9 percent). The implication is that the variables in the equation are useful for explaining the impact of TO and FDI on GDP that has occurred from 1992 to 2012 in the panel of six countries. The F -statistic value was found to be 165.9314. The F value (.000) was significant at the 5 percent level. The overall fit of the regression model measured by the F -statistic, was statistically significant at this level. The Durbin Watson (DW) statistic of 0.168143 which was less than 2 indicates that there is no problem of serial correlation in the regression model. TO and FDI both were significant at 5% thus both have impact on GDP.

#### 4. Fixed Effects

Finally, the relationship between TO, FDI and GDP has been analyzed using the fixed effects model. To test which model will be applied we first applied fixed effect model then tested the redundancy of fixed effects model. After that we applied random effect model then test correlated random- Hausman test. The results of Hausman test suggested application of fixed effect.

**Table 4: Correlated Random Effects - Hausman Test**

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	21.296613	2	0.0000

The result of fixed effect model was shown below in table 5. The results showed that FDI has a significant impact on GDP while TO has not. The Coefficient of determination  $R^2$  measure the explanatory power of the multiple regression model. The results depict that there is a good coefficient of determination (88.6 percent). The implication is that the variables in the equation are useful for explaining the impact of TO and FDI on GDP that has occurred from 1992 to 2012 in the panel of six countries. The F -statistic value was found to be 131.2596. The F value (.000) was significant at the 5 percent level. The overall fit of the regression model measured by the F -statistic, was statistically significant at this level. The Durbin Watson (DW) statistic of 0.292663 which was less than 2 indicates that there is no problem of serial correlation in the regression model.

# Effect of Trade Openness and Foreign Direct Investment on Economic Growth: Evidence from Developing Economies of ASIA

**Table 5: Results of Fixed Effect Model**

Variables	Coefficient	Std. Error	t-Statistic	Prob.
LOGTO	-0.004175	0.002129	-1.960754	0.0523
LOGFDI	-0.002879	0.000544	-5.290194	0.0000
R-squared	0.886190			
Adjusted R-squared	0.879439			
S.E. of regression	0.001540			
F-statistic	131.2596			
Prob(F-statistic)	0.000000			
Durbin-Watson Statistic	0.292663			

## CONCLUSION

The study aimed to empirically estimate the effects of trade openness and FDI on growth of real output in India, China, Malaysia, Thailand, Singapore and Korea. The fixed effect panel least square results revealed that the Foreign Direct Investment has significant impact on GDP. Overall the study concluded that FDI has been one of the important and renowned features of the all these economies. FDI remained relatively greater over the past a few of decades as it adopted open market policies under regime of liberalization during the era of 1980s and 1990s. Therefore, the results of the study justified that in present scenario FDI is very important for economic growth of a country.

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## ANNEXURE

### 1. Pooled Regression

Dependent Variable: LOGGDP1				
Method: Panel Least Squares				
Sample: 1992 2012				
Periods included: 21				
Cross-sections included: 6				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.008569	0.001781	4.811696	0.0000
LOGTO	0.008818	0.000565	15.60296	0.0000
LOGFDI	-0.004000	0.000372	-10.74023	0.0000
R-squared	0.729589	Mean dependent var		0.010304
Adjusted R-squared	0.725192	S.D. dependent var		0.004436
S.E. of regression	0.002326	Akaike info criterion		-9.266165
Sum squared resid	0.000665	Schwarz criterion		-9.198635



# Effect of Trade Openness and Foreign Direct Investment on Economic Growth: Evidence from Developing Economies of ASIA

Log likelihood	586.7684	Hannan-Quinn criter.	-9.238730
F-statistic	165.9314	Durbin-Watson stat	0.168143
Prob(F-statistic)	0.000000		

## Fixed Effects

Dependent Variable: LOGGDP1				
Method: Panel Least Squares				
Sample: 1992 2012				
Periods included: 21				
Cross-sections included: 6				
Total panel (balanced) observations: 126				
LOGGDP1=C(1)+ C(2)*LOGTO+C(3)*LOGFDI+ C(4)*D2+ C(5)*D3+ C(6)*D4+ C(7)*D5+C(8)*D6				
	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.024480	0.002161	11.32926	0.0000
C(2)	-0.004175	0.002129	-1.960754	0.0523
C(3)	-0.002879	0.000544	-5.290194	0.0000
C(4)	0.001112	0.000595	1.869062	0.0641
C(5)	0.009969	0.001700	5.863609	0.0000
C(6)	0.007108	0.001277	5.567770	0.0000
C(7)	0.001174	0.000962	1.219708	0.2250
C(8)	0.013497	0.002131	6.333962	0.0000
R-squared	0.886190	Mean dependent var		0.010304
Adjusted R-squared	0.879439	S.D. dependent var		0.004436
S.E. of regression	0.001540	Akaike info criterion		-10.05222
Sum squared resid	0.000280	Schwarz criterion		-9.872134
Log likelihood	641.2896	Hannan-Quinn criter.		-9.979054
F-statistic	131.2596	Durbin-Watson stat		0.292663
Prob(F-statistic)	0.000000			

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# UNDERLYING FACTORS GOVERNING STATUTORY AUDITORS' INDEPENDENCE: AN EMPIRICAL ANALYSIS

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## ABSTRACT

*Statutory auditors authenticate 'truth and fairness' about the financial statements of a corporate enterprises and ensure its reliability to the stakeholders. Since financial decision of a large section of the society depends upon auditors' judgment, they should be independent in their professional duty. Regulatory bodies enforce certain regulatory pronouncements for their unbiased functioning. However, in recent cases of corporate failures, auditors failed to express accounting irregularities in financial books. According to investigators, such audit failure was completely due to their lack of independence from management.*

*Existing literatures identified several issues that positively or negatively impact statutory auditors' independence. A total of 15 such issues have been incorporated in a close ended structured questionnaire designed on a Likert 5 point scale and a primary survey is administered in the city of Kolkata, West Bengal. Respondents from six occupational categories selected based on convenience sampling technique have participated in this research. Based on 601 valid responses, this study conducts an Exploratory Factor Analysis to identify the underlying factors that govern statutory auditors' independence. Significant difference of opinion among occupational groups for the extracted factors has been tested using one way Analysis of Variance. Tukey's Honestly Significant Difference test group individual occupational categories into homogenous subsets based on significant mean difference between each pair of occupational groups. Factor Analysis extracts 6 major factors. The result of one way ANOVA suggests occupational groups have significant difference of opinion for the extracted factors. Tukey's HSD test statistically shows exactly which occupational categories are showing similar line of thought and the opinion of most of the occupational groups for a particular factor. Finally, this study summarises our findings and provides certain recommendations to improve statutory auditors' independence.*

**Keywords:** Statutory Auditors' Independence, Exploratory Factor Analysis, one way ANOVA, Tukey's HSD Test

## INTRODUCTION

Shareholders of a corporate enterprise appoint statutory auditors to attest financial statements. Auditors express their opinion on 'true and fair' view of working affairs of the business based on

such statements (Gupta, 1999). The stakeholders treat an audited financial statement as genuine and dependable and they depend on auditors' opinion while taking their financial decision. Effective audit is possible, only when statutory auditors are independent from management or any other third party. As per Code of Ethics for Professional Accountants issued by International Ethical Standard Board of Accountants (IESBA) under International Federation of Accountants (IFAC), an independent statutory auditor should avoid circumstances that do not permit him to perform his role with integrity, objectivity, professional scepticism and professional judgement. In India, Chartered Accountants (CAs) perform the role of statutory financial auditors in Indian companies. Professional institutes and other regulatory bodies [e.g. Institute of Chartered Accountants of India (ICAI), Ministry of Corporate Affairs (MCA), and Securities Exchange Board of India (SEBI) etc.] ensure their independence (Ghosh, 1999) through certain regulatory pronouncements [e.g. Code of Ethics for Professional Accountant, Standards on Auditing, Standard on Quality Control, Companies Act, 2013, Listing Requirements etc.](Bakshi, 2000). Management of a corporate enterprise often resort to fraudulent techniques to escalate their financial result and stay ahead in the competition. It sometimes calls for the company's demise causing disastrous consequences for the country's economy and a huge section of the society. In recent cases of such corporate failures [e.g. Enron Corporation Ltd. (USA, 2001); Parmalat SpA (Italy, 2002), Satyam Computer Services Ltd. (India, 2009) etc.], statutory auditors failed to detect and report accounting irregularities in the financial statement (Banerjee, 2011). Stakeholders who depended on statutory auditors' report also suffered a great deal of loss. Ensuing investigation in each of these cases proved that such audit failures are the reason of absolute lack of independence of statutory auditors. Integrity and ethical responsibility of the entire accounting and auditing profession is also seriously questioned on several occasions (Copeland, 2005). In this backdrop, this empirical paper, based on primary data, seeks to unearth the underlying factors that govern statutory auditors' independence, test difference of opinion among different occupational groups on these underlying factors, and group them in homogenous subsets based on their individual line of thought.

## **REVIEW OF LITERATURE**

Recent cases of corporate failures and statutory auditors' involvement in them instigated a great deal of concern among notable scholars all over the world and they conducted their research in this field and identified certain issues that positively or negatively affect statutory auditors' independence in an audit engagement.

Frier (2005) in his study recognised the significance of statutory auditors' independence in ensuring utility of financial statement. Thibodeau and Freier (2010) in their book discussed professional responsibilities of statutory auditors in recent American corporate scandals. Fearnley et. al. (2005) identified the factors that positively or negatively affect statutory auditors' independence in a professional engagement. Roussouw et. al. (2010) and Bakshi (2000) believed that the current regulatory framework was adequate and their effective implementation would safeguard statutory auditors' independence. However, Gowthrope and Blake (1998) and Rao (2009) were of different views. They did not think the current regulation is adequate and effective result can be achieved through its constant modification in line with international requirement. Ghosh (1999) in his perception based study concluded that appointment procedure

has a huge influence on statutory auditors' independence. Beaulieu and Reinstein (2006), in their research paper, recognised non-audit services performed by statutory auditors to be one important factor of their independence. Godbole (2004) in his study strongly advocated the need of Audit Committee as a safeguard to statutory auditors' independence. He also cited the need for an oversight body in Indian scenario. A strong disciplinary framework proposed by Bakshi (2000) not only enforced existing regulations but also encouraged an auditor to abide by letters of law and maintain their independence. Gerotra and Baijal (2002) enumerated the present framework of audit inspections and examined their effectiveness in the backdrop of global scenario. Curtis (2008) has contributed his thoughtful opinion on effectiveness of recent forensic audit mechanism in safeguarding statutory auditors' independence.

### **RESEARCH GAP**

Significant gaps identified in literatures surveyed are pointed out as follows:

- Empirical researches in this field are less;
- Research studies reviewed so far only considers opinion of statutory auditors;
- None of the studies reviewed so far, unearthed the underlying factors governing statutory auditors' independence;
- Analysis of significant difference of opinion among occupational groups for the extracted factors is also very rare in literatures surveyed;
- None of the literatures reviewed took an attempt to group occupational categories into homogenous subsets based on their significant mean differences for extracted factors.

### **OBJECTIVES OF THE STUDY**

The major objectives of the study have been taken into consideration are as follows:

- To identify certain variables that influence statutory auditors' independence in an audit engagement [Refer to Section VI];
- To extract factors based on select variables that govern statutory auditors' independence [Refer to Section VII (C)];
- To analyse significant difference of opinion among occupational categories for extracted factors [Refer to Section VII (D)];
- To group occupational categories into homogenous subsets based on significant mean differences for extracted factors [Refer to Section VII (E)]

### **LIMITATIONS OF THE STUDY**

This study has following limitations:

- Impact of the select variables on statutory auditors' independence and their relative significance is not analysed using regression analysis.
- Ethical responsibility of statutory auditor which also an important determinant of overall audit quality, is not considered in this present study.

### **RESEARCH METHODOLOGY**

The study was exploratory in nature. It was an attempt to evaluate the application of discounting techniques for making an investment decision. The population of the study included Chartered accountants, Cost and Management Accountants, academicians, students pursuing post graduation (Chartered Accountancy final course), retail investors, correspondents from

Institutional Investing companies (End recipient of statutory auditors' work), and Corporate Executives from accounts or finance department of large public or private sector entities (Interact with statutory auditors during professional engagement) in KolKata region. Sample size of 601 respondents was taken in to consideration. Convenience sampling technique (Ho, Ong & Seonsu, 1997) was used for collecting the data. The survey period of the study was of two and a half years. Data was collected from both primary and secondary sources. These included books, journal articles, newspaper articles, legislations. Standardised Questionnaire of Kothari, 2010 was used to yields results in the study. Tools used for data analysis were:

1. Exploratory Factor Analysis was used to extract underlying factors and group select variables in extracted factors.
2. One way ANOVA and Welch's Test was used to test significant difference of opinion among occupational groups for extracted factors.
3. Tukey's HSD Test was used to group occupational categories into homogenous subsets based on their significant difference of mean for each factor.

### Independence in Statutory Audit Engagement: Identification of Variables

Literatures reviewed identified certain pertinent issues that positively or negatively influence statutory auditors' independence in an audit engagement. Here, we present few of those variables considered for our primary survey.

**Table 1: Variables for Primary Survey**

Variable No.	Variables Identified
V <sub>1</sub>	Lack of Enforceability of Regulatory Framework
V <sub>2</sub>	Management Influence on Appointment Procedure
V <sub>3</sub>	Appointment by Independent Authority
V <sub>4</sub>	Long Association between Statutory Auditor and Client
V <sub>5</sub>	Rotation of Statutory Auditor
V <sub>6</sub>	Limit to Economic Dependency
V <sub>7</sub>	Relationship with Management
V <sub>8</sub>	Provision for Non-Audit Services
V <sub>9</sub>	Prohibition of Non-Audit Services
V <sub>10</sub>	Strong Disciplinary Framework
V <sub>11</sub>	Strengthening Audit Committee
V <sub>12</sub>	Amendment in Company Law
V <sub>13</sub>	Effectiveness of Peer Review Committee
V <sub>14</sub>	Establishment of Oversight Authority
V <sub>15</sub>	Introduction of Forensic Audit

As stated earlier, ICAI, MCA, SEBI and their regulatory pronouncements constitute the regulatory framework for statutory auditors. Appointment of statutory auditors, their tenure of service, remuneration, relationship with management members and provision for non-audit services are governed by these regulations. These regulations also recognise the need of an independent

Audit Committee as a safeguard to statutory auditors' independence. Presence of a strong disciplinary framework instituted by Disciplinary Committee of Council of Chartered Accountants of India and audit inspection performed by Peer Review Committee of the same council enforces regulatory pronouncements for statutory auditors. Recent Companies Act, 2013 guides statutory auditors in line with global requirement. This act also proposed establishment of National Financial Reporting Authority (NFRA) as an oversight body for statutory auditors. Recently, emergence of forensic audit in Indian corporate environment is expected to bring more effectiveness in statutory audit process and make statutory auditors more independent from management.

### Empirical Analysis of Respondents' Perception

Variables identified in Table 1 are incorporated in a structured questionnaire. Degree of agreement of the respondents on impact of each of these variables on statutory auditors' independence has been collected in a Likert 5 point scale. A total of 601 complete responses are used for our empirical analysis.

#### A. Demographic Profile of Respondents

A brief demographic profile of the respondents who participated in this current study is shown in the following table:

**Table 2: Demographic Profile of Respondents**

Demographic Profile Based on Gender											
Male			%			Female			%		
522			86.9			79			13.1		
Demographic Profile Based on Age											
Young (Age less than 30 years)		%	Middle Aged (Age between 30 and 50 years)			%		Experienced (Age more than 50 years)		%	
194		32.3	279			46.4		128		21.3	
Demographic Profile Based on Occupation											
CAs	%	CMAs	%	Academicians	%	Students	%	Investors	%	Corporate Executives	%
101	16.8	94	15.6	111	18.5	118	19.6	86	14.3	91	15.1

**Source: Compilation of Primary Data using SPSS**

Most of the respondents of our current research are male. There is a balanced participation of respondents from different occupation with varied levels of experiences.

#### B. Measuring Reliability of Scale

Internal consistency and reliability of the scale used for this present study is tested using Chronbach's alpha (Chronbach, 1951). The alpha value ranges within 0.0 to 1.0. If alpha value is more than .6, we may say that the scale is internally consistent and reliable (Nunnally, 1978). In our analysis, alpha value is calculated as .677. Therefore, we can conclude that the scale is internally consistent and reliable and the data does not suffer from sampling bias.

### C. Empirical Analysis using Exploratory Factor Analysis (EFA)

#### *Extraction of Underlying Factors Governing Statutory Auditors' Independence (Refer to Table 3)*

In EFA, variables which have high correlations among themselves are grouped into individual factors (Tacq, 1996). **Factor Analysis Model** (Malhotra, 2003)

$$X_i = A_{i1}F_1 + A_{i2}F_2 + \dots + A_{im}F_m + V_iU_i$$

Where,

$X_i$  = ith standardised variable

$A_{ij}$  = standardised multiple regression coefficient of variable i on common factor j

F = common factor

$V_i$  = standardised regression coefficient of variable i on unique factor i

$U_i$  = the unique factor for variable i

m = number of common factors.

On the basis of the above model, we conduct EFA through following steps:

- Factors are extracted based on Principle Component Method (Hotelling, 1933). Number of factors is decided based on Eigen value.
- The components with Eigen value more than 1 are considered as extracted factors. In our present study, 6 factors are identified based on this rule.
- Now, for grouping individual variables under extracted factors, factors loadings in Component Matrix are rotated based on Orthogonal Rotation Technique with Varimax Method and Kaiser Normalisation with 7 iterations (Kaiser, 1958).
- This gives us Rotated Component Matrix. Select variables are grouped into extracted factors based on this matrix.
- Grouping of variables in the extracted factors along with their respective rotated factor loadings are shown in the following table.
- Factors are named in accordance with the variables grouped under them.(Shown in Table 3)

**Table 3: Grouping of Variables in Extracted Factors**

Variable No.	Variable Name	Rotated Factor Loading with Extracted Factors	Factor Number	Factor Name based on Variables Grouped	Eigen Value	Percentage of variance explained (%)
V <sub>8</sub>	Provision for Non-Audit Services	.817	1	Impact of Non-Audit Services	2.776	18.510
V <sub>9</sub>	Prohibition of Non-Audit Services	.858				
V <sub>4</sub>	Long Association between Statutory Auditor and Client	.828	2	Nexus with the Management	1.607	10.714
V <sub>5</sub>	Rotation of Statutory Auditor	.879				
V <sub>11</sub>	Strengthening Audit Committee	.674	3	Influence of Monitoring Bodies	1.351	9.010
V <sub>13</sub>	Effectiveness of Peer Review Committee	.674				
V <sub>15</sub>	Introduction of Forensic Audit	.648				
V <sub>2</sub>	Management Influence on Appointment Procedure	.842	4	Mode of Appointment of Statutory Auditors	1.239	8.259
V <sub>3</sub>	Appointment by Independent Authority	.711				
V <sub>12</sub>	Amendment in Company Law	.794	5	Amendment in Regulatory Framework in Line with Global Scenario	1.100	7.333
V <sub>14</sub>	Establishment of Oversight Authority	.780				
V <sub>1</sub>	Lack of Enforceability of Regulatory Framework	.538	6	Current Regulatory Structure and Client Relationship	1.015	6.764
V <sub>6</sub>	Limit to Economic Dependency	.463				
V <sub>7</sub>	Relationship with Management	.655				
V <sub>10</sub>	Strong Disciplinary Framework	.552				
	Total Variance Explained					60.59

(Source: Compilation of Primary Data using SPSS)



## FINDINGS

- Number of dimensions governing statutory auditors' independence reduced to 6 factors from initially selected 15 variables.
- Extracted factors cover different important areas governing statutory auditors' independence.
- Overall factor model explains a satisfactory proportion of total variance.

### D. Empirical Analysis using one way Analysis of Variance (ANOVA) and Welch's Test

#### Testing Significant Difference of Opinion among Occupational Categories for Extracted Factors

##### ♦ One way ANOVA (Refer to Table 4)

Factor scores calculated for individual observations for each extracted factors are used for analysing significant difference of opinion among occupational categories. In this present study, samples are drawn from 6 different occupations. Significant difference of opinion among them can be tested based on population means of the sample selected.

#### *Hypothesis--1*

$H_0$ : Population means of the occupational categories are same.

$H_1$ : Any of this equality does not hold good.

If  $H_0$  is accepted, we conclude no significant difference of opinion exists and occupation has no significant influence on respondents' opinion on extracted factors. The opposite is true is  $H_0$  is rejected (Driscoll, 1996). One way ANOVA can be performed to test aforesaid hypothesis. The test statistics of one way ANOVA is F. It is calculated as follows:

$$F = \text{Mean Squared (MS)}_{\text{Between}} / \text{MS}_{\text{Within}}$$

MS Between = Sum of Squared Variance (SS) between/ (k-1) where k is number of sample = 6

MS Within = SS Within/ (N-k) where N is number of observations = 601

SS between =  $\sum_{j=1}^c n_j (\bar{Y}_j - \bar{\bar{Y}})^2$  Where,  $\bar{Y}_j$  = mean for category j &

$\bar{\bar{Y}}$  = mean over the whole sample or grand mean

SS within =  $\sum_j \sum_i^n (Y_{ij} - \bar{Y}_j)^2$  Where,  $Y_{ij}$  = ith observation in the jth category and  $\bar{Y}_j$  = mean for category j

At 5% level of significance and (N-k, k-1) df, if the probability (p-value) of F is less than .05, we reject  $H_0$  and vice versa.

##### ♦ Welch's Test (Refer to Table 4)

With a view to analysing significant difference of opinion among occupational categories for the extracted factors we also conduct a robust test of equality of means which is applicable even when population variances are not homogenous.

**Hypothesis—2**

$H_0$ : Population means of occupational categories are equal;

$H_1$ : Population means of occupational categories are not equal.

Welch's Test is conducted to analyse aforesaid hypothesis for all the extracted factors. Welch's statistic follows t distribution. At 5% level of significance and degree of freedom approximated using Welch – Satterthwaite equation (Welch, 1947), if the p-value of Welch's statistics is less than .05, we reject  $H_0$  and vice versa.

**Table 4: Result of One Way ANOVA and Welch's Test**

Factor	Name	F	P-value	Decision Rule	Decision on Acceptance or Rejection of $H_0$	Welch's Statistics	P-value	Decision Rule	Decision on Acceptance or Rejection of $H_0$
1	Impact of Non-Audit Services	8.86	.000	P-value < .05	Rejected	10.55	.000	P-value < .05	Rejected
2	Nexus with the Management	9.50	.000	P-value < .05	Rejected	8.56	.000	P-value < .05	Rejected
3	Influence of Monitoring Bodies	29.03	.000	P-value < .05	Rejected	29.75	.000	P-value < .05	Rejected
4	Mode of Appointment of Statutory Auditors	8.56	.000	P-value < .05	Rejected	8.58	.000	P-value < .05	Rejected
5	Amendment in Regulatory Framework in Line with Global Scenario	5.93	.000	P-value < .05	Rejected	5.40	.000	P-value < .05	Rejected
6	Current Regulatory Structure and Client Relationship	3.27	.006	P-value < .05	Rejected	3.86	.002	P-value < .05	Rejected

(Source: Compilation of Primary Data using SPSS)

**Findings of One way ANOVA**

As  $H_0$  is rejected for all the factors, we can infer that significant difference of opinion exists among occupational categories for all the extracted factors and occupation has significant influence on the opinion of respondents.

### Welch's Test

Welch's test is a robust test of equality of means. It does not consider the assumption of homogeneity of population variance. As  $H_0$  is rejected for all the factors, we can deduce that respondents from different occupations are different for all the extracted factors.

### Final Inference

Welch's test supplements our result of one way ANOVA. The decision of rejecting  $H_0$  for all the extracted factors is supported by both these tests. Therefore, we can conclude with reasonable certainty that significant difference exist among occupational groups for all the extracted factors.

### E. Empirical Analysis using Tukey's HSD Test

#### *Grouping Individual Occupational Categories into Homogenous Subsets*

In our discussion on one way ANOVA, we have seen significant difference exists among occupational categories for all the factors. But exactly which occupational category/ categories are significantly different from others could not be identified. For this reason, we conduct Tukey's HSD test which is a post hoc test of one way ANOVA. Factor scores calculated for individual observations for each extracted factors are used for this test.

#### **Steps for conducting Tukey's HSD Test**

- ◆ Means of each occupational category are calculated based on factor scores of individual observation for all the extracted factors.
- ◆ Mean difference between each pair of occupational categories for each extracted factor are calculated.
- ◆ At 5% level of significance, if the p-value of mean difference for a pair is less than .05, we infer that, these two occupational categories have significant mean differences, hence should be grouped in different subset. Likewise, if the p-value for a particular pair of occupational category is greater than .05, we deduce that their mean difference is not statistically significant; hence they should be grouped in the same subset.
- ◆ In this way, for each factor, we can construct few homogenous subsets, containing one or more than one occupational categories (Neter, 1996).
- ◆ Now, opinion of a particular occupational category belonging to a particular subset can be known from its mean value. Mean value higher the average factor score shows inclination of the occupational category towards that factor and vice versa.
- ◆ In EFA, factor scores calculated based on regression method typically has an average of zero. If the occupational category has a mean value higher than 0, it shows its inclination towards that factor and vice versa (DiStefano et. al., 2009).
- ◆ In this way, we can identify exactly which occupational categories share similar line of thought for an individual factor and their respective mean values show their opinion about the factor.

Homogenous subsets formed with occupational categories for each individual factor, their individual observation about each factors and inferences drawn are shown in the following table.

**Table 5: Homogenous Subsets of Occupational Categories with their Group Means**

F <sub>1</sub> : Impact of Non-Audit Services						
Group 1	Group 1 and 2	Group 1, 2 and 3		Group 2, 3, and 4	Group 3 and 4	Group 4
CAs (-.424)	Investors(-219)	CMAs (-.106)		Corporate Executives (.119)	Academicians (.208)	Students (.319)
F <sub>2</sub> : Nexus with Management						
Group 1	Group 1 and 2	Group 2 and 3			Group 3	
CAs (-.435)	Students (-.204)	CMAs (.013)	Academicians (.089)		Investors (.246)	Corporate Executives (.394)
F <sub>3</sub> : Influence of Monitoring Bodies						
Group 1	Group 2		Group 3			
CAs (-.817)	CMAs (-.345)		Investors (.129)	Corporate Executives (.151)	Academicians (.383)	Students (0.401)
F <sub>4</sub> : Mode of Appointment of Statutory Auditors						
Group 1		Group 1 and 2		Group 2 and 3		Group 3
Corporate Executives (-0.326)	Students (-.279)	Investors (-.144)		CMAs (.162)		Academicians (.251) CAs (.315)
F <sub>5</sub> : Amendment in Regulatory Framework in Line with Global Scenario						
Group 1	Group 1 and 2			Group 2		
Corporate Executives (-.461)	Investors (-.064)			CAs (-.036)	Academicians (.107)	Students (.184) CMAs (.187)
F <sub>6</sub> : Current Regulatory Structure and Client Relationship						
Group 1			Group 1 and 2			Group 2
Corporate Executives (-.159)	CAs (-.125)	Students (-.119)	Investors (-.007)	CMAs (.100)		Academicians (.292)

## Findings of Factor Analysis

### F<sub>1</sub>: Impact of Non-Audit Services

- CAs and Students belong to two distinct groups where, CAs do not think non-audit services are an important factor of statutory auditors' independence. However, students have a positive attitude to this factor.
- Other occupational groups fall between them, with Investors more inclined with CAs' view and Academicians more inclined towards Students' view.

Opinion of majority of respondent groups cannot be identified from such distribution

### F<sub>2</sub>: Nexus with Management

- CAs who do not think nexus with management to be an important factor significantly differ from Investors and Corporate Executives.
- Students, CMAAs and Academicians fall in between with Students more inclined to CAs view and CMAAs and Academicians more inclined towards the views of Investors and Corporate Executives.

None of the homogenous subsets contains absolute majority of respondent categories

### **F<sub>3</sub>: Influence of Monitoring Bodies**

- Three distinct groups with significant difference.
- First group contains CAs who do not think bodies and association influence audit process.
- Second subset contains CMAs who also have similar views like CAs but with lesser degree.
- Third group contains Investors, Corporate Executives, Academicians and Students who believe these bodies have significant influence on audit process which ultimately influences auditors' independence. This factor is important as it is supported by majority of occupational categories.

### **F<sub>4</sub>: Mode of Appointment of Statutory Auditors**

- Three distinct groups.
- First group contains Corporate Executives and Students who do not think mode of appointment impact auditors' independence.
- Third group contains Academicians and CAs who have a different view.

In between these two groups, there are Investors and Academicians. Investors are more inclined to the members of Group 1 and Academicians are more inclined to the members of Group 3.

### **F<sub>5</sub>: Amendment in Regulatory Framework in Line with Global Scenario**

- Two distinct groups.
- First group contains Corporate Executives who do not think amendment in regulatory framework in line with global scenario would improve statutory auditors' independence.
- Second group contains CAs, Academicians, Students and CMAs who have a different view.
- Investors lies between these two groups.

This factor is really important, as 4 out of 6 occupational categories have shown positive attitude towards it.

### **F<sub>6</sub>: Current Regulatory Structure and Client Relationship**

- Two distinct groups.
- First group contains Corporate Executives, CAs and Students who do not think current regulatory structure and client relationships are important factor of statutory auditors' importance.
- Second group contains only Academicians who have a different view on this issue.
- In between them there lie Investors and CMAs.

This factor is not considered to be important as Group 1 containing highest number of occupational categories show negative attitude to this factor. (Source: Compilation of Primary Data using SPSS)

## **CONCLUSION**

This study critically reviews several literatures and identifies some important variables that influence statutory auditors' independence. A total 601 respondents from different occupation with varied level of experience have participated in this research. The scale used for data collection is internally consistent and reliable. EFA extracted 6 factors governing statutory auditors' independence - Non-Audit Services, Nexus with Management, Influence of Monitoring Bodies, and Mode of Appointment, Amendment in Regulatory Structure, and Current Regulatory Framework and Client Relationship. One way ANOVA shows significant difference of opinion

exists among occupational groups for extracted factors. Tukey's HSD test shows, Nexus with Management and Influence of Monitoring Bodies are really important factor as majority of occupational categories have positive attitude towards them. Likewise, majority of occupational groups also consider Current Regulatory Framework and Client Relationship to be a less important factor. For the opinion on factors like Non-Audit Services, Influence of Monitoring Bodies and Current Regulatory Framework, statutory auditors significantly differ from academic community. For all other factors, a significant difference is observed among statutory auditors and corporate personnel. A collective effort by regulatory authorities, corporate enterprises and academic community to improve statutory auditors' independence keeping in mind findings of this study, would ultimately protect stakeholders' interest.

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## Underlying Factors Governing Statutory Auditors' Independence: An Empirical Analysis

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# VALUATION PITFALLS: THEORETICAL PRESCRIPTIONS, ACCOUNTING CONTRADICTIONS AND EXPERIMENTAL EVIDENCE

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## ABSTRACT

*Nowadays it is prominent to see the use of capital budgeting methods by accountants for evaluating long term investment decisions as it is an important consideration towards value maximising principle. The decisions to be taken are appraised by using two techniques namely discounted and non- discounted. This implies the use of time value of money concept when taking a decision. The present study is an attempt to evaluate the effectiveness of discounting techniques and to analyse that users should understand the implicit assumptions of the valuation models. The investigation of results found that application of methods should be based on the assumptions required by the investment proposal. This study explains the importance of industrial reality which would help in taking effective these kinds of decisions.*

**Keywords:** NPV, Cash flows, Discounting principles, Cost of capital, Time value of money

## INTRODUCTION

NPV is nothing but a different vocabulary for the economic concept of income, which arise from the increased value of an investment. The economic concept of income is based on Hick's definition of income as 'the amount which a man can consume during a period and still remains as well off at the end of given time as he was at the beginning (Hicks, 1950). It is a measure of real income and independent of the changes in the value of money.

Being as well off refers to maintaining aggregate initial capital intact in terms of Present Value (discounted value) and avoiding capital erosion. As per economic definition, income accrues as soon as there is an increase in the value of an asset. According to this concept, value of an asset depends on the income (stream of future inflows) it generates, not on revaluation. Thus, the value of an asset is obtained from the sum of the PVs of future stream of earnings as shown in expression (I) above. Here income represents the excess over the initial stock of assets. When there is accretion in the total value, i.e., real capital, so measured, it is said to have generated income as per economic concept of income.

There is nothing wrong in the economic concept of income except that its computation is based on the implicit assumptions of monetary economics. Compared to it, accounting income is an objective estimate. Its calculation is based on prescriptions of accounting standards and relevant principles. So, accounting income once computed can be verified and audited in the light of accounts and documents connected herewith.



Everybody understands that if an organization keeps accounts in cash basis and accrual basis simultaneously, results obtained from two system of accounting will never be identical, but different. Likewise, if an industrial organization applies the both approaches to income, viz., economic approach to income and 'accounting approach to income' simultaneously, discrepancies are sure to be manifested at a point. Now it is transparent that estimates obtained from valuations models are virtual estimates of 'economic income', while estimates obtained from books of accounts are estimates of 'accounting income'. Any business using both methods will be confronting a confusing situation at point of time. Following paragraphs are giving some experimental evidences in support of such confusions, which make the management bewildered at a point.

### **Valuation Model and Reality: The Experimental Evidences**

The arguments in support of discounting, valuation and 'intrinsic value' are indeed sound, but theoretical, whereas everyday business is all practical, real and operational. Discounting gives a projected index of a theoretical gain. Even if the projected values of all variables of the model are exactly achieved at the destined hours, there is no guarantee that the business will finish with the projected value addition as obtained from the valuation model. This is because of the differences between 'normal practice of accounting' and 'economics of discounting'. It is not possible to make a business comply with the stringent conditions implicit in the logic of discounting.

The point to which the most of the evaluators are unmindful is that discounting presupposes fulfilment of the conditions that cash inflows are certain to occur at the specific time and there exists a perfect capital market (Horngren, Sundem and Stratton, 2002). The second condition is to ensure that inflows received are immediately used to repay the lenders or the same is deployed in another investment at similar rate of return. This is possible only in a perfect (theoretical) market, where there are numerous investment opportunities. Since there is no perfect capital market, discounting evaluations are inapplicable. If an ambitious accountant embarks upon the use of DCF model, giving no attention to the preconditions mentioned above, he is sure to throw the business into a financial black hole. Following example shows how a positive NPV can eventually get manifested into unnoticed capital erosion.

### **REVIEW OF LITERATURE**

The basic approach in a valuation model is based on the comparison of benefits and costs in terms of time value of money. Since all benefits and costs don't occur at a defined point of time, so, there is a necessity of introducing the concept of time value of money, which is used for expressing all benefits and costs of different period into equivalent constant dollar of a given time. In some valuation models such as NTV (Net Terminal Value), benefits and costs are expressed into constant dollars of a given future terminal date. However, the majority of analysts and CFOs have developed the practice of expressing the benefits and costs into present value equivalents, i.e., dollars of time  $t_0$ . Money is endowed with the productive power. It is also an important factor of production. These two points make a dollar in hand worth more than a dollar to be received in future. A dollar to be received in future has lower worth than a dollar in hand today.

A dollar to be received in distant future has lower worth than a dollar to be received in near future. This translation of a future dollar into a dollar of today at  $t_0$ , is made through the mechanism of discounting of future earnings.

This mechanism of discounting, as used in determining the present value equivalents of future costs and benefits has made the Fundamental Valuation Model mathematically complex in its format. Say,  $C_1, C_2, C_3, \dots, C_n$ , etc. are the cash inflows of first year, second year and so on till the  $n^{\text{th}}$  year. If the discounting rate is  $r$ , the right hand side of expression (I) shows the sum of discounted values of the future cash inflows. In investment vocabulary this sum of discounted inflows is defined as the Present Value (PV) of the inflows as shown in expression (I) below

$$PV = \frac{C_1}{(1+r)} + \frac{C_2}{(1+r)^2} + \frac{C_3}{(1+r)^3} + \dots + \frac{C_n}{(1+r)^n} \quad \dots (I)$$

Present value of the future stream of inflows arising from a financial asset is treated as the Intrinsic Value of the financial asset. When Intrinsic Value is higher than market value, general guidelines of Investment Theory recommend a buy. Alternatively, when the Intrinsic Value is lower than market value, general guidelines of Investment Theory recommend a sell. In Capital Budgeting the Intrinsic Value, i.e., Present Value of future cash inflows is compared with the cost of investment. Net Present Value (NPV), the excess of Intrinsic Value over the investment cost  $C_0$ , is usually computed as a single index as below for arriving at final investment decision.

$$NPV = \frac{C_1}{(1+r)} + \frac{C_2}{(1+r)^2} + \frac{C_3}{(1+r)^3} + \dots + \frac{C_n}{(1+r)^n} - C_0 \quad \dots (II)$$

Net Present Value (NPV), as obtained from the valuation model above, is treated as the index of absolute value addition. The index so obtained from this Fundamental Valuation Model indicates how much value an investment is going to add to investor's wealth. There is considerable agreement in the literature on the theoretical merit of using NPV method for appraisal of an investment proposal.

Since the message of value addition as obtained from the valuation model is in conformity with the proposition of wealth maximization, investors, corporate houses and financial consultants depend too much on this model in the analysis of numerous finance decisions. Authors like Pike and Neale (1996), Brealey and Myers C (2003), Van Horne and Wachowicz (2001) advocated in favour of increased use of NPV method for evaluation of financial decisions. To Prasanna (2002) NPV is conceptually unassailable.

The apparent logic of valuation model and Net Present Value is so good that accountants did not think it necessary to raise any doubt or question its applicability. Researchers (Jain, Jain and Tarde, 1995; Shivaswamy M.K, 2000; Kim et al, 1988; Prabhakar, 1996) in their research papers observed a rising trend in adopting DCF and NPV in investment decision-making. These scholars greatly described the gradual increase in the use of DCF and NPV as a move towards scientific

evaluation. Ryan & Ryan (2002) in a similar study over Fortune 1000 companies did confirm that NPV is preferred over all other methods of investment evaluation.

The point is that when almost 100 percent firms use valuation models (Kester and Geraldine, 2011) for assessing merits of their investment proposals, then even after accepting financially certified investments, why do the investors experience a downward correction in the price of their financial assets and investments? People, in general, think that the decrease in the projected payoffs of the investment as the only reason for the decline. This paper argues that even when predicted payoffs remain unchanged, value may experience a decline while investors fail to comply with restrictive assumptions of the model. The following paragraphs present some experimental evidences to clarify the points.

### OBJECTIVES OF THE STUDY

The corporate houses are under the compulsion of keeping accounts as per the Accounting Standards and business norms. Accountants agree to the point that contingencies and corresponding provisions for them are natural in everyday business; hence, they prescribe guidelines for their accounting treatment and reporting. However, the valuation models are silent about such eventualities and their corresponding treatment. The fact is that the fundamental models are based on unrealistic assumptions of abstract perfect market, which is thoroughly conceptual, not operational in any sense in this real life industrial world. Many accountants, without knowing their limitations, place undue reliance on these models. One adverse consequence of using such models, without taking care of the limitations, is unnoticed erosion of wealth. Once the erosion comes to the investors' notice, it creates a panic and makes stock price tumble in the market. The objective of the paper is to show how in a hidden way erosion of wealth occurs in a business as a consequence of using the valuation models without taking care of their limitations.

### METHODOLOGY

The study is based on both descriptive and analytic approaches. As a part of analytic approach experimental cases have been used. These cases are numerical as well as mathematical, which have been analysed from background of the Accounting Theory and Fundamentals of Economics. In appropriate places numerical examples have been used to verify the points and making the understanding clear and simple.

### A NUMERICAL EXAMPLE: SHOWING THE PITFALLS

Three years back on 1<sup>st</sup> January 2011 Mr. X, a trader, planned to launch Project B. Pay offs of the Project has been given in Table. 1 as shown below:

**Table. 1: Cash Flows of Project B**

Year	0	1	2	3
Cash Flow ( \$ ml)	- 300	100	126	202

A bank agreed to supply required initial capital of \$300 million at 15.4% p.a. Payment of loan in equal annual installment was not possible, because to repay \$300 million in three years at 15.4% the required annuity appeared \$132.6 million. Since cash inflows in the first two years were less than \$132.6 million, the trader made the agreement that interest would be payable every year. Principal would be returned fully finally at the end of third year. This would make liquidity position look better over the period.

To appraise the profitability of the project, the trader computed NPV at 15.4%. Computation of NPV indicated that the trader was about to make a real value addition of \$12.70 million. Calculation of NPV has been shown in Table 2 given below

**Table 2: Computation of NPV of Project B**

*(Figures are in \$ million)*

Year	Cash flows	Discounting Factor at 15.4 %	Discounted Cash inflow
0	- 300	1	-300
1	100	0.8665	86.65
2	126	0.7509	94.61
3	202	0.6507	131.44
NPV			12.70

The project started at due time. Everything worked according to the forecasts. But when business period of three years became over on 1<sup>st</sup> January 2014, the trader observed that he was saddled with real capital erosion of \$10.60 million. There was nothing to substantiate that he had made any gain. He checked his three years' accounts and noticed that he was unable to repay full amount of borrowed sum of \$300 million. He looked through the accounts to understand how he had lost a part of total initial capital that he borrowed to begin his business. Table 3 shows how his business was saddled with capital erosion.

**Table 3: Three Years' Income Statement tracing Un-noticed Capital Erosion**

*Figures are in \$ million*

Year	1	2	3
Cash inflow	100	126	202
Less: Interest	46.2	46.2	46.2
Net Profit	53.8	78.8	168.8
Accumulated Surplus: 53.8 + 79.8 + 155.8 = 289.4			
Initial Investment cost = \$300 ml			
Capital Erosion/ Negative NPV = \$10.6 ml			

If the accountant would be more methodical in applying text book formula and embark upon computing NPV accordingly, he would get a magnified figure of illusive gain, as shown below.

Using textbook formula [ $k_d = I(1 - T)$ ] and 35% tax rate, if cost of loan capital was computed to be 15.4 ( $1 - .35$ ) = 10% approx, the figure of elusive NPV gain would be escalated to \$23.90 million. Table 4 shows calculation of 10% discounting rate. In this case estimated NPV appears quite magnified. Despite of this escalated estimate, accounting books would again reveal same level of loss/ capital erosion (viz., \$10.6 million). The trader was confident that there was no

manipulation or mistake in keeping the accounts. Unknown reason behind capital erosion makes traders puzzled.

**Table 4: Computation of Escalated Estimate of Elusive NPV of Project B**

Year	Cash flows	Discounting Factor at 10 %	Discounted Cash inflow
0	- 300	1	-300
1	100	.909	90.9
2	126	.826	94.63
3	202	.751	137.49
NPV			23.90

The question is - how did the projected NPV turn into a financial loss? This similar situation occurs to many traders and many business houses; they start business with a favourable projection of value creation, but one day they unfortunately realize that they are saddled with mounting losses. When this information becomes public, share prices fall. Investors make distress sale under fear and panic.

#### **ACHIEVING THE VALUE: DISTRACTING FIRM FROM INDUSTRIAL REALITY**

The above example evidences that normal business and accounting practices give no definite assurance that value so mathematically determined using valuation model will be realized. It is **not true** that discounting method is mistaken. The truth is that the assumptions implicit in the model are seldom complied with in the course of doing everyday business. NPV formula suggests that if the firms wish to realise the NPV as appears from discounting model, they should abstain from computing profit and paying dividend. Instead, they should go on re-investing all inflows immediately till the end of investment life. It reflects that a firm aspiring for the projected value addition as per NPV must not fail in ensuring immediate utilization of inflows, i) either by servicing the loan or ii) by redeploying inflows fully in investments offering similar return. If the conditions are not complied with, the index of NPV (or IRR) will stay as an elusive image of the gain, never realised in practice. Following paragraphs show how the implementation of the implicit assumptions leads to realization the projected NPV

#### **Alternative 1: Achieving the NPV through Servicing of Loans:**

To ensure realization of projected NPV, the inflows must be immediately used to repay the loan and reduce outstanding balance of loan account. Outcome of the process of using inflows immediately in repaying loan has been shown below in Table 5.

**Table 5: Quick Use of Fund to Repay Loan Can Help You Reap the Projected Gain** (Fig. in \$ million)

Year	Principal at the beginning of the year (i)	Amount payable at the end of the year @ 15.4% (ii)	Cash inflow from Project (iii)	Balance of Outstanding Loan after the inflow has been used to repay (iv) = (ii) – (iii)
1	300.00	346.20	100	246.20
2	246.20	284.11	126	158.11
3	158.11	182.46	202	NTV = Surplus =19.54

At the end of the life of Project-B terminal value of positive surplus is \$19.54 million. Present Value of the balance at 15.4% discounting rate is equal to the projected NPV \$12.70 [i.e.,  $19.54 \times 0.6507$ ]. Readers can tally this amount with the figure of NPV computed in Table 2. Remarks: In case of an all-equity firm the question of repaying loan does not arise. Secondly, if the firm goes on repaying the loans, the benefit of financial leverage will continue to reduce; consequently, cost of capital will continue to rise. Thirdly, if the whole amount of inflow is used to repay loan, it makes the concerned businessman stand with zero cash balance at the beginning of every year. It is not understandable how firms can do business with zero cash balance.

### Alternative 2: Achieve the NPV through Immediate Reinvestment:

If it is fully equity financed and the cost of equity capital is fixed at 15.4%, to retain the projected value of NPV the firm must reinvest the inflows at the rate of 15.4% (cost of capital), till the terminal value is obtained at the expiry of the project life. When cash inflows are immediately reinvested at the cost of capital, the Net Terminal Value (NTV) can be computed as below:

$$= [\$100(1 + .154)^2 + \$200(1 + .154)^1 + \$100] - \$300(1 + .154)^3$$

$$= \$480.57 - \$461.04 = \$19.53$$

At 15.4% discounting rate Present Value of \$19.53 realised in third year is equal to \$12.70, which is equal to the amount of NPV as computed in Table 2. This analysis shows that NTV is virtually the distant image of NPV. None of them is inferior to the other.

**Remarks:** The second alternative suggests that the cash inflows, immediately after realising should be put into appropriate investment opportunities promising return equal to the cost of capital. No amount should be kept idle. This is possible only in a perfect market. As perfect market is an abstract concept, thus NPV too is an abstract index. It can be computed for getting an image of economic gain, but it has no guarantee that the same can be realised in practice.

There are prudential norms for safe running of business. These include policies in respect of working capital, dividend payout, leverage, solvency, etc. If someone is too much serious about realization of aspired NPV, he will have to definitely sacrifice standard policies and business norms. It means that a business has to be taken to a Virtual World to ensure that NPV is realized.

### DISCOUNTING OF FUTURE COST: INNOCENT VIOLATION OF ACCOUNTING PRINCIPLES

In case of unconventional cash flows discounting causes serious distortions to its valuation results. Academicians are seemed unmindful to this kind of flaws of discounting.

**Table. 6: Cash Flows of Project C**

Year	0	1	2
Cash Flow (\$)	- 1000	4200	- 3600

Say, cost of capital of this concern is 25%. Using this high rate an ambitious analyst may present a picture of an optimistic value addition of \$56 as given below.

$$\frac{4200}{(1+.25)} - \frac{3600}{(1+.25)^2} - 1000 = 56$$

Taking a look at the figures given in Table 6, even a layman with sense of arithmetic will say that it is a loss-making project. Despite its clear signal about possible future loss, an optimistic executive applying a high discounting rate may convince an investor that this will create wealth of \$56. Only the accountants know that applying valuation model to this problem is resulting into violation to basic principles of accounting.

Discounting has been introduced to account for the time value of money. Thus, by discounting, *the future cash inflows* are reduced to present value equivalents. Fortunately, it amounts to complying with the Convention of Conservatism. According to this accounting convention the gains that are yet to be realised should be conservatively estimated, however losses and costs should be fully provided for. In practice, in the above sum the outflows of the second year has been sharply discounted; it amounts to violation of the convention of conservatism. Secondly, discounting of cost conveys a different meaning. Discounting of second year's cost of \$3600 at the rate of 25% reduces it to \$2304. It means you have \$2304 today for meeting expenses of \$3600 in the second year. Discounting of cost conveys a just opposite meaning compared to what discounting of benefits conveys. So making discounting of cost and benefits together we make a mess in our valuation process. After all nobody will bear the risk of taking \$2304 today for meeting expenses of \$3600 two years hence.

'Discounting of costs or outflows under this situation' results in an understatement of cost. Though simple arithmetic shows that it is a losing project, but by applying discounting mechanism we impart a positive image to this loss-making investment. When this kinds of understatement of cost is done, firms unknowingly compute an index of fictitious NPV (Roy, 2010). Banks prescribe different rates for borrowing and lending. It suggests that the same rate you never expect for your costs (outflows), what rate you expect for gains (inflows). However, in all prevalent standard textbooks of management accountancy, inflows and outflows have been discounted at the same rate. It is a clear reflection of unwillingness for teaching the correct method. In this respect a clear consensus between academicians and accountants is highly necessary.

## **CONCLUSION: STRATEGIC EVALUATION VERSUS QUANTITATIVE WISDOM**

Purpose of the paper is not to tell that DCF should not be used. It too has underlying logic. The purpose is to draw attention of the accountants that they should be careful about the implicit assumptions of valuation model. If the assumptions are not possible to be complied with, it is not desirable to take the estimated figure of value addition as true index. Rather, it can be treated as a possible image only. The efforts to meet the conditions necessary for achieving the projected NPV should be made simultaneously. Management today like to go ahead with strategies to manage their business in 21<sup>st</sup> century (Boone & Kurtz, 1992). Recently from the strategic standpoints corporate houses recognize industry size, industry growth rate, corporate market share, customer base, cost structure, core competence, R&D, etc. as strategic variables for long-run decision-making. Corporate executives today use these variables for evaluation of finance

decisions. The paper recommends that the industrial houses should make a gradual shift towards strategic evaluation instead of relying on mere quantitative evaluation based on DCF.

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# A STUDY ON THE PERFORMANCE PERSISTENCE OF INDIAN EQUITY MUTUAL FUNDS

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## ABSTRACT

*In mutual fund investment a common phrase that we find in brochure “past performance is not an indicator of future performance”. Investors expect a consistent return on their investments and persistence of performance is of course a great concern for them. The fund managers also strive to hold their good performance and attempt to improve it when it is not satisfactory. The present study deserves for examining the performance persistence of Indian mutual funds over a four year period 2010 to 2013. Based on historical NAV values and NAV returns, the study examines the persistence of performance of Indian mutual funds applying Spearman’s rank correlation coefficient and winner-loser log-odds ratios. Finally the significance of the outcomes has been tested applying t- and Z- statistic. Our results document the absence of short-run as well as long-run performance persistence for Indian equity mutual funds.*

**Key words: Mutual Fund, Performance Persistence, Winner, Loser, NAV**

**JEL Classification: G23, L14**

## INTRODUCTION

In many of the mutual fund prospectus we may observe one common phase that “past performance is not an indicator of future performance”. Hendricks et al 1993; Carhart, 1997 in their study on performance persistence of mutual funds found the absence of consistent performance of the selected funds and supported the above statement. It has been frequently observed that neither the last year’s winner funds continue to outperform, nor do the last year’s loser funds continue to underperform in the subsequent year(s). Rather, the relationship between past and future performance is weak and dominated by a strong tendency of reversion, resulting from the managerial skill and experience of the active mutual fund managers. In respect of mutual fund it is noteworthy that the methodological issues to measure performance of mutual funds are not settled, especially with respect to an appropriate risk adjustment. In different literatures Capital Assets Pricing Model is vividly used to measure the performance of the mutual funds. Apart from this Fama-French 3-factor model and Carhart 4-factor model are also got popularity for measuring the performance of mutual funds. However, in India the most popular measure for measuring performance of mutual funds is Net Asset Value (NAV).

It has been commonly observed that the superior performance of a fund manager exists in short term but in long run such superiority vanishes. Bollen and Busse (2005) and Huij and Verbeek (2007) observed that superior performance persists in the short term. Thus, the relevant questions arise, why the superior information of fund managers does not translate into superior net returns and why superior investment skills, if present in the short term, vanish over the long term. The interesting question is, then, whether portfolio managers operating in this favorable environment (in terms of ease of access to information and availability of skilled professionals) show persistently superior performance in managing domestic funds.

Previous researchers, Hendricks et al. (1993) and others, around the globe found evidence of mutual funds performance persistence. However, in India there are very limited numbers of researches which examined on mutual fund performance persistence for Indian mutual funds. In this backdrop, our study concentrates on performance persistence of the Indian domestic equity mutual funds.

## **SURVEY OF LITERATURE**

As the topic of Finance, mutual fund has attracted researchers most frequently around the world. Most of the literature on fund performance evaluation is centered on the question of whether the time and skill that goes into the selection of securities by fund managers gives returns as per the expectations of the investors. Persistent performance in mutual funds was the topic of much empirical research around the early 1990s, and many of those studies, notably Hendricks et al. (1993), Goetzmann and Ibbotson (1994), and Brown and Goetzmann (1995), Allen and Tan (1999) detected a so-called “hot-hands” effect, in that past mutual fund performance, appeared to be a good predictor of future returns. This evidence is in contrast to the efficient market hypothesis and is of interest to investors as it implies the possibility of earning abnormal returns by buying previous winner funds. However, much of the classic papers contributed by the eminent researchers like Treynor (1965), Sharpe (1966) and Jensen (1968), had found that mutual funds consistently underperformed compared to the market indices.

Hendricks et al. (1993) studied the quarterly returns of 165 no-load equity growth funds over the period 1974–1988. They found statistically significant short-run persistence of performance relative to other funds and to a number of benchmarks. They termed this the “hot hands” phenomenon and showed that it was possible to predict the quarterly octal rank of a fund using past results, and thereby improve annual risk-adjusted returns by six per cent using an ex ante investment strategy. Hendricks et al. also demonstrated that their “hot hands” phenomenon was not a result of survivorship bias in their original sample.

Studies of Goetzmann and Ibbotson (1994) and Brown and Goetzmann (1995) also found evidence of short-term persistence in mutual fund performance. Goetzmann and Ibbotson (1994) observed that performance persistence was present (both “winners” and “losers” are likely to repeat) in raw as well as risk-adjusted returns on equity funds at short-term horizons of one month to three years. Brown and Goetzmann (1995) in their study used a relatively survivorship-bias-free data set of equity mutual funds of U S and examined their performance and level of persistence. Using contingency table, the researchers found that persistence had beenb strongly dependent upon the time period of study. The study suggested that future investigation of the

persistence phenomenon should concentrate upon a search for common management strategies.

In a paper, Carhart (1997) made an attempt to examine the long term and short term performance persistence of 1892 diversified equity mutual funds over the period 1962 to 1993. He applied CAPM model and his own 4-factor model for estimating the performance of selected funds. The researcher found strong and significant negative correlation between fund performance in one hand and expense ratio, load and portfolio turnover on the other. Carhart's findings supported the efficient market hypothesis and he concluded that fund persistence was a result of persistence in the underlying stocks and not the persistent stock-picking ability of fund managers. His research did not support the idea of skilled fund managers, and rather opined that the earlier findings on persistent performance were largely a result of a momentum effect in the underlying stocks.

Cortez et al. (1999) in their paper examined the persistence of performance of Portuguese equity mutual funds. Persistence of the market has been examined by repeat winners-losers combination with the help of contingency table. The researchers observed short run persistence (on three months lag only) in the performance of Portuguese domestic equity funds. However, the persistence had become insignificant, when different dimensions of risks had been controlled. Even some individual funds were observed little persistence; the study did not observe persistence in the industry as a whole.

Philpot et al. (2000) studied the performance persistency of 73 non-conventional bond mutual funds, 53 high-yield, 10 convertible and 10 global bond funds operating in USA. They found short-term performance persistence in bond mutual funds but the persistence was present mainly to the high-yield bond subsample. Examination of returns over a longer time period had shown no evidence of management skill or performance persistence in selected nonconventional bond mutual funds.

Collinet and Firer (2003) attempted to examine the relative performance persistence of unit trusts mutual funds and the causes of conflicting results in the previous persistence studies. They found good consistent performance of funds in 6 months period. The results of tests with longer holding periods were less conclusive. Although strong persistence was evident over certain periods, the results were found to be very sensitive to variations in the ending date of the selected sample period.

Bauer et. al. (2006) in a study investigated the persistence of performance of New Zealand retail equity and balanced mutual funds. The authors considered both dead and surviving funds in order to control survivorship bias. The researchers applied single factor and multi-factor models for measuring performance of selected funds. The outcomes of the study strongly documented the existence of short run persistence (six-month lag) in risk adjusted returns for the selected mutual funds. However, the performance persistence of New Zealand mutual funds was found downward bias, i. e., the persistence was exhibited for underperforming funds but such persistence had been absent in case of outperforming funds. Cashman et al. (2012) made an effort to investigate the relation between mutual fund performance and inflows-outflows of funds of actively managed U.S. mutual funds. They found that net flows respond symmetrically

to performance. Investors responded to both good and bad performance in a similar way. They found that outflows responded to performance, as well. Specifically, investors withdrew more from poorly performing funds, while they withdrew less from funds with better performance. While outflows responded to both good and bad performance, the response was asymmetric. Contrary to previous researches that inflows were responsive to good performance only, the authors found inflows responded to both good and bad performance.

Javier (2013) examined the performance and persistence in performance of European equity mutual funds between 1988 and 2010. Using a large survivorship bias-free sample for six European countries, the researcher documented strong evidence of persistence in benchmark-adjusted returns over 1-year time periods as well as over longer periods. He found statistically and economically significant performance persistence for time horizons of up to 36 months, although persistence was much more pronounced for the top and bottom performers.

## OBJECTIVES OF THE STUDY

1. To measure the performance of Indian equity mutual funds using NAV return,
2. To examine the nature and extent of persistence of performance in Indian equity mutual funds both in short-run and long-run.

## DATA SOURCE AND METHODOLOGY

For examining the level of persistence of Indian equity mutual funds, we have primarily selected 150 domestic equity mutual funds from different AMCs over four year period (2010-2013). Returns of mutual funds have been calculated on quarterly basis considering the quarter end NAV values. 14 funds have been excluded due to their data constraints and our results are based on the final sample of 544 fund-years. Relevant data have been downloaded from the different websites, mainly from amfiindia.com.

The null hypothesis that performance in the first period is unrelated to performance in the second period corresponds to an odds ratio of one or the log-odds ratio of zero. The null hypothesis is tested by the Z- statistic, which is simply  $Z = \frac{\log\text{-odds ratio}}{\text{standard error}}$ . In this study we have employed the methodologies of Brown and Goetzmann (1995) and Carhart (1997) to evaluate the persistence in performance of Indian mutual funds. We have used 2 X 2 contingency tables to evaluate performance persistence. Within each period, the funds are defined as either Winners or Losers depending on their performance. Using two consecutive periods, first as ranking period (T) and second as evaluation period (T+1), a fund can be allocated to one of four categories. These are Winner in both periods (W-W), a Winner in the first period and a Loser in the second period (W-L), Loser in the first period and a Winner in the second period (L-W) and a Loser in both periods (L-L). If there is evidence of positive persistence, then we would expect to observe more trusts in either the W-W or L-L categories. If there is reversal in performance, we would expect more trusts in the WL or LW categories. Brown and Goetzmann (1995) proposed the log-odds ratio to test for significant persistence. This is defined as the log-odds ratio divided by the standard error. The standard error equals  $\sqrt{[(1/WW)+(1/WL)+(1/LW)+(1/LL)]}$ . This follows a standard normal distribution Z. A significantly positive log-odds ratio is evidence of persistence in performance and a significantly negative log-odds ratio is evidence of reversal in performance.

Secondly, we have applied Spearman Rank-Correlation Coefficient between the ranks of fund returns of two periods in order to find their nature and degree of persistence. Ranks of funds have been calculated for the ranking period (T) as well as for the evaluation period (T+1). For each fund in the sample, the differences  $d_i$  in the ranks of funds between periods T and T+1 are calculated. The Spearman rank-correlation statistic is

$$r_R = 1 - 6 \sum d_i^2 / (n^3 - n)$$

For sufficiently large n, it is appropriate to test for the statistical significance of  $r_R$  using a t-test where the critical t-statistic is given by

$$t = r_R \sqrt{[(n-2) / (1 - r_R^2)]} \text{ and has } n-2 \text{ degrees of freedom.}$$

## ANALYSIS AND FINDINGS

### Returns persistence measured by Spearman's Rank Correlation: 3-months lag (Table-1):

Year	Q1	Q2	Q3	Q4
2010	---	0.3591 (0.0000)	0.4627 (0.0000)	-0.4936 (0.0000)
2011	0.3763 (0.0000)	0.3904 (0.0000)	0.7231 (0.0000)	0.6534 (0.0000)
2012	-0.9071 (0.0000)	-0.6004 (0.0000)	-0.5328 (0.0000)	0.6561 (0.0000)
2013	-0.5999 (0.0000)	0.5384 (0.0000)	0.1583 (0.0667)	-0.5096 (0.0000)

Data source: www. amfiindia.com; Figures in parenthesis show the significance level

Strong return persistence has been observed for 3 out of 15 quarters. Persistence is weak for 5 quarters. Performance is nearly independent in quarter-3 of 2013 in respect of its previous quarter return and significant at 10% level. Performance reversal has been observed for 6 quarters out of 15 and all are highly significant. Thus for three months lag time the performance persistence shows a mixed result.

### 6-months lag (Table-2)

Year	1 <sup>st</sup> Half	2 <sup>nd</sup> Half	Year	1 <sup>st</sup> Half	2 <sup>nd</sup> Half
2010	---	-0.3152 (0.0002)	2011	0.2424 (0.0046)	0.4628 (0.0000)
2012	0.5946 (0.0000)	-0.3988 (0.0000)	2013	-0.1936 (0.0245)	-0.3853 (0.0000)

Source: www. amfiindia.com; \*\*Figures in parenthesis show the significance level

In case of half-yearly return persistence (6 months lag) also the Indian mutual funds are unable to perform persistently. Out of 7 half-yearly rank correlations, strong performance persistence has evidenced for single case only. Fund managers have been able to earn consistent returns in the period of half-yearly ended June 2012. But in most of the halves performance reversals have been observed. It indicates that Indian fund the managers compete each other very strongly in order to improve their performance. As a result the weak performers are improving their

performance and becoming strong performers and at the same time the strong performers are unable to sustain their performance for longer time.

<b>1-year lag</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
<b>(Table-3)</b>	0.1104 (0.2025)	0.5801 (0.0000)	-0.5316 (0.0000)	0.5371 (0.0000)
<b>2-years lag</b>	<b>2010-2011</b>		<b>2012-2013</b>	
<b>(Table-4)</b>	-0.0227 (0.7934)		-0.8172 (0.0000)	

Data source: www. amfiindia.com; Figures in parenthesis show the significance level

In one year period performance persistence has been found insignificant for the year 2010. Yearend return for 2011 has been strongly persistent with yearend return of 2010. In 2012 heavy performance reversal has been observed and in 2013 again the Indian mutual fund shows strong positive performance persistence. Thus randomness in performance has been observed when we examine the NAV returns on yearly basis. For two year lag also strong performance reversal has been observed between the performance of yearend 2011 and yearend 2013. For 2010-2011 persistence measure is found insignificant.

#### Returns persistence measured by Log-Odds Ratio: Return Persistence 3 months lag (Table-5)

Year		W-W	W-L	L-W	L-L	Odds-Ratio	Log-Odds Ratio	Z-statistic
2010	Q1	---	---	---	---	---	---	---
	Q2	34	34	32	36	1.12	0.05	0.149
	Q3	33	35	35	33	0.88	-0.05	-0.148
	Q4	33	35	33	35	1	0	
2011	Q1	36	32	30	38	1.45	0.15	0.44
	Q2	39	29	28	40	1.9	0.28	0.81
	Q3	34	34	33	35	1.06	0.02	0.07
	Q4	39	29	28	40	1.92	0.28	0.81
2012	Q1	26	42	41	27	0.40	-0.38	-1.10
	Q2	30	38	36	32	0.70	-0.15	-0.44
	Q3	30	38	37	31	0.66	-0.17	-0.52
	Q4	33	35	34	34	0.94	-0.02	-0.07
2013	Q1	36	32	31	37	1.34	0.12	0.37
	Q2	34	34	33	35	1.06	0.02	0.07
	Q3	31	37	36	32	0.74	-0.12	-0.37
	Q4	31	37	36	32	0.74	-0.12	-0.37
Total		499	521	503	517	0.98	-0.00	-0.07

## A Study on the Performance Persistence of Indian Equity Mutual Funds

Data source: [www. amfiindia.com](http://www.amfiindia.com)

Notes: Table 5 shows performance persistence with a one-Quarter lag. Winners and losers are ranked relative to the median fund in Quarter one and re-ranked in Quarter two. Winners are funds with returns above the median and losers are the funds with returns below the median.

**Return Persistence 6 months lag (Table-6)**

Year		W-W	W-L	L-W	L-L	Odds-Ratio	Log-Odds Ratio	Z-statistic
2010	1 <sup>ST</sup> H	--	--	--	--	---	---	---
	2 <sup>ND</sup> H	33	35	34	34	0.942	-0.02555	-0.07449
2011	1 <sup>ST</sup> H	39	29	28	28	1.901	0.283	0.815
	2 <sup>ND</sup> H	39	29	28	28	1.901	0.283	0.815
2012	1 <sup>ST</sup> H	31	37	36	36	0.324	-0.127	-0.372
	2 <sup>ND</sup> H	33	35	34	34	0.942	-0.025	-0.074
2013	1 <sup>ST</sup> H	34	34	33	33	1.050	0.025	0.074
	2 <sup>ND</sup> H	31	37	36	36	0.324	-0.12799	-0.37211
Total		240	236	229	229	1.095884	0.040161	0.309668

Data source: [www. amfiindia.com](http://www.amfiindia.com)

Notes: Table 6 shows performance persistence with a six month lag. Winners and losers are ranked relative to the median fund in first six month end and re-ranked in second six month end of each year. Winners are funds with returns above the median and losers are the funds with returns below the median.

**Return Persistence 1 year lag (Table-7):**

Year	W-W	W-L	L-W	L-L	Odds-Ratio	Log Odds-Ratio	Z-statistic
2010	33	35	34	34	0.942	-0.025	-0.074
2011	39	29	28	40	1.921	0.283	0.815
2012	33	35	34	34	0.942	-0.025	-0.07449
2013	31	37	36	32	0.744	-0.127	-0.372
Total	136	136	132	140	1.060	0.025	0.148

Data source: [www. amfiindia.com](http://www.amfiindia.com)

Notes: Table 7 shows performance persistence with a one-year lag. Winners and losers are ranked relative to the median fund in year one and re-ranked in year two. Winners are funds with returns above the median and losers are the funds with returns below the median.

Notes: Table 8 (Given below) shows performance persistence with a two-year lag. Winners and losers are ranked relative to the median fund in year one and re-ranked in year three. Winners are funds with returns above the median and losers are the funds with returns below the median.

**Return Persistence 2 years lag (Table-8):**

Year	W-W	W-L	L-W	L-L	Odds-Ratio	Log Odds-Ratio	Z-statistic
2010- 2011	39	21	28	40	2.653	0.423	1.157
2012- 2013	31	35	36	32	0.787	-0.103	-0.299
Total	70	56	64	72	1.406	0.148	0.596

Data Source: [www. amfiindia.com](http://www.amfiindia.com)

Z statistic values computed for all the short term or long term periods in the above four tables (Table-5 to Table-8) documented the acceptance of null hypothesis of no performance persistence of Indian equity mutual funds. In all the cases the null hypothesis of no persistence is accepted at all level of significance. Therefore our study does not observe any long term or short term performance persistence in case of Indian equity mutual funds.

## CONCLUSION

Performance persistence is important to all parties connected with mutual fund management. Its existence has been the subject of an intense and ongoing debate. We find that there is at best a very weak short-run persistence in relative fund performance of such funds, when examined by the Spearman's rank correlation. However such short-run performance persistence vanishes when we examine it with the methodologies applied by Brown and Goetzmann (1995). On the other hand examination of returns over a longer time period also shows no evidence of management skill or performance persistence in Indian equity mutual funds market.

Our result therefore documents that the growth in the Indian mutual funds industry is not the result of expertise in professional management of the fund managers of different Assets Management Companies. Rather, it appears that rational investors may invest in equity mutual funds merely to take advantage of the financial intermediary functions that the mutual funds perform. Additionally, due to economic liberalization prevailing in India, the Indian equity market has become so efficient; the fund managers are unable to predict the market by their professional knowledge, skill and expertise.

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## A Study on the Performance Persistence of Indian Equity Mutual Funds

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# IMPACT OF MACROECONOMIC VARIABLES ON INDIAN STOCK MARKET: AN EMPIRICAL ANALYSIS

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## ABSTRACT

*This study analysed the impact of Macro – Economic Variables on SENSEX. The three Macro – Economic Variables, namely, Wholesale Price Index (used as a proxy to measure the Inflation), Index of Industrial Production (used as a proxy to measure the growth rate) and Exchange Rate (represents the bilateral nominal rate of exchange of the Indian Rupee (Rs.) against one unit of a foreign currency) have been considered for the study. The analysis of data, a period of the five financial years (2008-09 - 2012-13) has been taken into consideration. This study employed regression analysis and correlation analysis to examine such relationships. The kurtosis and skewness (descriptive statistical technique) presents the view of normality. The value of kurtosis is more than 0.263 that's why the nature of scores 'distribution of WPI, IIP and SENSEX are Platykurtic in nature, whereas Exchange Rate is Leptokurtic in nature. There is negative skewness in WPI and SENSEX, whereas Exchange Rate and IIP shows the positive skewness. There is positive, high correlation among the variables, namely, WPI, IIP, Exchange Rate and SENSEX and It was found through P- value and F- sign that there is a significant relationship between macro – economic variables and SENSEX. The R squared value indicates that 41% fluctuation in SENSEX due to macro-economic variables.*

**Keywords:** Macroeconomic variables, Stock market, Correlation, Multiple Regression

**JEL Classification:** B22, C01, E02

## INTRODUCTION

A business firm can raise funds from various sources. Short - term funds can be raised from banks and other agencies. Long term funds can be raised either by issue of securities or by borrowing from term lending financial institutions. Capital market is the market which provides capital funds to the needy units. In simple words, capital market is the place where long term and medium term financial instruments (securities) are traded.

### Stock Exchange

A stock exchange is a place to trade stocks. Companies may want to get their stock listed on a stock exchange. Other stocks may be traded "over the counter", that is, through a dealer. A large company will usually have its stock listed on many exchanges across the world. Market participants include individual retail investors and traders, institutional investors such as mutual funds, banks, insurance companies and hedge funds, and also publicly traded corporations trading in their own shares. Some studies have suggested that institutional investors and corporations trading in their own shares generally receive higher risk-adjusted returns than retail investors. This may be attributable to their tendencies to hold investments for longer periods of time.

### Stock Market

Stock Market or Equity Market is the aggregation of buyers and sellers (a loose network of economic transactions, not a physical facility or discrete entity) of stocks (shares); these are securities listed on a stock exchange as well as those only traded privately.

### BSE Sensex

The S&P BSE SENSEX (S&P Bombay Stock Exchange Sensitive Index), also-called the BSE 30 or simply the SENSEX, is a free-float market-weighted stock market index of 30 well-established and financially sound companies listed on Bombay Stock Exchange. The 30 component companies which are some of the largest and most actively traded stocks are representative of various industrial sectors of the Indian economy. The market capitalisation of S&P BSE SENSEX was about ₹29733 billion (US\$505 billion) (47.68% of market capitalisation of BSE), while its free-float market capitalisation was \$15690 billion (US\$267 billion).

## REVIEW OF LITERATURE

The review of the different past studies can provide an idea for understanding the situations and finding on the different grounds by which the researcher elaborates the finding with logical reasoning. Singh D. (2010), explained in his study that WPI affects the BSE movements whereas Industrial Production have bilateral causality with Sensex. The study concluded that stock market have informational efficiency with the changes in exchange rates, inflation rate and industrial production. In a smaller spectrum when one talks about the company's results then it is found that quarterly result announcement impact sensex (Saxena P.K., Khanna K., 2011). The review continued with the work of Ahuja et al (2012) who found that exchange rate, foreign institutional investors and call rate have significant impact on stock market but this impact was positive in case of FII and call money whereas negative in case of exchange. Yahyazadehfard M., Babaie A (2012) revealed that house price is a main factor to influence stock market of Iran. Bellalah M. et al (2012) had detailed the discussion by taking USA, China and Japan economies. They found that in stock prices are affected by interest rates, industrial production and money supply in the economy of USA and China both in long and short run (LR). But in Japan the case was not similar in short run. Joshi V.K., Saxena R. (2011), found that stock prices are affected by FII flows in the country. They found that the stock market improves as FII flows in the country and vice versa. On

the contrary Berka I. et al (2012) stated that oil price shocks have a little impact on stock markets. It is majorly a function of global liquidity conditions.

## **NEED OF THE STUDY**

The Stock market is an important component of the economic system of a country. The stock market plays a pivotal role in the development of the industry and commerce of the area that eventually affects the economic system of the country to a great extent. The Stock market is viewed as a very important component of the financial sector of any economic system. Furthermore, it plays a vital role in the mobilization of capital in many of the emerging economies. There are many factors which affect the stock market behaviour rapidly. The variation due to the different factors reflects its impact on the economy also. It is said that if one wants to discover the economic structure of the country, he/she should read out the behaviour of the securities markets. So, in the above context, there is a need to conduct present study to investigate the relationship between stock exchanges and macro – economic variables.

## **OBJECTIVE**

The ultimate aim of the study is to establish the relationship between Economic Variables and SENSEX.

### **Hypothesis**

H<sub>0</sub>: There is no significant relation between Macro Economic Variables and SENSEX.

H<sub>1</sub>: There is a significant relation between Macro Economic Variables and SENSEX.

## **RESEARCH METHODOLOGY**

This study is based on secondary data, collected from the research papers, books, journals, and websites (RBI, SEBI and BSE). This study focused on three macro-economic variables, Namely, Wholesale Price Index (used as a proxy to measure the Inflation), Index of Industrial Production (used as a proxy to measure the growth rate) and Exchange Rate (represents the bilateral nominal rate of exchange of the Indian Rupee (Rs.) against one unit of a foreign currency). By using these variables we try to find out the relationship between SENSEX (as dependent Variables) and macro - economic variables (as independent variables) and the impact of these variables on SENSEX as well. For the purpose of analysis of data, a period of the five financial years (2008-09 - 2012-13) have been taken into consideration and to make the study more accurate & scientific and to make the findings logical, we used descriptive statistical techniques and inferential statistical techniques by using different software, Namely, Excel, SPSS and STATA.

**EMPIRICAL ANALYSIS:** Empirical results and discussion are presented here in the different subsections.

### **Descriptive Statistics Analysis**

Descriptive statistics is the discipline of quantitatively describing the patterns and general trends of a dataset and summarize it in a single value. In this study, descriptive statistics provide a useful quantitative summary of macroeconomics variables and SENSEX. We used measures of central

tendency (mean) and measures of Variability (standard deviation) to explain the dataset. The kurtosis and skewness measures the view of normality. This helps the reader to understand and interpret the set of data that has been collected.

**Table 1: Descriptive Statistics**

Variables	Mean	Standard Deviation	Kurtosis	Skewness
WPI	7.529	3.084	0.667	-1.247
IIP	159.551	12.752	0.416	0.326
Exchange Rate	47.703	4.1736	0.249	0.299
Sensex	16346.594	2901.418	1.107	-1.295
Observations	60	60	60	60

Table: 1 presents a summary of descriptive statistics of all the selected variables. These variables are SENSEX, Wholesale Price Index (used as a proxy to measure the Inflation), Index of Industrial Production (used as a proxy to measure the growth rate) and Exchange Rate (represents the bilateral nominal rate of exchange of the Indian Rupee (Rs.) against one unit of a foreign currency). In the group of 60 observations, the mean of SENSEX is 16346.5945 and the standard deviation is 2901.41855 which is considered to be very high. It reflects significant variability in SENSEX. Similarly, the mean of WPI is 7.5295 and the standard deviation of the same is 3.084275277 respectively. It also has very high and significant variability from their mean. Exchange Rate mean is 47.70 and standard deviation is 4.17. So, there is not so significant variability in Exchange Rate form its mean. IIP mean is 159.551 and standard deviation is 12.75. So, there is significant variability in IIP from its mean. The kurtosis and skewness presents the view of normality. The value of kurtosis is more than 0.263 that's why the nature of scores 'distribution of WPI, IIP and SENSEX are Platykurtic in nature, whereas the value of kurtosis in case of Exchange Rate is less than 0.263, so it is Leptokurtic in nature. There is negative skewness in WPI and SENSEX, whereas Exchange Rate and IIP shows the positive skewness.

## Inferential Statistics Analysis

Inferential statistics is defined as the branch of statistics that is used to make inferences/ valid judgments about the characteristics of a population based on sample data.

**Table 2: Correlation Matrix Analyses**

Variables	WPI	IIP	Exchange Rate	Sensex
WPI	1			
IIP	0.358	1		
Exchange Rate	-0.186	0.253	1	
Sensex	0.413	0.376	0.396	1

**Table 3: Multiple Regression Modelling**

Multiple regression analysis is an inferential statistical technique that is used to learn more about the relationship between an independent variable (referred to as X) and dependent variable (referred to as Y) So, the regression equation  $Y_i = \beta_0 + \beta_1 X_i + u_i$  where  $Y_i$  is the dependent variable,  $X_i$  is the independent variable,  $\beta_0$  is the constant (or intercept),  $\beta_1$  is the slope of the

regression line which represent the strength and direction of the relationship between the independent and dependent variables and  $u_i$  is random error term. Here, in our study we carried out this method to see and interpret the effect of macroeconomic variables on SENSEX. For this study following equation has been employed.

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \dots + \beta_k x_k + \varepsilon$$

Where  $\beta_0 + \beta_1 x_1 + \dots + \beta_k x_k$  is the deterministic portion of the model and  $\varepsilon$  is the random error. We further assume that for any given values of the  $x_i$ , the random error  $\varepsilon$  is normally and independently distributed with mean zero.

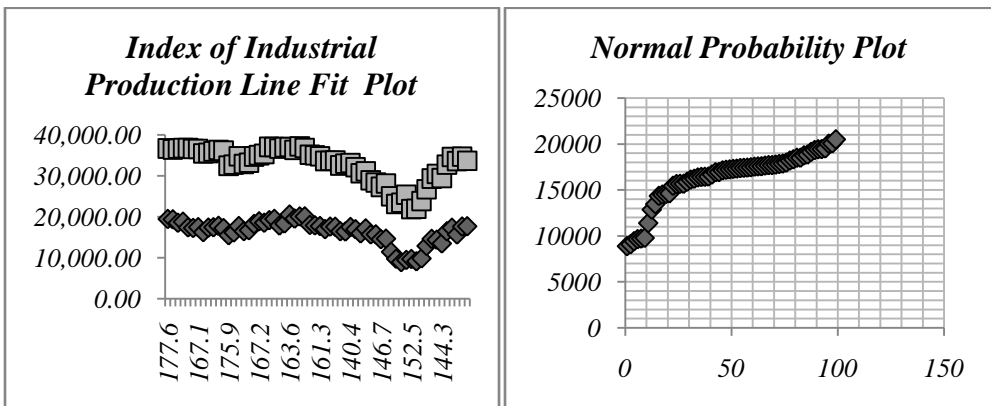
**Table 3: Regression Statistics**

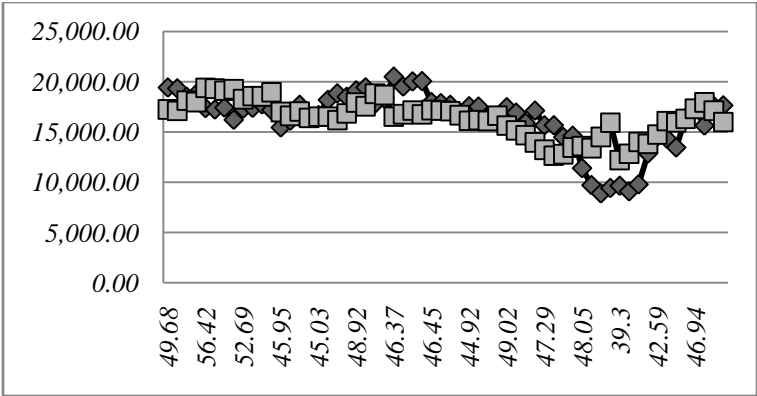
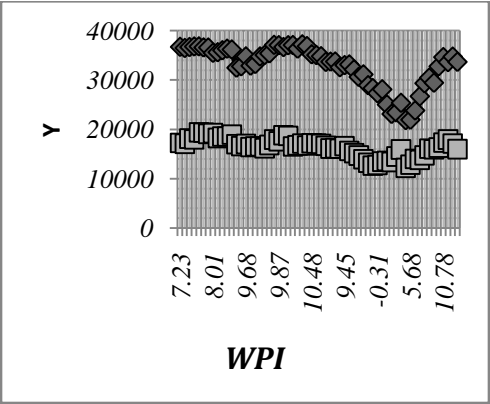
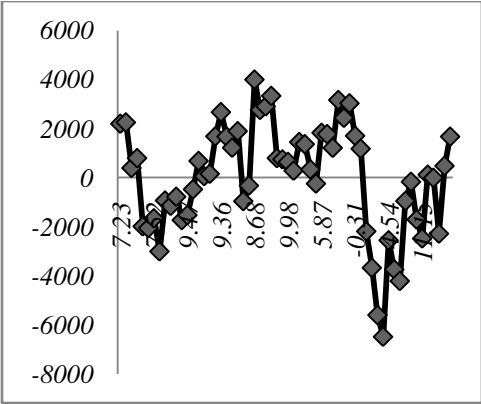
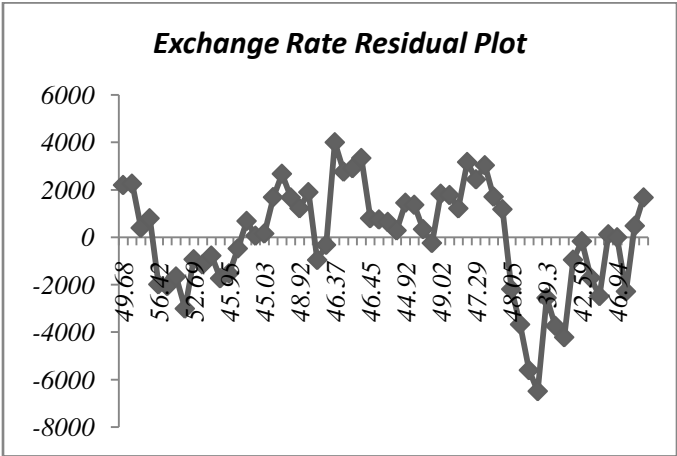
Values	RESULTS
Multiple R	0.639
R Square	0.409
Standard Error	2288.429
Observations	60

	df	SS	MS	F	P Value	Remark
<b>Regression</b>	3	203408653.2	67802884.41	12.947	0.0001	Accept H0
<b>Residual</b>	56	293266893.1	5236908.806			
<b>Total</b>	59	496675546.4				

Table: 2 shows that there is a positive, high correlation among the variables, namely, WPI, IIP, Exchange Rate and SENSEX. Table: 3 shows, multiple regression for three variables (WPI, IIP, Exchange Rate) and SENSEX. It was found through P- value and F that there is a significant relationship between macro – economic variables and SENSEX. The R squared value indicates that 41% fluctuation in SENSEX due to macro-economic variables. The following figures show the monthly movement of macro – economic variables during 2008 to 2012.

#### MOVEMENT OF SELECTED MACRO – ECONOMIC VARIABLES





## CONCLUSION

This study performed necessary analyses to answer the research question that whether selected macro – economic variable influence the SENSEX or not. The macroeconomic variables are Index of Industrial Production (IIP), Wholesale Price Index (WPI), and Exchange Rate. For this purpose, we collected monthly data for a time span of five years (from April 2008 –March 2013). This study employed regression analysis and correlation analysis to examine such relationships. The kurtosis and skewness (descriptive statistical technique) presents the view of normality. The value of kurtosis is more than 0.263 that's why the nature of scores 'distribution of WPI, IIP and SENSEX are Platykurtic in nature, whereas Exchange Rate is Leptokurtic in nature. There is negative skewness in WPI and SENSEX, whereas Exchange Rate and IIP shows the positive skewness. There is positive, high correlation among the variables, namely, WPI, IIP, Exchange Rate and SENSEX and It was found through P- value and F that there is a significant relationship between macro – economic variables and SENSEX. The R squared value indicates that 41% fluctuation in SENSEX due to macro-economic variables. On the basis of overall analysis, we can conclude that selected macro - economic have an impact on SENSEX.

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# TESTING OF EFFICIENT MARKET HYPOTHESIS SEPCIAL REFERENCE TO SELECTED INFORMATION TECHNOLOGY STOCKS IN INDIA

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## ABSTRACT

*Stock market efficiency is an important concept, to understand the working of the capital markets particularly in emerging stock markets such as India, etc. The efficiency of the emerging markets have greater importance as the trend of investments is accelerating in these markets as a result of regulatory reforms and removal of other barriers for the international equity investments. The purpose of the study is to test the weak form of an efficient market hypothesis in selected seven leading Information Technology stocks in India. Daily, Weekly and Monthly closing prices of INFOSYS, TCS, CMC, HCL WIPRO, POLARIES and MAPHASIS for the period of April, 2004 to March, 2014 are taken as sample.*

*The conventional Runs Test, Durbin-Watson Test and Unit Root Test used provide evidence of weak form of market efficiency. The result shows that the selected seven IT stocks do not follow random walk during the study period.*

**Keywords-** EMH, Capital Market, Market Efficiency, Technology Stocks Runs Test, Random Walk Hypothesis

## INTRODUCTION

The Efficient Market Hypothesis is a central paradigm of financial economics. The term “efficient market” fully reflects the degree, the pace and the accuracy of the available information being embed into security prices. The weak form of the efficient market hypothesis states that security prices fully reflect any information contained in the past series of stock prices. Yet, there are still numbers of financial researchers who study the past stock price series and trading volume data in attempt to generate profit. This technique is called technical analysis that is asserted by EMH as useless for predicting future price changes.

The semi strong form of the EMH states that security prices fully reflect all relevant publicly available information. The public information states not only past prices but also data reported in a company’s financial statements, company’s announcements, economic factors and others.

The most extreme form of the efficient market hypothesis is the strong form. This version states that security prices fully reflect all public and private information. This means that even corporate insiders cannot make abnormal profits by exploiting their inside information about

their company. Inside information is factual information not available to the general public which will most likely influence security prices once it becomes public.

The runs test is a non-parametric statistical test that checks the randomness hypothesis for a two-valued data sequence

A “run” can be defined as a sequence of containing adjacent equal variables defining the nature of its occurrence. For example, the sequence “++++— +++—+++++—” consists of six runs, three of which consist of +s and the others of –s. If +s and –s alternate randomly, the number of runs in the sequence N for which it is given that there are N+ occurrences of + and N– occurrences of – (so  $N = N+ + N-$ ) is a random variable whose conditional distribution—given the observation of N+ positive runs and N– negative runs —is approximately normal with :

$$Variance \mu\sigma^2 = \frac{2N + N_-(2N_+N_- - N)}{N^2(N-1)} = \frac{(\mu-1)(\mu-2)}{N-1}$$

These parameters do not depend on the “fairness” of the process generating the elements of the sequence in the sense that +s and –s must have equal probabilities, but only on the assumption that the elements are independent and identically distributed. If there are too many runs more or less than expected, the hypothesis of statistical independence of the elements may be rejected.

### Runs tests can be used to test

The randomness of a distribution, by taking the data in the given order and marking with + the data greater than the median, and with - the data less than the median (Numbers equalling the median are omitted).

### Mathematical Formulae

#### Run test can be used to perform

- Randomness of a distribution is found by taking the data in the given form or order and marking with + the data greater than the median and with – the data less than the median.

$$\text{Mean} = \left( \frac{2(N_+)(N_-)}{N} \right) + 1$$

$$Variance \mu\sigma^2 = \frac{2N + N_-(2N_+N_- - N)}{N^2(N-1)} = \frac{(\mu-1)(\mu-2)}{N-1}$$

Where

$$N = (N+) + (N-)$$

N+ = positive runs or number of occurrences of +s

N– = negative runs or number of occurrences of –s

If the sample size is unequal and either  $h_1$  or  $h_2$  is larger than 20, or if the sample size is equal and larger than 100, then the test statistic is where  $r$  (test statistic) is the number of runs or average of the most and fewest runs.

#### **Durbin-Watson Test:**

The autocorrelation or serial correlation between current and previous return series was analyzed through autocorrelation. If the correlation between current return and previous return is significantly positive then we can infer that there exist certain trends in return series. Hence there is non-randomness in data. A parametric auto correlation coefficient test and non parametric run test was used to test the auto correlation. In an autocorrelation test, the correlation for rate of returns over time has been measured. It was analyzed that whether the rate of return on day  $t$  correlates with the rate of return on day  $t-1, t-2, \dots, t-n$ . If the markets are efficient then there would be an insignificant relation between return on day  $t$  with the return on day  $t-1, t-2, \dots, t-n$ . Following equation was used to measure the serial correlation between current time period return and previous time period return.

$$R_t = \alpha + \rho R_{t-1} + \epsilon$$

Where  $R_t$  is current time period return (dependent variable),  $R_{t-1}$  is previous time period return, constant term and  $\epsilon$  is error term while  $\rho$  = estimated parameter ( $-1 < \rho < 1$ ). For testing significance of the auto-correlation, Durbin-Watson test was selected. Research data is time series and in statistics there are number of autocorrelation tests available for times series data. Durbin-Watson test is one of most famous serial correlation test.

James Durbin and Geoffrey Watson had recommended first time Durbin-Watson test, in order to check whether the series contains autocorrelation or not. The basic formula of Durbin-Watson test is as follow

$$d = \frac{\sum (\hat{e}_t - \hat{e}_{t-1})^2}{\sum \hat{e}_t^2}$$

Where  $T$  is the number of observations,  $e_t$  is current time period return (dependent variable),  $e_{t-1}$  is previous time period return. The Durbin-Watson is approximately equal to  $2(1 - \rho)$ , where  $\rho$  is estimated parameter whose value is ( $-1 < \rho < 1$ ). The value of  $d$  always lies between 0 and 4. If the Durbin-Watson statistic is substantially less than 2, then there is evidence that series has positive serial correlation and if the Durbin-Watson statistic is substantially greater than 2, then there is evidence that series has positive serial correlation. As a rough rule of thumb, if Durbin-Watson is less than 1.0 then there is strong positive correlation and if Durbin-Watson is greater than 3.0 then there is strong negative correlation.

## Unit Root Test

Third method applied to check the market efficiency was unit root. Hassan et al; explains that unit root test can be used for testing the efficiency of markets. Because market efficiency demands randomness (non stationary) in the prices of security and unit root test investigates whether the financial time series is non stationary or not. If the test statistic is more negative or smaller than the critical value (Mackinnon tabulated value) then the null hypotheses will be rejected which means data is not non stationary. In this study Augmented Dickey-fuller test was selected for test of unit root.

$$\Delta p_{it} = \alpha_0 + \alpha_1 t + \rho_0 p_{it-1} + \sum_{i=1}^q \rho_i p_{it-1} + \epsilon_{it}$$

Where  $p_{it}$  denotes the price for the  $i$ -th market at time  $t$ ,  $\alpha$  are coefficients to be estimated,  $q$  is the number of lagged terms,  $t$  is the trend term,  $\rho_1$  is the estimated coefficient for the trend,  $\rho_0$  is the constant and  $\epsilon_{it}$  is white noise. MacKinnon's critical values are used in order to determine the significance of the test statistic associated with 0.

## LITERATURE REVIEW

Fama (1970) developed the three forms of market efficiency; weak form, semi-strong form and strong form. Since then many studies have been done to examine whether some markets are efficient in the weak form. Lo and MacKinlay (1998) used a variance ratio test both the equally weighted and value weighted CRSP indices and had found that stock prices do not follow a random walk. Gu (2004) also studied the weak form efficiency of NASDAQ composite index by using of the variance ratio test from 1971 to 2001. Using daily returns, he had found evidence that the daily returns of the NASDAQ were not weak form efficient. In contrast, Seiler and Rom (1997) studied the random walk hypothesis from 1885 to 1962 and had found that historical stock price movements are random.

Several researchers have examined market efficiency in India but got conflicting results. For example, Bodla (2005) has tested the weak form of efficiency with two tests, namely the runs test and serial correlation test using daily data for three years period commencing from January 2001 to December 2003. The sample size consisted of 47 scrip's of S&P CNX of nifty. In order to test the null hypothesis that share prices follow the random walk behavior, the random walk model has been applied in the study. This is a suitable data transformation procedure, which is used to make the original series stationary. The results of the runs test have given a clear-cut inking of the existence of weak form market efficiency in the Indian securities market. Similarly, the serial correlation analysis based on its coefficients confirms the weak form hypothesis of efficient market. Thus, this finding reduces the probability of continuously making extra profit by forecasting the security prices.

Gupta and Basu (2007) evaluated market efficiency in the Indian stock market from 1991 to 2006. The results indicate that Indian Stock Markets do not follow a random walk. Mahapatra and Biswasroy (2007) made an attempt in this direction. The study is based on weekend share price data of BSE 30 scrip's covering a time period of two years i.e. from 1st April 2000 to 31st march 2002. Rank correlation analysis has been extensively used in the study to examine the rank of performance of the above BSE 30 stocks at different time intervals. They revealed that

the Indian stock market is more efficient in the weak form in the longer run but inefficient in the short run. Chander R. (2008) attempted to study documents on price behavior in the Indian stock markets. One of the striking features of the results is that runs analysis too exuberate weak form efficiency further and the instances of return drift noted earlier have disappeared. On the whole, the results signify that trading strategies based on historic prices cannot be relied for abnormal gains consistently, except when these coincide with underlying drifts in the stock price movements. Satish and Sonal (2009) analyzed the weak form of efficiency and the efficient market hypothesis in Indian stock market in the form of random walk, during the period of 2007-08 based on closing prices and daily returns on the Indian stock market three representative indices: S&P CNX 500, CNX 100 and BSE 200. Serial correlation and run test support the Random Walk theory and market efficiency hypothesis. Some studies deny its existence to keep the academic debate alive on the subject

Thomas and Kuma (2010) use the runs test and stock market from 2004 to 2008. In a more recent study, Khan, Ikram Mehtab (2011) used runs test to analyze the daily returns from the BSE sensex, the S&P CNX Nifty and various publications of Reserve Bank of India from April 2000 to March 2010. The runs test indicated that both the NSE and BSE did not follow a random walk. However in an earlier study Pant and Bishnoi (2001) found that the Indian stock market was weak form efficient when using the Dickey Fuller Test. Vaidyanathan and Gali (1994) also found that the Indian Capital Market is weak form efficient using a filter rules test. Mall, Pradhan, and Mishra (2011) used daily data from June 2000 to May 2011 and had found that the Indian capital market is weak form efficient.

## **OBJECTIVES**

1. To check whether successive price changes are independent or not during the given time period
2. To check whether Indian capital markets are in weak form of efficiency, semi-strong form of efficiency, or strong form of efficiency
3. To check whether prices get affected by demand and supply to reflect equilibrium position
4. To prove whether Price change is Random or Not

### **Hypothesis**

Ho Null Hypothesis: Price change is random

H<sub>1</sub> Alternate hypothesis: Price change is not random

Hypothesis was tested at 5 percent significance level at which 'Z' value is 1.96. If Z value is more than -1.96 and less than +1.96 then values will be known as significant which means that prices of the selected banking stocks appears in random fashion. And if Z value is less than -1.96 and more than +1.96 then values will be known as insignificant which means that prices of the stocks are not appearing in random fashion.

## METHODOLOGY

The study was empirical in nature. It studied the application of EMH theory on stocks of IT industry namely INFOSYS, TCS, CMC, HCL WIPRO, POLARIES and MAPHASIS. The time frame for estimation and analysis of results was done on data of 10 years on daily returns ranging from April, 2004 to March, 2014. Judgemental sampling technique was used for collecting the data. Secondary data sources were used. Websites namely NSE India was used to collect data. Unit Root test was used for checking the stationarity of the data. Runs Test was used to estimate the efficiency of the market.

## THE EMPIRICAL ANALYSIS

**Table 1: Descriptive Statistics of returns for selected IT Companies Stocks**

Descriptive Statistics	Mean	Median	Maximum	Minimum	Std.De	Skewness	Kurtosis
CMC- Daily Return	0.001	0	0.414	-0.218	0.028	1.674	29.712
CMC-Weekly Return	0.003	0.001	0.452	-0.244	0.064	0.954	10.843
CMC- Monthly Return	0.014	0.005	0.538	-0.472	0.139	0.134	5.192
HCL- Daily Return	0.001	0	0.172	-0.709	0.029	-5.448	138.56
HCL-Weekly Return	0.003	0.007	0.263	-0.737	0.062	-3.213	42.67
HCL- Monthly Return	0.014	0.029	0.262	-0.717	0.123	-1.887	12.158
INFOSYS- Daily Return	-0.071	0.034	0.155	-1.37	0.037	-22.65	782.99
INFOSYS-Weekly Return	0.003	0.005	0.187	-0.221	0.041	-2.287	6.237
INFOSYS- Monthly Return	0.014	0.026	0.204	-0.257	0.087	-0.51	3.321
MPHASIS- Daily Return	-0.001	0	0.2153	-0.691	0.033	-6.526	137.13
MPHASIS-Weekly Return	-0.006	0.006	0.2748	-0.675	0.071	-3.028	30.372
MPHASIS- Monthly Return	0.029	0.003	0.4009	-0.573	0.13	-0.929	6.657
POLARIES- Daily Return	0.0026	0	0.2528	-0.2552	0.035	0.2256	10.99
POLARIES-Weekly Return	0.00125	0	0.3464	-0.4411	0.0748	-0.058	7.145
POLARIES- Monthly Return	0.1023	0.0064	0.3845	-0.4619	0.159	-0.3504	3.732
TCS- Daily Return	0.001	0	0.765	-0.713	0.03	1.11	279.83
TCS-Weekly Return	0.005	0.005	0.85	-0.644	0.065	2.186	76.689
TCS- Monthly Return	0.02	0.023	0.904	-0.618	0.134	1.302	21.284
WIPRO- Daily Return	-0.0002	0	0.202	-1.091	0.034	21.284	-15.899
WIPRO-Weekly Return	-0.001	0.003	0.187	-1.045	0.072	-7.71	104.114
WIPRO- Monthly Return	-0.004	0.01	0.298	-0.054	0.15	-3.635	24.902

The descriptive statistics of daily, weekly and monthly returns series of seven selected IT stocks is presented in table 1, the lowest mean returns is observed in Wipro with a values of daily (-

## Testing of Efficient Market Hypothesis Special Reference to Selected Information Technology Stocks In India

0.0002 ), weekly ( -0.001) and monthly(-0.004) and highest monthly returns are for Polaries (0.1023). In other words the risk measured using SD is higher in Wipro and Polaries Stocks.

**Table: 2 showing the Result of Hypothesis testing**

Stocks		N	N1	N2	Observed Runs	Z-Value	P-Value
CMC	Daily Returns	2556	1102	1454	1274	0.7764	0.781
	Weekly Returns	523	248	275	240	-0.0836	0.466
	Monthly Returns	120	55	65	59	-0.2961	0.383
HCL	Daily Returns	2521	1229	1292	1268	0.33056	0.629
	Weekly Returns	523	280	243	270	0.8653	0.806
	Monthly Returns	120	66	54	60	0.11102	0.544
INFOSYS	Daily Returns	2491	1324	1167	1207	-1.3515	0.088
	Weekly Returns	523	275	248	253	-0.0792	0.468
	Monthly Returns	120	65	55	71	2.15258	0.984
MPHASIS	Daily Returns	2553	1269	1284	1312	1.9940	0.976
	Weekly Returns	523	265	258	280	1.6315	0.950
	Monthly Returns	120	60	60	71	2.0589	0.980
POLARIES	Daily Returns	2520	1279	1241	1238	-0.8666	0.193
	Weekly Returns	523	253	270	276	1.3009	0.903
	Monthly Returns	120	64	56	57	-0.5160	0.302
TCS	Daily Returns	2487	1215	1272	1233	-0.3956	0.346
	Weekly Returns	520	261	259	269	0.7941	0.786
	Monthly Returns	120	61	59	62	0.3760	0.646
WIPRO	Daily Returns	2561	1385	1176	1282	0.3994	0.655
	Weekly Returns	520	280	240	256	-0.2190	0.413
	Monthly Returns	120	66	54	56	-0.6452	0.259

**Results of Runs Test:** The Table (2) represents the results of runs test. CMC results for daily, weekly and monthly returns are consistent with each other, for both daily and weekly returns P-value is more than alpha (i.e. 0.05). If P-value is more than alpha it means that value of z-statistic do fall between  $\pm 1.96$  hence we accept the null hypothesis that is for daily, weekly and monthly basis successive returns are randomly generated.

In other selected IT Stocks (INFOSYS, TCS, HCL WIPRO, POLARIES and MAPHASIS) daily, weekly and monthly returns P-Value is more than Alpha (i.e. 0.05). Hence, we accept the null hypothesis that is daily; weekly and monthly basis successive returns are randomly generated.

**Table 3: Durbin-Watson Test Findings**

Stocks		Durbin-Watson Calculated Values
CMC	Daily Returns	2.002215
	Weekly Returns	1.997663
	Monthly Returns	2.033618
HCL	Daily Returns	1.999302
	Weekly Returns	1.989806
	Monthly Returns	1.997556
INFOSYS	Daily Returns	2.000250
	Weekly Returns	1.994411
	Monthly Returns	1.977962
MPHASIS	Daily Returns	2.000624
	Weekly Returns	1.999551
	Monthly Returns	1.987757
POLARIES	Daily Returns	1.999165
	Weekly Returns	1.998237
	Monthly Returns	1.935641
TCS	Daily Returns	1.997685
	Weekly Returns	2.000057
	Monthly Returns	1.939361
WIPRO	Daily Returns	1.999166
	Weekly Returns	1.995302
	Monthly Returns	1.996517

**Results of Durbin-Watson:** The table (3) represents the results of Durbin-Watson test. The calculated Durbin-Watson statistics are very near 2, which mean that in CMC daily, weekly and monthly return series has negative autocorrelation. For daily return series Durbin-Watson statistic is 2.002215, for weekly return series Durbin-Watson statistic is 1.997663, for monthly return series Durbin-Watson statistic is 2.033618, Hence hypothesis of efficiency is accepted.

In case of HCL Stock results for daily, weekly and monthly returns are consistent with each other. All the calculated Durbin-Watson statistics very near 2, i.e. daily 1.999302, weekly 1.989806 and monthly 1.997556; hence market efficiency hypothesis is also accepted.

On the whole all the other selected IT stocks for daily, weekly and monthly returns very near 2 which means that returns series has negative auto correlation.

**Results of Unit Root test:** In this paper augmented dickey-fuller test was selected to test the unit root. Unit root test has conducted on daily, weekly and monthly return series of selected seven IT stocks.

For daily, weekly and monthly return series, the ADF test statistic of CMC stock is – 49.04 which does negatively exceed from the MacKinnon tabulated value -2.862 or in other words ADF test statistic is too smaller than MacKinnon tabulated value. Furthermore p-value is also too smaller



than alpha (i-e. 0.05). So we have to reject null hypothesis (i-e return series a unit root) and we can conclude that daily return series doesn't contains unit root and data is stationary.

**Table 4: Results Augmented Dickey-fuller Test for Selected IT Companies Stocks**

Stock	Daily Returns Series			Weekly Returns Series			Monthly Returns Series		
	T-Stat.	Prob.	5% level	T-Stat.	Prob.	5% level	T-Stat.	Prob.	5% level
<b>CMC Stock</b>	49.04	0.0001	-2.86	-21.93	0.0000	-2.86	-6.25	0.0000	-2.89
<b>HCL Stock</b>	49.76	0.0001	-2.86	-24.36	0.0000	-2.86	-9.80	0.0000	-2.89
<b>INFOSYS Stock</b>	50.89	0.0001	-2.86	-23.63	0.0000	-2.86	11.89	0.0000	-2.89
<b>MPHASIS Stock</b>	51.94	0.0001	-2.86	-23.73	0.0000	-2.86	-10.43	0.0000	-2.89
<b>POLARIES Stock</b>	49.26	0.0001	-2.86	-23.08	0.0000	-2.86	-10.25	0.0000	-2.89
<b>TCS Stock</b>	49.07	0.0001	-2.86	-22.87	0.0000	-2.86	-10.34	0.0000	-2.89
<b>Wipro Stock</b>	53.14	0.0001	-2.86	-23.32	0.0000	-2.86	-10.29	0.0000	-2.89

For daily, weekly and monthly return series, the ADF test statistic of all other selected IT stocks are HCL(-49.76), Infosys (-50.89), Mphasis(-51.94) Polaries (-49.26) TCS (-49.07) and Wipro Stock – 53.14 which are negatively exceed from the MacKinnon tabulated value -2.862 or in other words ADF test statistic is too smaller than MacKinnon tabulated value. Furthermore p-value is also too smaller than alpha (i-e. 0.05). So we have to reject null hypothesis (i-e return series a unit root) and we can conclude that daily return series doesn't contains unit root and data is stationary.

## CONCLUSION

The wide literature argues that in a weak form of efficient market, there will be no undervalued or overvalued securities and thus no investor can earn abnormal returns at a given level of risk based on technical analysis. Since the weak form of efficient market asserts that all past market prices and data are fully reflected in present prices of securities and in long run there should be random returns for investor, therefore random walk hypothesis (RMH) is the core fundamental for the theory of weak form of efficient market hypothesis. This study has examined the weak form of efficiency on the seven major Information Technology stocks in Indian stock market. Three different statistical tests including runs test, serial correlation (Durbin Watson test), and unit root test were applied for analysis and results.

Results of run test are similar to Augmented Dickey-fuller of studying market efficiency. It has found that the selected IT Stocks (CMC, INFOSYS, TCS, HCL WIPRO, POLARIES and MAPHASIS) daily, weekly and monthly returns P-Value is more than Alpha (i.e. 0.05). Hence, we accept the null hypothesis that is daily; weekly and monthly basis successive returns are randomly generated.

Results of Durbin Watson test suggested that in all the seven major selected IT socks there is no correlation among the past successive returns. Thus INFOSYS, TCS, CMC, HCL WIPRO, POLARIES and MAPHASIS are weak form of efficient markets.

Third method used to test the weak form of market efficiency was augmented dickey-fuller test to test the unit root on all the seven selected IT Stocks of Indian stock market, it has found that in all stock return series doesn't contain unit root. Thus it is concluded that return series are stationary. There is predictability in calculating the future returns of all the seven stock prices and are not weak form of efficient markets.

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# VARIABLES INFLUENCING MOVEMENT OF G-SEC. YIELDS: AN EMPIRICAL APPROACH

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## ABSTRACT

*On a day-to-day basis, market participants look at many other variables as well e.g. crude prices, commodity prices, GDP growth rates, etc. However, the end implication of these factors has been captured in the statistical study done in this paper. For Example, higher crude or commodity price would result in higher inflation, which has been studied here. A higher GDP growth rate would give a larger scope of RBI to hike rates (in case inflation is high); we have studied the co-relation with Repo and Reverse Repo Rates. Higher investment by FIIs in Indian equities may result in higher rupee liquidity; we have studied the impact of system liquidity on yield levels. At a given point of time, one factor may be overbearing over others e.g. if inflation is too high or if system liquidity too much in surplus it may overshadow other parameters.*

**Keywords:** Government Security, WPI Inflation, GDP, Repo Rate, Reverse Repo Rate

## INTRODUCTION

Tracking yields on Government Securities and understanding their determinants is crucial for both financial market participants and policymakers. This is especially true in the case of an economy such as India with an evolving financial sector and increasing integration with the global economy. After almost two decades of financial liberalization, the financial markets in India are now fairly developed and its monetary policy is also comparable to some extent to that of developed countries. In this scenario, the objective of the study is to examine the impact of domestic market forces and external variables on yields of Government Securities determination in India. The importance of such a study can hardly be over-emphasized given the fact that prior to economic reforms in India, not only was the capital account closed, but most of the interest rates were also administered. As a result, the interest rates were to a great extent immune to both domestic market forces and external variables. In the post-reform period, however, Indian financial markets are more integrated and the movement of various rates of interest is generally concerted and responsive to market forces. With the onset of financial liberalization in 1991, various segments of the financial market were gradually deregulated and Government securities started paying market determined interest rates. The development of the financial markets has also improved the transmission of monetary policy and the fixed income Government securities market has matured a great deal over the years.

The focus of this study is on the secondary market yields on Government securities on a residual maturity basis. This paper thus examines the relative influence of various monetary and financial

variables on the yields on Government Securities. The determinants that are considered include the policy rate (repo rate), money supply growth, inflation, interest rate and liquidity. We have broadly divided factors into two categories;

(A) Fundamental i.e. factors that are relevant as per economic theory; and

(B) Technical, including the demand – supply equation for G-Secs.

### **Fundamental Factors**

**Inflation:** The yield expected by investors in Government Securities includes a premium for current inflation as well as expected inflation during the time horizon of the security.

**RBI Repo and Reverse-Repo Rates:** RBI rate action has a direct impact on yields (most of the times) as that is the steering wheel used by the central bank of the economy to guide market participants.

### **Technical Factors**

**System Liquidity:** System liquidity represents demand for G-Sec. Banks are the largest buyers of G-Sec. and higher liquidity means higher disposable cash with Banks which may be deployed in G-Sec. To be noted, even during tight system liquidity, there would be demand for G-Sec. due to SLR requirements on incremental deposits. When system liquidity is surplus, Banks purchase G-Sec. in excess of SLR requirements. The measure of system liquidity is quantum of applications in RBI LAF Repo (RBI funding banks) / Reverse Repo (excess liquidity with Banks).

**Deposits in the Banking System:** The aggregate demand and time deposits (NDTL) available with the banking system is a technical factor that affects yield because of its implications on the demand for Government Bonds, due to SLR requirements as well as for deployment in the absence of credit off-take. An increase in the deposits with the banking system results in an increased demand for Government Securities, resulting in fall in yields of Government Securities.

## **LITERATURE REVIEW**

Bekaert, Geert, Campbell, & Harvey, (1995) noted that since volatility is a standard measure of financial vulnerability, it plays a key role in assessing the risk/return tradeoffs and forms an important input in asset allocation decisions. In segmented capital markets, a country's volatility is a critical input in the cost of capital. Volatility in national markets is determined by world factors and part determined by local market effects, assuming that the national markets are globally linked. It is also consistent that world factors could have an increased influence on volatility with increased market integration.

Schwert & William, (1989) noted that time-variation in market volatility can often be explained by macroeconomic and micro structural factors.

Kawaller, Koch, & Koch, (1987) examined the intraday price relationship between S&P 500 Index and the S&P 500 Index futures. Their results show that both S&P 500 spot and futures markets are simultaneously related on a minute to minute basis throughout the trading day, and that a

lead lag relationship also exists. The lead from futures to cash appears to be more pronounced relative to cash to futures markets.

Kamara, Miller, & Siegel, (1992) examined the influence of innovations in the rate of productive activity, unanticipated changes in the default risk premium, unanticipated changes in discount rate, unanticipated price level changes and changes in expected inflation on the volatility for the pre future and post future period. The results indicate that the increase in volatility in the post futures period cannot be completely attributed to the introduction of futures trading.

On the other hand Day & Lewis, (1992), who study S&P 100 index options with expiries from 1985-1989, and Lamoureux & Lastrapes, (1993), who examine options on ten stocks with expiries from 1982 to 1984, conclude that implied volatility is biased and inefficient. Xu & Taylor, (1995) focus on the informational efficiency of the PHLX currency options market.

According to Jorion, (1995) who deals with FOREX data, implied volatility is an efficient but biased forecast of future volatility. Canina & Figlewski, (1993) show that there is almost no correlation between implied volatility and future realized volatility.

Nagraj & Kumar, (2004) studied the impact of index futures trading on spot market volatility using the data from June 2000 to February 2003 of the S&P CNX NSE Nifty. They found that the increase in the spot market volatility was due to the market becoming more efficient and assimilating the information into its prices.

As evident from the literature review, good number of studies carried out in different countries have studied the volatility of stock markets. They have tried to study the factors influencing the stock prices, foreign exchange & futures & options. The present study tries to study the variables influencing the movement of Government Securities yield.

This paper is an attempt to:

(A) Delineate the variables relevant for taking a view on movement of yields of government securities in the secondary market, and

(B) Establish the degree of correlation between the variables, as a measure of relevance for using that parameter. For our analysis, we have represented yields by the 10-year benchmark government security.

## **RESEARCH METHODOLOGY**

There are several factors affecting the movement of Government Securities yields. From these variables we have identified five Independent Variables and G-Sec. yield as Dependent Variable.

1. WPI Inflation (WPI)
2. Repo Rate (RR)
3. Reverse Repo Rate (RRR)
4. Average System Liquidity (Rs. Crores) (Avg. Liq.)
5. Incremental Deposits with Banking System (Rs. Crores) (Inc. Dep.)

Quarterly data for five Independent Variable mentioned here was considered for the period of 2007 to 2011, also data for the Dependent Variable G-Sec. Yield was also considered for the same period. The data is obtained from the RBI database on Indian Economy. Further the data for the study period was processed through Microsoft Excel and regression analysis is done. Contribution of each independent variable individually and their collective impact on the dependent variable was observed.

## FINDING & ANALYSIS

Taking all the above factors as independent variables and considering the 10-year benchmark Government security yield as the dependent variable in a regression analysis, we get the following regression results.

**Table 1: Regression Statistics Model Summary**

Multiple R	R Square	Adjusted R Square	Standard Error	Observations	F value	Sig.
0.869719	0.756411	0.604167	0.004319	14	4.968429	0.022972

Table 1 presents the summary of Regression Model. The 'Multiple R' in the regression analysis comes to 0.869719. If the value of 'Multiple R' in the 'Regression Statistics' is closer to 1, than the least-square regression line fits the data points pretty well, and there is linear (positive or negative) relation between the independent variables (WPI Inflation, Repo Rate, Reverse Repo Rate, Average System Liquidity & Deposits with Banking System) and the explained variable (10-year benchmark Government bond yields).

The 'R Square' (Coefficient of Determination) of 0.756411 means that almost 75% of the variations in the 10-year Government Bond Yields are explained by these independent variables, the 'Adjusted R square' tries to eliminate statistical shrinkage (a fall in R square value) that may occur if the tests were performed on the whole population of data rather than only a sample of 14 quarters. An adjusted R square of almost 60% reiterates the explanatory power of these independent variables.

The Standard Error is another statistical variable a value of 0.004319 (close to zero) further shows the extent of variation in the 10-year benchmark yield that occurs on account of factors other than those included in the analysis is rather small. Moreover, statistically testing this regression with the F-Test resulted in the following outcome.

Table 2 depicts the analysis of variance. The F-Test is resulting in a 'Significance F' of 0.022972 means that there is only a 2% chance that the relationship between the independent variable and the yield has occurred by chance. This is lower than the conventionally accepted significance level of 5%.

Table 3 shows the coefficients of the independent variables in Regression Analysis. Thus, the predictor equation becomes as follows:

$$\text{G-Sec Yield} = 0.038 + 0.147(\text{WPI}) + 0.121(\text{RR}) + 0.403(\text{RRR}) + 9.876(\text{Avg. Liq.}) + (-0.1339)(\text{Inc. Dep.}) + e_t$$

**Table 3: Coefficients**

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t- Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	0.038	0.015	2.573	0.032	0.004	0.073
WPI	0.147	0.067	2.188	0.060	-0.007	0.303
RR	0.121	0.343	0.355	0.073	-0.669	0.913
RRR	0.403	0.540	0.745	0.047	-0.842	1.649
Avg. Liq.	9.876	7.450	1.325	0.022	-7.305	2.705
Inc. Dep.	-1.339	1.705	-0.785	0.045	-5.273	2.593

## CONCLUSION

This study aims at identifying the determinants of Factors Influencing the Movement of Government Security Yields with reference to fundamental & technical factors. For this purpose five factors have been identified to be specific to fluctuation in G-Sec. Movements and are molded with multivariate regression analysis. Thus the result of analysis shows that these variables can explain the movements of the G-Sec. yields to the extent of 75.6%. Since, there are various internal as well as external factors behind the fluctuation in the yields of G.Sec. RBI and other Government agencies have to play their role. However, the G.Sec. yield fluctuation modeling through various other fundamental & technical factors bases on the different aspects of movement in G.Sec. yield remain the area for further research.

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## ANNEXURE

Table of ANOVA

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	5	0.000463	0.000093	4.968429	0.022972
Residual	8	0.000149	0.000019		
Total	13	0.000612			

## Anova summary

Multiple R	R Square	Adjusted R Square	Standard Error	Observations	F value	Sig.
0.869719	0.756411	0.604167	0.004319	14	4.968429	0.022972

## Table of Coefficient

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t- Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>
Intercept	0.038	0.015	2.573	0.032	0.004	0.073
WPI	0.147	0.067	2.188	0.060	-0.007	0.303
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Avg. Liq.	9.876	7.450	1.325	0.022	-7.305	2.705
Inc. Dep.	-1.339	1.705	-0.785	0.045	-5.273	2.593



# MARKET VALUE ADDED: AN EMPIRICAL ANALYSIS OF INDIAN BANKS

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## ABSTRACT

*The study finds that Indian banks recorded statistically significantly positive Market Value Added (MVA) during the period 2000-01 to 2009-10. In the study, HDFC bank emerged as the biggest wealth creator followed by State Bank of India and ICICI bank. IDBI bank, Federal bank, Dena bank, Syndicate bank and South Indian bank were the greatest wealth destroyers as these banks recorded negative mean MVA during the study period. It was also found that market value added is statistically significantly higher for private sector bank by Rs. 32557.25639 million than public sector banks. The study also found that Return on Capital Employed (ROCE), Return on Net worth (RONW) and interest spread were not statistically significantly related to MVA. Profit after tax (PAT) and Earnings per share (EPS) were found to be statistically significantly related to MVA. PAT and EPS explained 42 % and 12.2% change in MVA respectively. These results suggest that PAT turns out to be the most significant predictor of variation in MVA.*

**Keywords:** MVA, EVA, PAT, EPS, ROCE, Banks

**JEL Classification:** E1, G10, G21

## INTRODUCTION

The aim of a firm is to maximise its wealth. Wealth is represented by the value of the firm. It is apparently becoming important for every firm that it should maximise its value rather than profits. It is defined as a 'strategic management tool' by Gross. Value of the firm is represented by share price of the firm. This signifies that capital is obtained through equity shareholders and debt. But in case of banks it is only debt (in the form of deposits) they have which they use as capital. On the other hand the value of this share maximised through the concept of MVA (Market Value Added). This explains that how much a company has added value to its share every consecutive year. Continuing the understanding of capital of banks, as they only debt as their capital growth of the firm is not much as it can be using equity capital too. This gives relevance to the study in understanding the concept of MVA in case of banks in India.

Valuation of a business is a very complex exercise as it involves estimation of cash flows, cost of capital and adequate forecast period. Realistic and pragmatic assumptions of these variables are essential while valuing business. Valuation is an important tool in many business situations, such as part of internal strategic planning processes or decisions concerning mergers and

acquisitions. The multitude of literature on valuation theory reflects this importance. Banks being highly leveraged entities much of their business involves risking other people's money. This implies that banks are subject to particular rules and regulations, due to the role that they have in society. This is among other the case while a bank failure could have severe consequences for the overall economy, at least in the area where the bank in question operates. Thus, it is in national interest that banks do not face bankruptcy. In order to prevail this, risk-based capital requirements have been established. Regulators want to make sure that a bank also puts some of its owners' money at risk by financing some of its activities with equity and that banks do not achieve high returns simply by operating at unsustainable high levels of leverage.

### **Statement of the problem**

It is widely accepted that the main goal of the company is to maximize returns for its shareholders. Shareholders' wealth maximization is the criterion through which the performance of the company or organization can be analyzed optimally. Shareholder value creation became important benchmark for measuring the economic performance of the companies in late nineties when Alfred Rappaport published a book entitled 'Creating Shareholder Value'. As historical measures like return on capital employed, return on net worth, and profit after tax failed in measuring the economic performance of the companies, value based measures like Market Value Added, Economic Value Added, Shareholder Value Added, and Created Shareholder Value became popular in measuring the economic performance of the companies. These measures became popular because they considered cost of capital which was used as a discount rate in finding the present value of future cash flows that the business is likely to generate.

In this backdrop, it becomes quite essential to analyze the performance of the organizations using value based measures which account for the cost of capital and thus measures the true economic value of the organization. Banks being a highly levered entity rely heavily on equity capital to support higher level of financial leverage. As the financial leverage increases financial risk, equity shareholders will require higher rate of return in order to be compensated for assuming higher degree of risk. Hence using value based methods becomes quite useful in valuing banks which measures the returns earned by banks over and above the returns required by equity shareholders. The study is aimed at measuring and analyzing shareholder value creation in Indian banks using market value added as a tool of measurement.

### **REVIEW OF LITERATURE**

There is a correlation between MVA and EVA (Stewart, 1991). Stewart (1991) found that the market value of shares always reveals at least the value of net assets, even if the firm has low or negative returns. This relationship was strengthened by the results of the study of Lehn and Makhija (1996) who revealed that EVA and MVA to be effective performance measures that contain information about the quality of strategic decisions and serve as signals of strategic change. The study of Milunovich and Tsuei (1996); Hall and Bummer (1999); KPMG-BS Study (1998) found that EVA is a major factor which enhances MVA. ROA, ROE, EPS, and DPS have their

relationship respectively. Verma (2000) examined an appropriate way of evaluating bank's performance and also found out which Indian banks had been able to create shareholders wealth since 1996-1997 to 2000-2001 with the help of EVA and MVA (Market Value Added) which tell what the institution is doing with investor's hard earned money. Parasuraman (2000) concluded that EVA is an important measure to judge a bank performance in view of current scenario of banks. EVA has been found to have high degree of correlation with ROA but not with any of the other measures. It signifies a fact that banks realize the importance of measuring EVA measuring separately even if they do well on other fields.

On the other hand commercial banks may not create a positive EVA because of two reasons: (a) banks could be overcapitalized and (b) returns are very poor from banking business (Thampy and Baheti, 2001). Also the study of Singh (2005) tested the robustness of new tools of shareholder wealth measurement-EVA and MVA taking sample of 28 Indian banks over a five year period from 1999- 2003. He found that in India, EVA did not happen to be a better wealth measurement tool as compared to traditional performance measures. But he found significant statistical relationship between EVA and MVA.

Ramana (2005) empirically examined the relationship between MVA and EVA of Indian companies. It also indicated that PAT is a relatively better explanatory variable to the change in MVA. Reddy R. et al (2007) examined the financial performance of the selected cement companies in Andhra Pradesh by Market Value Added approach. The study was aimed at examining the effect of return on net worth, capital productivity, labour productivity, earnings per share, economic value added, return on sales, return on total assets, and cash profit on market value added. It was inferred that except earnings per share all other factors were found to have insignificant impact on market value added.

Soral and Bhanawat (2009) conducted the analysis of Indian banking industry using EVA. They selected a sample of 14 public sector and 12 private sector banks listed in Bombay Stock Exchange. The financial data of these sample units for four years, viz., 2003-04 to 2006-07, were used for the analysis and comparison. Equity approach was followed to compute EVA. Average EVA for all public sector banks under study for the whole period of analysis was found to be Rs. 774.57 cr. The corresponding figure for the private sector banks was Rs. 393.47 cr. This finding contradicts with that of some earlier researches (Parasuraman, 2000; and Thampy et al., 2000), which concluded that Indian banks do not create any value for their shareholders. The difference between the mean values of EVA for public sector and private sector banks, however, was not found significant (value of  $t' 0.0096 < 2.06$ ). Among public sector banks, State Bank of India (SBI) ranked the highest in terms of average EVA (Rs. 6193.24 cr), while Canara Bank was the only one with negative average EVA (Rs. 1390.20 cr). ICICI Bank Ltd. stood highest among private sector banks with regard to average EVA (Rs. 2036.12 cr), while no bank in this category had negative average EVA for the entire period of the study.

**Research Gap:** Many studies had been carried out on measuring and analyzing shareholder value creation in Indian context. Majority of them used EVA as tool to measure shareholder value creation and examined its superiority against other traditional measures. Very few studies aimed

at measuring shareholder value creation in Indian banks have been undertaken. Majority of the studies considered five to six year time period to analyze shareholder value creation using EVA as the tool of value measurement. This study covers the period of 10 years significantly greater period than covered under earlier studies. This study will focus on measuring shareholder value creation in Indian banks through market value added as a measurement tool. It will also examine whether there exists any statistically significant difference between market value added by public and private sector banks.

## RESEARCH OBJECTIVES

The study is aimed at achieving following objectives

1. To undertake measurement of shareholder value creation by Indian banks through the method of Market Value Added during the study period
2. To rank Indian banks in terms of average Market Value Added reported during the study period.
3. To undertake comparative study of Market Value Added of Indian public and private sector banks during the study period
4. To identify the most significant predictor among different performance measures, that best explains the change in Market Value Added of selected Indian banks

## MATERIALS AND METHODS

### Research Hypotheses

The null hypothesis method was used to maintain objectivity and avoid ambiguity in results. This is the hypothesis of no differences. The hypothesis can be accepted or rejected only at certain probability levels. In order to achieve the objectives of the study following hypotheses were framed.

1. Indian banks have not recorded positive market value added during the study period.
2. There is no significant difference between market value added (MVA) of Indian public and private sector banks.
3. There is no significant positive relation between MVA and ROCE.
4. There is no significant positive relation between MVA and RONW.
5. There is no significant positive relation between MVA and PAT.
6. There is no significant positive relation between MVA and EPS.
7. There is no significant positive relation between MVA and interest spread.

### Data Collection

All the financial information required for the study has been sourced from CMIE's corporate database *Prowess* and data regarding share prices have been taken from official website of National Stock Exchange. For calculating MVA, market capitalization as on 31<sup>st</sup> March for each year of the study period was considered which was taken from CMIE *Prowess* database. Book values of equity for the same period were also computed from the same software.

For the purpose of analysis, 21 banks listed with National Stock Exchange are selected conveniently considering the availability of the data for the study period.

### Tools Used

Descriptive statistics have been used to analyse market value added during the study period. The research data is analyzed using Statistical Package for Social Sciences (SPSS). Independent sample t test has been used to investigate the difference between MVA of public sector banks and private sector banks. One sample t test is used to analyze whether Indian banks have recorded positive market value added. Regression analysis is also used to analyze the cause and effect relationship between MVA and other performance measures.

## RESULTS AND DISCUSSION

Table-1 shows descriptive statistics of market value added by the sample bank during the study period 2001 through 2010. Mean MVA of sample banks was recorded highest in the March 2010 with an amount of Rs. 123925.58 million. In March 2002 witnessed significant erosion in the wealth of shareholder as MVA was recorded to be Rs. -6127.56 million in that period. There was an increase of 3962.39% in the MVA of sample banks during the period March 2001 to March 2010. It can also be inferred from the table-1 that MVA rose significantly in March 2010 recording the highest standard deviation of Rs. 225378.183 million. MVAs of sample banks did not vary significantly in March 2003 as it recorded the lowest standard deviation of Rs 17300.74 million.

**Table 1: Descriptive Statistics of Market Value Added (MVA) of sample banks for the period 2001 through 2010 (Rs. Millions)**

	N	Mean	Std. Deviation	Variance
March 2001	21	-3208.52	19895.832	3.958E+08
March 2002	21	-6127.56	18948.630	3.591E+08
March 2003	21	-4425.22	17300.743	2.993E+08
March 2004	21	20184.26	35975.224	1.294E+09
March 2005	21	27280.39	45425.877	2.064E+09
March 2006	21	46963.88	85653.131	7.336E+09
March 2007	21	60444.95	128157.308	1.642E+10
March 2008	21	82858.37	154657.145	2.392E+10
March 2009	21	2954.85	73563.332	5.412E+09
March 2010	21	123925.58	225378.183	5.080E+10
Valid N (list wise)	21			

As shown in Chart-1 that MVA of sample banks varied significantly during the study period. MVA increased in seven years out of ten years of the study period. MVA increased consistently from the period March 2002 to March 2008 accounting for 1452.22 % increase in shareholders' wealth during that period.

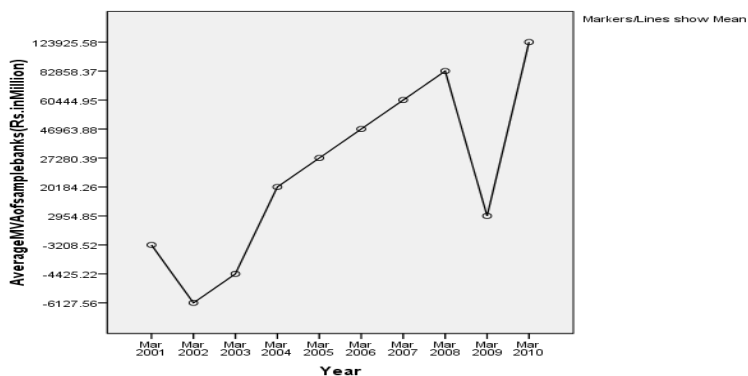
**Chart 1: Trends of MVA of Sample Banks during the period March 2000 through March 2010**

Table 2 depicts descriptive statistics of MVA of all sample banks. HDFC bank was the biggest value creator topping the list with highest mean MVA of Rs. 206092.32 million. State Bank of India emerged as the second largest value creator recording mean MVA of Rs. 189098.83 million. IDBI bank was ranked at last position as it recorded a mean MVA of Rs. -25852.56 thus proving to be a wealth destroyer for the shareholders. Oriental Bank of Commerce recorded greatest volatility in its MVA as its coefficient of variation is recorded to be 14825.22 %. HDFC bank has recorded highest mean MVA and the coefficient of variation is 94.64% which shows that MVA of the bank has been consistent over the study period. IDBI bank, Federal bank, Dena bank, Syndicate bank and South Indian bank were the greatest wealth destroyers as these banks recorded negative mean MVA during the study period. Vijaya bank also recorded a marginal wealth reduction with mean MVA of Rs. -33.41 million and coefficient of variation of (CV) – 29025.8 %. (Table2)

Table (see in Annexure) presents the year-wise Market Value Added (MVA) and average MVA based ranking of Indian banks during the study period. Here, Total MVA i.e. wealth created by the sample as a whole is observed to be positive in seven years out of ten years during the study period whereas in three years it is observed negative. Total MVA ranged between lower of Rs. -128679 million in 2001 to a higher of Rs. 2602434 million in 2010. The table also shows that companies namely HDFC bank, State Bank of India, ICICI bank, Axis bank and Kotak Mahindra banks are at the top of the list in terms of mean MVA during the study period. On the contrary, Dena bank, Federal bank and IDBI rank occupied last three ranks respectively. Likewise, the wealth creating abilities or lack thereof of the other sampled banks can also be observed through their MVA numbers tabulated in tables 4.6.3.

Further, out of all ten years of study period, sample as a whole did not report average positive MVA in a single year. Mean MVA of sample banks increased from Rs. -3208.52 million in 2001 to Rs. 123925.6 million in 2010.

**Table-2: Descriptive Statistics for Bank wise MVA**

Name of the Bank	Mean	Rank	Std. Deviation	C.V. (%)
Axis bank	79452.18	4	101608.088	127.8858
Bank of Baroda	1460.40	11	33140.398	2269.269
Bank of India	10206.77	6	23286.492	228.1476
City Union Bank	116.32	15	1857.979	1597.354
Corporation Bank	4067.51	9	13646.635	335.5037
Dena Bank	-1636.60	19	3177.356	-194.143
Federal Bank	-2488.22	20	6723.439	-270.211
HDFC Bank	206092.32	1	195043.158	94.63873
ICICI Bank	188187.69	3	237877.069	126.4042
IDBI Bank	-25852.56	21	27834.769	-107.667
ING Vysya Bank	4801.41	8	6902.090	143.7513
Indian Overseas Bank	3879.53	10	18682.365	481.5621
IndusInd Bank	6737.72	7	15850.036	235.2432
Jammu and Kashmir Bank	831.59	13	7708.317	926.9372
Karur Vysya Bank	850.71	12	3961.236	465.6388
Kotak Mahindra Bank	72866.89	5	78880.136	108.2524
Oriental Bank of Commerce	136.64	14	20257.176	14825.22
South Indian Bank	-974.54	17	3109.700	-319.094
State Bank of India	189098.83	2	231717.371	122.5377
Syndicate Bank	-1014.16	18	10756.732	-1060.65
Vijaya Bank	-33.41	16	9696.084	-29025.8

**Testing Of Hypotheses:** Following hypotheses were tested to accomplish the research objectives.

**Hypothesis-1** Indian banks have not recorded positive market value added.

Following statistical hypothesis was framed to test the hypothesis-1.

$H_0: \mu = 0$  Indian banks have not recorded positive mean MVA

$H_1: \mu > 0$  Indian banks have recorded positive mean MVA.

One sample t-test was used to test aforesaid hypothesis.

**Table 4: One sample t test for MVA (Test value =0)**

Mean	35085.0957
Standard Deviation	109871.09819
Standard Error	7581.82608

T –statistics	4.628
Df	209
Sig. (2 –tailed)	0.000
Sig. (1-tailed)	0.000

## EMPIRICAL RESULTS

Table 4 presents the results of one sample t test. It is evident from the table that sample of 21 Indian banks recorded mean MVA of Rs. 35085.096 million during the study period. The results of the test show that Indian banks have recorded statistically significantly positive MVA during the study period,  $t(209) = 4.628$ ,  $p = 0.000$

**Hypothesis-2** There is no significant difference between market value added (MVA) of Indian public and private sector banks

An independent samples t test was conducted to compare MVA of Indian private sector public and banks. It is quite evident from the table 5 (b) that there was a significant difference in MVA of Indian private sector banks ( $M = \text{Rs. } 50588.55 \text{ million}$ ,  $SD = \text{Rs. } 121866.98 \text{ million}$ ) and public sector banks ( $M = \text{Rs. } 18031.29 \text{ million}$ ,  $SD = \text{Rs. } 92585.42 \text{ million}$ ) conditions;  $t(201.79) = 2.191$ ,  $p = 0.03$ . These results suggest that MVA is statistically significantly higher for private sector banks by Rs. 32557.26 million. (See in annexure **Table 5 (a) and Table 5(b)**)

**Regression Analysis** :In order to test hypotheses three to seven, following regression models are used to identify the most significant predictor of variation in market value added.

Model 1:  $MVA_{it} = \beta_0 + \beta_1 ROCE_{it} + e_{it}$

Model: 2  $MVA_{it} = \beta_0 + \beta_1 RONW_{it} + e_{it}$

Model: 3  $MVA_{it} = \beta_0 + \beta_1 PAT_{it} + e_{it}$

Model: 4  $MVA_{it} = \beta_0 + \beta_1 EPS_{it} + e_{it}$

Model: 5  $MVA_{it} = \beta_0 + \beta_1 \text{Interest spread}_{it} + e_{it}$

In above models, MVA of ith bank for t periods is taken as an dependent variable where as ROCE, RONW, PAT, EPS and interest spread for ith bank and t periods are taken as independent variables.

**Hypothesis-3** There is no significant positive relation between MVA and ROCE.

Univariate regression model was used to analyse the relationship between MVA and ROCE. Table-6 shows the results of regression model. The results of regression indicated that ROCE explained 1.6% of the variance in MVA ( $R^2 = .016$ ,  $F = 3.446$ ,  $p > .05$ ). It was found that ROCE did not significantly predict market value added ( $\beta = -0.128$ ,  $p > 0.05$ ).

**Hypothesis-4** There is no significant positive relation between MVA and RONW



Results of regression results are shown in table-6. The results of regression indicated that RONW explained 0.00% of the variance in MVA ( $R^2=.000$ ,  $F=0.005$ ,  $p>.05$ ). It was found that RONW did not significantly predict market value added ( $\beta = -0.005$ ,  $p > 0.05$ ).

**Table 6: Regression Analysis**

<b>Model 1: <math>MVA_{it} = \beta_0 + \beta_1 ROCE_{it} + e_{it}</math></b>	
R squared	0.016
Adjusted R squared	0.012
F statistics	3.446
p-value	0.065
Beta Coefficient	-0.128
t statistics	-1.856
p-value	0.065
<b>Model: 2 <math>MVA_{it} = \beta_0 + \beta_1 RONW_{it} + e_{it}</math></b>	
R squared	0.000
Adjusted R squared	-0.005
F statistics	0.005
p-value	0.978
Beta Coefficient	-0.005
t statistics	-0.069
p-value	0.945
<b>Model:3 <math>MVA_{it} = \beta_0 + \beta_1 PAT_{it} + e_{it}</math></b>	
R squared	0.420
Adjusted R squared	0.417
F statistics	150.556
p-value	0.000
Beta Coefficient	0.648
t statistics	12.270
p-value	0.000
<b>Model:4 <math>MVA_{it} = \beta_0 + \beta_1 EPS_{it} + e_{it}</math></b>	
R squared	0.122
Adjusted R squared	0.117
F statistics	28.817
p-value	0.000
Beta Coefficient	0.349
t statistics	5.368
p-value	0.000
<b>Model:5 <math>MVA_{it} = \beta_0 + \beta_1 Interest\ spread_{it} + e_{it}</math></b>	
R squared	0.018

Adjusted R squared	0.013
F statistics	3.834
p-value	0.052
Beta Coefficient	0.135
t statistics	1.958
p-value	0.052

**Hypothesis-5** There is no significant positive relation between MVA and PAT

Table-6 shows the regression results of the model used to examine the relationship between MVA and PAT. The results of regression indicated that PAT explained 42% of the variance in MVA ( $R^2=0.42$ ,  $F=150.56$ ,  $p < 0.001$ ). It was found that PAT significantly predicted market value added ( $\beta = 0.648$ ,  $p < 0.001$ ).

**Hypothesis-6** There is no significant positive relation between MVA and EPS.

Table-6 shows the regression results of the model used to analyze the relationship between MVA and EPS. The results of regression showed that EPS explained 12.2% of the variance in MVA ( $R^2=0.122$ ,  $F=28.82$ ,  $p < 0.001$ ). It was found that EPS significantly predicted market value added ( $\beta = 0.349$ ,  $p < 0.001$ ).

**Hypothesis-7** There is no significant positive relation between MVA and interest spread.

Table-6 shows the regression results of the model used to analyze the relationship between MVA and interest spread. The results of regression showed that interest spread explained 1.9% of the variance in MVA ( $R^2=0.018$ ,  $F=3.834$ ,  $p > 0.05$ ). It was found that interest spread did not significantly predict market value added ( $\beta = 0.135$ ,  $p > 0.05$ ).

## FINDINGS

Following are the main findings of the study.

- From MVA perspective, the study found that out of 10 years of study period, the sample banks recorded negative MVA in three years (i.e. from 2001 to 2003) whereas they recorded positive MVA during seven consecutive years from 2004 to 2010
- Out of all 10 years of study period, the sample as a whole did not report average positive MVA in a single year. Average MVA of entire sample during the entire period was found to be Rs. 35085.10 million with a standard deviation of 109871.098 million.
- Taking average MVA as a base, the banks which emerged as top five wealth creating banks are; HDFC bank (Rs. 206092.32 million), State Bank of India (Rs. 189098.83 million), ICICI bank (Rs. 188187.69 million), Axis bank (Rs. 79452.18 million) and Kotak Mahindra bank (Rs. 72866.89 million). On the other hand, IDBI bank (Rs. -25852.56 million), Federal bank (Rs. -2488.22 million), Dena bank (Rs. -1636.60 million), Syndicate bank (Rs. -1014.16 million) and South Indian (Rs. -974.54 million) bank are found to be top five wealth destroying banks (worst performers) in the sample.

- The sample of 21 banks as a whole recorded statistically significantly positive MVA during the study period. It thus implies that Indian banks have recorded positive MVA during the study period.
- It was also found from the study that there was a significant difference in MVA of Indian private sector banks and public sector banks. It was found that MVA is statistically significantly higher for private sector banks by Rs. 32557.26 million as against public sector banks.
- It was also found that ROCE and RONW were not statistically significantly related to MVA. PAT, EPS and interest spread were found to be statistically significantly related to MVA. PAT and EPS explained 42 % and 12.2% variation in MVA respectively. These results suggest that PAT turns out to be the most significant predictor of variation in MVA.

## CONCLUSION

The study found that shareholder value creation measured in terms of market value added has been positive in case Indian banks. The results prove that sample Indian banks recorded positive MVA during the study period with a mean MVA of Rs. 35085.0957 million. The results are thus consistent with the study of Soral and Bhanawat (2009) that indicated has Indian banks have created shareholder value. It was also found from the study that private sector banks outperformed public sector banks in terms of average MVA reported during the study period which contradicts the study of Soral and Bhanawat (2009) that proved that there was no significance difference between the shareholder value creation of Indian public and private sector banks as measured in terms of average EVA. Finally, study identified that PAT is the most significant predictor of variation in MVA of Indian banks which is consistent with Ramana (2005) who showed that PAT significantly explains change in MVA.

## Future research potential

The study considered only market value added as a method of analyzing shareholder value creation in Indian Banks. As there are many methods of measuring shareholder value creation, the results of one method should be compared with that of other methods to undertake detailed analysis of shareholder value creation in Indian banks. Thus, further studies are warranted to explore shareholder value creation in Indian banking sector to arrive at comprehensive conclusion.

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**Table 5(a and b)**

Group Statistics							
		Bank Sector	N	Std. Deviation		Std. Error Mean	
Market Value Added		Private Sector Bank	110	121866.97727		11619.56037	
		Public Sector Bank	100	92585.42407		9258.54241	
		Levene's Test for Equality of Variances	t-test for Equality of Means				
		F	t	Df	Sig. (2-tailed)	Mean Difference	Std. Error Difference

## Market Value Added: An Empirical Analysis of Indian Banks

Bank	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	AveMVA	Ran k
Axis Bank	276.48	1495.44	-143.01	23043.9	40838.0	70371.5	104089.7	194829.9	46821.1	312898.4	79452.1	4
BOB	-8867.40	-19057.1	-15067.1	21576.6	7580.9	5537.1	-8164.0	-7224.4	-43431.3	81720.7	1460.4	11
BOI	-12295.6	-6487.8	-12327.0	-8294.01	7526.31	16827.0	24327.0	44737.6	-2622.9	50677.1	10206.	6
City Union Bank Ltd.	-613.10	-840.2	-756.1	-371.4	-385.2	-177.00	420.26	3387.40	-2705.20	3203.70	116.3	15
Corp. Bank	-265.00	-1341.9	-4746.2	12580.8	23061.4	21263.9	3835.4	-1835.1	-23059.8	11181.4	4067.5	9
Dena Bank	1567.2	-172.9	-1213.5	-428.23	-776.24	-229.5	-2349.6	-1094.5	-10196.1	-1472.24	-1636.6	19
Fed Bank Ltd.	-3138.3	-1905.3	-3238.5	1814.8	-3770.0	4842.2	3534.7	-2167.8	-19624.6	-1229.39	-2488.2	20
H D F C Bank	46314.9	47004.6	43489.9	80806.0	123209.	189454.	240414.	356866.	263541.4	669821.7	206092.3	1
I C I C I Bank Ltd.	19549.2	-38647.1	9160.2	100685.	161652.	299476.	521116.	388017.7	124840.2	545706.4	188187.6	3
I D B I Bank Ltd.	-71983.5	-54768.0	-57457.4	-19051.9	554.35	-6579.4	-5862.44	-3232.39	-41482.7	1338.02	-25852.5	21
I N G Vysya Bank Ltd.	-2474.8	173.28	233.1	5076.3	6879.61	3976.9	5951.9	20047.0	-2766.93	10917.6	4801.4	8
Indian Overseas Bank	-2651.10	-3319.32	-4301.10	12292.4	17465.4	22159.7	17254.2	26081.6	-34571.1	-11615.4	3879.5	10
<b>Indus Ind Bank Ltd.</b>	<b>-3204.50</b>	<b>-2947.30</b>	<b>-3510.70</b>	<b>871.05</b>	<b>6286.20</b>	<b>4926.27</b>	<b>2864.13</b>	<b>16821.7</b>	<b>-2892.1</b>	<b>48162.4</b>	<b>6737.7</b>	<b>7</b>
J & K Bank Ltd.	-5186.16	-5813.35	-6898.22	7980.18	1264.53	3859.05	11250.3	9884.6	-10967.7	2942.7	831.5	13
Karur Vys. Bank Ltd.	-1645.92	-1993.83	-2654.52	-691.21	-234.84	163.57	3285.3	6127.34	-2708.5	8859.7	850.71	12
Kotak Mah. Bank Ltd.	-1613.87	3288.61	3943.98	17943.58	34292.8	77724.7	139739.7	179793.7	58492.5	215062.9	72866.8	5
OrieBank of Comm	-7189.22	-8110.91	-8424.51	31417.34	26426.8	14431.0	-4112.2	-13338.4	-36939.0	7205.52	136.6	14
South Ind. Bank Ltd.	-1396.00	-1172.67	-1882.01	-1333.80	-1475.31	-2083.3	-44.61	1252.55	-7070.07	5459.91	-974.5	17
State Bank Of India	-6090.61	-25848.9	-22842.9	120090.6	103899.	233279.	210392.4	520183.8	98003.6	659921.1	189098.8	2
Syndicate Bank	-5905.18	-6924.04	-1789.13	4002.45	6143.90	20523.3	1468.3	469.8	-20870.	-7261.0	-1014.1	18

# RELATIONSHIP BETWEEN RBI LIQUIDITY DECISIONS AND HOUSEHOLD EXPENDITURES

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## ABSTRACT

*Household expenditure of India is dependent on various factors. In order to study the role of liquidity decisions, there comes a need to study the underlying factors which influence household expenditure. The present study focused on the two variables which were inflation rate and interest rates, as they were assumed that they affect the household expenditure. In order to empirically prove this fact linear and multiple regression equations were formed by taking household expenditure as dependent variable and other two as independent variables. The results suggested that inflation rate and interest rates had no cause and effect relationship on household expenditure whereas results were just reverse in case of inflation and interest rates.*

**Keywords:** Monetary Policy, Household Expenditure, RBI

## INTRODUCTION

### Reserve Bank of India

The Reserve Bank of India (RBI) is India's central banking institution, which controls the monetary policy of the Indian rupee. It was established on 1 April 1935, during the British Raj in accordance with the provisions of the Reserve Bank of India Act, 1934. The RBI plays an important part in the development strategy of the Government of India. It is a member bank of the Asian Clearing Union. The general superintendence and direction of the RBI is entrusted with the 21 member strong Central Board of Directors the Governor (currently Raghuram Rajan), four Deputy Governors, two Finance Ministry representative, ten government nominated directors to represent important elements from India's economy, and four directors to represent local boards headquartered at Mumbai, Kolkata, Chennai and New Delhi. Each of these local boards consists of five members who represent regional interests, as well as the interests of co-operative and indigenous banks. The bank is also active in

promoting financial inclusion policy and is a leading member of the Alliance for Financial Inclusion (AFI).

### Functions of RBI

- To regulate the issue of bank notes. It has sole right to issue bank notes of all the denominations.
- To maintain reserves with a view to securing monetary stability.
- To operate the credit and currency system of the country to its advantage.
- Banker, agent and adviser to the government.
- RBI's is the banker's bank and also the lender of the last resort.
- Regulator and supervisor of the financial system.
- Manager of exchange control i.e. to facilitate external trade and payment and maintenance of foreign exchange market in India.

### Liquidity Decision

Liquidity decision is concerned with the management of current assets. Basically, this is Working Capital Management. Working Capital Management is concerned with the management of current assets. It is concerned with short-term survival. Short term survival is a prerequisite for long-term survival. When more funds are tied up in current assets, the firm would enjoy greater liquidity. In consequence, the firm would not experience any difficulty in making payment of debts, as and when they fall due.

With excess liquidity, there would be no default in payments. So, there would be no threat of insolvency for failure of payments. However, funds have economic cost. Idle current assets do not earn anything. Higher liquidity is at the cost of profitability. Profitability would suffer with more idle funds. Investment in current assets affects the profitability, liquidity and risk.

A proper balance must be maintained between liquidity and profitability of the firm. This is the key area where finance manager has to play significant role. The strategy is in ensuring a trade-off between liquidity and profitability. This is, indeed, a balancing act and continuous process. It is a continuous process as the conditions and requirements of business change, time to time. In accordance with the requirements of the firm, the liquidity has to vary and in consequence, the profitability changes. This is the major dimension of liquidity decision working capital management. Working capital management is day to day problem to the finance manager.

### Nominal Interest Rate & Real Interest Rate

The nominal interest rate (or money interest rate) is the percentage increase in money you pay the lender for the use of the money you borrowed. For instance, imagine that you borrowed \$100 from your bank one year ago at 8% interest on your loan. When you repay the loan, you must repay the \$100 you borrowed plus \$8 in interest a total of \$108. But the nominal interest rate doesn't take inflation into account. In other words, it is unadjusted for inflation.

The real interest rate measures the percentage increase in purchasing power the lender receives when the borrower repays the loan with interest. In our earlier example, the lender earned 8% or \$8 on the \$100 loan. However, because inflation was 5% over the same time period, the lender actually earned only 3% in real purchasing power or \$3 on the \$100 loan.

### Household Expenditure

Household expenditure is defined as the sum of household consumption expenditure and the non consumption expenditures of the household. The latter are those expenditures incurred

by a household as transfers made to government, non-profit institutions and other households, without acquiring any goods or services in return for the satisfaction of the needs of its members. Household expenditure represents the total outlay that a household has to make to satisfy its needs and meet its legal commitments.

Household final consumption expenditure (HFCE) is a transaction of the national account's use of income account representing The household sector covers not only those living in traditional households, but also those people living in communal establishments, such as retirement homes, boarding houses and prisons.

The above given definition of HFCE includes expenditure by resident households on the domestic territory and expenditure by resident households abroad (outbound tourists), but excludes any non-resident households' expenditure on the domestic territory (inbound tourists).

HFCE is measured at purchasers' prices which is the price the purchaser actually pays at the time of the purchase. It includes non-deductible value added tax and other taxes on products, transport and marketing costs and tips paid over and above stated prices.

### **Inflation**

Inflation is a persistent increase in the general price level of goods and services in an economy over a period of time. When the general price level rises, each unit of currency buys fewer goods and services. Consequently, inflation reflects a reduction in the purchasing power per unit of money a loss of real value in the medium of exchange and unit of account within the economy. A chief measure of price inflation is the inflation rate, the annualized percentage change in a general price index (normally the consumer price index) over time. Inflation's effects on an economy are various and can be simultaneously positive and negative. Negative effects of inflation include an increase in the opportunity cost of holding money, uncertainty over future inflation which may discourage investment and savings, and if inflation is rapid enough, shortages of goods as consumers begin hoarding out of concern that prices will increase in the future. Positive effects include ensuring that central banks can adjust real interest rates (to mitigate recessions), and encouraging investment in non-monetary capital projects.

### **LITERATURE REVIEW**

The relationship between interest rates and inflation rates seems to be apparent. These are important players of monetary policy determination. The Taylor rule developed by Taylor (1993) explained that short term interest rate is a reaction function of inflation gap. The work of Dinesh Unnikrishnan (2013) also analysed that interest rates are determined by the inflationary pressures. Reddy (2002) revealed that stability of inflation is the prime objective of Reserve Bank of India. The management of monetary policy can help in solving the problem of inflation. Some other tools for curbing inflation problems are used by RBI from time to time. One of them is Liquidity Adjustment Facility (LAF). This was supported from the study of Mitra (2012). Gokarn (2011) examined that liquidity conditions do not hamper the smooth functioning of financial markets and disrupt flows to the real economy but it s RBI which manages the liquidity management decisions. A point to be noted from the study of Taylor (1995) that 'negative monetary shocks' restrict the deposits in banks (Jayadev, 2010). Further he argued that these shocks are determined by financial market prices. Short term interest rates increase when inflation increases. When this increases wages and prices also increases which leads to increase in real long term rates. These higher real long-term rates lead to a decline in real investment, real



consumption, and thereby on real GDP. In the long run, after wages and prices of goods began to adjust, real GDP returns to normal. He emphasized the role of interest rates in responding to monetary policy and affecting economic activity. This shock mechanism is required to be managed by making interest rate structure and institutional structure (Arun Ghosh, 1994). Another factor of monetary policy is the reserve money (Paulson, 1989). It is money which includes Currency in circulation comprises currency with the public and cash in hand with banks. The public's demand for currency was determined by a number of factors such as real income, price level, the opportunity cost of holding currency (*i.e.*, the interest rate on interest-bearing assets) and the availability of alternative instruments of transactions, *e.g.*, credit/debit cards, ATMs, and cheques. But this being a pre reform study, there can be other implications too. But post reform study of Longworth (2007) also found that reserve money plays a crucial role in the determination of monetary aggregates. He concluded that the impact of such decisions on household expenditure was that it helps in the circulation of money of the individuals. As banks maintain CRR on the discretion of RBI it helps in deciding the flow of money in the market pertaining to loans to be given and level interest rate on savings. Another determinant of monetary policy are short term interest rates *i.e.* Call Money interest rates (Drehmann and Nikolaou, 2011). It is rate of lending the money overnight requirements. Due to the reserves of money, RBI is the supplier of funds which is again determined by LAF. Furthermore reduction in the supply of credit was suggested by the study of Sinha (1995). An interesting verity proposed by the study of Reddy (1999) was that monetary policy transmission has four channels which help in the functioning of the same namely exchange rate channel, interest rate channel, quantum channel and assets prices channel. The elementary one is the quantum channel which directly affects the price level and real output. It is evident from the study of Nuran Gokbudak (1995) that money multiplier and aggregates measuring monetary control are important factors to achieve a stipulated money supply level. This, in turn, will enable the Central Bank to provide price stability and high powered money.

### OBJECTIVES OF THE STUDY

- To find out the effect of inflation on household expenditure
- To find out the effect of inflation rates on interest rate
- To find out the effect of interest rates on household expenditure

### RESEARCH METHODOLOGY

The study was causal and empirical in nature. It aimed to study the relationship between RBI liquidity decisions *i.e.* deposit interest rates, inflation rates and household expenditures. A model was developed to explain this relationship. This was in Indian context. For the purpose inflation rates and real and nominal interest rates were taken for the study. Household expenditures were taken which were represented by personal disposable income. The time frame of 10 years was taken ranging from 2002-2012. Study was based on secondary data which will be collected from RBI website, World Bank website. Individual sample was taken for the study. Purposive sampling technique was used as the data was taken according to the availability of the same. Further this relationship was analysed by forming Linear Regression models. Multiple Regressions models

were formed and were used to analyze the relationship between the dependent and independent variables of the study.

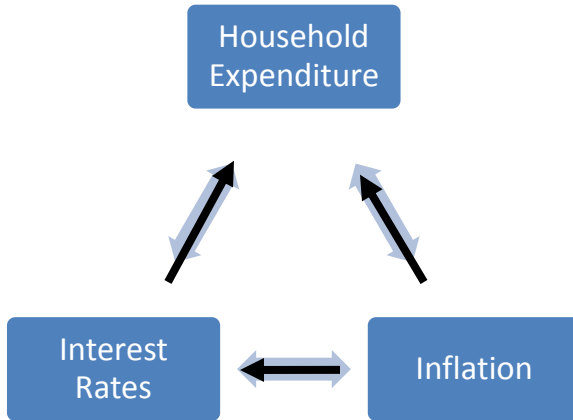
Linear Regression was used to regress:

- Deposit rate on household expenditure.
- Inflation rate on household expenditure.
- Inflation on interest rate.

Multiple regressions were used to evaluate the cause and effect relationship between household expenditure as dependent variable and inflation rates and deposit rates as independent variables.

## RESULTS AND DISCUSSION

### Regression Analysis



**Table1. Regression Statistics**

Variables	R <sup>2</sup>	F-value	Sig	$\beta$	T-value	Sig
1. Deposit rate and Household Expenditure	.294	3.750	.085	-.542	-1.936	.085
2. Inflation rate and Household Expenditure	.254	3.058	.114	-.504	-1.749	.114
3. Inflation rate and Interest Rate	.525	9.941	.012	.724	3.153	.012

1. The R square value measures how much of the variability in the outcome is accounted in the dependent variable household expenditure is explained by the independent variable. In this model the value of R square is .294 that indicates independent variable deposit rates explain 29.4% variance in household expenditure. This shows that deposit rate has less effect on the household expenditure. The value of F 3.750 was significant at 8.5% level of significance and thus the null hypothesis was not rejected at 10% level of significance implying that model has less fit. The results indicated by t-values as it is significant at 8.5%, therefore we can say null hypothesis is not rejected implying that there is no significant cause and effect relationship between the

## Relationship between RBI Liquidity Decisions and Household Expenditures

variables. The beta value is (-.542) showing that there is negative relationship between the two variables. This relationship is seen in all the economies. Taylor (1993) introduced Taylor rule which revealed the relationship in Federal Reserve decisions. The same can be explicitly seen from the present study and hence this can be concluded that inflation determines the interest rates. Change in the Interest rate (Deposit Rates) is the reaction measure which is important factor determining the output level and price level (Taylor, 1993). Further the present could not find direct relationship between the inflation rate and household expenditures instead a relationship existed when the relationship was established with deposit rates and household expenditures and deposit rates with inflation rates. This was evident from the study of Taylor (1995).

2. Similar results were deduced from the relationship Inflation Rate and Household Expenditure. Further, in this model the value of R square is .254 that indicates independent variable inflation explains 25.4% variance in household expenditure. This shows that inflation constitutes very less in household expenditure determination and majority of the variance is due to other variables. The ANOVA table summary indicates that the value of F which was 3.058 was significant at 11.4% level of significance and thus the null hypothesis was rejected at 10% level of significance. Again implying that model used has low fit. Further, the beta value is (-0.504) showing that there is negative relationship between the two variables.

3. But, the results estimated while checking the relationship between inflation and deposit rates stated that there exists a cause and effect relationship between the variables and are one of the constituents in determining deposit rates. It is explained from t-values 3.153 which are significant at 1.2%. Further, model is also highly fit indicated from F-values 9.941 which are significant at 1.2%. The beta value is 0.724 showing that there is positive relationship between the two variables.

**Table 2 Multiple Regression Statistics**

Variables	Adjusted R <sup>2</sup>	F-value	Sig.	β	T-value	Sig.
1. Inflation , Interest Rate and Household Expenditure	.150	1.881	.214			
-Inflation rate				-.233	-.551	.597
-Interest Rate				-.373	-.883	.403

Multiple regression equation was formed to look at the cause and effect relationship of Inflation Rates and Deposit Rates and Household Expenditure respectively. It was seen that both the independent variables had no significant impact on dependent variables when taken together. Also there is high co linearity. The adjusted R square is 15% explaining low variances caused by both other independent variables. Overall, model had low fit because F-value 1.881 was significant at 21.4% again more than 10%.

## CONCLUSION

The study was an attempt to enhance the understanding of the relationship between interest rates and inflation rate in the country. The study found that interest rates are determined by inflation rate. It is concluded that Reserve Bank of India changes its monetary policy time to time in order to curb the problem of inflation as its stability is the main objective. As interest rates are determined because of inflation rate, therefore inflation indirectly impact household expenditure. But there was no direct relationship found in the household expenditure and inflation rate. The relationship was found in interest rates and household expenditures but this was established taking 10% significant level. The study developed a model which clearly explains the results. This study is indented to be a useful contribution to the researchers and policy makers in their studies to understand the relationship between Inflation, Interest rates and Household Expenditure respectively. This relationship helps to determine the role of independent variables in determining dependent variable.

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### ANNEXURE

#### Deposit rates and Household expenditure

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.542 <sup>a</sup>	.294	.216	2.41966	1.013

a. Predictors: (Constant), DEPOSITRATES

b. Dependent Variable: HOUSEHOLDEXP

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	21.953	1	21.953	3.750	.085 <sup>a</sup>
	Residual	52.693	9	5.855		
	Total	74.645	10			

a. Predictors: (Constant),

DEPOSITRATES

b. Dependent Variable:

HOUSEHOLDEXP

**Coefficients<sup>a</sup>**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	65.336	3.435		19.022	.000
DEPOSITRATES	-.902	.466	-.542	-1.936	.085

a. Dependent Variable: HOUSEHOLDEXP

#### Inflation and Household Expenditure

**Model Summary<sup>b</sup>**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.504 <sup>a</sup>	.254	.171	2.48808	.808

a. Predictors: (Constant), INFLATIONRATES

b. Dependent Variable: HOUSEHOLDEXP

**ANOVA<sup>b</sup>**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	18.931	1	18.931	3.058	.114 <sup>a</sup>
	Residual	55.715	9	6.191		
	Total	74.645	10			

a. Predictors: (Constant), INFLATIONRATES

Model Summary<sup>b</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.504 <sup>a</sup>	.254	.171	2.48808	.808

b. Dependent Variable: HOUSEHOLDEXP

### Inflation and Interest Rates

Model Summary<sup>b</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.724 <sup>a</sup>	.525	.472	1.19342	1.379

a. Predictors: (Constant), INFLATIONRATES

b. Dependent Variable: DEPOSITRATES

ANOVA<sup>b</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	14.159	1	14.159	9.941	.012 <sup>a</sup>
	Residual	12.818	9	1.424		
	Total	26.977	10			

a. Predictors: (Constant), INFLATIONRATES

b. Dependent Variable: DEPOSITRATES

Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.506	.929		4.853	.001
	INFLATIONRATES	.386	.123	.724	3.153	.012

a. Dependent Variable: DEPOSITRATES

### Inflation , Interest rates and Household Expenditure

Model Summary<sup>b</sup>

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.566 <sup>a</sup>	.320	.150	2.51910	.906

a. Predictors: (Constant), DEPOSITRATES, INFLATIONRATES

b. Dependent Variable: HOUSEHOLDEXP

ANOVA<sup>b</sup>

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.878	2	11.939	1.881	.214 <sup>a</sup>
	Residual	50.767	8	6.346		
	Total	74.645	10			

a. Predictors: (Constant), DEPOSITRATES, INFLATIONRATES

b. Dependent Variable: HOUSEHOLDEXP

Coefficients<sup>a</sup>

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	64.757	3.727		17.374	.000
	INFLATIONRATES	-.207	.375	-.233	-.551	.597
	DEPOSITRATES	-.621	.704	-.373	-.883	.403

# RELIEVING TO RELAXING: A CASE OF BUSINESS EXPANSION

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## ABSTRACT

*The present Case Study is about the success story of family owned business which involved in manufacturing of Ayurvedic medicines. The company was trying to explore Ayurvedic medicine market at a national level, for which they developed dealership network almost in all the states of India. The company decided to enter in the wellness industry and launched first Spa Centre in Gwalior in January 2014. The company was also looking places to start spa resort and integrated Ayurvedic complex. This case study is helpful in understanding the issues involved in family managed business, entrepreneurial orientation and difficulties of managing the sustainability of business. The Case deals with Entrepreneurship, Strategic Management, Production, Marketing, etc. The case can be used for teaching the above concepts to executives and postgraduate students for Individual Analysis and group discussion.*

**Keywords:** Family owned business, Wellness Industry, Business expansion, Entrepreneurship, Entrepreneurial orientation.

## INTRODUCTION

Royal Industry Limited was a closely held limited industry situated in Gwalior, one of the pioneers in the Ayurvedic medicine industry in India. The company achieved the total turnover of Rs 310 crore in the year 2013-14. Mr. Anand Agarwal a third generation entrepreneur is a managing director of the group. The company grew multifold since the establishment in the late 18<sup>th</sup> century as a small Ayurvedic treatment clinic named Royal Aushdhalaya.

Royal Aushdhalaya was established by Mr D.N. Agarwal, who came Gwalior with the army of Local Ruler of Gwalior. Mr Agarwal was appointed as Raj Vaidya (royal doctor) for the state of Gwalior. But instead of working only to the royal state, he preferred to serve the common people of Gwalior and established a small clinic at Daulatganj (Central market place of Gwalior). Mr. D.N. Agarwal well trained in the Ayurvedic treatment learned from his forefather. A rich heritage of knowledge passes on from generation to generation.

Soon after his son Dr. S. K. Agarwal who was Bachelor in Ayurvedic Medicine joined hand with Mr. D. N. Agarwal. As he was an expert in Ayurvedic science, he inclined to start manufacturing

of Ayurvedic medicines in the year 1927. That was one of the significant milestones in the success of the group.

Now the company was trying to explore Ayurvedic medicine market at national level, for which they developed dealership network almost in all the states of India, although there were some other national player in the market. The Company had to face competition at its nascent stage. But, with a unique composition of “healthy capsule” company got an edge to explore the market not only in Gwalior but also in all over the India. This product helped the company to made its identity at National Level.

Riding on the success of “Healthy Capsule”, the Company started to expand themselves in unexplored markets. The company established a good dealer and retail network in Madhya Pradesh, Uttar Pradesh, Maharashtra, Gujrat and almost in all states of central India. But they didn't get recognition in the southern and eastern part of the country as compare to central India.

Meanwhile the company tried to develop more proprietary medical products, they tied up with the departments of pharmacy and biochemistry of the different universities. Some of the products tested in the laboratory for more than 4-5 years before launching into the market. The company successfully increased their productivity from a few products to more than 550 products.

In the third generation of Agarwal family, Mr. Anand entered into the business, after completing his B. Pharma in 1992. Now responsibility was on the shoulders of Mr Anand to search new dimensions to expand the family business. He was a new age entrepreneur filled with energy and enthusiasm to bring revolution in the business. Firstly, he merged all the units of the Royal Group in the umbrella of Royal Industries Ltd and secondly focused on increasing market share. Mr. Anand wanted to tap the market of Ayurvedic Medicine by increasing market share. But this industry was facing problems of unavailability of Raw Material.

Being a new entrepreneur, Mr Anand realized that the company needs to diversify in other related business fields to enhance the profit. He recognised that the wellness industry is one of the growing industries in the country. In India, this industry is growing at 25%-35% growth rate and crossed more than Rs.10,000 crore businesses in the year of 2013-14. Being a dynamic entrepreneur and flair for serving customer, he wanted to cash the emerging opportunities.” Feel healthy and look good” has become the buzzwords nowadays. Mr Agarwal was very much sure and aware of the fact that the innovation is the only way to improve the existing position of the business. He launched first spa centre in Gwalior in January 2014 and in quest of new locations to start spa resort, integrated Ayurvedic complex and the ‘Panchkarma’ based therapy centers in central India. Mr. Agarwal was confident that this new business segments will leverage the company portfolio while remaining in the core business of Ayurvedic Medicines. He was optimistic that his decisions to expand company will provide right directions to the company and will emerge as a core area of business.



**QUESTIONS:**

- Q1. Analyse the company through SWOT analysis.
- Q2. How do you evaluate the success of Royal Industries Ltd?
- Q3. If you were in the place of Managing Director, in which area will you diversify the company.
- Q4. What is your opinion about the company's future prospects?
- Q5. Discuss the major entrepreneurial competencies that you find in this case.
- Q6. "Feeling healthy and looking good are the supportive outcomes" explain this statement in the present market scenario.

**\*Teaching notes of the case may be available on request.**

## **IAA ANNOUNCEMENTS**

### **NOMINATIONS FOR ELECTION OF EXECUTIVE MEMBERS OF IAA**

As per Article 11 of the Constitution of Indian Accounting Association, nominations are invited for the elections of Ten Executive Members of IAA (Two from each zone) to be held during 37<sup>th</sup> All India Accounting Conference and International Seminar (Nov. 8-9, 2014) at University of Lucknow, Lucknow. Election shall be conducted under supervision of Election Committee comprising of President, Senior Vice President, Junior Vice President and General Secretary as per the constitution. Nominations may be submitted on plain paper containing Name, Membership No., Address, Branch, Zone and Signatures of Nominee, Proposer and Seconder. The scanned copy of the nomination paper should be sent to Prof. G. Soral, General Secretary, IAA at [generalsecretaryiaa@gmail.com](mailto:generalsecretaryiaa@gmail.com) latest by Oct. 31, 2014. Please note that presence of nominee, proposer and seconder during the conference is essentially required for the nomination to be valid.

**General Secretary, IAA**

### **NOTICE FOR EXECUTIVE COMMITTEE MEETING**

Executive Committee Meeting of Indian Accounting Association shall be held at the Venue of 37<sup>th</sup> All India Accounting Conference, Lucknow with Prof. S.S. Modi in chair on 8<sup>th</sup> Nov., 2014 at 08:30 P.M. with the following agenda :

1. Consideration of minutes of Executive Committee meeting held on 11<sup>th</sup> Jan., 2014 at Vishakhapatnam.
2. Consideration of the Accounts of the Association.
3. Nomination of 3 EC members for panel to nominate Jr. Vice President.
4. Venue of the 38<sup>th</sup> Conference.
5. Co-option of members to EC and
6. Any other item with the permission of the chair.

All the Executive Members are requested to kindly attend the meeting.

**General Secretary, IAA**

### **NOTICE FOR ANNUAL GENERAL MEETING**

Annual General Meeting of Indian Accounting Association shall be held at the Venue of 37<sup>th</sup> All India Accounting Conference, Lucknow with Prof. S.S. Modi in chair on 9<sup>th</sup> Nov., 2014 at 12 noon with the following agenda :

1. Consideration of minutes of AGM held on 12<sup>th</sup> Jan., 2014 at Vishakhapatnam AGM.
2. Consideration of the annual accounts of the Association.

3. Topics of 38<sup>th</sup> All India Accounting Conference.
4. Venue of the 38<sup>th</sup> Conference.
5. Nomination of Two Senior members for panel to nominate Junior Vice President.
6. Declaration of results of election of Executive Members and

### **IAA YOUNG RESEARCHER AWARD 2014**

Proposals are invited for the IAA Young Researcher Award 2014 from life members of the association. The research work should be in accounting and related areas, which have been completed during last five years. The age of applicant should not be more than 35 years as on 31st December, 2014.

Application for the award should contain two parts :

Part A : (i) Request letter for consideration for the award  
(ii) Brief profile of applicant  
(iii) Recent passport size photograph of applicant  
(iv) Declaration about originality of research work

Part B : Report of Research Work (without any mention of applicant's name or affiliations)  
The application should be addressed and reach latest by 31st August, 2014 to :

**Prof. G. Soral**  
General Secretary, IAA  
Professor and Director MFC Programme  
Department of Accountancy and Statistics  
Vanijya Bhawan, Mohanlal Sukhadia University,  
Udaipur - 313001 (Rajasthan)

### **NATIONAL ACCOUNTING TALENT SEARCH 2014-15** **Sunday, Feb. 22, 2015**

An accounting knowledge competition for Under-graduate and Post-graduate & professional students shall be held all over the country organised by IAA. Registrations are open from July 1, 2014 to Dec. 31, 2014.

For registration and details, visit [www.accountingtalent.org](http://www.accountingtalent.org)

## ACTIVITY REPORTS OF IAA BRANCHES

### ACTIVITY REPORT OF IAA MIDNAPUR BRANCH for 2013-14

On the occasion of the Annual General Meeting of the Indian Accounting Association, Midnapore Branch, a National Seminar was held on “Contemporary Issues in Research in Business Studies” on 29<sup>th</sup> March, 2014 at the Regional Centre of IGNOU, Bikash Bhavan, Salt Lake City, Kolkata.

Prof. S. P. Mukherjee, Former Centenary Professor, Department of Statistics and President, Indian Association inaugurated the seminar. Dr. Arindam Gupta, Professor of Commerce, Vidyasagar University, Midnapore, Jt. Organizing Secretary and Vice President, I.A.A., Midnapore Branch welcomed the delegates. **Dr. K. S. Chakraborty**, Regional Director, IGNOU, Kolkata Regional Centre addressed the audience as Guest of Honour. The whole programme was chaired by Prof. Jaydeb Sarkhel, Professor of Commerce, University of Burdwan, W.B. and President, I.A.A., Midnapore Branch. The inaugural session was followed by the single technical session, which was chaired by Dr. Swagata Sen, Dean, Faculty of Commerce and Management Studies and Professor, Department of Commerce, University of Calcutta. In the seminar, fourteen papers were presented on different issues related to business studies.

Dr. Swagata Sen in his concluding remarks provided a brief summary of the papers presented in the technical session and highlighted the need of focusing the major points of a seminar paper for drawing attraction of the audience. Dr. Arindam Das, Associate Professor and Head, Dept. of Commerce, University of Burdwan and Prof. Hrishikesh Paria, Associate Professor and Head, Department of Commerce, Egra S.S.B. College, Purba Medinipur, Jt. Organizing Secretary and Secretary, I.A.A., Midnapore Branch offered vote of thanks.

#### Report of the 6<sup>th</sup> AGM of IAA, Midnapore Branch

The 6<sup>th</sup> AGM of IAA, Midnapore Branch was held on 29<sup>th</sup> March, 2014 at the Regional Centre, IGNOU, Bikash Bhavan, Salt Lake, Kolkata - 700091. The AGM was preceded by a National Seminar on “Contemporary Issues in Research in Business Studies” and a felicitation programme to the members of the Branch who have been awarded the Ph.D. degree since the establishment of the Branch in 2008 and who could attend the program on that day. Prof. Jaydeb Sarkhel, President of the Branch, presided over the AGM. The Secretary placed his report stating that 10 life members had been added in the last year through the Branch.

Two issues of the e-journal, “*Business Spectrum*” were published by the Branch. The audited account of the Branch was also placed by the Treasurer. Both the report of the Secretary and the audited statement of account were approved by the house. No election to the EC of the Branch was held as it is due in the next year as per amendment of the constitution done in the last AGM. Some further proposals for the amendment of the constitution like removal of a member if necessary, detailing of functions of the Vice President and Joint Secretary, etc. were placed and after discussion they were accepted. The meeting ended with a vote of thanks to the chair.

## **ACTIVITY REPORT OF IAA KOTA BRANCH for 2013-14**

Career Point University, Kota & Indian Accounting Association, Kota Branch organized the National Seminar on Corporate Reporting in India, on March 23, 2014. This occasion graced by the eminent personalities and keynote speakers of education world as Prof. (Dr.) K.C Sodani Dean & Head, MLSU, Udaipur, Prof. (Dr.) G.Soral, General Secretary of IAA and Professor in MLSU, Udaipur, Prof. J.K Jain, Professor and Head in H.S Gaur Central University, Prof. (Dr.) Rajesh Kothari, Ex-Director, Poddar Institute of Management, Jaipur, Prof. Harsh Purohit, Dean, Wisdom, Faculty of Management, Banasthali, Vidhapeeth, Newai, Prof. (Dr.) Rajeev Jain, Dean & Head, University of Kota, Kota, Dr. Shurveer Bhanawat, Associate Professor, MLSU, Udaipur and Prof. Gopi Raman Sharma, Chairman of Cooperative for Rural development. With the ritual of Saraswati Poojan and lightening of the Lamp by the President of Career Point Shri Pramod Maheshwari along with the Guests, Shri Deepak Khatri, HOD, Management Studies, Career Point garlanded the formal Welcome.

Dr. Ashok Gupta, Chairman of the Indian Accounting Association, Kota Branch opened the thinking tank by introducing the theme. As the Chairman, Linking thoughts with Dr. Ashok Gupta, Dr. Mithilesh Dixit, Vice Chancellor, Career Point focused his keynote address on the Evolution of Accounting, Importance of accounting. No duty is more urgent than that of returning thanks. None other than the Organizing secretary CMA Dr. Meenu Maheshwari, General Secretary of IAA, Kota branch, accomplished the duty.

The Technical Session I concluded by Prof. Rajesh Kothari by revealing an alarming fact "Tax Evasion is the tax saving and unless we are caught we are honest.

Technical Session II was chaired by Prof. (Dr.) J.K Jain, Head in H.S Gaur Central University, M.P. Issues and challenges in Reflection on CRS were highlighted by Prof. (Dr.) Harsh Purohit, Dean, Wisdom, Faculty of Management, Banasthali Vidhyapeeth; Niwai.

The Valedictory session was the ritual of Farewell and Conclusion of the National Seminar. The Chairperson of the session Prof. (Dr.) K.C Sodani, MLSU Udaipur threw light on Non-Financial Corporate Reporting. The Valedictory Session was closed down by Dr. Deepak Khatri, Joint Secretary, IAA after offering the gratitude of mementos to the Guests. The report on the seminar was prepared by Dr. Anita Sukhwal and Mr. Ashish Ashopa. The Seminar concluded with the National Anthem.

## **ACTIVITY REPORT OF IAA UDAIPUR BRANCH for 2013-14**

Annual General Meeting of Udaipur branch of IAA was held on 17/8/2013. In this meeting, elections of the executive committee of the branch were conducted. Unanimously, the following office bearers and executive members were elected ; Chairman Prof. G. Soral, Mohanlal Sukhadia University, Udaipur Vice Chairman, Dr Anita Shukla, JRN Rajasthan Vidyapeeth, Udaipur, Secretary Dr. Shurveer S. Bhanawat, Mohanlal Sukhadia University, Udaipur , Joint Secretary Dr. Pushpkant Shakadweepi, Pacific Institute of Management, Udaipur, Treasurer Dr. Abhay Jaroli, B.N.P.G. College, Udaipur, Executive Members Dr. Vijay Laxmi Parmar, Aishwarya College, Udaipur, Dr. K.K. Dave, Pacific Institute of technology and management, Udaipur, Dr. Shilpa Vardia Mohanlal Sukhadia University, Udaipur, Miss Bhawana Hinger, Govt. Meera Girls College, Udaipur.

A whole-day family picnic was organised on Sunday September 22, 2013 at Kathar River, a famous picnic spot 40 km away from Udaipur. During the year thirty new life members joined IAA Udaipur Branch.

### **National Seminar on Contemporary Issues in Accounting (October 18-19, 2013)**

The seminar was organised under joint auspices of Department of Accountancy and Statistics, Mohanlal Sukhadia University, Udaipur and the IAA Branch. The seminar was inaugurated by honourable vice-chancellor Prof. I.V. Trivedi, Mohanlal Sukhadia University, Udaipur. Prof. G. Soral, Chairman of IAA Udaipur branch delivered welcome address. Dr. Shurveer S Bhanawat dwelled on the theme of the seminar. He said that different issues have emerged in the field of accounting like XBRL, Prof. Nageshwar Rao, Former President, IAA presently at Pt. J.L.N Institute of management, Vikram University, Ujjain was key note speaker. Prof. Rao in his key note address, mentioned that right now accounting teachers are transforming the knowledge from text books to students without examining whether such knowledge is relevant or not in the present scenario of business environment. Prof. C.M Jain, Head, department of Accountancy and Statistics Mohanlal Sukhadia University proposed vote of thanks.

First technical session was on Government Accounting. Second technical session was on corporate Reporting with focusing IFRS and XBRL. In the third technical session on emerging dimensions and issues in accounting various paper presenters highlighted that lack of ethics in accounting leads to scandals. Fourth technical session was on emerging dimensions and issues in accounting. In valedictory session, Prof. Kanatawala appreciated the efforts of paper presenters and commented that the all the themes focused were contemporary. Chief Guest Prof B P Bhatnagar, former Vice-chancellor, JRN Rajasthan Vidyapeeth University, advised the young faculty members to develop a passion for teaching. Based on a double-blind evaluation, three best papers and seven quality papers were awarded. Seminar secretary Dr Shurveer S Bhanawat presented brief of two days seminar proceedings. Vote of thanks proposed by seminar Director Prof. G. Soral.

A round table conference was organised on the theme of **“Real world of Accounting.”** to discuss the gap of accounting in real world and classroom teaching. It was held on December 7, 2013 at University College of commerce and management studies, Mohanlal Sukhadia University, Udaipur. Chairman of the Udaipur branch Prof. (Dr.) G. Soral gave the welcome speech and introduced prominent personality of Udaipur city Dr. M.L. Nahar, former Vice President (Finance), Textile industries & CA. (Dr.) Prakash Hinger as the keynote speakers of the meeting. Dr. Shurveer S. Bhanawat secretary of the Udaipur branch provided a brief note on the theme of the round table conference.

It is a matter of pride for Udaipur branch that Prof. G. Soral has been elected as first General Secretary of Indian Accounting Association from Rajasthan during the forty five years history of IAA. So A Felicitation ceremony for the honour of Prof. G. Soral was organised on February 12, 2014. The key note speaker and chief guest of the function was Prof. K.R. Sharma. A get together function titled “Holi Milan ceremony” was organised on March 21, 2014.

# **37th All India Accounting Conference and International Seminar**

## **(Nov. 8 - 9, 2014)**

### **CALL FOR PAPERS AND REGISTRATION**

Department of Commerce, University of Lucknow and Indian Accounting Association, Lucknow Branch consider it a privilege and a matter of great pride to host the 37th All India Accounting Conference and the International Seminar of Indian Accounting Association on Nov. 8 & 9, 2014.

The conference would provide a forum for interaction on contemporary issues and Development in Accounting, Finance & Taxation to provide vital inputs for research in Accounting. It would create an interface among professionals, academicians and experts in the field of Accounting education & research in India and abroad.

Seminar and Technical sessions details are as follows:

**International Seminar on Accounting Education and Research:**

**With Prof. Ranjan K Bal as Chairman**

**Technical Session-I: Creative Accounting**

**With CA K Ch AVSN Murthy as Chairman**

**Technical Session - II: Commodity Markets & Risk Management**

**With Prof. K Eresi as Chairman**

**Technical Session - III: Accounting for Financial Instruments**

**With Prof. Daksha Chauhan as Chairperson**

Last date for paper submission is **August 31, 2014** Communication regarding acceptance or otherwise based on blind review by the committee shall be sent by **September 30, 2014**.

Registration fee details are as follows:

	Fee up to August 31, 2014 (Amt in Rs)	Fee after August 31, but up to Oct 15, 2014 (Amt in Rs)
IAA Members	1,200	1,500
IAA Non-members	1,700	2,000
Accompanying Persons	1,500	1,500
Corporate Delegates	2,500	2,800
* No conference kit will be provided to the accompanying person.		

Registration fee is to be remitted through demand draft only in favour of **“Conference Secretary, 37th All India Accounting Conference”** payable at **Lucknow** along with the enclosed registration form duly filled in. Papers without registration fee shall not be considered.

**\* Please note that there will be no spot registration.**

#### **Note for Paper Contributors**

1. The paper should normally be of about 3000-5000 words in length and should be submitted with an abstract of not more than 300 words.
2. Author(s) name(s) and affiliations should be shown only on a separate sheet to facilitate blind review.
3. The author should provide confirmation that the paper is the original work of the author(s) and it has neither been published nor been sent for publication elsewhere.
4. All paper submissions and the other communications regarding the conference shall be made through the official website of IAA [www.indianaccounting.org](http://www.indianaccounting.org)
5. If a paper contributor does not make presentation during the conference, the certificate shall mention “paper contributed” only.

We cordially invite you to participate in the conference and seminar and contribute papers in the seminar as well as in technical sessions based on the themes identified above.

**Prof. Arvind Kumar**  
**Conference Secretary**  
**Professor and Head, Department of Commerce**  
**Lucknow University**  
**Lucknow**  
**(M) 09415028817**  
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Indian Journal of Accounting is an official publication of Indian Accounting Association. It is a blind reviewed refereed indexed journal published twice a year, in June and December respectively with an ISSN-0972-1479. The scope of journal encompasses all areas of Accounting including Corporate Accounting, Auditing, Taxation, Management Accounting, Cost Accounting, finance and Information Systems. Manuscripts should be addressed to **Prof. Umesh Holani, Chief Editor, Indian Journal of Accounting, Jiwaji University, Gwalior (MP)** at Email: [chiefeditorija@gmail.com](mailto:chiefeditorija@gmail.com) (Mob.no.+91-94257-35596) before November 15, 2014 for the forthcoming issue.

### **Guidelines for Submission of Research Manuscripts for Publication in Indian Journal of accounting**

1. All submitted manuscripts must be original. Paper submission must accompany a certificate/ declaration by the author(s) that the paper is his/ their original work and has neither been published nor submitted for publication elsewhere.
2. Manuscript must be in MS Word processor in Calibri font 12 pt font size on A-4 size paper with 1" margin from all sides with 1.5 line spacing, and justified.
3. References should appear at the end of the paper printed in single space with 10 pt. font size. References should be listed as per the APA Citation Format latest Edition.
4. The length of the paper should be limited to approximately 12 pages including references (as per the specified layout) excluding tables and figures.
5. Tables, figures, etc. should be serially numbered and duly acknowledged. Sources of the data need to be given below each table or figure.
6. All but very short mathematical expressions should be displayed on a separate line and centered. Equations must be numbered consecutively on the right margin, using Arabic numerals in parentheses.
7. Papers should have an abstract of about 150-250 words.
8. The cover page of the paper should contain-Title of the paper, Name of author(s), Professional affiliation of author(s), Address for correspondence with email and telephone numbers.
9. The name of the author(s) should not appear on the manuscript to facilitate blind review.
10. Editorial decision regarding publication will be communicated within a month from receipt of the manuscript.

# CORRIGENDUM

By mistake the name of Dr J.L.Gupta has been printed in the Executive committee of Journal of Indian Accounting Association Volume XLVI(1) June 2014. Since he is not the part of executive committee and hence his name is being deleted from the same. Inconvenience caused, if any, is regretted

**Prof. Umesh Holani**  
**Chief Editor, IJA**

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