



Amity Management Analyst

Volume II, No 2, July-Dec 2007

| | |
|---|---------|
| Evaluating the Risk Factor in Capital Investment Decisions – An Exemplary Case Study of Institutional Financing Dr Sandeep Goel | 9-16 |
| Determinants of Foreign Institutional Investment in India Dr B S Bodla, Ashish Garg | 17-30 |
| Mergers and Acquisitions in Relation to Economies of Scale and Profitability: An Analysis Kushwinder Kaur, Dr Kuldip Kaur | 31-44 |
| Copyright Protection – Legal Issues Dr Ravinder Vinayek, Kavita Wadhwa | 45-55 |
| Does Lintner's Dividend Model Elucidate Dividend Payment in Indian Companies? Dr Mahesh Chand Garg, Dr Balvinder Singh Saini | 56-64 |
| Is Performance Management a Lubricant to the Machinery of Organizational System?– A Conceptual Discussion with some Useful Mantras Er Nipun Sharma | 65-71 |
| An Empirical Study on Transfer Pricing Practices in Indian Corporate Sector Dr Sanjay J Bhayani | 72-78 |
| Enigma of Employment in Manufacturing Sector in Haryana Dr Ashok Kumar Chauhan | 79-89 |
| Performance Evaluation of Mutual Funds in India – A Risk - adjusted Return Analysis Dr N S Malik, Dr Suresh Kumar Mittal | 90-104 |
| Asset Securitisation: An Innovative Financial Instrument Shefali Sharma | 105-112 |
| Book Review Identity and Violence – The Illusion of Destiny by Amartya Sen Dr Atul Dhingra | 113 |



Amity Management Analyst

Volume II, No 2, July-Dec 2007

| | |
|---|---------|
| Evaluating the Risk Factor in Capital Investment Decisions – An Exemplary Case Study of Institutional Financing Dr Sandeep Goel | 9-16 |
| Determinants of Foreign Institutional Investment in India Dr B S Bodla, Ashish Garg | 17-30 |
| Mergers and Acquisitions in Relation to Economies of Scale and Profitability: An Analysis Kushwinder Kaur, Dr Kuldip Kaur | 31-44 |
| Copyright Protection – Legal Issues Dr Ravinder Vinayek, Kavita Wadhwa | 45-55 |
| Does Lintner's Dividend Model Elucidate Dividend Payment in Indian Companies? Dr Mahesh Chand Garg, Dr Balvinder Singh Saini | 56-64 |
| Is Performance Management a Lubricant to the Machinery of Organizational System?– A Conceptual Discussion with some Useful Mantras Er Nipun Sharma | 65-71 |
| An Empirical Study on Transfer Pricing Practices in Indian Corporate Sector Dr Sanjay J Bhayani | 72-78 |
| Enigma of Employment in Manufacturing Sector in Haryana Dr Ashok Kumar Chauhan | 79-89 |
| Performance Evaluation of Mutual Funds in India – A Risk - adjusted Return Analysis Dr N S Malik, Dr Suresh Kumar Mittal | 90-104 |
| Asset Securitisation: An Innovative Financial Instrument Shefali Sharma | 105-112 |
| Book Review Identity and Violence – The Illusion of Destiny by Amartya Sen Dr Atul Dhingra | 113 |

Amity Management Analyst

Vol. II No. 2 July-Dec 2007

An Official Refereed Journal of the Amity Business School, Mumbai, Gujarat

Editor-in-Chief

Prof. (Dr.) S. V. Sharma

Amity Business School, Mumbai

Managing Editor

Prof. (Dr.) S. V. Sharma

Amity Business School, Mumbai

Editorial Board

Prof. (Dr.) S. V. Sharma

Amity Management Analyst

Executive Editor

Prof. (Dr.) Vikas Madhakar

Amity Business School, Mumbai

Editorial Board

Dr. N. Gupta

Professor, Indian Institute of Management (IIM), Lucknow
(Moh. Campus)

Dr. K. Jalu

Professor, Department of Management,
Kannada University, Hampi

Dr. Ashu Jangra

CEO, Global Business Solutions, Delhi

Dr. Anil Sharma

Associate Vice President (Sales & Marketing Operations),
Vedanta Resources Limited, Mumbai

Dr. S. Garg

Director, Regional Office, Jaipur

Amity Management Analyst

Vol. II No. 2, July-Dec 2007

(Bi-annual Refereed Journal of the Amity Business School, Manesar, Gurgaon)

Editor-in-Chief

Prof (Dr) R C Sharma

Amity Business School, Manesar

Managing Editor

Prof (Ms) Shivali

Amity Business School, Manesar

Consulting Editor

Prof (Dr) S K Bedi

IMSAR, M D University, Rohtak

Executive Editor

Prof (Dr) Vikas Madhukar

Amity Business School, Manesar

Editorial Board

Dr N N Gupta

Professor, Indian Institute of Management (IIM), Lucknow
(Noida Campus)

Dr M K Jain

Professor, Department of Management,
Kurukshetra University, Kurukshetra

Subhash Jagota

CEO, Global Business Solutions, Delhi

Er Nipun Sharma

Associate Vice President (Sales & Marketing Operations),
Vodafone Essar South Limited, Mohali

Dr V S Garg

Director, Jayaswal NECO Ltd., Nagpur

Amity Management Analyst

Copyright © 2007
All Rights Reserved

Amity Business School holds the copyright to all articles contributed to its publications.

All rights reserved; no part of this publication may be reproduced, stored in a retrieval system, transmitted in any form, or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior permission of
Amity Business School, Manesar, Gurgaon

The views expressed in the articles are the personal views of the individual authors and do not represent those of the
Amity Business School, Manesar, Gurgaon



Amity House, E-25, Defence Colony, New Delhi-110024
Tel: 91-11-41888000 Fax: +91-11-24339400
Email: sales@aup.amity.edu, web: www.amity.edu/aup

Publisher, Printer and Editor Prof (Dr) R C Sharma on behalf of Amity Business School, Amity Education Valley, Panchgaon, Manesar (Gurgaon). Printed at Rakmo Press Pvt Ltd, C-59, Okhla Industrial Area, Phase - I, New Delhi-110 020 and published from Amity Education Valley Panchgaon, Manesar (Gurgaon)

From the Desk of Editor-in-Chief

Today it is virtually impossible to think of an organization that does not organize its functions, at least, in part based on teams. This fact is corroborated by a recent survey of Fortune 1000 companies that found that these companies considered teamwork and how to make the most out of teams, their number one priority. There are a large number of organizations all over the world that are structured around teams, including teams called autonomous work groups, process teams, or self-managing work teams. In autonomous work groups, members have the authority to manage their own tasks as well as interpersonal processes as they carry out their own task.

Although many organizations choose to structure around autonomous teams, or teams in general. However, team based organizations, according to Hackman (1998), do not necessarily outperform organizations that are not structured around teams. But it is not the fault of teams but of poor team performance management. If managed efficiently, teams can do wonders in accomplishing the objectives of an organization because an individual's talent is no match to the combined talent of an entire work group. In the current turbulent and fast changing business environment only teams can respond more timely and effectively as compared to individuals in their individual capacity. Teams perform on multi-disciplinary tasks, build relationships, invent and implement new ideas, enable change adoption, add to communication effectiveness, improve quality, enhance learning, and produce more output with less input. But all this may be possible only if team performance is monitored and managed well and effectively. What is needed in this regard is, first of all, setting realistic objectives for the team to be followed by defining roles in teams in terms of skills, competencies and deliverables, developing team leadership, coaching, guiding, motivating and inspiring team members; aligning human resource practices, aligning cultural processes to support team work; implementing teamwork and its evaluation; and finally rejuvenate teams by providing valuable inputs for bridging gaps and leveraging teamwork to secure an edge over competitors. All this may be possible only when organizations create team chemistry, and leadership helps make it work. If team performance is focused then team chemistry could be managed relatively better. The organization has to create some enablers for the team leader to be effective. Besides, synergy and outcomes are likely to be better if the focus is on team rather than on the individual.

While emphasizing team performance management, one should not ignore the individual performance management as both are important at their own places and are rather complementary to each other. Thus attempts should be made to combine individual performance management with team performance management and integrate into it 360-degree feedback so as to obtain optimum results.

Prof (Dr) R C Sharma
Editor-in-Chief
Amity Management Analyst

Contents

| | |
|--|---------|
| Evaluating the Risk Factor in Capital Investment Decisions – An Exemplary Case Study of Institutional Financing Dr Sandeep Goel | 9-16 |
| Determinants of Foreign Institutional Investment in India Dr B S Bodla, Ashish Garg | 17-30 |
| Mergers and Acquisitions in Relation to Economies of Scale and Profitability: An Analysis Harshwinder Kaur, Dr Kuldip Kaur | 31-44 |
| Copyright Protection – Legal Issues Dr Ravinder Vinayek, Kavita Wadhwa | 45-55 |
| Does Lintner's Dividend Model Elucidate Dividend Payment in Indian Companies? Dr Mahesh Chand Garg, Dr Balvinder Singh Saini | 56-64 |
| Is Performance Management a Lubricant to the Machinery of Organizational System? – A Conceptual Discussion with some Useful Mantras Dr Nipun Sharma | 65-71 |
| An Empirical Study on Transfer Pricing Practices in Indian Corporate Sector Dr Sanjay J Bhayani | 72-78 |
| Migma of Employment in Manufacturing Sector in Haryana Dr Ashok Kumar Chauhan | 79-89 |
| Performance Evaluation of Mutual Funds in India – A Risk - adjusted Return Analysis Dr N S Malik, Dr Suresh Kumar Mittal | 90-104 |
| Asset Securitisation: An Innovative Financial Instrument Shefali Sharma | 105-112 |
| Book Review Identity and Violence – The Illusion of Destiny by Amartya Sen Dr Atul Dhingra | 113 |

Evaluating the Risk Factor in Capital Investment Decisions

An Exemplary Case Study of Institutional Financing

Dr Sandeep Goel*

Risk analysis in capital budgeting is of paramount importance in financial decision-making. In the first place, capital budgeting decisions affect the profitability of a firm. They also have a bearing on the competitive position of the enterprise mainly because of the fact that they relate to fixed assets. The fixed assets represent, in sense, the true earning assets of the firm. They enable the firm to generate finished goods that can ultimately be sold for profit. The present article, therefore, is an attempt to cite out the significance of evaluating the risk element, inherent in complex capital investment decisions. An illustrative case study approach has been used for the said purpose.

Key words: Risk, Capital Budgeting, Fixed assets, Current assets, Firm

Introduction

Capital Budgeting decision is the firm's decision to invest its current funds most efficiently in the long-term assets, in anticipation of an expected flow of benefits, over a series of years. The long-term assets are those, which affect the firm's operations beyond the one-year period. The firm's investment decisions would generally include expansion, acquisition, modernization and replacement of the long-term assets. Capital expenditure decisions are of considerable significance as the future success and growth of the firm depends heavily on them. The benefits from investments are received in some future period. The future is uncertain; therefore, an element of risk is involved. Risk analysis is one of the most complex and slippery aspects of capital budgeting. Many different techniques have been suggested and no single technique can be deemed as best in all situations. The variety of techniques suggested to handle risk in capital budgeting fall into two broad categories i.e. techniques that consider the stand-alone risk of a project and the techniques that consider the risk of a project in the context of the firm or in the context of the market.

Objective

- To stress upon evaluation of risk component in capital investment decisions with the help of the best suitable technique and analyze the risk management process of financial institutions

An Insight into Risk Premises

Risk is inherent in almost every business. It is more in capital budgeting decisions as they involve costs and benefits extending over a long period of time during which many things can change in unanticipated ways. There are several sources of risk in a project, the important ones are: Project-specific risk-the earnings and cash flows of the project may be lower than expected because of an estimation error or due to some other factors specific to the project like the quality of management; Competitive risk- the earnings and cash flows of the project may be affected by the unanticipated actions of the competitors; Industry-specific risk-unexpected technological developments and regulatory changes that are specific to the industry to which the project belongs, will have an impact on the earnings and cash flows of the project as well; Market risk-unanticipated changes in macroeconomic factors like the GDP growth rate, interest rate, and inflation have an impact on all projects, albeit in varying degrees; and International risk- in the case of a foreign project, the earnings and cash flows may be different than expected due to the exchange rate risk or political risk.

Risk analysis is necessary because:

- Capital budgeting decisions determine the future destiny of the company. An opportune investment can yield spectacular returns. On the other hand,

*Assistant Professor, Management Development Institute (MDI), Gurgaon

an ill-advised and incorrect decision can endanger the very survival even of the large firms. A few wrong decisions and the firm may be forced into bankruptcy.

- A capital expenditure decision has its effect over a long time span and inevitably affects the company's future cost structure. For example, if a plant has been purchased by a company to start a new product, the company commits itself to a sizeable amount of fixed costs, in terms of labour, supervisor's salary, insurance, rent of building, and so on. If the investment turns out to be unsuccessful in future or yields less profit than anticipated, the firm will have to bear the burden of fixed costs unless it writes off the investment completely. In short, future costs, break-even point, sales and profits will be determined by the selection of assets.
- Future revenue involves estimating the size of the market for a product and the expected share of the firm in that. These estimates depend on a variety of factors, including price, advertising and promotion, and sales effort and so on. For instance, a decision to acquire an asset that is going to last for 15 years requires 15 year forecast. A failure to forecast correctly the capital investment will lead to serious errors, which can be corrected only at considerable expense.

Methodology of the Study

For the purpose of the present study, both behavioural and statistical measures have been used.

Tools/Techniques to Measure Risk*

The risk associated with an asset is assessed from both a behavioural and a quantitative/statistical point of view. The behavioural view of risk can be

obtained by using:

- Sensitivity analysis
- Break-even analysis
- Scenario analysis
- Probability (Distribution)

The Statistical Measures are:

- Standard Deviation of return
- Coefficient of variation

I Behavioural measures

Sensitivity analysis

Since the future is uncertain, a company may like to know that what will happen to the viability of the project when some variables like sales or investment deviates from its expected value. Sensitivity analysis takes into account a number of possible outcomes/returns estimates while evaluating an asset/assessing risk. In order to have a sense of the variability among returns estimates, a possible approach is to estimate the worst (pessimistic), the expected (most likely) and the best (optimistic) return associated with the asset. Alternatively, the level of outcomes may be related to the state of the economy, namely, recession, normal and boom conditions. The difference between the optimistic and the pessimistic outcomes is the range, according to sensitivity analysis, the best measure of risk. The greater the range, the more variability (risk) the asset is said to have. For example, a company wants to have an asset X or Y, whose initial investments are same and returns are different.

On the basis of the range of annual returns, asset Y is more risky.

Sensitivity Analysis (Amount in Rs crore)

| Particulars | Asset X | Asset Y |
|--------------------------------|---------|---------|
| Initial outlay (t=0) | 50 | 50 |
| Annual return (per cent): | | |
| Pessimistic | 14 | 8 |
| Most likely | 16 | 16 |
| Optimistic | 18 | 24 |
| Range (optimistic-pessimistic) | 4 | 16 |

The sensitivity analysis provides more than one estimate of return (range) to assets the risk involved, but it is a crude/rough basis of risk assessment.

Sensitivity analysis is a way of analyzing change in the project's Net Present Value or Internal Rate of Return for a given change in one of the variables. It indicates how sensitive a project's NPV or IRR is to change in particular variables. The more Sensitive NPV, the more critical the variable is.

While performing the Sensitivity analysis, compute the project's NPV or IRR for each forecast under three assumptions:

1. Pessimistic
2. Expected
3. Optimistic

It allows asking "what if" questions for the decision maker.

Case: Delhi Papers Ltd.**

To understand the nature of sensitivity analysis, let us consider the case study of Delhi Papers Ltd. It is considering setting up of new paper mill near Bangalore. Based on the previous experience, the project staff of the unit has developed the figures shown below:

Since the cash flow from operations is on annuity basis, the NPV of the paper project is:

$$-20,000,000 + 4,000,000 \times PVIFA$$

$$(r = 12\%, n = 10)$$

$$-20,000,000 + 4,000,000 (5.650)$$

$$= 2,600,000$$

The NPV based on the expected value of the underlying variables looks positive. After calculating NPV, define the optimistic and pessimistic estimates for the underlying variables.

To do this, vary one variable at a time. For example, to study the effect of an adverse variation in sales (from the expected Rs 18 million to the pessimistic Rs 15 million), it is important to maintain the value of other underlying variables at their expected levels. (This means that the investment is held at Rs 20 million, variable costs as a proportion of sales are held at 66 2/3 percent, fixed costs are held at Rs 1 million, so on and so forth.)

Break-Even Analysis

In sensitivity analysis one asks what will happen to the project if sales decline or costs increase or something else happens. As a financial manager one will also be interested in knowing how much

Cash Flow for Delhi Paper's Project

| | Year0 | (Rs in '000) Year 1-10 |
|-------------------------------------|----------|---------------------------|
| 1 Investment | (20,000) | |
| 2 Sales | | 18000 |
| 3 Variable costs (66 2/3% of sales) | | 12000 |
| 4 Fixed costs | | 1000 |
| 5 Depreciation | | 2000 |
| 6 Pre-tax profit | | 3000 |
| 7 Taxes | | 1000 |
| 8 Profit after taxes | | 2000 |
| 9 Cash flow from operation | | 4000 |
| 10 Net cash flow | (20,000) | 4000 |

Sensitivity of NPV to Variations in the Value of Key Variables

| Key Variable | Range | | | Rs in million NPV | | |
|---|-------------------------------|----------|------------|----------------------|----------|------------|
| | Pessimistic | Expected | Optimistic | Pessimistic | Expected | Optimistic |
| | Investment (Rs in million) | 24 | 20 | 18 | -0.65 | 2.6 |
| Sales (Rs in million) | 15 | 18 | 21 | -1.17 | 2.6 | 6.4 |
| Variable costs as a percent of sales | 70 | 66.66 | 65 | 0.34 | 2.6 | 3.73 |
| Fixed costs | 1.3 | 1 | 0.8 | 1.47 | 2.6 | 3.33 |

should be produced and sold at a minimum to ensure that the project does not 'lose money'. Such an exercise is called break - even analysis and the minimum quantity at which loss is avoided is called the break-even point. The break-even point may be defined in accounting terms or financial terms.

So, Break-even analysis is sensitivity to sales volume. It calculates the level of sales needed to make $NPV = 0$.

• Accounting Break-even Analysis

A project that breaks even in accounting terms is like a stock that gives you a return of zero per cent. In both the cases you get back your original investment but you are not compensated for the time value of money or the risk that you bear. Put differently, you forego the opportunity cost of your capital. Hence a project that merely breaks even in accounting terms will have a negative NET PRESENT VALUE.

• Financial Break-even Analysis

The focus of financial break-even analysis is on Net Present Value and not on accounting profit. It occurs when the level of sales of the project will have a zero Net Present Value.

The Financial Break-Even point is different from Accounting Break-Even point because the Accounting Break-Even point is based on cash plus non-cash costs and doesn't account for the opportunity cost of capital but in Financial Break-Even point the opportunity cost of capital is ignored.

Scenario Analysis

In sensitivity analysis, one variable is varied at a time. If variables are interrelated, as they are most likely to be, it will be helpful to look at some plausible scenarios, each scenario representing a consistent combination of variables.

- Examines several possible situations, usually worst case, most likely case, and best case.
- Provides a range of possible outcomes.
- Only considers a few possible out-comes.
- Assumes that inputs are perfectly correlated—all "bad" values occur together and all "good" values occur together.
- Focuses on stand-alone risk, although subjective adjustments can be made.

Best and worst case analysis

- **Best Scenario** —: High demands, high selling prices, low variable cost and so on.
- **Normal Scenario** —: Average demand, Average selling price, Average variable cost and so on.
- **Worst Scenario** —: Low demand, Low selling price, Low variable cost and so on.

So the objective of Scenario analysis is to get a feel of what happens under the most favorable or the most adverse configuration of key variables, without bothering much about the internal consistency of such configurations.

Probability (Distribution)

The risk associated with an asset can be assessed

more accurately by the use of probability (distribution) than sensitivity analysis. The probability of an event represents the likelihood/percentage chance of its occurrence. For instance, if the expectation is that a given outcome (return) will occur seven out of ten times, it can be said to have a seventy per cent (0.70) chance of its happening; if it is certain to happen, the probability of happening is 100 per cent (1). An outcome which has a probability of zero will never occur.

Based on the probabilities assigned (probability distribution) to the rate of return, the expected value of the return can be computed. The expected rate of return is the weighted average of all possible returns multiplied by their respective probabilities. Thus, probabilities of the various outcomes are used as weights.

II Statistical Measures

Standard Deviation of return

Risk refers to the dispersion of returns around an expected value. The most common statistical measure of risk of an asset is the standard deviation from the mean/expected value of returns.

Symbolically, the standard deviation, σ

$$\sigma = \sqrt{\sum (x - \mu)^2 P(x)}$$

The calculation of the standard deviation for the return of asset X and Y is as follows:

For Asset X:

$$\sigma = \sqrt{\sum (x - \mu)^2 P(x)} = 1.26 \text{ per cent}$$

For Asset Y:

$$\sigma = \sqrt{\sum (x - \mu)^2 P(x)} = 5.06 \text{ per cent}$$

The greater the standard deviation of returns, the greater the variability/dispersion of returns and the greater the risk of the asset. However, standard deviation is an absolute measure of dispersion and does not consider the variability of returns in relation to the expected value. It may be misleading in comparing the risk surrounding alternative assets if they differ in size of expected returns.

Coefficient of Variation

It is a measure of relative dispersion (risk) or a measure of risk per unit of expected return. It converts standard deviation of expected values into relative values to enable comparison of risk associated with assets having different expected values. The coefficient of variation (CV) is computed by dividing the standard deviation, σ , for an asset by its expected value, μ

- Symbolically,

$$CV/\mu = \sigma$$

The coefficient of variations for assets X and Y are respectively, 0.079 (1.26% / 16%) and 0.316 (5.06% / 16%).

Asset X

| i | x | μ | $x - \mu$ | $(x - \mu)^2$ | P(x) | $(x - \mu)^2 \times p(x)$ |
|---|-----|-------|-----------|---------------|------|---------------------------|
| 1 | 14% | 16% | (-2)% | 4% | 0.20 | 0.80% |
| 2 | 16 | 16 | 0 | 0 | 0.60 | 0 |
| 3 | 18 | 16 | 2 | 4 | 0.20 | 0.80 |

Asset Y

| i | x | μ | $x - \mu$ | $(x - \mu)^2$ | P(x) | $(x - \mu)^2 \times p(x)$ |
|---|----|-------|-----------|---------------|------|---------------------------|
| 1 | 8 | 16 | (-8) | 64 | 0.20 | 12.8 |
| 2 | 16 | 16 | 0 | 0 | 0.60 | 0 |
| 3 | 24 | 16 | 8 | 64 | 0.20 | 12.8 |

The larger the CV, the larger relative risk of the asset is. As a rule, the use of the coefficient of variation for comparing asset risk is the best since it considers the relative size (expected value) of assets.

The coefficient of variation is useful measure of risk when we are comparing projects which have (i) same standard deviation but different expected values, or (ii) different standard deviations but same expected values, or (iii) different standard deviations and different expected values.

How Financial Institutions Analyse Risk?

To evaluate the risk analysis dimensions of a project, financial institutions calculate several indicators, the most important ones being the break-even point, and the debt service coverage ratio. In addition they carry

out sensitivity analysis.

• Break-Even Point

The break-even point for a project is calculated with reference to the year when the project is expected to reach its target level of capacity utilization, which is usually the third or the fourth operating year. Further, it is calculated in terms of capacity utilization. So it is called break-even point capacity utilization (BEPCU).

Case: Cement Plant Project**

To illustrate the calculation of BEPCU, consider the following data for the third year of a Cement Plant project, when it is expected to reach the target capacity utilization of 70 per cent. (The installed capacity of this project is 2880 tones per annum and 70 per cent of this is 2016 tones per annum.)

| | (Rs in million) |
|---|-----------------|
| A. Variable Costs | |
| • Raw materials and consumables | 137.2 |
| • Power, fuel, and water | 24.7 |
| • Variable selling expenses and royalty Payments linked to sales | 19.2 |
| • Interest on working capital loans | 10.8 |
| • Other variable expenses | 5.0 |
| | 196.9 |
| B. Fixed and Semi-fixed Costs | |
| • Salaries and wages | 22.0 |
| • Repairs and maintenance | 2.0 |
| • Administrative and miscellaneous expenses | 2.5 |
| • Fixed selling expenses | 6.3 |
| • Fixed royalty and know-how payments | 3.0 |
| • Interest on term debt | 12.0 |
| • Depreciation and amortizations | 7.5 |
| | 55.3 |
| C. Sales Realization | 265.6 |
| D. Contribution | 68.7 |

The calculation of DSCR is illustrated below:

| Year | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|------------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| A. Total Cash Accrual | | | | | | | | | | |
| 1 Profit after tax | 0.27 | 0.8 | 1.35 | 1.13 | 0.99 | 0.99 | 0.99 | 1.01 | 1.02 | 1.04 |
| 2 Depreciation | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |
| 3 Interest on term loan | 1.18 | 1.2 | 1.07 | 0.93 | 0.78 | 0.64 | 0.48 | 0.33 | 0.19 | 0.04 |
| Total (Rs in million) | 2.15 | 2.7 | 3.12 | 2.76 | 2.47 | 2.33 | 2.17 | 1.04 | 1.91 | 1.78 |
| B. Debt Service | | | | | | | | | | |
| 1 Interest on term loan | 1.18 | 1.2 | 1.07 | 0.93 | 0.78 | 0.63 | 0.48 | 0.33 | 0.19 | 0.04 |
| 2 Repayment of term loan | | 0.4 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.4 |
| Total (Rs in million) | 1.18 | 1.58 | 1.87 | 1.73 | 1.58 | 1.43 | 1.28 | 1.13 | 0.99 | 0.44 |

$$\text{BEPCU (\%)} = \frac{\text{Fixed costs and semi-fixed costs} \times \text{Percentage capacity utilization}}{\text{Contribution}}$$

$$= \frac{55.3}{68.7} \times 70\% = 56.3\%$$

The cash BEPCU is calculated using the above formula without including depreciation and amortization as a part of the fixed costs.

$$\text{Cash BEPCU (\%)} = \frac{47.8}{68.7} \times 70\% = 48.7\%$$

• Debt Service Coverage Ratio

The debt service coverage ratio (DSCR) is defined as:

$$\text{DSCR} = \frac{\text{Profit after tax} + \text{Depreciation} + \text{Interest on term debt} + \text{Lease rentals Amortization}}{\text{Repayment of term debt} + \text{Interest on term debt} + \text{Lease rentals}}$$

The average DSCR is computed by taking the total of all values of the numerator and denominator for the entire period of the proposed term loans, commencing from the year in which commercial production starts and not by taking the DSCRs for each year.

$$\text{Average DSCR} = \frac{\text{Total cash accrual over the 10 year period}}{\text{Total debt service burden over the 10 year period}}$$

$$= \frac{23.42}{13.21}$$

$$= 1.77$$

• Sensitivity Analysis

Financial institutions carry out sensitivity analysis to assess the impact of adverse changes in the operating conditions of the project on its viability. The standard sensitivity analysis involves assessing the impact of 10 per cent adverse variation in selling price, quantity, and operating costs on the internal rate of return (IRR), debt service coverage ratio (DSCR), and break-even point (BEPCU%).

Case: Port Project**

Here is the sensitivity analysis done for a port project.

Scenario1 : Fall in cargo handling and storage charges by 10%. (This is akin to fall in selling price.)

Scenario2 : Fall in cargo by 10%. (This is akin to fall in quantity.)

Case 3 : Increase in operating costs by 10%.

Case 4 : Combined effect of all the three factors.

The table showing the sensitivity of IRR, DSCR, and BEP % to the above case is shown below:

| Base | Revenue | Op. Profit | IRR % | DSCR | BEPCU% | |
|--------|----------------------------|----------------------------|-----------|------|--------|-------|
| | (3rd year) (Rs in mln.) | (3rd year) (Rs in mln.) | After Tax | Avg. | Gross | Cash |
| Case | 1215 | 566.8 | 39.89 | 4 | 39 | 21.13 |
| Case 1 | 1086.9 | 438.8 | 35.24 | 3.46 | 44.57 | 24.15 |
| Case 2 | 1150.1 | 519.6 | 38.02 | 3.76 | 40.91 | 22.17 |
| Case 3 | 1215 | 538.7 | 38.82 | 3.88 | 40.31 | 22.11 |
| Case 4 | 1028.5 | 371.5 | 32.5 | 3.13 | 48.37 | 26.53 |

Conclusions

On the basis of figure of the expected value and standard deviations, it is difficult to say whether a decision maker should choose a project with a high expected value and a high standard deviation or a project with a comparatively low expected value and a low standard deviation. The decision maker's choice would depend upon his risk preference. Individuals and firm differ in their attitudes towards risk.

Whatever the case is, in regard to above study it is concluded that every company must conduct Risk Analysis in Capital Budgeting to know the degree of risk in its future investments. Also, it reflects the impact of project on the risk profile of the firm's total cash flows. On a stand-alone basis a company's project may be very risky but if its returns are not highly correlated or even better, negatively correlated with the returns on the other project of the firm, its corporate risk tends to be low.

Notes:

*The tools and techniques used for the study are standard tools and are quoted from –

Financial Statements Analysis, John J. Wild, et al., Tata McGraw- Hill, New Delhi, 2007.

Financial Management and Policy, Van Horne, et al., Pearson, New Delhi, 2007.

**The cases, viz., Delhi Papers Ltd. Cement Plant Project and Port Project are of real business firms. But, for the sake of confidentiality purposes, their names have been changed.

References

1. Archer S H, etal (1972), *Business Finance-Theory and Management*, The Macmillan Company, New York
2. Ball Ray, etal (2000), *Income versus Standards: Properties of Accounting Income in Four East Asian Countries and Implications for Acceptance of IAS*, Simon School of Business
3. Bhattacharya, S K, etal (2003), *Accounting for Management-Text & Cases*, Third Edition, Vikas Publishing House Pvt Ltd, New Delhi
4. Bierman Harold Jr, etal (1986), *Financial Management for Decision Making*, Macmillan Publishing Company, New York
5. Chandra Prasanna (2002), *Projects: Planning, Analysis, Financing, Implementation and Review*, Fifth Edition, Tata McGraw-Hill Publishing Company Limited, New Delhi
6. Donaldson Gardon, January-February (1960), "Looking Around: Finance for the Non-Financial Managers", *Harvard Business Review*, Vol 37
7. Donaldson Gordon (1961), *Corporate Debt Capacity*, Division of Research, Harvard Business School
8. Haynes George W, etal (2001), *Wealth and Income: How Did Small Business Fare From 1989 to 1998?* Department of Health and Human Development, Montana state University, Bozeman, MT
9. Lewis, Richard (1972), *An Enquiry into the Informational Needs of Stockholders and Potential Investors*, Dissertation, Arisona State University
10. Lyle, Harry C (1967), *The Use of Accounting Data in Decision-making: A Critique*, Columbus, Ohio, College of Commerce and Administration, The Ohio State University
11. Modigliani, F etal (1958), "The Cost of Capital, Corporation Finance and The Theory of Investment", *American Economic Review*, Vol 48, June
12. Sansing Richard (1998), "The Unrelated Business Income Tax, Cost Allocation and Productive Efficiency", *National Tax Journal* Vol 51, No 2

Determinants of Foreign Institutional Investment in India

Dr B S Bodla*, Ashish Garg**

The paper examines the factors determining net foreign institutional investment (FIIN), sales and purchase made by the FIIs in a very big emerging economy like India. The investigation fitted as many as 144 bi-variate regression equations (OLS) with six dependent variables using daily data for the period March 1999 to December 2006. The major findings reveal that net foreign institutional investment and its seven days moving average are positively related to factors like the rate of return of the stock market available in the host country at present and in the recent past, but the same is negatively affected by volatility in stock return of domestic markets and foreign markets, exchange rates and Federal Bank interest rate.

Keywords: Foreign Institutional Investors (FIIs), Volatility, Stock Market, Indian Stock Market, BSE Return, MSCI return and S & P 500.

I. Introduction

India opened its stock market to foreign institutional investors (FIIs) in September 1992 and since then the net portfolio investments from the foreigners in equities have been positive in every year except 1998-99 when due to Pokhran Nuclear explosion test by India, foreigners withdrew portfolio investment. Table 1,

portrays the trends and progress of FIIs activities in Indian equity market from the year 1992-93 to 2006-07. It has been observed in the table that purchase and sale of the equity securities FIIs have increased & more than three hundred per cent over the last five years, which shows that portfolio investment has become a dominant path of foreign investment in Indian economy.

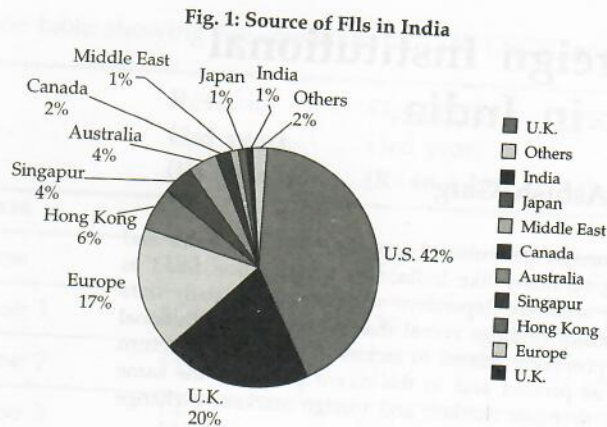
Table: 1

FIIs Investment in India

| Securities and Exchange Board of India (SEBI) Data | | | | | |
|--|----------|----------|--------------|---------------------|---------------------------------|
| Gross in Rupees Crore | | | Net | | |
| Year | Purchase | Sale | Rupees Crore | Millions of Dollars | Cumulative In millions of US \$ |
| 1992-93 | 17 | 4 | 13 | 4 | 4 |
| 1993-94 | 5,592 | 466 | 5,126 | 1,634 | 1,638 |
| 1994-95 | 7,631 | 8,835 | 4,796 | 1,528 | 3,166 |
| 1995-96 | 9,694 | 2,752 | 6,942 | 2,036 | 5,202 |
| 1996-97 | 15,554 | 6,979 | 8,575 | 2,432 | 7,634 |
| 1997-98 | 18,695 | 12,737 | 5,958 | 1,650 | 9,284 |
| 1998-99 | 16,115 | 17,699 | -1,584 | -386 | 8,898 |
| 1999-2000 | 56,855 | 46,734 | 10,121 | 2,339 | 11,237 |
| 2000-01 | 74,051 | 64,116 | 9,935 | 2,159 | 13,396 |
| 2001-02 | 49,920 | 41,165 | 8,755 | 1,846 | 15,242 |
| 2002-03 | 47,061 | 44,371 | 2,690 | 562 | 15,804 |
| 2003-04 | 1,44,858 | 99,094 | 45,765 | 9,950 | 25,755 |
| 2004-05 | 2,17,911 | 1,71,696 | 46,215 | 10,248 | 36,008 |
| 2005-06 | 3,46,978 | 3,05,512 | 41,466 | 9,332 | 45,340 |
| 2006-07* | 3,62,438 | 3,38,471 | 23,967 | 5,163 | 50,503 |

Source: Report of the Ministry of Finance, Govt of India on Encouraging FII Flows Nov 2005, and data for later period is updated from the RBI website.
*Data is upto 31st December 2006

*Professor, Department of Management, Kurukshetra University, Kurukshetra
**Lecturer, Kedarnath Aggarwal Institute of Management, Charkhi Dadri



Source: www.sebi.gov.in

The major sources of FIIs flows in India, as per FIIs registered with SEBI, come from as many as 28 countries (including money management companies operating in India on behalf of foreign investors). US based institutions accounted for slightly over 42%, those from the UK constitute 20%, while other Western European Countries hosting another 17% of FIIs (see Fig. 1)

Foreign institutional investors have always remained the hot issue of the debate and discussion world over and India is not an exception to this. The issue has become more important among the economists, regulators, researchers and academicians especially since the dawn of the twenty first century. The questions which are generally raised about the FIIs investment include: i) how do the foreign portfolio investments affect the stock market and economy of the host country?, and ii) what determines the quantum of capital flows from FIIs?

Regarding the first issue raised above, numerous studies have been conducted both in India as well as foreign countries. The effect of the foreign investment varies from country-to-country and the FII flows to the secondary equity market do not have any direct link with the level of real investment in the economy. It is only by enhancing the efficiency and liquidity of capital market that such flows can contribute to growth. Some studies concentrating on India [such as Banerjee and Sarkar,(2006); Badhani, (2005); Biswas, Joydeep,(2005); Ananthanarayanan, Krishnamurthi and Sen, (2003); Rao, Murthy and Ranganathan, (1999)] found clear evidence of benefits of such flows in the form of equity market

development, capital market integration, lower cost of capital, etc. Securities market in developing countries is typically both narrow and shallow. Therefore, FIIs participation may also cause considerable instability in these markets. About the effect of such mobile capital flows, country experiences differ considerably and, therefore, the question of impact has remained highly controversial.

Infact, the conclusions about the impact of FIIs activities on the volatility of return of the India's stock market are rather divided; some studies like Karmakar, Madhusudan, (2006); Porwal and Gupta, (2006); Upadhyay, Saroj, (2006); Bhattacharya and Jaydeep,(2005); Biswas, Joydeep,(2005); Pal, Parthapratin, (2005); Rai and Bhunumurthy, (2004); Singh, Sharwan Kumar, (2004) and Batra, (2003) find evidences of higher volatility in the market due to the arrivals of FIIs. On the other hand, Banerjee and Sarkar(2006), Biswas, Jaydeep(2006), Mohan, T.T.Ram (2006), Batra (2003) and Kim and Singal (1993) do not find any destabilizing impact on stock prices.

Thus the first issue has been grossly researched in India. However, comparatively less attention has been paid to the second question pertaining to the determinants of FIIs flows. A proper understanding of the determinants of these flows, however, is essential for a meaningful debate about their effects as well as predicting the chances of their sudden reversals. In an attempt to address this issue, the present paper undertakes an empirical analysis of determinants of foreign institutional investment flows (FIIs) in India.

The broad objectives of this paper is to find out the factors that determine the flow of FIIs to India and also to determine the nature and direction of causality between returns on Indian stock market and FIIs investment flows. After having the introduction in first section, the paper is further divided into four sections. Section-II presents the brief review of relevant literature, section-III outlines the methodology of the study, section-IV is devoted to the analysis of the result of the study and section-V concludes the paper.

II. Literature Review

Several attempts have been made to explain the behaviour of the Foreign Institutional Investors' in

Indian Market. This section of the paper reviews them in brief. Bhattacharya and Mukherjee (2006) investigated the nature of the causal relationship of FIIs with stock return and exchange rate in India. The co integration and long term Granger Causality test have been employed to find out a bi-directional causality between stock return and FIIs investments. No causal relationship between exchange rates and net investments by FIIs investments is found. Bandhani (2005) studies interlinkage of stock prices, net FIIs investment and exchange rate using monthly data from April 1993 to March 2004. He has observed a bi-directional long-term causality between FIIs investment flows and stock prices, but no short-term causality could be traced between the variables. Further, it has also found that exchange rate long-term granger causes FIIs investment flows, but not vice versa. The study does not find any long run relationship between exchange rate and stock prices but short-term causality runs from changes in exchange rate to stock returns and not vice-versa.

Lakshmi Sharma (2005) frames a model by taking FIIs investment as dependent variable and impact cost, market return and the ratio of non-promoters category of shareholders to total outstanding shares as independent variables and find that impact cost and the quantum of the shares available for trading in the market seem to be two important considerations for FIIs for their investment purpose. But of the two significant variables, impact cost has emerged as the most important variable explaining the FIIs investment in a company. Panda (2005) examined the impact of FIIs Investments on the Indian stock market by applying VAR analysis on the daily data from October 2003 to March 2004 and found that Mutual Fund investments have better explanatory power than FIIs investments in explaining returns on both of the main Indian markets BSE and NSE. The investigation found that FIIs investments do not affect BSE Sensex rather it is affected by the later.

Rai & Bhanumurthy (2003) examined the determinants of the FIIs investments in India by taking the data from January 1994 to November 2002 and found a positive relation between FIIs and stock market return (BSE) and an adverse effect of fundamental factors such as speculation and sentiments. Gorden and Gupta (2003) apply the

multiple regression technique on the monthly data from September 1992 to October 2001 to find out the relation between fundamental factors of the Indian economy and portfolio flows and find external interest rate and lagged domestic stock market return as key variables for explaining portfolio arrivals.

Mukherjee and Coondoo (2002) explore the relationship of FIIs Investments to the Indian equity market with its possible covariates based on a daily data set for the period January 1999 to May 2002. The study finds the FIIs flows to and from the Indian market tend to be caused by return in domestic equity market. The study also explains that the return from the exchange rate variation and fundamentals of the Indian economy may have influence on FIIs decision, but such influence does not seem to be strong. In contrast, Chakrabarti (2001) came with the evidence that the FIIs flows are highly correlated with equity returns in India. He also found that the FIIs flows effect rather than cause of these returns and hence it contradicted the view that FIIs determine the market return in general. Similarly, Asha C. Parsuna (2000) found that it is mainly the return in the host country stock market which attracts the FIIs investments, other factors are also creating impact on the arrival of FIIs but they are statistically insignificant. Kumar (2001) has also shown the similar result in his study.

The research studies conducted by Narayan and Smith, (2005); Panda, Chkradhara, (2005); Venkateshwarlu and Tiwari, (2005); Bartam and Dufey, (2001); Morley and Pentecost, (2000); Mohanty, (1998); Aggarwal, (1997); Kang and Stulz, (1997); Clark and Berko, (1996); Bahmani- Oskooee and Sohrabain, (1992) also conclude that the stock return in the host country is the significant determinants of foreign portfolio inflows. Present study is also an attempt in the same line but it has taken 24 variables to explain the determinants of the FIIs investments in India.

The scope of the study is restricted to India because India is an appropriate case for conducting such a study as portfolio investment has become a dominant path of foreign investment in Indian economy. The period of second-generation economic reforms i.e. March 1, 1999 to December 31, 2006, is taken as reference period, hence the study is more sound than the earlier ones.

III. Selection of Variables, Sources of Data and Methodology

Rationally, global investors would continuously adjust investment portfolio round the clock using available market information and thereby tracking the returns on all possible markets. The trading behaviour of these investors can be classified into two categories: (I) Momentum strategy or Positive Feedback Trading, and (II) Herding strategy. In case of the Momentum strategy investors have a tendency to buy and sell stocks based on their observed return records i.e. to buy recent winners and sell recent losers. Conversely, in case of Herding strategy all investors behave in a similar manner and take decision by observing the behaviour of other investors. To capture these behavioural patterns the investor's action may be aggregated and summarized into two basic measures: (I) Sale, and (II) Purchase. Following the logic, we have chosen to examine the determinants of FIIs flows to India by considering three dependent variables: FIIs Sale, FII purchase and FIIs net investment denoted as FIIS, FIIP, and FIIN respectively. As the time series data have been taken on daily basis, this may show day effect anomaly. Hence in order to eliminate day effect seven days moving average of the above mentioned dependent variables has also been taken as dependent variables. Thus in total the study considers six dependent variables.

As stated earlier, as many as 24 independent variables have been taken so as to bring out their relationship with FIIs flow to Indian stock markets. Review of literature has indicated the impact of domestic stock returns on the foreign portfolio investment. Accordingly, return offered by the Indian stock market is taken as explanatory variable. Foreign portfolio investment to a stock market may also be affected by the return offered by the security market to which FIIs belong. It means the stock market behaviour of such countries must be considered for examining the determinants of FIIs to a stock market. As around 42 per cent of the total FIIs flows to Indian stock market comes from US (Source: www.sebi.gov.in), its stock market is assumed to have an impact on foreign funds flowing to other countries. So to represent the US market S & P 500 Index and for representing rest of the emerging markets Morgan Stanley Capital International World

Index (MSCI) have been taken as the explanatory variables for FIIs flows. Review of the existing studies also shows that beside above-mentioned variables, there are numerous other factors which have effect on FIIs flows. These variables include interest rate in foreign countries, exchange rate between the investing country and the domestic country, growth potential of the host country, risk of investing in the stock markets and the differential return of foreign and domestic markets etc. Accordingly, the present study considered the following variables:

- Federal Bank interest rates (3months treasury bills) as a representative of international interest rate,
- Exchange rate of Indian rupees vis-a-vis the US dollar,
- Index of Industrial Production as an indicator of growth potential of Indian economy,
- Risk at both domestic and foreign markets,
- Deferential return of BSE and S & P 500, and
- Deferential return of BSE and MSCI.

Moreover, moving averages of various indices under reference and return with one day lag have been taken in order to eliminate the day anomaly and to capture the effect of previous day return on FIIs. A detailed presentation of the data series and sources of all dependent as well as independent variables considered for this study are shown in Exhibit 1 alongwith procedure of developing various series of the requisite data.

We begin the estimation process by verifying the time series properties of the data. More specifically, the stationarity problem of the both dependent and independent variables is examined. For this, we used Augmented Dickey-Fuller Test (ADF) for checking the unit root of the selected variables. The following form of ADF regression equation was used:

$$\Delta Y_t = \beta_1 + \beta_2 + \delta Y_{t-1} + \alpha_1 \sum_{i=1}^m \Delta Y_{t-i} + \epsilon_t \dots \dots \dots (1)$$

Where ϵ_t is a pure white noise error term and Y_{t-1} additional lagged term, included with an idea of ensuring that the errors are uncorrelated. $\beta_1, \beta_2, \delta, \alpha$ are the coefficients where δ is the first difference operator which is equal to $(p-1)$, estimated to test the null hypothesis that $\delta = 0$. If d is equal to zero it means we have a Unit Root which implies non-stationarity in the series under consideration. If a

series is stationary at level then it is also integrated of zero order and a series stationary at 1st difference is integrated of 1st order and so on. The results for the ADF Test (Table 2) suggest that all dependent and independent variables are stationary at level except Federal Bank Interest Rate (FBIR) and Industrial Production Index (IIP) which are stationary at 1st difference.

However, use of differenced variables instead of the original variables ones may sometime result in the serious loss of long run information. It is essential to keep the long run information on the variables and to avoid the problems of spurious regression.

These two problems have to be avoided simultaneously. For this, possible co-integration

Exhibit 1 : Notation of the Variables, Data Series and Sources

| Notation | Variable Data Series and Source |
|---|---|
| Dependant Variables: | |
| FIIP | Daily FIIs Purchase or inflows into the Indian equity markets. Sources: Prowess and website of SEBI: www.sebi.gov.in |
| FIIS | Daily FIIs Sale or outflows into the Indian equity markets. Sources: Prowess and website of SEBI: www.sebi.gov.in |
| FIIN | Daily FIIs Net investment into the Indian equity markets, that is difference between FIIS and FIIP. Sources: Prowess and website of SEBI: www.sebi.gov.in |
| FIIP_MA | 7 days moving average of FII Purchase |
| FIIS_MA | 7 days moving average of FII Sales |
| FIIN_MA | 7 days moving average of FIIs net investment |
| Domestic Independent Variables: | |
| BSE Sensex | Daily basis return on the Bombay Stock Exchange has been obtained from the site of BSE: www.bseindia.com |
| NSE(S & P Nifty) | Daily basis return on the National Stock Exchange Daily data on the Nifty has been obtained from the NSE site: www.nseindia.com |
| BSE_MA | 7 days moving average of BSE Return |
| NSE_MA | 7 days moving average of NSE Return |
| L_BSE | 1 day lagged return of BSE |
| L_NSE | 1day lagged return of NSE |
| R_BSE | Risk at the Bombay stock exchange calculated by the using Standard deviation of last 15 days Return. |
| R_NSE | Risk at the national stock exchange calculated by the using Standard deviation of last 15 days Return. |
| IIP | Index of Industrial Production source: RBI Handbook of Statistic on Indian Economy, and CMIE monthly review. |
| International Independent Variables: | |
| S & P | Daily basis return on the S & P 500 Data for the daily S & P 500 has obtained from the site of Standard and Poors. |

| | |
|--------------------------------------|--|
| MSCI | Daily basis return on the Morgan Stanley Capital International World Index. |
| MSCI_MA | Data for the daily Morgan Stanley Capital International World Index (weighted stock price index for all countries) has obtained from the site of Morgan Stanley Capital International: www.masci.com 7 days moving average of MSCI Return S&P_MA 7 days moving average of S & P 500 Return L_MSCI 1 day lagged return of MSCI L_S&P 1 day lagged return of S & P 500 |
| R_MSCI | Risk at the MSCI calculated by the using Standard deviation of last 15 days Return. |
| R_S&P | Risk at the S & P 500 calculated by the using Standard deviation of last 15 days return. |
| FBIR | Daily interest rate of 3 months Treasury bill declared by the Federal Bank and obtained from the site of Federal bank. www.stls.frb.org |
| Others Independent Variables: | |
| L_FIIN | 1day lagged net investment of FII |
| BETA_MSCI | Beta of BSE wet MSCI based on previous 30days data. Calculated by using the Formula: Covariance BSE, MSCI/ Variance of MSCI |
| BETA_S&P | Beta of BSE wet S & P500 based on previous 30days data. Calculated by using the Formula: Covariance BSE, S&P/ Variance of S&P |
| D_RET1 | Differential Return calculated by BSE - S&P |
| D_RET2 | Differential Return calculated by BSE - MSCI |
| US_EX | Daily Exchange rate of the Indian rupees vis a vis the US Dollar. Obtained from RBI site. www.rbi.ord.nic and Federal Bank www.stls.frb.org |

between the variables has to be checked.

To find out the co-integration between variables AEG test was conducted. For this, first step is to estimate co-integration regression using variables having the same order integration. The co-integration equation by the OLS method is given as:

$$Y_t = a_0 + a_1X_1 + a_2X_2 + a_nX_n + Z_t \dots \dots \dots (2)$$

Next, residuals (Z_t) from the co-integration regression are subject to the test stationary by applying Augmented Dickey Fuller unit root test based on the following equation:

$$(ADF) \Delta Z_t = \beta_1 + \beta_2t + \delta Z_{t-1} + \alpha_1 \sum_{i=1}^m \Delta Z_{t-i} + \epsilon_t \dots \dots \dots (3)$$

If the Z proved stationary its means that calculated co-integration regression is not spurious. The result of the AEG test given in Table 3 finds that error term of the OLS Regression on various variables used in the case of Unit Root Test is significantly stationary. This implies that the various series are co-integrated.

The relationship between FIIs inflows and various determinants over the period 1999-2006 have been estimated. The Ordinary Least Squares (OLS) method was applied to the investment functions. Three specifications of the model have been considered with basic dependent variables (i.e. FIIS, FIIP and FIIN) and with 7 days moving averages of FIIS, FIIP and

Table 2: Results of the Augmented Dickey Fuller unit root test

| | Constant, Without Trend | Constant, With Trend |
|-------|----------------------------|---------------------------|
| BSE | -25.7218*, Level | --25.78205*, Level |
| FIIN | -15.8364*, Level | -16.34354*, Level |
| FBIR | -25.80197*, Ist Difference | 26.01480*, Ist Difference |
| MSCI | -25.85145*, Level | -25.87004*, Level |
| NSE | -25.6853*, Level | -25.7309*, Level |
| S & P | -27.67409*, Level | -27.68075*, Level |
| US_EX | -4.49117*, Level | -4.481535*, Level |
| IIP | -25.3460*, Ist Difference | 25.35231*, Ist Difference |
| FIIS | -5.658116* Level | -9.012926* Level |
| FIIP | -6.351345* Level | -10.33795* Level |

* Hypothesis rejected at 1 per cent significance

FIIN respectively by constructing 144 three (6 dependent X 24 independent variables) OLS equations.

OLS Equation is: $Y_t = a_0 + a_1X_1 + Z_t$(4)

Where Y_t is dependent variable, a_0 and a_1 are constant; X_1 is value of independent variable while Z_t is the error term. The independent variables considered for the models are given in Exhibit 1 and the results of these models are shown in Table 5.

IV. Empirical Analysis

To begin with, the summary statistics (see Table 4) pertaining to the daily data series of dependent and

independent variables have been analysed. It is evident from the table that average daily net FIIs inflows to India are Rs. 98.51 crore with a standard deviation of Rs. 316.22 crore. Both mean and standard deviation of the daily return in case of the Indian stock markets (BSE and NSE) are found higher than the both US Market Index (S&P) and the emerging markets index (represented by MSCI). It means, Indian stock market has performed better than US and other emerging markets over the recent years. However, the risk involved is higher in the former than in the later. While the return series are negatively skewed in case of BSE and NSE (Indian Market), these series are positively skewed in case of

Table 3: Results of the Augmented Engle-Granger Test of Co-integration

| | | | |
|--|-----------|--------------------|---------|
| ADF Test Statistic | -21.92628 | 1% Critical Value* | -3.4368 |
| | | 5% Critical Value | -2.8636 |
| | | 10% Critical Value | -2.5679 |
| *MacKinnon critical values for rejection of hypothesis of a unit root. | | | |
| Augmented DickeyFuller Test Equation | | | |
| Dependent Variable: D(LAG) | | | |
| Method: Least Squares | | | |
| Date: 06/15/07 Time: 09:44 | | | |
| Sample(adjusted): 1/06/1999 5/11/2006 | | | |
| Included observations: 1886 | | | |
| Excluded observations: 31 after adjusting endpoints | | | |

| Variable | Coefficient | Std. Error | t-Statistic | Prob |
|--------------------|-------------|-----------------------|-------------|-----------|
| LAG(1) | -0.921115 | 0.042010 | -21.92628 | 0.0000 |
| D(LAG(1)) | -0.190892 | 0.034278 | -5.568990 | 0.0000 |
| D(LAG(2)) | -0.141279 | 0.022979 | -6.148240 | 0.0000 |
| C | -0.138156 | 6.233266 | -0.022164 | 0.9823 |
| R-squared | 0.563334 | Mean dependent var | | -0.347746 |
| Adjusted R-squared | 0.562638 | S.D. dependent var | | 409.3216 |
| S.E. of regression | 270.6980 | Akaike info criterion | | 14.04200 |
| Sum squared resid | 1.38E+08 | Schwarz criterion | | 14.05376 |
| Log likelihood | -13237.61 | F-statistic | | 809.3113 |
| Durbin-Watson stat | 2.020812 | Prob(F-statistic) | | 0.000000 |

S & P and MSCI. As regards kurtosis, the Table shows that except the FBIR and IIP series, all possess leptokurtic distribution. As per the results of the Jarque-Bera statistics, each of the variables under study turned non-normal.

The results of the bi-variate form of OLS applied to examine the significance of various independent variables as determinants of FII flows in India are given in Table 5. This Table presents the regression coefficients, coefficients of determination (R^2) and adjusted R^2 values; the coefficient of determination (R^2) is the percentage of the total variance in the dependent variable, explained by the independent variables. It is noteworthy here that the values of the coefficients of determination resulting from the various regression equations are very low irrespective of the nature of the variable. The highest explanatory power amongst the various independent variables, works out in case of lagged investment by FIIs (41.4%), followed with wide difference, in down side, by Industrial Production Index (10.8%), 7 days moving average of BSE Sensex return (8.8%), moving average of NSE Nifty return (8.6%), and volatility of BSE return (6.8%). Though the above-mentioned values of R^2 are obtained when FIIs net investments moving average (i.e. FIIN_MA) is taken as the dependent variables for fitting the OLS equations separately for each of the 24 independent variables under reference, but the aforesaid phenomenon holds good in case of all of the dependent variables with a few exceptions. Thus the results concerning R^2 make indication of the dependency of FII flows to India on past investments by FIIs, industrial growth in the host country, stock market return and volatility. It is evident from the Table that regression coefficients

concerning BSE Return, BSE_MA, Lagged BSE Return, NSE Return, NSE_MA, Lagged NSE Return and Differential Return 1 and 2 are positive and statistically significant at 5 per cent level of significance, in so far as the dependent variable FIIN and its seven days moving average (FIIN_MA) are concerned. The above results imply that net portfolio investment brought by FIIs and its moving averages are dependent on the stock return offered by Indian markets. Higher the return higher would be the net FII inflows to India. Table further indicates that both BSE_MA as well as NSE_MA have obtained positive and statistically significant regression coefficient in case of the regression equations having FIIN, FIIN_MA, FIIP and FIIP_MA as the dependent variables. Similarly, lagged BSE Return and Lagged NSE Return have established positive relation with three dependent variables namely FIIN, FIIN_MA and FIIP. Thus net inflows as well as gross purchases of securities are dependent on both current and past information regarding stock returns in Indian capital market.

Regarding the relationship between the return in the foreign stock markets and FIIs flows to India, it may be seen from the Table under reference that the return in foreign markets have negative relationship with FIIN and positive relationship with rest of the dependent variables. However, the regression coefficients of these two variables (i.e. MSCI return and S&P return) are found insignificant irrespective of the dependent variable. It refers that FII flows to India are not much affected by the return offered by stock market of the investing countries rather affected by return offered by the market of the host countries. It is also note worthy that seven days moving average

series of the MSCI and S&P 500 is found having positive and significant values of regression coefficient in case of four dependant variables FIIN, FIIN_MA, FIIP and FIIP_MA. The above implies that past information on stock returns of investing countries does affect the foreign portfolio investment by FIIs in India.

Table 5 further reveals that volatility in return of both domestic market as well as foreign countries affects negatively the FII flows to Indian stock market. To be precise, volatility in return of BSE, NSE, MSCI and S&P 500 have obtained negative values of regression coefficient against majority of the dependant variables. Moreover, these coefficients are significant at 1 per cent level. The effect of Beta, measures of co-movement of domestic and foreign market in both cases (S&P and MSCI) have obtained positive values. While the coefficient of BETA_MSCI turned significant at 1 per cent against each of the model specifications, BETA_S&P is found significant in case of only three dependant variables, namely, FIIS_MA, FIIP and FIIP_MA. From this analysis, we can conclude that the total risk of return series affects the foreign investment in a country negatively, positive and significant value of beta coefficient implies that FIIs want to reap the benefits of portfolio diversification by switch over to the other markets when risk profile of the markets gets changed.

Regarding the effect of the various macro-economic factors taken as determinants of FIIs, the Table shows that Exchange Rate of Indian Rupee with US Dollar has a significant negative relationship with each and every dependant variable representing foreign portfolio investment in India. In contrast, Federal Bank Interest Rate has significant positive relationship with four of the dependant variables namely, FIIS, FIIS_MA, FIIP and FIIP_MA. The same (Federal Interest Rate) has found a significant negative relationship with FIIN and FIIN_MA. As expected, FII flows to India are found having positive relationship with growth of Indian economy represented by IIP.

V. Concluding Observations

This paper endeavours to identify the determinants of FII flows to a big emerging economy (i.e. India) by using bi-variate OLS considering as many as six dependent and 24 independent variables. The

analysis aims at making a prima-facie identification of the more relevant determinants so as to recommend a further research on them with the application of multivariate statistical techniques by the future researchers on the subject under consideration. The study uses daily basis data from March 1999 to December 2006.

The study has brought out numerous interesting findings. First, the overall explanatory power of the models having moving average of the net foreign institutional investment (FIIN_MA) as dependant variable is found the highest followed by those taking the net foreign investments (FIIN) as dependant variable. Secondly, FIIs as well as moving average of net FII flows to India have positive relationship with ten factors including BSE sensex return, moving average of return, lagged return at BSE and NSE, moving average of the return at MSCI and S&P, Industrial Production Index, lagged investment by FIIs, differential return of BSE and S&P and beta of MSCI. However, six factors, namely, volatility of returns of BSE sensex return, NSE Nifty, MSCI and S&P500 return, exchange rate, and Federal Bank interest rate have negative and significant relation with net FIIs and moving average of net FIIs. Thirdly, while the daily amount of sales and weekly moving average of the sales of the portfolio investments are found having significant positive relationship with MSCI's return 7 days moving average, Federal interest rate and Beta MSCI, the same are negatively affected by volatility of MSCI return and S&P 500 return and exchange rate between Indian rupees and US \$. Fourthly, the purchases and moving average of the purchases of securities from Indian market by the FIIs are positively determined by the moving average and lagged return of BSE as well as NSE, S&P_MA, MSCI_MA and industrial growth of India. But volatility of returns at BSE, NSE, S&P 500 and MSCI encompasses negative relation with purchases of securities by FIIs.

Thus the dependence of net FII flows on daily return in both of the domestic markets and lagged return of the BSE is suggestive of foreign investors return chasing behaviour. Their decision seems to get affected by the recent history of market return and the current return and volatility in the international market also. It has been observed that the sets of factors affecting FIIs sale and FIIs purchase were not

Table 5: Regression Coefficient and R-Square from all 144 OLS Equations

| Variables Name | FIIN | FIIN_MA | FIIS | FIIS_MA | FIIP | FIIP_MA |
|-----------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| (1) BSE Return | 1097.86* (.016) | 1674.421* (.00) | 196.403 (.830) | 113.004 (.891) | 1254.41 (.220) | 1513.759 (0.099) |
| R ² | .003 | .018 | .000 | .000 | .001 | .001 |
| Adjusted R ² | .002 | .018 | .000 | .001 | .000 | .001 |
| (2) BSE_MA | 11092.336* (.00) | 9342.632* (0.0) | 613.900 (.791) | 753.28 (.721) | 10043.27* (.00) | 9194.46* (0.0) |
| R ² | .047 | .088 | .000 | .000 | .008 | .008 |
| Adjusted R ² | .047 | .088 | .000 | .000 | .007 | .007 |
| (3) Lagged BSE Return | 3840.874* (.00) | 1730.858* (.00) | 32.303 (.972) | 64.522 (.938) | 2650.424* (.012) | 1657.326 (.071) |
| R ² | .037 | .020 | .000 | .000 | .003 | .002 |
| Adjusted R ² | .036 | .019 | -.001 | -.001 | .003 | .001 |
| (4) BSE Return Volatility | -7197.466* (.00) | -7280.704* (.00) | 114.349 (.956) | -968.965 (.607) | -11708.2* (.00) | -12662.7* (.00) |
| R ² | .025 | .068 | .000 | .000 | .013 | .019 |
| Adjusted R ² | .024 | .0679 | -.001 | -.001 | .013 | .019 |
| (5) NSE Return | 972.094* (.036) | 1674.323* (.00) | 404.267 (.663) | 146.562 (.861) | 1275.874 (.219) | 1517.470 (.103) |
| R ² | .002 | .018 | .000 | .000 | .001 | .001 |
| Adjusted R ² | .002 | .017 | .000 | -.001 | .000 | .001 |
| (6) NSE_MA | 11.41.690* (.00) | 9332.683* (0.0) | 728.060 (.756) | 739.129 (.730) | 9935.040* (.00) | 9163.094* (0.0) |
| R ² | .046 | .086 | .000 | .000 | .007 | .008 |
| Adjusted R ² | .045 | .085 | .000 | .000 | .007 | .007 |
| (7) Lagged NSE Return | 3781.190* (.00) | 1786.314* (.00) | -14.256 (.988) | 99.831 (.905) | 2443.094* (.018) | 1679.365 (.072) |
| R ² | .035 | .020 | .000 | .000 | .003 | .011 |
| Adjusted R ² | .034 | .020 | -.001 | -.001 | .002 | .010 |
| (8) NSE Return Volatility | -6881.910* (.00) | -6968.443* (.00) | 2612.480 (.213) | 1844.175 (.331) | -8683.420* (.00) | -9464.073* (.00) |
| R ² | .022 | .061 | .001 | .000 | .007 | .011 |
| Adjusted R ² | .022 | .061 | .000 | .000 | .007 | .010 |
| (9) MSCI Return | -938.814 (.234) | 577.221 (.234) | 1522.864 (.335) | 1509.085 (.291) | 565.404 (.749) | 1979.229 (.213) |
| R ² | .001 | .001 | .000 | .001 | .000 | .001 |
| Adjusted R ² | .000 | .000 | .000 | .000 | .000 | .000 |
| (10) Lagged MSCI Return | 345.173 (.662) | 663.077 (.172) | 1401.896 (.372) | 1322.918 (.355) | 2158.801 (.220) | 1949.707 (.219) |
| R ² | .000 | .000 | .000 | .000 | .001 | .001 |
| Adjusted R ² | .000 | .000 | .000 | .000 | .000 | .000 |
| (11) MSCI_MA | 4119.270* (.049) | 2985.306* (.021) | 11735.28* (.005) | 10594.66* (.005) | 15343.75* (.001) | 13009.13* (.002) |
| R ² | .002 | .003 | .004 | .004 | .006 | .005 |
| Adjusted R ² | .001 | .002 | .004 | .004 | .005 | .004 |
| (12) MSCI Return Volatility | -9422.803* (.00) | -9784.286* (.00) | -61124.2* (.00) | -60122.8* (.00) | -72662.4* (.00) | -72363.6* (.00) |
| R ² | .013 | .038 | .144 | .162 | .196 | .135 |
| Adjusted R ² | .013 | .038 | .144 | .162 | .196 | .135 |

| | | | | | | |
|--|---------------------|---------------------|--------------------|--------------------|---------------------|---------------------|
| (13) S & P 500 Return | -324.179 (.616) | 745.502 (.061) | 743.040 (.565) | 667.639 (.569) | 668.729 (.644) | 1205.141 (.355) |
| R ² | .000 | .002 | .000 | .000 | .000 | .000 |
| Adjusted R ² | .000 | .001 | .000 | .000 | .000 | .000 |
| (14) S & P_MA 500 Return | 6361.99* (.001) | 4935.861* (.00) | 6692.181 (.073) | 5825.854 (.088) | 11424.82* (.007) | 9778.225* (.010) |
| R ² | .001 | .002 | .000 | .000 | .001 | .000 |
| Adjusted R ² | .000 | .002 | .000 | .000 | .000 | .000 |
| (15) Lagged S & P 500 Return | 663.920 (.305) | 872.312* (.028) | 585.454 (.651) | 580.571 (.633) | 1433.312 (.323) | 1262.233 (.332) |
| R ² | .006 | .009 | .002 | .002 | .004 | .003 |
| Adjusted R ² | .005 | .009 | .001 | .001 | .003 | .002 |
| (16) S & P 500 Return Volatility | -11032.1* (.00) | -11182.8* (.00) | -62329.5* (.00) | -61620.9* (.00) | -76515.4* (.00) | -76164.5* (.00) |
| R ² | .026 | .071 | .214 | .250 | .256 | .310 |
| Adjusted R ² | .026 | .071 | .213 | .250 | .256 | .310 |
| (17) Exchange Rate | -14.699* (.00) | -14.853* (.00) | -81.839* (.00) | -80.137* (.00) | -100.593* (.00) | -98.357* (.00) |
| R ² | .008 | .021 | .062 | .071 | .075 | .087 |
| Adjusted R ² | .007 | .021 | .062 | .071 | .074 | .087 |
| (18) Federal Bank Interest Rate (3MTB) | -10.812* (.009) | -10.402* (.00) | 67.579* (.00) | 65.643* (.00) | 57.980* (.00) | 57.155* (.00) |
| R ² | .004 | .009 | .035 | .040 | .021 | .024 |
| Adjusted R ² | .003 | .008 | .035 | .039 | .020 | .024 |
| (19) Industrial Production Index | 2.144* (.00) | 2.247* (.00) | 16.928* (.00) | 16.819* (.00) | 19.550* (.00) | 19.621* (.00) |
| R ² | .037 | .108 | .595 | .698 | .632 | .770 |
| Adjusted R ² | .037 | .108 | .595 | .698 | .632 | .770 |
| (20) Lagged Investment by FIIs | .445* (.00) | .398* (.00) | .160* (.00) | .144* (.00) | .515* (.00) | .534* (.00) |
| R ² | .198 | .414 | .007 | .006 | .054 | .070 |
| Adjusted R ² | .197 | .414 | .006 | .006 | .054 | .069 |
| (21) Deferential Return 1 (BSE - S & P500) | 895.189* (.020) | 928.172* (.00) | -124.578 (.872) | -155.725 (.823) | 655.134 (.449) | 651.232 (.400) |
| R ² | .003 | .008 | .000 | .000 | .000 | .000 |
| Adjusted R ² | .002 | .007 | -.001 | .000 | .000 | .000 |
| (22) Deferential Return 2 (BSE - MSCI) | 1066.985* (.007) | 11117.062* (.00) | -233.511 (.768) | -292.879 (.683) | 806.782 (.564) | 644.309 (.419) |
| R ² | .001 | .011 | .000 | .000 | .000 | .000 |
| Adjusted R ² | .000 | .010 | .000 | .000 | .000 | .000 |
| (23) Beta_MSCI | 1.210* (.00) | 1.359* (.00) | 1.495* (.00) | 1.461* (.00) | 1.670* (.00) | 1.679* (.00) |
| R ² | .007 | .023 | .275 | .308 | .273 | .330 |
| Adjusted R ² | .007 | .022 | .275 | .308 | .273 | .330 |
| (24) Beta_S&P 500 | 2.996 (.280) | 1.764 (.300) | 9.414 (.087) | 1.325* (.008) | 2.529* (.00) | 1.576* (.005) |
| R ² | .001 | .001 | .002 | .004 | .009 | .004 |
| Adjusted R ² | .000 | .000 | .001 | .003 | .008 | .004 |

Note:1) figure in brackets are significant level of regression coefficient in the respective columns.

2) Regression coefficient in bold are significant ones at 5%.

same. For example, volatility in both markets affects the FIIs purchases but not the FIIs sales. Differential return is affecting the net investment of FIIs but does not the purchase and sale. A positive significant impact of Beta of MSCI on FIIs investment implies that FIIs vander to reap the benefits of portfolio diversification. Further interest rate in international market increases the FIIs preference to shift to their own countries.

The findings of the study suggest that the rate of FII inflows into India is governed mostly by the performance of the domestic equity market and of foreign investors expectation about this performance and hence variation in the country's foreign exchange reserves would, to some extent, be outside the monetary authority's control. Given the fact that FIIs flows can be extremely volatile, a drop of return in the Indian equity market may result in sudden massive withdrawals of FIIs, which may result in quite disturbing consequences on the country's economy, unless an appropriate stabilization mechanism is built into the domestic economic system.

Policy implementation of the findings just mentioned above is that a move towards a more liberalization regime in the emerging market economies like India should be accompanied by further improvement in the regulatory system of the financial sector. Our results additionally suggest that in case of India and other countries having thin and shallow equity market the prime focus should be on regaining investors' confidence in the equity market so as to strengthen the domestic investor base of the market. Once this is achieved, a built-in-cushion against possible destabilizing effects of sudden reversal of foreign inflows might develop. Only then the investors shall be able to reap fully the benefits of capital market integration.

References

1. Agarwal R N (1997), "Foreign Portfolio Investment in Some Developing Countries: A study of Determinants and Macroeconomic Impact", *Indian Economic Review*, 32, No 2, pp 217-229
2. Bahamani-Oskooee M and Soharabian A (1994), "Stock Prices and the Effective Exchange Rate of the Dollar", *Applied Economics*, Vol 24, pp 459-464
3. Bandhani K N (2004), "Dynamic Relationship Among Stock Prices, Exchange Rate and Net FII Investment Flow in India", Internet File URL: <http://www.iiml.ac.in/conference/abstracts/5.pdf>
4. Bandhani K N (2005), "Dynamic Relationship Among Stock Price, Exchange Rate and Net FII Investment Flow in India", From the net File URL: <http://www.iiml.ac.in/conference/abstract/5.pdf>
5. Banerjee Ashok & Sarkar Sahadeb (2006), "Modelling Daily Volatility of the Indian Stock Market using Intra-day Data", IIM Calcutta, WPS No 588/March
6. Bartram S M and Dufey G (2001), "Financial Market, Institutions and Instruments", V 10, No 3, August
7. Batra A (2003), "The Dynamic of Foreign Portfolio Inflows and Equity Returns in India", *Working Paper ICRIER*, New Delhi, October
8. Battacharya Basabi and Mukherjee Jaydeep (2006), "Casual Relationship between Stock Market and Exchange Rate, Foreign Exchange Reserve and value of Trade balance: A Case Study of India", from internet file <http://www.uticm.com/Cmc/index.asp>
9. Battacharya Basabi and Mukherjee Jaydeep (2005), "An Analysis of Stock Market Efficiency in the Light of Capital Inflows and Exchange Rate Movements: The Indian Context", <http://www.igidr.ac.in/money/An%20Analysis%20of%20Sock%20Market%20Efficiency...Basabi%20&%20Jaydeep.pdf>
10. Biswas Joydeep (2005), "Foreign Portfolios Investment and Stock Market Behavior in a Liberalized Economy: An Indian Experience", *Asian Economic Review*, August, Vol 47, No 2, pp 221-232
11. Biswas Joydeep (2006), "Indian Stock Market in Comparison", *Economic and Political Weekly*, May 1747-1752
12. Chakrabarti Rajesh (2001), "FII Flows to India: Nature and Causes", *Money and Finance ICRA Bulletin* 2, No 7
13. Clark J and E Berko (1996) "Foreign Investment and Emerging Stock Market Returns: The Case of Mexico", Federal Reserve Bank of New York, New York
14. Dickey D A and W A Fuller (1979), "Distribution of the Estimation for Autoregressive Time series with a Unit Root", *Journal of American Statistical Association*, Vol 79, pp 355-367
15. Engle R F and C W J Granger (1987), "Cointegration and Error Correction: Representation, Estimation and Testing", *Econometrica*, Vol 55, pp 251-276
16. Granger C W, Huang B and Yang C (2000), "A Bivariate Causality Between Stock Prices and Exchange Rates: Evidence from Recent Asian Flu", *The Quarterly Review of Economics and Finance*, Vol 40, pp 337-354
17. Granger C W J (1969), "Investigating Causal Relations by Econometric Models and Cross-Spectral Methods", *Econometrica*, Vol 37, pp 428-438
18. Karmakar, Madhusudan V (2006), "Stock Market Volatility in the Long Run 1965-2005", *Economic and Political Weekly*, May, pp 1796-1802

19. Kim E H and V Singal (1993), "Opening up of Stock Markets by Emerging economies: Effects on Portfolio Flows and Volatility of Stock Prices, in Portfolio Investment in Developing Countries", *World Bank Discussion Paper No.228* Ed by Stijn Claessens and Sudarshan gooptu (Washington: World Bank, 1993), pp 383-403
20. Kumar S (2001), "Does the Indian Stock Market Play to the Tune of FII Investments? An Impirical Investigation", *ICFAI Journal of Applied Finance*, Vol 17, pp 441-449
21. Mohan T T Ram (2006), "Neither Dread Nor Encourage Them", *Economic and Political Weekly*, January, pp 95-98
22. Mohanty P (1998), "On the Practical Impossibility of Market Efficiency", *ICFAI Journal of Applied Finance*, November, pp 58-64
23. Morley B and Pentecost E J (2000), "Common Trends and Cycles in G-7 Countries Exchange Rates and Stock Prices." *Applied Economic Letters*, Vol 7, pp 7-10
24. Mukherjee Parmita, Bose Suchismita and Coondoo Dipankar (2002), "Foreign Institutional Investment in the Indian Equity Market: An Analysis of Daily Flows during January 1999 to May 2002", *Money and Finance ICRA Bulletin*, April -September, pp 21-51
25. Narayan P K and R Smith (2005), "Exchange Rates and Stock Prices in South Asia", *ICFAI Journal of Applied Finance*, vol 11(3)
26. Pal Pathapratim (2005), "Recent Volatility in Stock Market in India and Foreign Institutional Investors", *Economic and political Weekly*, March
27. Panda Chakradhara (2005), "An Empirical Analysis of the Impact of FIIs' Investment on Indian Stock Market", *Applied Finance*, January, pp 53-61
28. Porwal Hamender Kumar and Gupta Rohit (2005), "The Stock Market Volatility", *The Journal Accounting and Finance* Vol 20, No 1, October, pp 31-44
29. Prasuna, C Asha (2000), "Determinants of Foreign Institutional Investment in India", *Finance India*, January pp 411-4221
30. Rai K and N R Bhanumurthy (2003), "Determinants of Foreign Institutional Investments in India: The Role of Return, Risk and Inflation", *JEL Classification: E44, G15, G11*
31. Rao K S, Murthy M R and Ranaganathan K V K (2005), "Foreign Institutional Investment and the Indian Stock Market", *Journal of Indian School of Political Economy*, Vol 11 (4), pp 623-647
32. Reserve Bank of India (2001), *Handbook of Statistics on Indian Economy*
33. Reserve Bank of India (Various Issues), *Reserve Bank of India Bulletin*
34. Sharma Lakshmi, "Determinants of FIIs Investment", from internet file <http://www.tapmi-blr.org/paper/html>
35. Singh Sharwan Kumar (2004), "Foreign Portfolio Investment", *The Indian Journal of Commerce*, Vol 57, No 4, October-December, pp 120-137
36. Upadhyay Saroj (2006), "FIIs in the Stock Market and the Question of Volatility", *Portfolio Organizer*, May, pp 22-30
37. Venkateshwarlu M and R Tiwari (2005), "Causality between Stock Price and Exchange Rates: Some Evidence for India", www.ias.ac.in/currsci/dec252005/2209.pdf

Mergers and Acquisitions in Relation to Economies of Scale and Profitability: An Analysis

Kushwinder Kaur*, Dr Kuldeep Kaur**

Mergers and Acquisitions (M&As) have been considered as an important means through which companies can achieve economies of scale, remove inefficient management or respond to economic shocks. Among other reasons, the aim to gain efficiency and increasing profitability are generally cited as important reasons for the firms to undergo mergers. The present paper is an effort to analyze the impact of M&As on the efficiency of seventy seven acquiring firms considered under the study. The M&As are analyzed in terms of economies of scale and profitability. For the acquiring firms in the year 1999, the time period 1996 to 1999 has been taken as pre-merger period and 2000 to 2004 as post-merger period. The pre-merger and post-merger period for firms in year 2000 has been taken as 1996 to 2000 and 2001 to 2004, respectively. The study concludes that M&As have no significant positive impact on the firms considered under the study. Majority of the firms under study have experienced diseconomies of scale and profitability of many of the firms have declined during the post-merger period.

Keywords: mergers, acquisitions, economies of scale, profitability.

1. Introduction

Among other reasons, the aim to gain efficiency may be cited as an important reason for the firms to undergo mergers. Mergers and Acquisitions (M&As) are an important means through which companies can achieve economies of scale, remove inefficient management or respond to economic shocks. Nearly all the possible causes of economies of scale inside a single firm are also applicable to the merger of firms. Among the more obvious possible causes of economies of scale is reduction in inventory needs, lowered transportation and distribution costs, technical propinquity that eliminates duplicative research and results in complementary research and development, cheaper input prices owing to increased size of purchase, and the combination of two firms that were individually sub-optimal in size (Weiss, 1965). Coase (1937) has suggested that firms that merge and integrate do so in order to supercede the price system, use of the price system entails costs, and merger eliminates some of those costs.

The entire argument in support of the realization of economies of scale is based upon the presumption that the joint operation of two otherwise separate firms will somehow result in lower per-unit costs of production and distribution. Gort (1969) attempted

to test the hypothesis that the economies of scale are an important incentive for (and result of) merger; he concluded that the evidence encouraged the opposite conclusion. It appears that many of the economies of scale mistakenly attributed to mergers are in fact the result of the exercise of market power that can result from mergers.

The usual argument put forward to justify a merger is the increase in productive efficiency generated by the merger itself (see e.g., Farrell and Shapiro, 1990). Farrell and Shapiro (1990) have illustrated a case of increasing returns to scale, where, however, it is assumed that the amount of fixed cost retained by the firm resulting from merger is less than the sum of the pre-merger fixed costs of the participating firms. Such efficiency gain is the outcome of an adjustment in fixed costs via merger.

The laws of returns to scale state how a simultaneous and proportionate increase in all the inputs affects the total output at various levels of inputs. When a firm expands its scale, i.e., it increases all its inputs proportionately then there are three technical possibilities:

- Total output may increase more than proportionately,

*Lecturer, Department of Economics, M L N College, Yamuna Nagar
**Reader, Punjab School of Economics, G N D University, Amritsar

- Total output may increase proportionately, and
- Total output may increase less than proportionately.

Accordingly, there are three kinds of returns to scale:

- Increasing returns to scale,
- Constant returns to scale, and
- Diminishing returns to scale.

The factors which cause the operation of the laws of returns to scale are grouped under economies and diseconomies of scale. Increasing returns to scale are the result of economies of scale and decreasing returns to scale result from the diseconomies of scale. Where economies and diseconomies arise simultaneously, returns to scale may increase or decrease depending upon whether economies or diseconomies are greater. Returns to scale increase when economies of scale are greater than the diseconomies of scale, and returns to scale decrease when diseconomies outweigh the economies of scale. When economies and diseconomies are in balance returns to scale become constant. There are mainly two types of economies of scale-Internal and External. Internal economies are those which arise from the expansion of the plant-size of the firm. These may be classified as follows:

1. **Economies in production:** Production economies arise from:
 - Technological advantages: Large scale production provides opportunities to avail the advantages of technological advances. The modern technology is so highly advanced and composite that the accomplishment of the whole process of production of a commodity can be conceived of in one composite unit of production plants.
 - Advantages of division of labour and specialization: Employing the labour according to their qualification and skill and to place them in the process of production where they are best suited is known as division of labour. Division of labour leads to specialization which increases efficiency and improve productivity of labour per unit of cost and time.
2. **Economies in purchasing and marketing:** The economies in marketing arise from the large scale purchase of raw material and other material inputs and large scale selling of firm's own produce. The large size firms normally make bulk

purchases of their inputs which entitle them for certain discounts and concessions which are not available on the small purchases. Marketing economies are associated with advertisement economies, economies in large scale distribution through wholesalers, etc. and low cost on sales personnel.

3. **Managerial economies:** These arise from specialization in management and mechanization of managerial functions. For a large-size firm, it becomes possible for the management to divide itself into specialized departments under specialized personnel such as production manager, personnel manager, labour officers, etc. This increases efficiency of management at all levels because of decentralization of decision making. Large-scale firms apply advanced techniques of communication which lead to quick decision making and improvement in managerial efficiency.
4. **Economies in transportation and storage:** These arise from fuller utilization of transport and storage facilities. Transportation costs are incurred both on production and sales sides. Similarly, storage costs are incurred on both raw material and finished products. The large-size firms may acquire their own means of transport thereby reducing the unit cost of transportation and also preventing delays in transporting goods (Dwivedi, 1998).

External Economies of scale occur when a firm benefits from lower unit costs as a result of the whole industry growing in size. The main types are:

1. **Improvements in infrastructural facilities:** The government may provide improved transport and communication links, uninterrupted power supply, water supply, etc. to encourage more production.
2. **Training and education becomes more focused on the industry:** As in the past few years, number of courses have been introduced in colleges, technical institutions and Universities keeping in view the demand for professionals in the growing information technology (IT) industry.
3. **Other industries grow to support this industry.**
4. **Mergers can create substantial economies for post-merger firm. For instance,**
 - Economies of plant size which result when a merger permits the post-merger firm to engage in

specialized production in a single plant.

Multi-plant economies which occur because firms that run large number of plants and can often coordinate purchasing and production in ways that are unavailable to the single-plant firm. This is particularly true of advertising and research and development.

Economies of scale can be important in any business with substantial fixed overhead expenses such as steel, pharmaceuticals, chemical and aircraft manufacturing. Apart from chemical, dyes and pharmaceuticals, textile, electrical equipment, engineering, food and food products, paper industry etc., the firms under study include services sector firms also (except Banking). The present paper analyses the occurrence of economies of scale, mainly in the form of internal economies. This has been done by taking into account the value of output and variable cost of each firm.

As regards profitability of acquiring firms, increased profitability is the most frequently implied cause of merger that is said to result. A great number of hypotheses seeking to explain merger (for example, the contention that firms merge in order to attain market power) are ultimately explained in terms of the increased profits that will be generated if the goal concerned (Market power) is achieved. It is altogether remarkable, therefore, that points to increased profitability on the part of the merged firms. Hogarty (1970), an informed observer of the merger waves, pointed out that "no one who has undertaken a major empirical study of mergers has concluded that mergers are profitable, i.e. profitable in the sense of being more profitable than alternative forms of investment".

Three major studies performed after World War II examined the relationship between profitability and merger. These studies furnish a strong basis for the conclusion that the net effect of merger upon profitability is at the very least neutral, and may even be negative. Kelly (1965) selected two samples of twenty firms from the list of Fortune's (500) largest industrial companies and fifty largest merchandisers. The first sample of firms included only those whose merger activity has been great. The second group of firms was characterized by little or no merger activity and served as a control group. Kelly utilized five different measures of profitability during the period

1946-60 and concluded that mergers had no perceptible effect upon profitability. Whereas the sample used by Kelly was somewhat arbitrarily chosen, as well as being deficient in size, the same criticism does not apply to work performed by Reid (1968). Reid examined the profitability of 478 firms among Fortune's largest 500 firms for the year 1961. In an analysis incorporating three different measures of profitability, he found a weak, but negative relationship between profitability and merger activity. Hogarty (1970) performed study of the profitability - merger relationship. His sample consisted of forty three firms randomly selected from Moody's Industrial Manual for the year 1965. Hogarty recognized that the motives of managers for mergers (increased growth and size) might be different from the motives of stockholders (increased profitability). However, neither growth nor profitability proved to be valid explanations of the mergers observed. Having taken into account the fact that the adding together of two firms' sales via merger would create a new firm with sum of these sales. Hogarty found that in well over half the cases, profitability did not increase beyond the level that would have been expected given the previous profitability of the merging firms.

Under the assumption of constant average cost, Salant et al (1983) have shown that unless a vast majority of the firms in the industry merge, the merger itself is not profitable. Another study by Dennis C. Mueller (1984) made jointly with fourteen economists at International Institute of Management, Berlin, found that mergers and acquisitions generally did not increase profits or sales. The researchers argued that they had seen significant decline in growth rates of companies that had merged. A study by Beena (2004) could not find any evidence of improvement of profitability during the post-merger period as compared to the pre-merger period for acquiring firms during the years 1995-2000. Aggarwal (2003) also arrived at the same results.

In this paper an effort has been made to analyze the impact of mergers and acquisitions on the efficiency of seventy seven acquiring firms undertaken for the study in terms of economies of scale and profitability. The paper consists of IV sections including the present one. Section II discusses the database and methodology. Section III presents the results and section IV gives conclusions.

II. Database and Methodology

Economies of scale

As we know there are two types of economies of scale, one pertaining to the short run and the other to the long run. Since the size of capital is fixed in the short run, economies associated with the level of production reflect returns to the variable factor and hence are known as short-run economies of scale. This can be written as:

$$SRTS = \left(\frac{\partial \ln vc}{\partial \ln y} \right)^{-1}$$

(where Y- output, VC - variable cost)

Using the above formula, the authors have tried to compare the performance of the firms considered under the study taking into account pre-merger and post-merger economies of scale. For the acquiring firms in the year 1999, the time period 1996-99 has been taken as pre-merger period and 2000-04 as post merger period. The pre-merger and post-merger period for firms in year 2000 has been taken as 1996-2000 and from 2001-04 respectively. The average values obtained during pre-merger and post-merger periods have been classified in terms of increasing returns to scale, decreasing returns to scale and constant returns to scale.

Profitability

For analyzing the profitability of the firms under study, two methods have been used. Profitability has been measured as:

$$\text{Profit-Margin} = \frac{PAT}{NS} \times 100$$

$$\text{Profit-Rate} = \frac{PAT}{TA} \times 100$$

where,

| | | |
|-----|---|------------------|
| PAT | - | Profit after tax |
| NS | - | Net sales |
| TA | - | Total assets |

After calculating the values with the help of above formulae for all the firms under study from 1996 to 2004, their mean values were calculated to get a single value for pre-merger and post-merger periods.

III. Results and Discussion

Table 1 shows that out of total thirty-nine acquiring firms, twenty four firms experienced diseconomies before merger whereas one firm did not show much change in its economies and the remaining fourteen firms had economies of scale in pre-merger period. The overall view shows that after the merger the number of firms experiencing diseconomies decreased to twenty-two whereas the firms experiencing economies of scale increased to seventeen. Going into the details, it was found that out of total thirty-nine firms eleven firms, which account for 28.20 per cent of the sample firms, moved from diseconomies to economies of scale phase i.e. these firms experienced short-run economies of scale after the merger as shown by the average of four-year post-merger values. Five firms which were already experiencing economies of scale have shown improvement in their values. These firms account for 12.82 per cent of the total number of firms. However, it was found that nineteen firms which account for a major chunk of the total firms i.e. 48.71 per cent, have shown deterioration in their economies of scale during the post-merger period. These firms include nine such firms which were already experiencing diseconomies in the four year pre-merger time period while the remaining ten firms had economies of scale during the same period. Three firms, although experienced diseconomies in the pre-merger period, have shown further fall to a considerable extent while one firm remained in diseconomies phase with exactly the same value in both pre-merger as well as post-merger period.

Table 2 shows that out of thirty-eight acquiring firms in the year 2000, nineteen firms which account for 50 per cent of the total firms, were experiencing diseconomies before merger and same number of firms were having the increasing economies of scale during the same period. The overall view showed exactly the same scenario for the post-merger period. But going into the details, it was found that eighteen firms have shown improvement in their economies of scale. Out of these, eleven firms have shown their movement from diseconomies to experience economies of scale. These firms account for 28.94 per cent only.

The remaining seven firms have shown improvement in the sense that either they recorded rise in their

Table 1 Pre-merger and Post-merger average values related to Short-run Economies of Scale for Firms in Year 1999

| Sr No | Name of Firm | Pre-merger average (1996-99) | Post-merger average (2000-04) |
|-------|-----------------------------------|------------------------------|-------------------------------|
| 1 | Aimco Pesticides Ltd. | 0.86 | 1.48 |
| 2 | Balrampur Chinni Mills | 0.88 | 1.06 |
| 3 | Berger Paints Ltd. | 1.17 | 1.39 |
| 4 | Bright Brothers Ltd. | 0.98 | 0.76 |
| 5 | Carol Info Services Ltd. | 0.34 | 0.45 |
| 6 | Crompton Greaves Ltd. | -0.41 | 1.36 |
| 7 | Dharamsi Morarji Ltd. | 0.96 | 23.53 |
| 8 | DPIL | 0.95 | 1.15 |
| 9 | Dr. Reddy's Laboratories Ltd. | 0.99 | 0 |
| 10 | Enkay Texofoods Ltd. | 1.38 | 0.56 |
| 11 | Garden Silk Mills Ltd. | 0.78 | 0.71 |
| 12 | Gujarat Ambuja Cements Ltd. | 0.68 | 0.07 |
| 13 | Gujarat Ambuja Exports Ltd. | 0.3 | 1.17 |
| 14 | Harrisons Malayalam Ltd. | 1.00 | 1.92 |
| 15 | Henkel Spic India Ltd. | 0.88 | 0.49 |
| 16 | India Cements Ltd. | 0.91 | 0.17 |
| 17 | Ion Exchange (I) Ltd. | 0.01 | 0.14 |
| 18 | Larsen & Toubro Ltd. | 1.07 | 6.66 |
| 19 | Li Taka Pharmaceuticals Ltd. | 1.12 | 3.42 |
| 20 | Nahar Exports Ltd | 1.43 | 1.36 |
| 21 | Nicco Uco Alliance Credit Ltd. | 1.04 | 0.88 |
| 22 | NRB Bearings Ltd. | 1.18 | 0.11 |
| 23 | Pidilite Industries Ltd. | 1.54 | 2.42 |
| 24 | Ratnamani Metals & Tubes Ltd. | 0.99 | 0.99 |
| 25 | Rico Automobiles Ltd. | 0.32 | 0.26 |
| 26 | Shaw Wallace & Co. Ltd. | 1.61 | 1.10 |
| 27 | Shaw Wallace Distilleries Ltd. | 0.02 | 0.70 |
| 28 | Solus Pharmaceuticals Ltd. | 0.84 | -0.59 |
| 29 | Sree Rayalseema Hi-Strength Ltd. | 0.39 | 1.67 |
| 30 | Sundaram Finance Ltd. | 1.09 | -8.55 |
| 31 | Surajmukhi Investment & Fin. Ltd. | 1.15 | 2.23 |
| 32 | Tata Coffee Ltd. | 1.07 | 4.77 |
| 33 | Tata Investment Corpn. Ltd. | 1.21 | -0.48 |
| 34 | TTK Healthcare Ltd. | 0.71 | 1.14 |
| 35 | TVS Srichakra Ltd. | 0.60 | 0.24 |
| 36 | Usha Ispat Ltd. | 1.33 | 0.44 |
| 37 | Vidyut Investments Ltd. | 1.04 | 0 |
| 38 | Vorin Laboratories Ltd. | 0.89 | 1.99 |
| 39 | Wheels India Ltd. | 1.25 | 0.73 |

economies of scale or fall in their diseconomies. Twenty firms accounting 52.63 per cent of the total have shown deterioration in their economies of scale. These firms include sixteen such firms which have experienced increasing economies of scale in pre-merger time period but their economies of scale have deteriorated in post-merger years and four firms which were already experiencing diseconomies before merger.

In the above analysis, it was found that the firms under study in both the years (1999 and 2000) have not shown any systematic results as far as economies of scale are concerned. Among acquiring firms with merger in year 1999, 48.71 per cent have experienced deterioration in their economies of scale in the post-merger years under study. Similarly, 52.63 per cent of the acquiring firms which merged in 2000 have shown deterioration in their economies of scale during the post-merger period of four years. So any firm conclusion could not be drawn about the impact

of mergers on the firms under study. Results of profit measures have been shown in Tables 3 and 4. It can be seen from Table 3 that out of thirty-nine firms under study in the year 1999, seven firms, accounting for 17.94 per cent only, have shown increased profit margin in the post-merger period of five years (1999-2004).

The mean of five year values of profit margin for all the remaining thirty-two firms has shown deterioration. As is evident from Table 4, out of thirty-eight firms under study in year 2000, twenty firms, constituting 52.63 per cent, have shown increase in their profit margin during the post-merger period.

Again on analyzing Table 3 for the profit rate of the firms under study, it was found that for the year 1999, again the number of firms showing improvement in their profit rate is seven out of thirty-nine. However, only four of these seven firms have shown increased profit margin also. The remaining

Table 2 Pre-merger and Post-merger average values related to Short-run Economies of Scale for Firms in Year 2000

| Sr. No. | Name of Firm | Pre-merger average (1996-2000) | Post-merger average (2000-2004) |
|---------|---------------------------------|--------------------------------|---------------------------------|
| 1. | Aashiana Housing Ltd. | 1.37 | 1.11 |
| 2. | Abhishek Industries Ltd. | 1.98 | 1.05 |
| 3. | Andhra Pradesh Paper Mills Ltd. | 0.96 | 4.00 |
| 4. | Atlas Copco. Ltd. | 1.03 | 0.28 |
| 5. | Aurobindo Pharmaceutical Ltd. | 0.53 | 4.71 |
| 6. | Deepak Nitrite Ltd. | 2.23 | 1.32 |
| 7. | DLF-Universal Ltd. | 0.41 | 0.61 |
| 8. | Essel Propack Ltd. | 0.37 | 2.45 |
| 9. | Eveready Industries Ltd. | 0.44 | 1.47 |
| 10. | FCI Oen Ltd. | 5.39 | 0.55 |
| 11. | Gillette India Ltd. | 1.08 | 0.61 |
| 12. | GTL | 0.87 | 2.03 |
| 13. | Hindalco Industries Ltd. | 1.08 | 1.33 |
| 14. | Hinduja TMT Ltd. | 0.96 | 0.87 |
| 15. | Hindustan Lever ltd. | 0.25 | 0.73 |

| | | | |
|-----|--------------------------------------|------|-------|
| 16. | Inox Air Products Ltd. | 0.02 | 1.74 |
| 17. | Kalimati Investments Ltd. | 0.03 | 1.51 |
| 18. | Khaitan Chemicals & Fertilizers Ltd. | 0.89 | 1.49 |
| 19. | Lloyds Steel Ltd. | 0.74 | 0.81 |
| 20. | LN Polyesters Ltd. | 0.87 | -0.72 |
| 21. | Manali Petrochemical Inds. Ltd. | 2.42 | 3.74 |
| 22. | Monsanto India Ltd. | 0.81 | 0.05 |
| 23. | Nicholas Piramal India Ltd. | 0.90 | 0.95 |
| 24. | Philips India Ltd. | 1.29 | 0.79 |
| 25. | Pioneer Industries Ltd. | 1.22 | 1.05 |
| 26. | Pix Transmissions Ltd. | 1.03 | 0.54 |
| 27. | Reliance Industries Ltd. | 1.03 | 1.12 |
| 28. | Rolta India Ltd. | 1.28 | 0.45 |
| 29. | Samtel Color Ltd. | 1.68 | 0.25 |
| 30. | Shyam Telecom Ltd. | 1.45 | 0.65 |
| 31. | SRF Ltd. | 0.26 | 8.95 |
| 32. | Tata Chemicals Ltd. | 2.82 | 0.36 |
| 33. | Tata Finance Ltd. | 0.84 | 1.01 |
| 34. | Tata Iron & Steel Company Ltd. | 5.88 | 0.59 |
| 35. | Tata Power Corporation Ltd. | 0.57 | 1.32 |
| 36. | Ultramarine & Pigments Ltd. | 1.27 | 0.02 |
| 37. | Unifrax India Ltd. | 2.78 | 0.72 |
| 38. | Usha Martin Ltd. | 1.36 | 1.02 |

three firms had shown deterioration in their profit margin during post-merger period. Coming to the analysis of firms in the year 2000 as shown in Table 4, it was found that out of thirty-eight firms under study, seventeen firms which account for 44.73 per cent, have shown increased profit rate in the four-year post-merger period (2000-04). These seventeen firms include two such firms for which the profit margin has deteriorated but their profit rate has increased and the number of firms for which profit margin has increased but profit rate has fallen, is five out of seventeen. In the above analysis it was found that the percentage of firms experiencing

increased profit margin as well as profit rate is much lower in year 1999 than in year 2000. One explanation for the better performance of the firms in year 2000 can be the fast pace of liberalization and globalization. Although the ground work for the process of liberalization and globalization had started during 1980s but the business environment in India kept on changing until now under the name of second generation reforms. However, along with the observation that the firms under study in year 2000 have shown much better performance in profit margin and profit rate in the post-merger period, it was also found 82.05 per cent of the firms in 1999

have shown fall in profit margin and profit rate each whereas 47.36 per cent and 55.26 per cent of the firms in year 2000 show deterioration in profit margin and profit rate respectively.

So giving the whole credit of increase in the above two ratios of firms in the post-merger period by more than three times in the year 2000 as compared to the

firms in 1999 (i.e. 17.94 per cent for firms in year 1999 and 52.63 per cent for firms in 2000) to liberalization and globalization will not be justified. No doubt the firms definitely carry on their activities in accordance with the policy changes but the results observed in our study may have reasons other than liberalization and globalization.

Table 3
Profit Margin and Profit Rate during Pre-merger and Post-merger Period
for Firms in Year 1999

| Sr. No. | Name of Firm | Profit margin | | Profit rate | |
|---------|-----------------------------|---------------------------------|----------------------------------|---------------------------------|----------------------------------|
| | | Pre -merger Average (1996 - 99) | Post -merger Average (2000 - 04) | Pre -merger Average (1996 - 99) | Post -merger Average (2000 - 04) |
| 1. | Aimco Pesticides Ltd. | 12.76 | 7.64 | 6.79 | 4.51 |
| 2. | Balrampur Chinni Mills | 5.54 | 5.90 | 18.56 | 16.14 |
| 3. | Berger Paints Ltd. | 2.76 | -0.84 | 1.70 | -0.67 |
| 4. | Bright Brothers Ltd. | 23.42 | 4.77 | 11.97 | 1.28 |
| 5. | Carol Info Services Ltd. | 2.44 | -1.86 | 3.88 | -1.79 |
| 6. | Crompton Greaves Ltd. | -2.12 | 1.52 | -1.15 | -0.16 |
| 7. | Dharamsi Morarji Ltd. | 17.68 | 19.63 | 18.87 | 27.03 |
| 8. | DPIL | 3.99 | 0.08 | 4.95 | 0.27 |
| 9. | Dr. Reddy's Labs. Ltd. | 4.51 | 0 | 5.34 | -23.61 |
| 10. | Enkay Texofoods Ltd. | 2.37 | 1.52 | 1.55 | 0.88 |
| 11. | Garden Silk Mills Ltd. | 1.80 | 0.73 | 10.09 | 1.77 |
| 12. | GACL | -16.51 | -0.45 | -5.43 | 0.63 |
| 13. | Gujarat Ambuja Exports Ltd. | 5.09 | -7.44 | 1.98 | -2.30 |
| 14. | Harrisons Malayalam Ltd. | 5.73 | -1.38 | 8.10 | -1.37 |
| 15. | Henkel Spic India Ltd. | 9.47 | -5.99 | 3.96 | -1.26 |
| 16. | India Cements Ltd. | -0.22 | -33.96 | -8.33 | 0 |
| 17. | Ion Exchange (I) Ltd. | -3.21 | -4.44 | -3.41 | -4.35 |
| 18. | Larsen & Toubro Ltd. | 16.62 | 11.73 | 5.69 | 3.90 |
| 19. | Li Taka Pharma Ltd. | 7.76 | 6.18 | 5.93 | 5.13 |
| 20. | Nahar Exports Ltd | 5.66 | -23.56 | 1.16 | -4.68 |

| | | | | | |
|-----|--------------------------------------|--------|---------|--------|---------|
| 21. | Nicco Uco Alliance Credit Ltd. | 8.39 | 10.73 | 8.29 | 14.01 |
| 22. | NRB Bearings Ltd. | 8.71 | 5.38 | 5.40 | 6.30 |
| 23. | Pidilite Industries Ltd. | 6.11 | 3.21 | 6.49 | 2.86 |
| 24. | Ratnamani Metals & Tubes Ltd. | 5.10 | 5.06 | 3.43 | 6.78 |
| 25. | Rico Automobiles Ltd. | 7.65 | 3.74 | 2.96 | 1.47 |
| 26. | Shaw Wallace & Co. Ltd. | 3.05 | -3.61 | 6.86 | -5.20 |
| 27. | Shaw Wallace Distilleries Ltd. | 11.93 | 8.92 | 9.14 | 5.92 |
| 28. | Solus Pharma Ltd. | -14.59 | 3.13 | -253.3 | 35.52 |
| 29. | Sree Rayalseema Hi-Strength Ltd. | 2.52 | 0.54 | 6.41 | 0.46 |
| 30. | Sundaram Finance Ltd. | 2.98 | 3.67 | 3.43 | 4.03 |
| 31. | Surajmukhi Investment & Finance Ltd. | 4.11 | 2.96 | 6.87 | 3.28 |
| 32. | Tata Coffee Ltd. | 65.23 | 84.84 | 313.35 | 2490.05 |
| 33. | Tata Investment Corporation Ltd. | 7.73 | -131.96 | 4.22 | -13.34 |
| 34. | TTK Healthcare Ltd. | 5.32 | 4.65 | 10.45 | 8.35 |
| 35. | TVS Srichakra Ltd. | 13.87 | 9.47 | 15.20 | 8.21 |
| 36. | Usha Ispat Ltd. | 7.34 | -2.91 | 7.46 | -2.28 |
| 37. | Vidyut Investments Ltd. | 23.90 | 5.03 | 20.98 | 5.20 |
| 38. | Vorin Laboratories Ltd. | 19.77 | 18.69 | 4.70 | 5.67 |
| 39. | Wheels India Ltd. | 2.24 | -4.20 | 11.65 | -7.46 |

IV Conclusions

Although the overall analysis of the firms under study for findings economies of scale has not yielded any systematic conclusion but the details indicate that the results have been inclined towards not so positive effect of M&As on economies of scale. Of course, before merging no firm might have expected the diseconomies after the merger but there might be many factors which might have led to diseconomies to these firms. It is often difficult to pinpoint exactly

the causes of diseconomies of scale. Costs of changes in organization (difficulty in "digesting" the acquisitions, diseconomies of large organizations) are often greater than the benefits claimed by promoters of takeovers (Coley and Reinton, 1986; Cowling et.al, 1980; Meeks, 1977; Mueller, 1980). Higher the diversification implied by the takeover, the smaller the likelihood of success. Usually diseconomies arise when the size of a firm is excessive and unmanageable. A firm may indeed

increase its size to take advantage of economies of scale but the gains disappear when the firm crosses certain optimum size. As the firms under study are all the acquiring firms, so it is possible that the firms which have started experiencing diseconomies in the post-merger period might already had reached a certain size before the merger.

The real cost of diseconomies can also be hidden in a failure to recognize that large acquired companies are often already well managed. This makes it easy to overestimate the likely savings from increased post-merger efficiencies and to underestimate the relative cost of diseconomies of merging.

The acquiring companies may fail to take into account the subtle changes that result from the increased complexity that accompany most mergers. The economic benefits of scales production can be outweighed by associate losses in flexibility, market responsiveness and employee engagement (Breene and Nunes, 2004).

Monitoring how productive each worker is within a large business is imperfect and costly. This can lead to a loss of productive efficiency if work shirking is common and decision making process is slow due to excessive size of administration. It is difficult to

Table 4
Profit Margin and Profit Rate during Pre-merger and Post-merger Period
for Firms in year 2000

| Sr. No. | Name of Firm | Profit margin | | Profit rate | |
|---------|---------------------------------|--------------------------------|-------------------------------|--------------------------------|-------------------------------|
| | | Pre-merger Average (1996-2000) | Post-merger Average (2001-04) | Pre-merger Average (1996-2000) | Post-merger Average (2001-04) |
| 1. | Aashiana Housing Ltd. | 6.93 | 9.98 | 19.25 | 24.93 |
| 2. | Abhishek Industries Ltd. | 1.34 | 3.59 | 1.29 | 1.99 |
| 3. | Andhra Pradesh Paper Mills Ltd. | 6.32 | 6.47 | 4.50 | 3.76 |
| 4. | Atlas Copco. Ltd. | 8.39 | 8.41 | 19.54 | 13.22 |
| 5. | Aurobindo Pharma Ltd. | 24.23 | 13.80 | 54.04 | 36.29 |
| 6. | Deepak Nitrite Ltd. | 3.21 | 4.07 | 2.55 | 3.58 |
| 7. | DLF -Universal Ltd. | 17.75 | 18.60 | 5.97 | 8.74 |
| 8. | Essel Propack Ltd. | 4.70 | -2.91 | 2.38 | -0.78 |
| 9. | Eveready Industries Ltd. | 6.89 | 16.03 | 3.88 | 13.45 |
| 10. | FCI Oen Ltd. | 13.53 | 25.84 | 14.18 | 15.24 |
| 11. | GTL | 6.95 | 3.46 | 5.24 | 2.81 |
| 12. | Gillette India Ltd. | 65.95 | 72.86 | 27.69 | 88.91 |
| 13. | Hindalco Industries Ltd. | 32.26 | 21.09 | 7.87 | 6.55 |

| | | | | | |
|-----|--------------------------------------|--------|-------|---------|--------|
| 14. | Hinduja TMT Ltd. | 8.00 | 15.85 | 30.87 | 51.47 |
| 15. | Hindustan Lever Ltd. | -15.32 | -51.1 | -1.97 | -5.89 |
| 16. | Inox Air Products Ltd. | 11.39 | 5.51 | 4.02 | 1.87 |
| 17. | Kalimati Investments Ltd. | 33.57 | 50.59 | 1114.39 | 426.60 |
| 18. | Khaitan Chemicals & Fertilizers Ltd. | 5.67 | -0.51 | 5.91 | -2.21 |
| 19. | Lloyds Steel Ltd. | -1.09 | -3.20 | -0.32 | -2.01 |
| 20. | LN Polyesters Ltd. | -0.67 | -3.73 | -0.01 | -1.68 |
| 21. | Manali Petrochemical Inds. Ltd. | 9.25 | 14.10 | 47.44 | 29.22 |
| 22. | Monsanto India Ltd. | 3.00 | 18.60 | 5.45 | 28.59 |
| 23. | Nicholas Piramal (I) Ltd. | 11.05 | 11.72 | 7.09 | 16.26 |
| 24. | Philips India Ltd. | 9.90 | -7.68 | 5.55 | -1.52 |
| 25. | Pioneer Industries Ltd. | 15.90 | 7.69 | 5.29 | 5.34 |
| 26. | Pix Transmissions Ltd. | 4.71 | 1.65 | 3.45 | 0.92 |
| 27. | Reliance Industries Ltd. | 8.52 | 9.27 | 7.32 | 9.31 |
| 28. | Rolta India Ltd. | 33.49 | 31.55 | 21.17 | 18.81 |
| 29. | Samtel Color Ltd. | 2.74 | 3.88 | 1.83 | 2.21 |
| 30. | Shyam Telecom Ltd. | 6.31 | 4.18 | 13.57 | 111.04 |
| 31. | SRF Ltd. | 2.73 | 4.75 | 1.14 | 2.18 |
| 32. | Tata Chemicals Ltd. | 17.08 | 10.79 | 5.54 | 3.78 |
| 33. | Tata Finance Ltd. | 0.71 | 1.88 | 2.11 | 1.99 |
| 34. | Tata Iron & Steel Company Ltd. | 6.70 | 9.05 | 2.80 | 4.33 |
| 35. | Tata Power Corpn. Ltd. | 15.00 | 12.12 | 5.91 | 5.01 |
| 36. | Ultramarine & Pigments Ltd. | 9.06 | 8.26 | 8.95 | 6.35 |
| 37. | Unifrax India Ltd. | 19.21 | 20.60 | 25.03 | 26.52 |
| 38. | Usha Martin Ltd. | 8.26 | 1.86 | 5.18 | 0.89 |

coordinate complicated production processes and they may break down. Achieving efficient flows of information is expensive. Moreover, workers in big firms may feel sense of alienation, perhaps perceiving that they do not belong and this may affect their productivity adversely. Large scale enterprises that rely on fixed assets become more vulnerable to disruption as they grow. The increased complexities that come with 'scale' lead to their own diseconomies.

Along with factors related to other aspects, the most common causes of negative returns are related to the management. The management is responsible for the coordination of the activities of the various sections of the firm. As the output grows, top management becomes eventually overburdened and less efficient in its role as coordinator and ultimate decision maker. Although advances in management science have developed 'plateaux' of management techniques, it is still a commonly observed fact that as firms grow beyond appropriate optimal 'plateaux', management diseconomies creep in.

As regards profitability, the increase in profit ratios in the firms under study may be the result of company specific initiatives such as concentrating on cutting and saving costs, better working capital, better pricing strategy, downsizing staff through voluntary retirement scheme, strengthening of retail and distribution reach and aggressive marketing, quick adaptation to new technology, changing the advertisement expenditure, making themselves better equipped to face challenges, etc. Sometimes the changes in a firm may be brought about in accordance with the guidelines and business strategy of its parent company at global level. For instance, merger of parent company at global level may result in increased interest in the operation and management of the Indian subsidiary thereby resulting in positive implications for its business.

Similarly, the reasons for negative profitability may vary from one firm to another according to its business strategy. As according to the non-profit maximizing theories of the firm, there is separation between the motives of owners and managers. Much is attributed in these theories to the fact that large corporations are typically not managed by their large stock-holders, separation of ownership and management may cause a divergence of interest

between the two, such that stockholders are primarily interested in the current and future size of their dividends, whereas managers are more interested in the size of the firm, its growth and their own prerogatives, prestige and salary. Mueller (1969) has suggested that these differences in motivation may be expressed in terms of the differing rates of discount applied by stockholders and by management to the time stream of profits facing them. Stockholders are more concerned with the immediate returns and, therefore, have rates of discount. Managers are more inclined to sacrifice current profits in search of growth and, therefore, have lower rates of discount. In any case, this divergence of interest could plausibly be evidence of the motivation of managers in parting with current profits in order to experience the rapid growth that is a consequence of an aggressive merger policy.

Moreover, a growth-maximizing policy in the short-run can also be a profit-maximizing policy in the long run, because it maximizes the present discounted value of the time stream of profits as seen from the vantage point of current period. Major differences in behaviour are implied by short-run and long-run maximization of profits.

Extensive research in the U.S., Europe and Japan leads to the conclusion that mergers do not generally increase profitability (Hogarty, 1970; Markham, 1955; Mueller, 1980a; Reid, 1968; Scherer, 1980) and that the profitability of acquired firms declined after they were acquired (Conn, 1976; Jensen and Ruback, 1983; Meeks, 1977; Mueller, 1980b; Mueller, 1986; Mueller, 1989; Piper and Weiss, 1974; Ravenscraft and Scherer, 1987; Rhoades, 1987). The common reason for fall in profitability may be the slow pace of integration and lack of coherent business strategy on the part of acquiring firm to integrate the target firm with it. Other reasons may include; over-estimation of synergies, poor post-merger communication, overpayment, conflicting corporate cultures, weak core businesses, large size of target company, and poor assessment of technology. Managers may underestimate the costs and logistic nightmares of consolidating the operations of firms with different cultures.

Overestimation of synergies, which is an established empirical finding for failure of mergers, can be checked by conducting due diligence and refining

valuation. Legal agreements are no substitutes for conducting due diligence (Weston et.al., 1990). The focus of strategic and operational review is on the seller's management team, operational as well as sales and marketing strategies. The financial review checks the accuracy, timeliness and completeness of the seller's financial statements. The legal review concentrates on issues, tangible and intangible assets of the seller, material contracts and obligations of the seller such as litigation and claims. The due diligence team has to identify ways in which assets, processes and other resources can be combined to effect cost reduction, gain productivity improvements or other synergies. Successful mergers depend on candidly and continuously communicating a clear vision, a set of values and unambiguous priorities to all employees.

Respective of the basic aim, may it be profit maximization, sales maximization, growth maximization or any other objective, all the firms wish to improve their overall performance by adopting different business strategies and undergoing merger and acquisition may be one of them. But all the M&As may not prove to be successful i.e. firms may get negative results during post-merger time period. The present study leads us to an array of mixed reactions which does not help in forming a well defined impression as to the impact of M&As on the performance of firms under study in terms of economies of scale and profitability. It can be concluded from the discussion related to the results of the study that majority of the firms under study have experienced diseconomies of scale and profitability of many of the firms have declined during the post-merger years.

References

1. Aggarwal Manish (2003), "Analyses of Mergers in India", An unpublished M.Phil Dissertation, Delhi School of Economics, University of Delhi
2. Beena P L (2004), "Towards Understanding the Merger Wave in the Indian Corporate Sector: A Comparative Perspective", Working Paper No. 355, Centre for Development Studies, Trivandaram
3. Breene Tim and Nunes, Paul F (2004), "Is Bigger Always Better", *Outlook Journal*, No 3, pp19-25
4. Coase Ronald H (1937), "The Nature of the Firm", *Economica*, n s, 4 (November), pp 386-405
5. Coley S and S Reinton (1986), "The Hunt for Value", *The McKinsey Quarterly*, Spring
6. Conn R L (1976), "The Failing Firm/Industry Doctrines in Conglomerate Mergers" *Journal of Industrial Economics*, March, Vol 24, pp 181-87
7. Cowling K et al (1989), "Mergers and economic Performance", Cambridge: Cambridge University Press
8. Dwivedi DN (1998), *Managerial Economics*, Vikas Publishing House Pvt Ltd, New Delhi, 5th Ed, pp 158-159
9. Engel C and Hamilton, J D (1990), "Long Swings in the Dollar: Are They in the Data and do Markets Know It", *American Economic Review*, Vol 180, pp 689-713
10. Farrell J and Shapiro, C (1990), "Horizontal Mergers: An Equilibrium Analysis", *American Economic Review*, Vol 80, pp 107-26
11. Gort Michael and Thomas F Hogarty (1970), "New Evidence on Mergers", *Journal of Law and Economics*, 13 (April), pp 167-84
12. Gort M (1979), "An Economic Disturbance Theory of Mergers", *Quarterly Journal of Economics*, Vol 83, pp 624-42
13. Iyengar Jayanti (2003), "India's Takeover Restrictions Under Scrutiny", *Asia Times*, South Asia, February 5
14. Hogarty T F (1970), "Profits from Mergers: The Evidence of Fifty Years", *St John's Law Review*, Special edition, Vol 44, Spring, pp 378-391
15. Jensen M and R Ruback (1983), "The Market for Corporate Control: The Scientific Evidence", *Journal of Economics*, Vol 11, pp 5-50
16. Kelly Eamon (1965), "The Profitability of Growth Through Mergers", (Thesis, Columbia University)
17. Markham J W (1955), "Survey of the Evidence and Findings on Mergers", *Business Concentration and Price Policy*, New York: National Bureau of Economic Research
18. Meeks (1977), *Disappointing Marriage: A Study of the gains from Merger*, Cambridge University Press
19. Mehta Dhawal and Sunil Samanta (1997), "Mergers and Acquisitions: Nature and Significance", *Vikalpa*, Volume 22, No 4, October-December
20. Mueller Dennis C (1969), "A Theory of Conglomerate Mergers", *Quarterly Journal of Economics*, 83 (November), pp 643-59
21. Mueller D C (1980a), "The Determinants and Effects of Mergers: An International Comparison", Cambridge: Oelgeschlager, Gunn and Hain
22. Mueller D C (1980b), "The United States, 1962-1972" in Mueller D C (ed), *The Determinants and Effects of Mergers: An International Comparison*, Cambridge: Oelgeschlager, Gunn and Hain
23. Mueller D C (1986), "Profits in the Long Run", Cambridge: Cambridge University Press
24. Mueller D C (1989), "Mergers, Causes, Effects and Policies", *International Journal of Industrial Organization*
25. Piper T F and S J Weiss (1974), "The Profitability of Multibank Holding Company Acquisitions", *Journal of Finance*, March, Vol 29, pp 163-174

26. Reid S R (1968), *Mergers, Managers and the Economy*, New York: McGraw Hill
27. Rhoades S A (1987), "The Operating Performance of Acquired Firms in Banking", in Wills, R L; Casewell, J A and Culbertson, J D (eds), *Issues after a Century of Federal Competition Policy*, Lexington, Mass: Lexington Books, pp 277-292
28. Salant Stephen W, Sheldon Switzer and Robert J Reynolds (1983), "Losses from Horizontal Merger: The Effect of an Exogenous Change in Industry Structure on Cournot-Nash Equilibrium", *Quarterly Journal of Economics*, May 1988, pp 185-199
29. Scherer FM (1980), *Industrial Market Structure and Economic Performance*, Boston: Houghton Mifflin, 2nd edition, pp 138-139
30. Weiss Leonard W (1965), "An Evaluation of Mergers in Six Industries", *Review of Economics and Statistics*, 47 (May) pp 172-81
31. Weston J Fred, Kwang S Chung, Susan E Hoag (1990) *Mergers, restructuring, and corporate control*, Englewood Cliffs: Prentice-Hall, Inc, 1990

Copyright Protection – Legal Issues

Dr Ravinder Vinayek*, Kavita Wadhwa**

It is not surprising that copyright is one of the first areas to have attracted the attention of the international community. As a matter of fact, copyright historically confined to reduced circles of specialists and experts, has jumped to public mainly because of the new information technologies and, most of all, because of the rapid development of the Internet. This paper presents an overview of intellectual property rights and discusses copyright in detail. Complete legal framework of copyright protection has been discussed in three dimensions, which are – International treaties governing copyright prior to 1996, WIPO (World Intellectual Property Organization) treaties of 1996 and current Indian laws governing copyright. Indian Copyright Act, 1957 and Information Technology Act, 2000 have been discussed under current Indian laws. It also presents various other legal issues like economic and moral rights of copyright holders, transfer of copyright, infringement of copyright, term of copyright, etc. Challenges for copyright protection in digital era and various measures initiated by Government of India to strengthen copyright law have also been discussed. It is concluded that there is a need to modify the existing legal framework of copyright protection in India to suit the digital environment.

"If you have an apple and I have an apple and we exchange apples then you and I still each have one apple. But if you have an idea and I have one idea and we exchange these ideas, then each of us will have two ideas." – George B. Shaw.

1.0 Introduction

Intellectual Property Rights (IPRs) have become important in the face of changing trade environment which is characterized by the following features, namely, global competition, high innovation risks, short product cycle, need for rapid changes in technology, high investments in research and development (R&D), production and marketing and need for highly skilled human resources. Geographical barriers to trade among nations are collapsing due to globalization, a system of multilateral trade and a new emerging economic order. It is, therefore, quite obvious that the complexities of global trade would be on the increase as more and more variables are introduced leading to uncertainties. Many products and technologies are simultaneously marketed and utilized in many countries. With the opening up of trade in goods and services, intellectual property rights (IPRs) have become more susceptible to infringement leading to inadequate return to the creators of knowledge¹.

The existence of IPRs is very old. The basic aim of conferring on IPR upon the person owning the same is to give a social recognition to its holder. This social recognition can further bring economic benefits

to its holders. It is just and reasonable to award a person an IPR in the form of "limited monopolistic rights" for his/her labour and efforts. At the same time, exceptions in the form of various licenses are also made so that public interest cannot be compromised. The public interest and personal interests are thus reconciled in the form of limited period duration of these rights and their abuses can be tackled stringently, especially when public interest demands so. The problem of IPRs violations was not as much in ancient times as it is in the contemporary society. This has happened due to advent of information technology (IT) and "Conflicts of laws" in various countries. The need of harmonization of law concerning IPRs was felt at the international level. Thus, the TRIPS Agreement was formulated to bring basic level harmonization in IPRs laws all over the world. The provisions of TRIPS Agreement are the most extensive and rigorous in nature. They protect all the forms of IPRs collectively. The protective umbrella of TRIPS covers the following IPRs² -

1. Copyright and Related Rights
2. Trademarks
3. Geographical Indications

*Professor and Dean, Faculty of Commerce, M D University, Rohtak
**Lecturer, Institute of Hotel & Tourism Management, M D University, Rohtak

4. Industrial Designs
5. Patents
6. Layouts designs of Integrated Circuits
7. Protection of Undisclosed Information.

IPRs are largely territorial rights except copyright which is global in nature in the sense that is immediately available in all the members of the Berne Convention (discussed later). These rights are awarded by the State and are monopoly rights implying that no one can use these rights without the consent of the right holder.³

2.0 Copyright Protection – A Brief Introduction

The concept of copyright originated with the slogan "To every cow her calf; therefore to every author his copy", given by Irish King Diarmid in 6th Century A.D. However, copyright evolved as a result of the invention of printing press which revolutionized the techniques of reproduction⁴. Gradually new technology of communication and diffusion has grown up. New technology made possible easy copying of any original work. The concept behind copyright is that creators of literary works (authors, composers, artists) as well as those concerned with the circulation and transfer of knowledge such as publishers, broadcasters, producers of phonograms and films have rights of ownership in their works, and further, that those rights should be legally protected in order to prevent unlawful reproduction of their works. In case of traditional books, the offset printing process and photostat machines had created problems for copyright protection.

Internet and the digital revolution pose even more complex problems for copyright law. The three technological advances, namely, the digitization of information, networking and world wide web have turned the economics of information upside down.⁵ Copyright was designed for three basic reasons -

- to reward creators for their original works;
- to encourage availability of the works to the public; and
- to facilitate access and use of copyrighted works by the public in certain circumstances.

But the emerging digital technology, increasing use

of computers, communication technology and their convergence into an integrated information technology, have given rise to challenging legal issues for copyright and many more are expected in future.

2.1 What is Copyright?

Copyright provides legal rights exclusively given for a definite period to the creators of an intellectual work. According to World Intellectual Property Organization (WIPO), copyright is defined as a legal term describing rights given to creators for their literary and artistic works. Copyright is a form of protection provided by the laws of any country to the authors of "Original works of authorship", including literary, dramatic, musical, artistic and certain other intellectual works. This protection is available to both published and unpublished works. Copyright is a statutory term, defined in dictionary as "the exclusive legal right to the publication, sale etc. of a literary or artistic work"⁶. It is, in principle, not concerned with things that are not perceivable, such as abstract ideas, concepts and the like. Copyright protection begins when works are actually created and fixed in a tangible form.

2.2 Purpose of Copyright Law

The basic purpose of copyright law, like other forms of Intellectual Property laws, is to protect the creation of the human intellect. These laws allow the copyright owners to prevent others from using their works without their license or permission and, therefore, give an opportunity to the owner of the copyright to derive financial benefit out of the efforts they made to develop something new and original using their intellectual creative abilities⁷.

The purpose of the copyright system is two-fold⁸ -

- (i) To encourage talented persons to produce creative works, and
- (ii) To provide incentives for the dissemination of those works.

The copyright laws encourage authors, composers, designers, artists etc, to create original works by rewarding them with an exclusive right for a limited period of time.

There are yet another group of rights that in certain

aspects resemble copyright. These are, therefore, known as related or neighbouring rights. The overall purpose of these related rights is to protect those people or organizations (like singer, musician, producer of phonograms and broadcasting organizations) that add substantial creative, technical or organizational skill in the process of bringing a work to the public⁹.

2.3 Coverage Provided by Copyright

Copyright protects "original work of authorship" that are fixed in a tangible form of expression. Copyright does not protect mere ideas. It subsists only in material form to which the ideas are translated. Copyrightable works include the following categories¹⁰:

- (i) Original literary works.
- (ii) Musical works, including any accompanying works.
- (iii) Dramatic works, including any accompanying music.
- (iv) Pantomimes and choreographic works.
- (v) Pictorial, graphic and sculptural works.
- (vi) Motion Pictures and other audiovisual works.
- (vii) Sound Recordings.
- (viii) Architectural works.

In current scenario, copyright protection has been extended to many areas of creative work like computer programs and multimedia production.

Further, the copyright law not only protects the original works but also the translations, adaptations, arrangements and other alterations of the original works without any prejudice to the protection accorded to the original works. Also, the collections of various artistic and literary works, e.g., in encyclopedias and anthologies etc. can be protected by the copyright on account of the creativity involved in selecting and arranging those original works. Apart from these works, the Indian laws also protect the broadcasting organizations and performers.

3.0 Legal Framework Of Copyright Protection

The history of copyright protection has followed two

separate streams, one relating to the rights of authors of literary and artistic works (main rights) and the other relating to the contributions of others who add value in the presentation of literary and artistic works to the public (related or neighbouring rights). The legal framework of copyright protection in chronological order, is given below ¹¹: -

1. International Treaties governing copyright prior to 1996
2. WIPO Treaties of 1996
3. Current Indian Laws governing copyright:
 - a. Indian Copyright Act, 1957
 - b. Information Technology Act, 2000
 - c. Latest Development in 2006

1. International Treaties Governing Copyright prior to 1996

India is a member state of the following international conventions on copyright and neighbouring rights -

(i) The Berne Convention

The Berne convention is an international copyright treaty signed by 143 countries including India which signed the convention on April 1, 1928. The provisions of the convention (with the exception of those relating to moral rights) are mandated to be applicable to all WTO members whether signatories to Berne Convention or not. This convention gives copyright protection to all "literary and artistic" works.

The two fundamental principles on which the convention is based are¹²:

- a) National treatment: An author in a member country can claim in another member country (apart from the country of origin of the work the same protection as the country of claim gives to its own nationals). For instance, an Indian author can claim in the UK the same protection as UK gives to its own nationals.
- b) Convention rights: The convention provides certain specific rights to authors concerning reproduction, public performance, broadcasting etc, and these rights can be claimed whether or not the country of claim gives these rights to its own nationals.

(ii) Universal Copyright Convention (UCC)

This convention was evolved under the auspices of UNESCO, since October 20, 1957. The convention required that the formalities (relating to copyright) shall be regarded as fulfilled, as far as works originating in other countries are concerned, if all legitimately published copies of the work bear the "copyright notice" i.e., the symbol '©' the name of the copyright proprietor and the year of first publication¹³.

(iii) The Rome Convention 1961

With the advancement of technology and mass media, authors once again needed protection. In debating the moral rights of the author, the issue of the social function of copyright resurfaced. For whom was copyright to be beneficial: the author solely, or could the public share in the information. Rome convention was adopted on Oct 26, 1961 and it set an international standard for related rights belonging to performers, phonogram producers and broadcasters. Currently, there are 67 members of the convention. India is not a member.

(iv) The Phonograms Convention 1971

For the protection of producers of Phonograms against unauthorized duplication of their phonograms, a separate convention was adopted in October 1971 and it covers the right of phonogram producers only. Currently there are around 63 members of the convention.

(v) Multilateral Convention for the Avoidance of Double Taxation of Copyright Royalties and Additional Protocol, since October 31, 1983 with some reservations.

(vi) Copyright and neighbouring rights now form part of TRIPS (Trade Related Aspects of Intellectual Property Rights) Agreement, 1994, which has come into force on Jan 1, 1996.

The membership of these Conventions and Agreements ensures that Indian copyright holders get rights in those other countries which are members of these conventions and Agreements¹⁴.

2. WIPO (World Intellectual Property Organization) Treaties of 1996¹⁵

- Taking into consideration, challenge of digital technology to traditional concepts, two new

treaties were adopted in December 1996:

- (i) The WIPO Copyright Treaty (WCT)
- (ii) The WIPO Performances and Phonograms Treaty (WPPT)

These treaties attempt to provide an internationally acceptable framework for resolution of issues raised by such technological developments and sometimes, these treaties are referred to as 'Internet Treaties'.

3. Current Indian Laws governing Copyright

(i) Indian Copyright Act, 1957

Copyright law came into existence in India at the time when India was a colony of Britain and the British law was extended to India¹⁶. The Indian Copyright Act, 1957 was enacted in 1957 which was amended in 1981, 1984, 1992, 1994 and 1999. The amendments in 1994 and 1999 were made to take care of the technological changes¹⁷. The 1999 amendments have made the Copyright Act fully compatible with Trade Related Aspects of Intellectual Property Rights (TRIPS) Agreement & fully reflects Berne Convention. With these amendments the Indian Copyright law has become one of the most modern copyright laws in the world. However it still requires major amendments to deal with the challenges posed by Internet and the digital revolution.

(ii) Information Technology Act, 2000

The Information Technology Act, 2000 has been enacted essentially to grant legal recognition to e-commerce. This Act does not directly address any IPR issues but there are provisions therein which would have impact on the IPR scenario in e-commerce environment.

The fundamental approach of the Act is towards validating and legalizing electronic and on-line transactions. The Act does not discuss the implications of any copyright violations over the Net. It has no provisions to penalize copyright infringers, commonly known as "pirates" for their activities over the Net. Internet piracy is a major problem and has not been tackled by this Act. No amendments have been proposed to the Copyright Act of India in this regard¹⁸. The IT Act, 2000 requires a new outlook and orientation, which can be

effectively used to meet the challenges posed by the "Intellectual Property Rights" regime in this age of information technology.

(iii) Latest Development in 2006

After many years of discussion within a "core group" appointed by the Ministry of Human Resources Development (HRD), HRD finally released a draft in early 2006 and sought public comment. Since that time, no progress has been seen in introducing good legislation into the Parliament. Copyright holders have been waiting for the Govt. of India to adopt amendments to the copyright law that correct deficiencies and properly implement all the obligations of WIPO Internet Treaties (WCT & WPPT), including protection for temporary copies; adequate & effective protection against the circumvention of technological protection measures; and ISP (Internet Service Provider) liability rules that are clear. With narrow exceptions and with an effective notice and takedown system. The draft amendments still fall well short of these goals. It is expected that HRD is reworking its draft to include key protections necessary for the digital age.

4.0 Other Legal Issues

4.1 Rights of Copyright Owner

Rights of copyright owner are of two types -

1. The Economic Rights
2. The Moral Rights

1. The Economic Rights:

The economic right issues involve the economic rights of creators as they can be bargained for financial benefits. Economic Rights include the following rights -

- (i) Right of Reproduction
- (ii) Right of Recording
- (iii) Right of Distribution
- (iv) Right of Public Performance
- (v) Right of Broadcasting
- (vi) Right of Rental and Hire
- (vii) Right of Translation and Adaptation

(i) Right of Reproduction:

Right of Reproduction of the copyright holder is

embodied in the word copyright itself. It provides exclusive right to the holder to prevent others from reproducing or copying work in any form without authorization of the owner of the copyright in that work. For e.g., A publisher of books cannot publish or distribute a book without authorization of the author of that book.

(ii) Right of Recording:

According to this right, no person can make other sound recording embodying the sound recording on which copyright exists without the authorization of the owner of the copyright.

(iii) Right of Distribution:

This right is related to rights of reproduction. The right of reproduction is of little value unless the person receiving the authorization from the owner of the copyright to copy his work is able to commercially exploit the work so authorized by selling or hiring the same.

(iv) Right of Public Performance:

The author of the work has a right to exclude the public performance of his work, which means that no person other than the author or the one authorized by the holder of the copyright in the work will have the right to publicly perform the work. Therefore, theatrical performance of a play would require an authorization of the author of that play.

(v) Right of Broadcasting:

The copyright owners also have rights of authorizing broadcasting of their works or communication thereof to the public by any means of wireless diffusion of signs, sounds or images for example through radio, television or satellite.

(vi) Right of Rental and Hire:

The owners of copyright in computer programs, cinematograph works and sound recordings enjoy the right to give a work on hire. In particular, in the case of a computer program, the right to give on commercial rental is subject to a provision which excludes computer programs where the program itself is not the essential object of the rental.

(vii) Right of Translation and Adaptation:

The owners of the copyrights also have exclusive rights to authorize translations and adaptation of their works. Not only the original works but also the

translations and the adaptations of the original works are subject matters of copyright protection.

2. Moral Rights:

Copyright also accords certain moral rights. These rights are also known as non-economic or non-market rights. Moral rights remain with the owner even though the economic rights have been transferred. These rights protect the authors, even after they have transferred economic rights, against distortions and acts that are prejudicial to their honour or reputation. Authors can also continue to claim authorship of their work, even after economic rights have been transferred. The Indian Copyright legislation did not protect such non-economic rights before 1994. But the Copyright Act was amended in December 1994 and such moral rights are protected.

4.2 Transfer of Copyright

The owner of the copyright in an existing work or prospective owner of the copyright in a future work may assign to any person the copyright, either wholly or partially in the following manner -

- (i) for the entire world or for a specific country or territory; or
- (ii) for the full term of copyright or part thereof; or
- (iii) relating to all the rights comprising the copyright or only part of such rights.

The ownership in the copyright can be transferred by a license or assignment. Once the copyright in the work is assigned to someone, the assignee becomes the owner of the copyright and all the rights therein except the moral rights becomes the rights of the assignee.

4.3 Infringement of Copyright

Copyright gives the creator of the work the right to reproduce the work, make copies, translate, adapt, sell or give on hire and communicate the work to public. Any of these activities done without the consent of the author or his assignee is considered infringement of the copyright. There is a provision of 'fair use' in the law, which allows copyrighted work to be used for research & teaching purposes. That is, making single photocopy for the purpose of teaching may not be considered as infringement, but making

several photocopies for commercial purposes would be considered as infringement¹⁹. In case of infringement, copyright owner can institute a suit for infringement.

Following acts are considered as infringement of copyrights²⁰: -

- (a) In case of literary, dramatic or musical work, not being a computer program -
 - (i) to reproduce the work in any material form including the storing of it in any medium by electronic means;
 - (ii) to issue copies of the work to the public not being copies already in circulation;
 - (iii) to perform the work in public, or communicate it to the public;
 - (iv) to make any cinematography film or sound recording in respect of the work.
 - (v) to make any translation of the work; to make any adaptation of the work;
 - (vi) to do, in relation to a translation or an adaptation of the work, any of the acts specified in relation to the work in sub clauses (i) to (vi);
- (b) in case of computer program -
 - (i) to do acts specified in clauses (a)
 - (ii) to sell or give or hire, or offer for sale or hire any copy of the computer program, regardless of whether such copy has been sold or given on hire on earlier occasions;
- (c) in case of an artistic work -
 - (i) to reproduce the work in any material form including depiction in three dimensions of a two dimensional work or in two dimensions of a three dimensional work;
 - (ii) to communicate the work to the public;
 - (iii) to issue copies of the work to the public not being copies already in circulation;
 - (iv) to include the work in any cinematography film;
 - (v) to make any adaptation of the work;
 - (vi) to do, in relation to a translation or an adaptation of the work, any of the acts specified in relation to the work in sub-clauses (i) to (vi);
- (d) in case of a cinematography film -
 - (i) to make a copy of the film including a photograph

of any image forming part thereof;

- (a) to sell or give on hire or offer for sale or hire, any copy of the film, regardless of whether such copy has been sold or given on hire on earlier occasions;
- (b) to communicate the film to the public;
- (c) in case of sound recording -
 - (i) to make any other sound recording embodying it;
 - (ii) to sell or give on hire or offer for sale or hire, any copy of the, sound recording, regardless of whether such copy has been sold or given on hire on earlier occasions;
 - (iii) to communicate the sound recording to the public.

Explanation - For the purpose of this section, a copy which has been sold once shall be deemed to be a copy already in circulation.

Penalty for knowingly infringing of a copyright in a work is imprisonment for a term not less than 6 months which may extend to 3 years and with fine not less than Rs.50,000 and which may extend up to Rs.2,00,000.

4.4 Issue of Licenses

The owner of the copyright in any existing work or the prospective owner of the copyright in any future work may grant any interest in the right by licensing the same in writing. Further, Indian Copyright law also provides for compulsory licenses. The Copyright Board, may direct the Registrar of Copyrights to grant a license to complainant a license to republish the work, perform the work in public or communicate the work to the public by radio-diffusion, as the case may be, subject to payment to the owner of the copyright of such compensation and subject to such other terms and conditions as the Copyright Board may determine. Also, any person may apply to Copyright Board for a license to produce and publish a translation of a literary or dramatic work in any language²¹.

4.5 Procedure for obtaining Copyright

Though it is not compulsory for the author of the work to register his work yet he is the owner of the copyright and registration of copyright in the work helps him in judicial proceedings in case the need arises.

The register of the copyright is maintained by the copyright office and it is divided into six parts for different kinds of works. It also contains other particulars like registration number, address and nationality of the owner, class and description of work, title or work etc.

Application in form IV in respect of each work can be made to Registrar of Copyrights by author, publisher, owner or any other person interested in the copyright. The application is made in triplicate with prescribed fees. If Registrar of Copyrights is satisfied with the correctness of the application and no objection is received by him within 30 days of the receipt of the application, then such particulars are entered in the register of copyright. Further, copy of entries made in the register is sent to the concerned parties.

4.6 Term of Copyright

Chapter V of Copyright Act, 1957, deals with the term of a copyright. Initially, the term was fixed at 50 years but by an amendment to the Act with effect from 28th December, 1991, the period was increased to 60 years.

The term of copyright is discussed in the following manner²² -

- In case of a published literary, dramatic, musical and artistic work (other than photograph) published in the lifetime of the author, the copyright lasts for the author's life time plus 60 years from the death of the author.
- In case of anonymous or pseudonymous work, the copyright lasts for 60 years from the date of publication of the work..
- In case of photographs, cinematograph film and sound recording, the copyright subsists for 60 years from the date of publication of the photograph, cinematograph film and sound recording respectively.

4.7 Copyright Office and Copyright Board

Copyright Office and Copyright Board were established in the year 1958. A register kept at the Copyright Office, in which the names of titles or works and the names and addresses of authors, publishers and owners of copyright are entered.

Copyright Board constitutes a chairman, not less than 2 and not more than 14 other members and a secretary, who is registrar of the copyrights. Copyright Board has been provided certain powers of a Civil Court for its proper performance. It hears cases regarding rectification of copyright registration and disputes in respect of assignment of copyright and granting of licenses, works withheld from public, production and publication of translations and production and publications of works for certain specified purposes and other miscellaneous matters.

Appeals against orders of the Registrar of Copyrights are made to Copyright Board and appeals against the order of the Copyright Board are made to the High Court.

5.0 Challenges for Copyright Protection in Digital Era

Today, information and communication technologies have radically changed the way works and services circulate, and have also changed the way protected works are accessed and used. They have made it possible for information to be communicated at high speed over wired or wireless networks practically everywhere and have allowed for the opportunity of simultaneous access by an unlimited number of individuals. Some of the major challenges are as follows-

1. Access and use of protected work via Internet.
2. Simultaneous access of information by an unlimited number of individuals.
3. Copying, modifying and distributing of copyrighted material have become very simple and difficult to trace.
4. Copying, modifying and distributing of copyrighted material have become very simple and difficult to trace.
5. Easy to reproduce digital works at low or no cost.
6. Digital copies are often indistinguishable from the original and are easy to disseminate, quickly and to a wide audience.
7. No centralized rules or laws governing the use of internet.
8. It is very difficult to apply the traditional theories of protection to various cyberspace players like Internet Service Providers (ISPs), Bulletin Board

Service Operators (BBSO), Commercial Web Page Owner/Operators and Private Users.

9. Consumers' perception that why they should pay in order to access the contents, in addition to the amount they have already paid to their ISPs, represents another challenge.
10. Another important element to consider is the new behaviour of the public which is often referred to as consumers and users. The new public does not feel like wasting time in finding out whether that they would like to obtain exists in supply, nor whether and how they could obtain it. The new public wants to obtain it immediately, free-of-charge, wants it served in their house or workplace, in their own language.
11. Provision of "Fair Use" by Copyright Law has been taken as defence by the people against a copyright infringement action. Even if it is accepted that fair dealing exceptions should apply equally to digital and non-digital works, it is true that digital works have some characteristics that differentiate them from creations in "traditional" media. The distinguishing features of digital media are fairly easy to identify. First, digital works are typically easy to reproduce at very low or no cost. Second, once digital copies are made, they are often indistinguishable from the original. Third, digital files are easy to disseminate, quickly and to a wide audience.
12. A key problem in electronic publishing is that current legislation does not deal with intricacies of computer based, networked systems, resulting in many grey areas.
13. In some cases, strict application of law in its current form can result in severe restrictions that eliminate advantages brought about by technology.

6.0 Principles to Meet the Challenges of Copyright Protection in Digital Environment

In order to maintain a balance between the interest of the right holders and uses in the digital environment, IFLA has developed the following state of principles, which are as follows²³ -

1. In national copyright legislation, exceptions to copyright and related rights, allowed in the Berne convention and endorsed by the World Intellectual Property Organization (WIPO) treaties

should be revised if necessary to ensure that permitted uses apply equally to information in electronic form and information in print.

For copying over and above these provisions there should be administratively simple payment schemes.

For works in digital format, without incurring a charge or seeking permission all users should be able to -

1. browse publicly available copyright material.

2. read, listen to or view publicly marketed copyright material privately, on site or remotely.

3. copy, or have copied for them by library and information staff, a reasonable portion of a digital work in copyright for personal, educational or research use.

4. Temporary or technical copies which are incidental to the use of copyright material should be excluded from the reproduction right.

5. Providing access to a digital format of a protected work to a user for a legitimate purpose such as research or study be permitted under copyright law.

6. The lending of published physical format digital materials (CD-ROMs) by digital libraries should not be restricted by legislation.

7. Contractual provisions, for example, within licensing arrangements, should not override reasonable lending of electronic resources by electronic resources by digital library staff.

8. Legislation should give digital libraries and archives permission to convert copyright protected materials into digital format for preservation and conservation related purposes.

9. National Copyright legislation should render invalid any terms of a license that restrict or override exceptions or limitations embodied in copyright law where the license is established unilaterally by the right holders without the opportunity for negotiation of the terms of the license of the user.

10. National Copyright laws should aim for a balance between the rights of copyrights owners to protect their interests through technical means & the rights of users to circumvent such measures for legitimate, non - infringing purposes.

11. Copyright law should enunciate clear limitations

on liability of third parties in circumstances where compliance cannot practically or reasonably be enforced.

7.0 Government Initiatives to Strengthen Copyright Law

Indian enforcement agencies are working effectively and there is a decline in the levels of piracy in India. In addition to these efforts, Indian Government has taken a number of measures to strengthen the enforcement of Copyright law which are as follows-

1. The Government of India has brought out, "A handbook of Copyright Law" to create awareness of copyright laws amongst the stakeholders, enforcement agencies, professional users like the scientific and academic communities and members of the public. Copies of Handbook have been circulated free-of-cost to the State and Central government officials, police personnel and to participants in various seminars and workshops on IPR.
2. National Police Academy, Hyderabad and National Academy of Customs, Excise and Narcotics conducted several training programs on copyright laws for the police and customs officers. Modules on copyright infringement have been included in their regular training programs.
3. The Department of Education, Ministry of Human Resource Development, Government of India has initiated several measures for strengthening the enforcement of copyrights that include constitution of a Copyright Enforcement Advisory Council (CEAC), creation of separate cells in state police headquarters, encouraging setting up collective administration societies and organization of seminars and workshops to create greater awareness of copyright laws among the enforcement personnel & the general public.
4. Special cells for copyright enforcement have so far been set up in 23 States and Union Territories, i.e. Andhra Pradesh, Assam, Andaman & Nicobar Islands, Chandigarh, Dadra & Nagar Haveli, Daman & Diu, Delhi, Goa, Gujarat, Haryana, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Madhya Pradesh, Meghalaya, Orissa, Pondicherry, Punjab, Sikkim, Tamil Nadu, Tripura and West Bengal.
5. For collective administration of copyright, copyright societies are set up for different classes

of works. At present there are 3 registered copyright societies. These are the Society for Copyright Regulations of Indian Producers of Films & Television (SCRIPT) for cinematography films, Indian Performing Rights Society Limited (IPRS) for musical works and Phonographic Performance Limited (PPL) for sound recordings.

6. The Government also initiates a number of seminars/workshops on copyright issues. The participants in these seminars include enforcement personnel as well as representatives of industry organizations.

8.0 Conclusions

No doubt, India has come to be grown in the international community as an information technology major but the current notions about copyright have to be modified to suit the digital environment. Although much has been done at the international level to adapt the global principles of copyright to the digital era, there is still a lot which needs to be resolved at the national level and in relations between States: the concept of copyright itself needs to be adapted to the philosophy of the Web, the responsibility of service providers and of users, the security of network, the scope of limitations and exceptions to copyright protection i.e. the traditional mechanism for the search of a balance between interests of the holders and those of the public, the applicable legislation in case of infringement of rights. Hence, barring a few important aspects, Indian Copyright law meets the challenges posed by the Internet.

List of End Notes

1. Saha R (2005), "Management of Intellectual Property Rights in India," from <http://www.pfc.org.in/workshop/workshop.pdf>
2. Dalal Praveen (May 19,2006), "Intellectual Property Rights in the Digital Era", from <http://www.cyberlawindia.blogspot.com/2006/05/intellectual-property-rights-in.html>
3. op.cit, Saha R (2005)
4. Thairani K (1987), *Copyright: The Indian Experience*, New Delhi Allied Publishers Private Ltd
5. Sahoo Bibhuti Bhusan and Rao IK Ravichandra (March 2003) DRTC Workshop on "Digital Libraries: Theory and Practice", Bangalore, from <http://www.hdl.handle.net/1849/42>

6. Narayanan P (1999), *Intellectual Property Law*, Calcutta Eastern Law house
7. Fox Mandal (April 2003), "Copyright Protection in India" *Intellectual Property Laws Newsletter*, Vol.2 Issue 2, from <http://www.foxmandal.com>
8. op.cit, Thairani K (1987)
9. op.cit, Fox Mandal (April 2003)
10. op.cit, Narayanan P (1999)
11. Kumar, Rajendra and R Latha (November 2001) "Copyright Protection in the Internet: An Indian Perspective", *World-e-commerce & IP*, Volume 1, Issue 14, from <http://www.knspartners.com/files/copyright%20protection%20on%20the%20internet.pdf>
12. ibid
13. ibid
14. op.cit, Fox Mandal (April 2003)
15. op.cit, Kumar Rajendra (2001)
16. op.cit, Fox Mandal (April 2003)
17. op.cit, Sahoo Bibhuti Bhusan (2003)
18. op.cit, Sahoo Bibhuti Bhusan (2003)
19. op.cit, Shah R (2005)
20. op.cit, Shah R (2005)
21. op.cit, Fox Mandal (April 2003)
22. op.cit, Fox Mandal (April 2003)
23. Sahu S B (13-15 February, 2003), "Copyright, Libraries and the Digital Age," Paper presented at the First International CALIBER - 2003, Ahmedabad.

References

1. Dalal Praveen (2006), "The TRIPS Analysis : Data Protection Law in India (Part I)", from <http://www.ipfrontonline.com/depts/article.asp?id=10636&deptid=6>
2. Debroy Bibek, Chakraborty Debashis and Gupta (2005), Arun, "Copyright Protection and Consumer Welfare: A Case Study of Rabindra Rachanabali", *Global Business Review*, 6
3. Embassy of India Policy Statements (2000), "Intellectual Property Rights, in India", from http://www.indianembassy.org/policy/ipr/ipr_2000.htm
4. Indian Copyright Act, (1957), from <http://www.education.nic.in/CprAct.pdf>
5. Mayur Suresh, Atreyee Majumder, Lawerance Liang (2004), "Encountering the Sustaining Myths of Copyright", *Alternative Law Forum*, from <http://www.altlawforum.org/PUBLICATIONS/document.2004-12-18.5142324852>
6. Rajan Mira, T Sundara (2001), "Moral Rights and the Protection of Cultural Heritage: Amar Nath Sehgal V Union of India", *International Journal of Cultural Property*, Vol 10, No 1, pp 79-94

- 7. Rao Siriginidi Subba (2003), "Copyright: its implications for electronic information", *Online Information Review*, Vol 27, No 4, PP 264-275
- 8. Prosecution for Infringement of Copyright Under Copyright Act, from http://www.legalserviceindia.com/articles/in_Copy.htm
- 9. International Protection of Non-Original Databases : Studies on the Economic Impact of the Intellectual Property Protection of Non-Original Databases, from http://www.codata.org/codata_02/03invited/Tabuchi/Tabuchi_CODATA_ejournal.pdf
- 10. Intellectual Property rights protection in India : An Analysis, from http://www.softwareco.com/white_papers/IP_Research.pdf
- 11. Copyright Issues in Context of National Information Policy, from <http://www.drta.isibang.ac.in/~ram/copyright.pdf>

ly - December
 Law, Calcutta
 tion in India",
 Issue 2, from
 ber 2001),
 An Indian
 1, Issue 14,
 2)protection
 libraries
 e First
 Data
 http://
 pid=6
 (2005),
 are: A
 siness
 ctual
 assy.
 tion.
 ang
 ht",
 rg/
 the
 V
 ty.

Does Lintner's Dividend Model Elucidate Dividend Payments in Indian Companies?

Dr Mahesh Chand Garg*, Dr Balvinder Saini**

The problem of distribution of profit in the form of dividends is unique in the company form of business organisation, as there is proverbial segregation of management from the ownership. Dividend policy decision being a major decision of the corporate management is influenced by several factors. The present study aims at investigating the extent to which Lintner's dividend model can be used to explain dividend payments in corporate firms in India and compares this model with another model called percentile model. The study concludes that Lintner's dividend model provides a better explanation of dividend payments than percentile model in Indian companies.

Keywords: Lintner model, Percentile model

1. Introduction

Dividend policy is one of the most important financial policies, not only from the viewpoint of the company, but also from that of the shareholders, the consumers, the workers, the regulatory bodies and the Government. It comprises a series of decisions regarding how the firms distribute profits to their shareholders and it mostly includes basic content about the selection of dividend policy, dividend pay out ratio and pay out channels etc. Since the dividend policy determines whether distribute the earnings to shareholders or self-finance through retained earnings, so it is an important issue that receives more attention these days from both academics and practitioners. Dividend policy has attracted a great deal of research and still keeps its prominent place in the financial literature. However, it is still not satisfactorily explained why companies distribute a substantial portion of their earnings as dividends or why investors pay attention to dividends. This is known as the "dividend puzzle" in the financial literature (Black, 1976) and several hypotheses have been put forward in order to shed some light on this puzzle. A number of researchers have advanced theories and provided empirical evidence regarding determinants of a firm's dividend policy. Ever since the work of John Lintner (1956), followed by the work of Miller and Modigliani (1961), Pettit (1972), Black and Scholes (1973), Michaey, Thaler and Womack (1995), Dhillon and Johnson (1994), Amibud and Murgia (1997) and Charitou and Vafeas (1998),

the dividend policy remains a controversial issue. Some of the questions that remained unanswered include: Does dividend policy affect value? What are the factors that determine dividend policy? Is dividend policy determined dependently or independently? Furthermore, many managers believe that the dividend decision is associated with the investment decision and the financial mix decision. Put differently, they think that if they pay high dividend, then less money will be available for reinvestment and consequently may not have enough money to go ahead with their expenditure programme. This, in turn, results in a greater reliance on external financing. In these cases, the dividend decision feeds back on the investment decision, and has an immediate impact upon the firm's capital structure. Therefore, it makes sense to take account of the firm's financial mix, when setting the dividend level.

In the present study, the authors analyze whether Lintner's dividend model sufficiently explains dividend payments of corporate firms in India. Initially, the determinants of dividend decisions of corporate firms in India using Lintner dividend model are being examined. The authors then broaden the research and contrast the Lintner dividend model with a less sophisticated model that is called the 'percentile model'. The empirical findings indicate that Lintner's model appears to offer a better explanation of historic dividend payments of Indian companies. The paper is organized as follows. The

*Reader, Department of Business Management, G J University of Science and Technology, Hisar

** Reader, Department of Commerce and Business Management, G N D University, Amritsar

Following section briefly describes the problem and the hypothesis. The third section reviews the literature. The fourth section presents the Lintner's dividend model. In the next section, assumption and methodology are discussed. In the sixth section, the empirical results are presented followed by the concluding remarks.

2. The problem and the hypothesis

The objective of this study is to investigate the extent to which Lintner's dividend model can be used to explain dividend payments in Indian companies. The payment of a dividend is one method whereby a company can distribute value to its shareholders. Another method is the repurchasing of shares which has been possible in India since the middle of 2000. Although share buyback could be seen as an important way of distributing shareholder wealth, this study focuses on the payment of dividends only.

The hypothesis to be tested is whether Lintner's dividend model better explains the dividend payments of Indian companies than another alternative model.

3. Literature Review

One of the great puzzles in finance is to determine the effects of the firm's dividend policy on share prices. The reactions of investors to the dividend policy of the firm have received considerable attention during the past fifty years. There are many theoretical and empirical results describing the decisions companies make in this area. At the same time, however, there is no generally accepted model describing payout policy. Moreover, empirical findings are often contradicting or difficult to interpret in light of the theory.

The pioneering work in analysing the determinants of dividend policy is a study done by Lintner (1956) who uses both empirical and survey research methodology in his investigation. Lintner posits that the main determinants of dividend changes are current earnings and prior year dividends. Gordon (1963) suggested that the dividend policy is positively relevant to the valuation of firms. The argument is that the uncertainty associated with capital markets makes investors to prefer an euro of dividends to a euro of capital gains.

In their seminal paper, Miller and Modigliani (1961) advanced the view that the value of firm depends solely on its earning power and is not influenced by the manner in which its earnings are split between dividends and retained earnings. Brittain (1964, 1966), and Fama and Babiak (1968) reformulate the Lintner model by undertaking a more comprehensive empirical approach and confirm the findings of Lintner that corporations follow stable dividend policies. Singaling and the clientele-effect are example factors for the relevance of dividends to the value of firm. There are several empirical studies (e.g. Laub; 1976, Kwan; 1981, Eades; 1982, Woolridge; 1982, Penman; 1983, Asquith & Mullins; 1983, Baker et. al; 1985) that suggest that dividend changes, convey signals to the market about the future of the firm. Other researchers (e.g. Eltons & Gruber; 1970, Pettit; 1977, Litzenberger & Ramaswamy; 1979) have acknowledged the existence of clientele-effect on dividends.

Agency theory suggests that dividends can be used as a means to control a firm's management. Distributing dividends reduces the free cash flow problem and increases the management's equity stake. LaPorta, Lopez-de-Silanes and Shleifer (2000) find that in countries with better shareholder rights, firms pay proportionally more dividend. Therefore, "there is no evidence that in countries with low investor protection, management will voluntarily commit itself to pay out higher dividends and to be monitored more frequently by the market" (Allen and Michaely 2002). Fudenberg and Tirole (1995) build a model that shows that, when managers are risk averse and more recent information has a higher weight in assessing their performance, there will be both dividend and earnings smoothing. Empirical studies also suggest that firms hold more cash than the minimum stipulated in bond contracts in order to consolidate their reputation as good quality borrowers (Kalay 1982). The reputation effect is also supported by the fact that firms in financial distress are reluctant to cut dividends (DeAngelo and DeAngelo 1990).

The financial literature provides substantial support for the dividend-signaling hypothesis in terms of short-run share price performance. There is evidence that dividend-increasing companies earn positive abnormal returns while their dividend-decreasing

counterparts earn negative abnormal returns; the results suggest that the negative reaction to bad news is fairly strong and relatively robust (Pettit, 1972; Charest, 1978; Aharony and Swary, 1980; Woolridge, 1982; Asquith and Mullins, 1983; Brickley, 1983; Divecha and Morse, 1983; Benesh et al., 1984; Dielman and Oppenheimer, 1984; Eade et al., 1985; Wansley and Lane, 1987; Ghosh and Woolridge, 1988; Aharony et al., 1988; Healey and Palepu, 1988; Ghosh and Woolridge, 1991; Marsh, 1993 and Lonie, et al., 1996). If the expectations of market participants observed in these studies are correct, then dividend-increasing companies will have a superior post-announcement performance compared with their dividends-decreasing counterparts.

Chateau (1979) and Shevlin (1982) apply the Lintner model to large Canadian corporations and Australian corporation respectively. Similarly, McDonald, Jacquillant and Nussenbaun (1975) study the French market. Leithner and Zimmermann (1993) test the dividend stability on four major European markets, namely West Germany U.K., France and Switzerland. Lasfer (1996) also uses the Lintner model for a panel data of commercial and industrial corporation operating in the U.K. Dewenter and Warther (1998) use the Lintner model and apply it to a sample of U.S. and Japanese Corporations. In all these studies, the common result is that corporations follow stable dividend policies. Benartzi et al. (1997) state the Lintner's model is the best model explaining the dividend policy behaviour of corporations and only a permanent change in earnings result in a change in the dividend policy.

A substantial amount of research has been done on the effect of taxes on dividend policy. Allen and Michaely (1995), Ang (1987) and Lease et al. (2000) provide an extensive review of the effects of taxes on dividend policy.

In the Indian context, a few studies have analysed the dividend behaviour of corporate firms. Kevin (1992) finds evidence for a stocky dividend policy and concludes that a change in profitability is of minor importance. Mahapatra and Sahu (1993) find cash flow as a major determinant of dividend followed by net earnings. Bhat and Paney (1994) study the managers' perception of dividend decision and conclude that managers perceive current earnings as the most significant factor. Mishra and

Narender (1996) state that earnings per share are a major factor in determining the dividend payout of state-owned enterprises. Mohanty (1999) finds that firms which issued bonus shares, have either maintained the pre-bonus level or only decreased it marginally thereby increasing the payout to shareholders. Narasimhan and Vijayalakshmi (2002) analyze the influence of ownership structure on dividend payout and conclude no influence of insider ownership on dividend behaviour of firms.

From the review of literature it has been observed that there is general agreement on the set of factors influencing dividend policy. Different researchers have used different combinations of variables for explaining the dividend behaviour. Besides, there are different approaches to the decision involving distribution versus retention of net profits after tax. Moreover, factors influencing the corporate dividend policy may substantially vary from country to country because of inconsistency or variation in legal, tax and accounting policy between countries. In view of the facts, the present study aims at analysing Lintner's dividend model on corporate firms in India.

4. Lintner's Dividend Model

Dividend payment modeling work starts from Lintner's (1956) ground-breaking study. John Lintner conducted a classic study on how U.S. managers make dividend decisions. He was the first to ask corporate managers about the perception of dividends and dividend policy. After identifying 15 variables that have a bearing on dividend decisions, he conducted intensive interviews with managers responsible for dividend decisions of 28 well-established industrial companies. He concluded that the most important determinant of the size of a company's dividend is a change in company's earnings that result in a payout ratio that is "out of line" with the firm's target payout ratio. He explained that firms tend to make periodical partial adjustments in the payout ratio in the direction of the target payout ratio, rather than making dramatic changes in the cash dividend paid. Managers do this because they believe that shareholders prefer a steady stream of dividends to a fluctuating dividend. Thus managers smooth dividend payment streams in the short-run to avoid frequent changes. According to Lintner companies have a rather definite policy regarding the ideal or target ratio of dividends to

current earnings, this normal pay out ratio was considered to be a target or an ideal towards which the company moves. Moreover, most of these companies also had somewhat more flexible but nevertheless reasonably well-defined standards regarding the speed with which they would try to move towards a full adjustment of dividends to current earnings (Lintner, 1956, p. 102).

Lintner developed a compact mathematical model to describe the dividend decision process. When he tested his propositions, he found that his partial-adjustment model explained 85 per cent of the dividend changes year to year. Based on additional tests, he found that model worked over longer periods, not just for the period he used to develop the model. Empirical studies, such as Fama and Blahak (1968), Brealey and Myers (2003) confirm Lintner's original findings. The essence of Lintner's dividend model is that, if a firm persisted with its target pay out ratio, then the dividend payment in the ensuing year (Div_1) would equal a constant proportion of earnings per share (EPS_1), or

$$Div_1 = \text{Target ratio} * EPS_1$$

If a firm adhered to its target ratio, it would change its dividend whenever its earnings changed. However, the managers in Lintner's (1956) survey were reluctant to do this. They believe that shareholders prefer a steady progression in dividends. If, for instance, circumstances appeared to warrant a large increase in their company's dividend, they would move partially towards their target dividend. Their dividend changes appear to conform to the following:

$$Div_1 - Div_0 = \text{Adjustment rate} * \text{target change} \\ = \text{Adjustment rate} * [(\text{Target ratio} * EPS_1) - Div_0]$$

This equation can be rewritten as follows:

$$D_1 - D_0 = a + (TE_1 - D_0) = aTE_1 - aD_0 \quad (1)$$

Where a = adjustment rate

T = Target rate

D_1 = Current dividend

E_1 = Current earnings; and

D_0 = Previous dividend

Equation (1) states Lintner's model as it is discussed by Brealey and Myers (2003). The next question to be addressed is how this equation can be fitted into

empirical data, preferably by least squares estimates (LSE), in order to estimate values for the adjustment rate (a) and the target rate (T) or dividend payments for any specific company.

Equation (1) can be rewritten as:

$$1 = aTE_1/(D_1 - D_0) - aD_0/(D_1 - D_0);$$

assuming $(D_1 - D_0) \neq 0$

and, after dividing by the adjustment rate (a), as :

$$1/a = TE_1/(D_1 - D_0) - D_0/(D_1 - D_0) \text{ assuming } a \neq 0; \text{ then} \\ D_0/(D_1 - D_0) = -1/a + TE_1/(D_1 - D_0) \quad (2)$$

Equation (2) is in linear form

$$Y = a + bX \quad (3)$$

Where

$a = -1/a = -1/(\text{adjustment rate})$

$b = T = \text{Target rate}$

$Y = D_0/(D_1 - D_0); \text{ and}$

$X = E_1/(D_1 - D_0);$

It suitable values for D_1 , D_0 and E_1 can be determined for a company, and, assuming that $a \neq 0$ and $D_1 - D_0 \neq 0$, it should be possible to use least square estimation methods to determine the best estimated values for the adjustment rate (a) and the target rate (T) for any specific company.

5. Assumptions and Methodology

In every research work, it is obligatory to state the assumptions that are made. It is assumed that the distribution of value of shareholders will continue to be important in future. It is also assumed that the more cash that a company pays out in the form of dividends, the less it has available to reinvent in other value-creation opportunities in the company.

The present study examines the extent to which Lintner's model can be fitted to the earnings and dividend data of Indian companies and how this well compares with the fit of the "percentile model". The latter model comprises the calculation of the average percentage payout per company and the calculation of the dividend per years if the average percentage of earnings were paid as dividends.

The data for the present study was sourced from Prowess database of Centre for Monitoring Indian Economy (CMIE). For the purpose of this study, only final cash dividends are considered and stock

repurchases and stock dividends are not considered. Indian companies typically pay one dividend during a year except a few firms who pay interim dividends. However, data regarding interim dividends are not readily accessible and it is extremely difficult to get such data for a reasonable number of years.

Only those companies that had paid an annual dividend from the years 1995 to 2005 were included in the study. Companies that had kept their dividends constant for any two consecutive years during the period under investigation were excluded from the study. The reason for the use of this criterion is that the difference between dividends in consecutive years, $(D_1 - D_0)$, is used as denominator in equation (2) and, because division by zero is not permissible, this difference may also not be zero.

The number of companies included in different sectors for the present study are given in table 1.

For each company in the sample, values were calculated for X and Y as given in equation (3) and values were estimated for the adjustment rate (a) and target rate (T). A value of R^2 was then calculated to investigate how well this model explains the observed data in terms of the payments of dividend.

For each company in the sample, the dividend divided by earnings was also calculated for each year to show the percentage of earnings that was paid out as dividends. During the period under reference, the average pay out ratio was then calculated, and this result was called the "percentile model". This model was then used ex-post to estimate the dividend for each year, and a value for R^2 was again calculated. Depending on the values for R^2 , either Lintner's model or the percentile model provided a better explanation of the dividend payments of a company.

Table 1: Number of companies per sector

| S.No. | Sector | No. of Companies |
|-------|---------------------------|------------------|
| 1. | Food and Beverages | 62 |
| 2. | Textiles | 64 |
| 3. | Inorganic Chemicals | 14 |
| 4. | Fertilizers | 12 |
| 5. | Pesticides | 15 |
| 6. | Drugs and Pharmaceuticals | 63 |
| 7. | Cosmetics | 18 |
| 8. | Polymers | 11 |
| 9. | Petroleum Products | 10 |
| 10. | Cement | 17 |
| 11. | Metal and Metal Products | 49 |
| 12. | Machinery | 61 |
| 13. | Mining | 10 |
| 14. | Electricity | 18 |
| 15. | Information Technology | 39 |
| 16. | Construction | 42 |
| | Total | 505 |

Results

In the sample size of 505 companies, Lintner's dividend model provided a better explanation of dividend payments in case of 318 companies (63%), whereas percentile model provided a better explanation of the dividend payments in the case of 187 companies (37%). For the 100 largest companies by market capitalization, Lintner's model provided a better explanation of the dividend payments of 59% of the companies whereas the percentile model provided a better explanation of the dividend payments of 41% of the companies. It can be said that the size of the company does not appear to affect the degree of fit for Lintner's dividend model.

The median values for the adjustment rate (a) and the target rate (T) were 0.7328 and 0.2986 respectively. If the median values are taken as representative of the average Indian company, equation (1) could be rewritten as:

$$D_1 - D_0 = 0.7328 * 0.2986 E_1 - 0.7328 * D_0 \text{ or} \\ D_1 = 0.2188 * E_1 + 0.2672 * D_0$$

These values highlight that Indian companies appear to aim at paying out on an average 30 per cent of their earnings over the long-run, but there is also a definite lag effect. This trend is evident from the fact that the payment constitutes only 22 per cent current earnings plus 27 per cent of the value of the previous year's dividend.

An attempt was made to determine which model provides the better explanation of dividend payments in different sectors. The results of the analysis are summarised in table 2.

It is clear from Table 2 that Lintner's dividend model appears to provide a better explanation of dividend payments of food and beverages companies, textile companies, drugs and pharmaceutical companies, polymers companies, cement companies, machinery

Table 2: Percentage of companies providing explanation of dividend models.

| Sector | N | Lintner | Percentile |
|---------------------------|----|---------|------------|
| Food and Beverages | 62 | 68 | 32 |
| Textiles | 64 | 78 | 22 |
| Inorganic Chemicals | 14 | 33 | 67 |
| Fertilizers | 12 | 42 | 58 |
| Pesticides | 15 | 67 | 33 |
| Drugs and Pharmaceuticals | 63 | 75 | 25 |
| Cosmetics | 18 | 37 | 63 |
| Polymers | 11 | 66 | 34 |
| Petroleum Products | 10 | 48 | 52 |
| Cement | 17 | 64 | 36 |
| Metal and Metal Products | 49 | 45 | 55 |
| Machinery | 61 | 74 | 26 |
| Mining | 10 | 43 | 57 |
| Electricity | 18 | 71 | 29 |
| Information Technology | 39 | 75 | 25 |
| Construction | 42 | 38 | 62 |

companies, electricity companies and information technology companies than the percentile model does. Conversely, the percentile model appears to provide a better explanation of the dividend payments of the companies that are included in the inorganic chemical, fertilizers, cosmetics, petroleum products, metal and metal products, mining and construction sectors. At first glimpse, it appears that percentile model provides a better explanation of the dividend payments of traditional companies whereas Lintner's model is more successful in respect of modern companies. But this conclusion does not explain why the companies in the different sectors provide the best fit for Lintner's model or percentile model. However, these findings should be interpreted with circumspection.

The various combinations of the adjustment rate and target rate in terms of the dividend data of 505 companies were also tested to determine whether there are patterns in respect of these rates. For example, does a company that has a low target rate also tend to have a high adjustment rate? Does a company that has a low adjustment rate also tend to have a high target rate? The companies were categorized into three groups in terms of their adjustment rate, namely, low, medium and high. They were also categorised into three groups in terms of their target rate, namely, low, medium and high. The resulting 3x3 contingency Table appears as table 3 below:

A contingency that was applied on the data given in Table 3 to test for interrelationship between target rate and adjustment rate. The Chi-square statistics (with 4 degree of freedom) is 1, 38 against a tabulated

value of 7, 78 at 10 per cent level of significance. It can be referred from the analysis that there is no significant relationship between target rate and adjustment rate.

7. Concluding Remarks

The examination of the factors that affect the dividend policy of a firm has always been one of the major topics in the corporate finance literature. Since the pioneering research of Lintner in 1956, there has been an extensive amount of research on the dividend policy decision-making of corporation especially in countries that have developed capital markets and established corporate governance rules. This empirical research contributes to the financial literature by investigating the dividend policy decision making of Indian companies. The main purpose of this paper is to shed light into application of Lintner's dividend model in the corporate sector in India by employing a sample of 505 companies for the period 1995 to 2005. The investigation is performed by considering Lintner's dividend model and comparing it with a less sophisticated model named as Percentile model. The study explains that Lintner's dividend model provides a better explanation of dividend payments than Percentile model in Indian companies. The contingency test results suggest that there is no significant relationship between target rate and adjustment rate. However, the empirical result reveals that there is a relationship between the Lintner's dividend model and dividend behaviour of corporate firms in India.

Table 3: Levels of target rate and adjustment rate.

| | Target Rate | | | | Total |
|--------|-------------|--------|------|-------|-------|
| | Low | Medium | High | Total | |
| Low | 52 | 70 | 62 | 184 | |
| Medium | 46 | 51 | 49 | 146 | |
| High | 51 | 61 | 63 | 175 | |
| Total | 149 | 182 | 174 | 505 | |

References

1. Stout J and Swarg I (1980), "Quarterly Dividends and Earnings Announcements and Stockholders' Returns: An Empirical Analysis", *Journal of Finance*, Vol 35, pp 1-12
2. Stout J, Falk H and Swarg I (1988), "Information Content of Dividend Increases: The Case of Regulated Utilities", *Journal of Business Finance and Accounting*, Vol. 15, pp 401-414
3. Allen F and Michaely F (1995), Dividend Policy', in Jarrow, B A Maksimovic, V and Ziemba, W T (eds), *Handbook in Operations Research and Management Science, Finance*, Vol 9, Elsevier, Amsterdam pp 793-834
4. Allen F and Michaely R (2002), "Payout Policy", *Handbook of the Economics of Finance*, in Constantinides, Harris and Stulz (Ed)
5. Ang S J (1987), "Do Dividends Matter? A Review of Corporate Dividend Theories and Evidence", *Monograph Series in Finance and Economics*, New York, Salomon Brothers Center for the Study of Financial Institutions, New York University
6. Asquith P and Mullins D (1983), "The Impact of Initiating Dividend Payments on Shareholders' Wealth", *Journal of Business*, Vol 56, pp. 77-96
7. Baker H K, Farrelly G E and Edelman R B (1985), "A Survey of Management Views on Dividend Policy", *Financial Management*, Vol 14, pp 78-84
8. Benartzi S, Michaely R and Thaler R (1997), "Do Changes in Dividends Signal the Future or the Past?", *Journal of Finance*, Vol 52, pp 1007-1034
9. Benesh G, Keown A and Pinkeston J (1984), "An Examination of Market Reaction to Substantial Shifts in Dividend Policy", *Journal of Financial Research*, Vol 7, pp 131-142
10. Bhat R and Pandey I M (1994), "Dividend Decision: A Study of Managers' Perception", *Decision*, Vol 21
11. Black F (1976), "The Dividend Puzzle", *Journal of Portfolio Management*, Vol 2, pp 5-8
12. Brickley J A (1983), "Shareholder Wealth, Information Signalling and the Specially Designated Dividend", *Journal of Financial Economics*, Vol 12, pp 87-209
13. Brittain J (1964), "The Tax Structure and Corporate Dividend Policy", *American Economic Review*, Vol 54, pp 272-287
14. Brittain J (1966), *Corporate Dividend Policy*, The Brookings Institution, Washington, D C
15. Charest G (1978), "Dividend Information, Stock Returns and Market Efficiency", *Journal of Financial Economics*, Vol 6, pp 297-330
16. Charitou A and Vafeas N (1998), "The Association Between Operating Cash Flows and Dividend Changes: An Empirical Investigation", *Journal of Business Finance and Accounting*, Vol 25 (1) 82, Jan-March, pp 225-248
17. DeAngelo H and DeAngelo L (1990), "Dividend Policy and Financial Distress: An Empirical Investigation of Troubled NYSE firms", *Journal of Finance*, Vol 45, pp 1451-1431
18. Dielman T E and Oppenheimer H R (1984), "An Examination of Investor Behaviour During Periods of Large Dividend Change", *Journal of Financial and Quantitative Analysis*, Vol 19, pp 197-216
19. Divecha A and Morse D (1983), "Market Responses to Dividend Increases and Changes in Payout Rates", *Journal of Financial and Quantitative Analysis*, Vol 18, pp 167-173
20. Eades K (1982), "Empirical Evidence on Dividends as a Signal of Firm Value", *Journal of Financial and Quantitative Analysis*, pp 471-502
21. Elton E and Gruber M (1970), "Marginal Stakeholders' Tax Rates and the Clientele Effect", *Review of Economics and Statistics*, Vol 52, pp 68-74
22. Fama E F and Blahak H (1968), "Dividend Policy: An Empirical Analysis", *The Journal of the American Statistical Association*, Vol 63, pp 1132-1161
23. Ghosh C and Woolridge R (1991), "Dividend Omissions and Stock Market Rationality", *Journal of Business Finance and Accounting*, Vol 18, pp 315-330
24. Ghosh Chinmoy and Woolridge J R (1988), "An Analysis of Shareholder Reaction to Dividend Cuts and Omissions", *Journal of Financial Research*, Vol 11, pp 281-294
25. Gordon M J (1959), "Dividends, earnings and stock prices", *Review of Economics and Statistics*, Vol 41, May, pp 99-105
26. Healey P and Palepu K (1988), "Earnings Information Conveyed by Dividend Initiations and Omissions", *Journal of Financial Economics*, Vol 21, pp 149-175
27. Kalay A (1982), "The ex-dividend Day Behaviour of Stock Prices: A Re-examination of the Clientele Effect", *Journal of Finance*, Vol 37, pp 1059-1070
28. La Porta R, Lopez-de-Silanes F and Shleifer A (2000), "Agency Problems and Dividend Policies Around the World", *Journal of Finance*, Vol 55, pp 1-33
29. Lasfer M A (1996), "Taxes and Dividends: The UK Evidence", *Journal of Banking and Finance*, Vol 50, pp 875-897
30. Laub M (1976), "On the Informational Content of Dividends", *Journal of Business*, March, pp 73-80
31. Lease R C, John K, Kalay A., Loewenstein U and Sarig O H (2000), *Dividend Policy: Its Impact on Firm Value*, Harvard Business School Press, Boston, MA
32. Lintner J (1956), "Distribution of Income of Corporation among Dividend, Retained Earnings and Taxes", *American Economic Review*, May, pp 97-113
33. Litzenberger R and Ramaswamy K (1979), "The Effect of Personal Taxes and Dividends on Capital Asset Prices: Theory and Empirical Evidence", *Journal of Financial Economics*, June, pp 163-196

34. Lonie A A, Abeyratna G, Power D M, Sinclair C D (1986), "The Stock Market Reaction to Dividend Announcements: A U K Study of Complex Market Signals", *Journal of Economic Studies*, Vol 23, pp 32-52
35. Marsh P (1993), *Dividend Announcement and Stock Price Performance*, Paper Presented at the Financial Markets Group Conference on Dividend and Earnings Forecasting and Valuation, London
36. Michaely R, Thaler R H and Womack K (1995), "Price Reactions to Dividend Initiations and Omissions: Overreaction or Drift?" *Journal of Finance*, Vol 50(2), pp 573-608
37. Miller M and F Modigliani (1961), "Dividend Policy, Growth and the Valuation of Shares", *Journal of Business*, Vol 34, October, pp 411-433
38. Mohanty P (1999), "Dividend and Bonus Policies in the Indian Companies", *Vikalpa*, Vol 24, pp 35-42
39. Narasimhan M S and Vijayalakshmi S (2002), "Impact of Agency Cost in Leverage and Dividend Policies", *The ICAFI Journal of Applied Finance*, Vol 8, pp 16-25
40. Penman S (1983), "The Predictive Content of Earnings Forecasts and Dividends", *Journal of Finance*, Sept, pp 1181-1189
41. Pettit R R (1972), "Dividend Announcements, Security Performance and Capital Market Efficiency", *Journal of Finance*, Vol 27, pp 993-1007
42. Pettit R R (1977), "Taxes, Transaction Costs and the Clientele Effect of Dividend", *The Journal of Financial Economics*, Vol 51, pp 419-476
43. Woolridge J R (1982), "The Informational Content of Dividend Changes", *Journal of Financial Research*, Vol 15, pp 237-248

Is Performance Management a Lubricant to the Machinery of Organizational System? (A Conceptual Discussion with some Useful Mantras)

Er Nipun Sharma*

Performance Management is a means of getting better results from individuals, teams and organizations by understanding and managing performance within an agreed framework of planned goals and standards. Having explained the concept of Performance Management and an ideal performance management system, the paper identifies various strategies involved in performance management and spells out the skills required by a performance system manager and suggests the techniques for effective implementation of performance management. In the end, the paper explains how to improve performance of individuals, teams, underperformers and the organization.

Introduction

Performance Management is a means of getting better results from the organization, teams and individuals by understanding and managing performance within an agreed framework of planned goals and standards. It is based on the simple proposition that when people know and understand what is expected of them and have also been party in forming those expectations, they can and will meet them.

The term 'Performance Management' is of recent origin. It was first coined by Beer and Ruh in 1976 and as a distinct approach it got recognition only in mid 1980s. It was due to the growing realization that a more continuous and integrated approach was required to manage and reward performance. Hence, it will, therefore, be in fitness of things to know and understand what is meant by 'performance' as there are different views about it. On individual level, it is the record of a person's accomplishment

(Bernadine et al, 1995; Kane, 1996). As against this, according to Campbell (1990), performance is 'behaviour' and should be differentiated from the 'outcomes' because the 'outcomes' can be contaminated by systems prevalent in the organization. Thus performance should refer to both 'behaviour' and 'result'. However, the fundamental purpose of performance management, as pointed out by Sahu (2007) also, should be to establish a culture in which individuals and groups take responsibility for continuous improvement based on common understanding of organization's goals and priorities, clear expectations for individuals and teams, capability built through investments in performance management tools and commitment based on meaningful work and rewards linked to business and personal achievement.

Performance management at the individual level can be exhibited as follows:

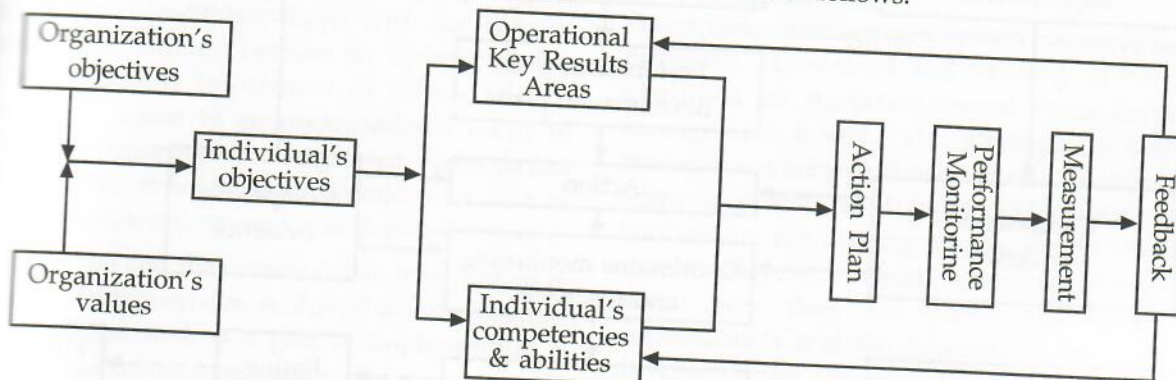


Fig 1. (Performance Management at individual level)

* Associate Vice President - Sales & Marketing Operations, Vodafone Essar South Limited, Mohali - 160071

What constitutes an Ideal Performance Management System?

Ideal performance management systems are a rare phenomenon. However, performance management system is considered ideal if there is a (i) strategic congruence, i.e., there is a clear link among individual, unit, and organizational goals; (ii) fair, i.e., employees believe that the processes and outcomes are just, (iii) reliable, (i.e., the measurement of performance is consistent; (iv) validity, i.e., measures of performance are not contaminated or deficient; (v) thorough, i.e., the systems include all relevant performance dimensions; (vi) inclusive, i.e., they include input from multiple sources on an ongoing basis; (vii) specific, i.e., they provide a concrete employee development agenda, (viii) ethical; (ix) standardized; (x) correctable; (xi) open; (xii) practical; (xiii) meaningful; (xiv) able to identify effective and ineffective performance; and so on.

What do Performance Management Systems contribute?

Performance management systems serve multiple purposes. They increase the employee motivation to perform better; increase their self-esteem; enhance self-insight and development; enable managers to gain insight about subordinates; clarify organizational goals; clarify the definitions of job and criteria; facilitate organizational change; make

administrative actions more fair and appropriate; increase employee competencies; increase clarity in supervisor's views of performance; give timely differentiation between good and poor performances; and so on. The list is inconclusive.

What does the Performance Management Process Involve?

Performance Management is a messy process. The process involves fallible human judgements and human feelings. Not all the attempts to manage performance may work out as planned. However, the important thing is to learn from these less-than-positive outcomes.

Herman Aguinis has suggests six steps in the process of performance management, viz., pre-requisites (i.e., knowledge of organization's mission and strategic goals, and knowledge of the job in question); performance planning (i.e. key accountabilities of the employee, his specific objectives, and setting of performance standards, behaviours, and development plan); performance execution (commitment to goal achievement, ongoing performance feedback and coaching, communication with supervisor, collecting and dissemination of performance data, performance assessment, and performance reviews. However, Michael Armstrong has suggested the following performance management sequence which is self-explanatory.

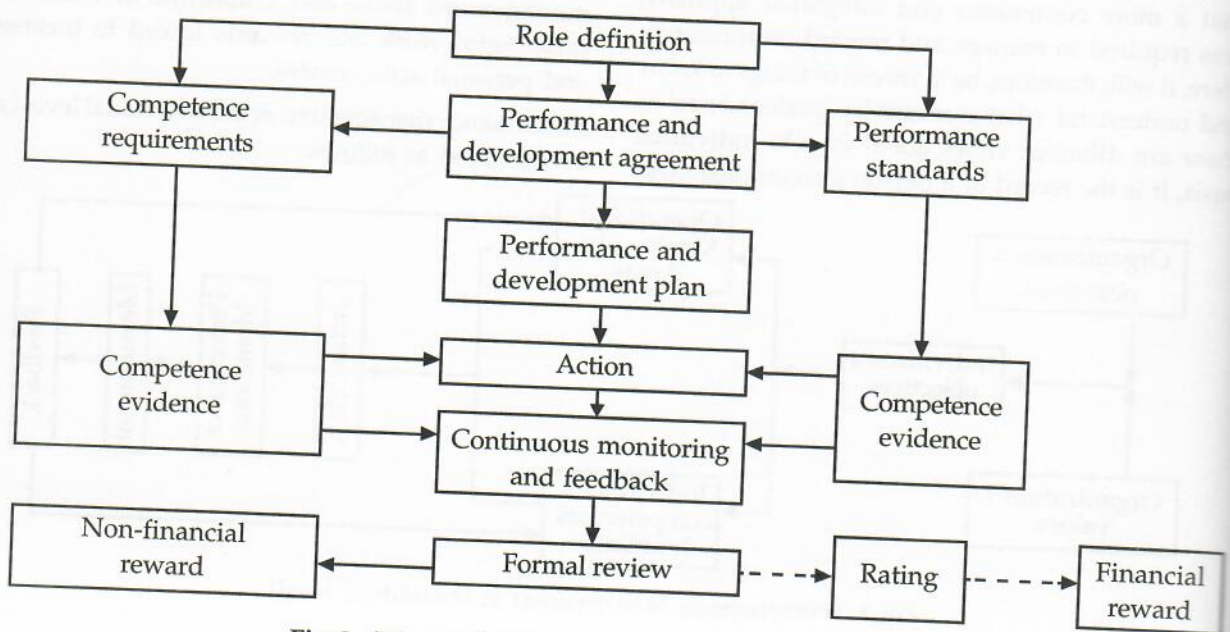


Fig 2. (The performance management sequence)

...of the opinions expressed above, it can be concluded that though the main steps remain to be the same, an organization can take some liberties to suit its requirement.

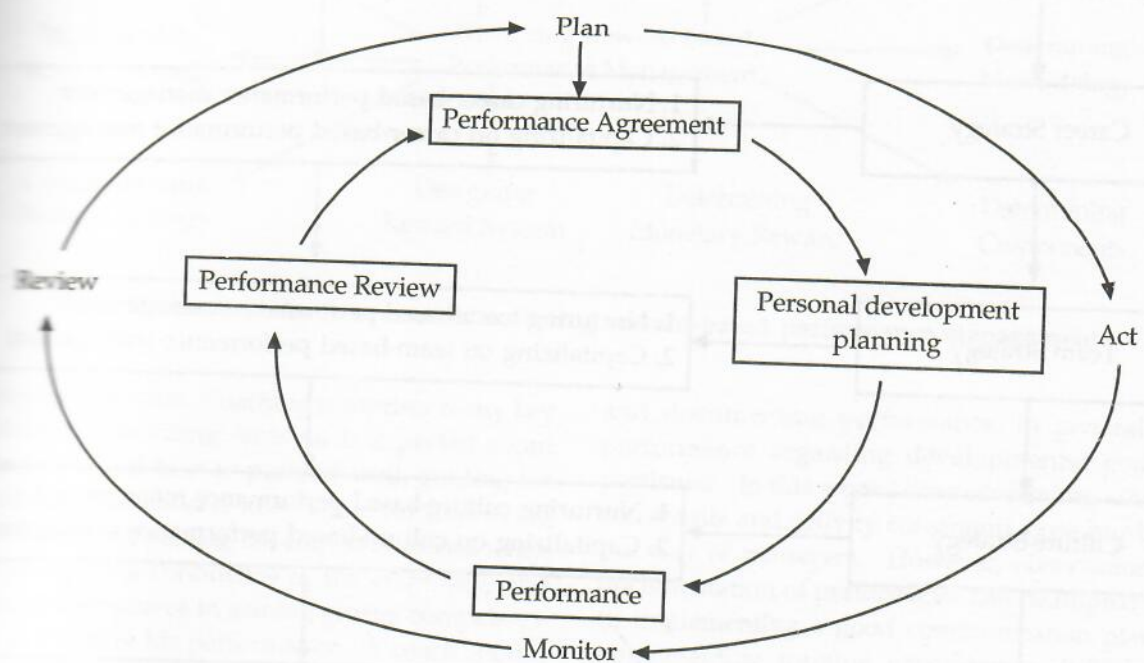


Fig 3. (The performance management cycle)

What Strategies are involved in Performance Management?

There may be several strategies of performance management. For example, Srinivas R. Kandula (2006) has identified seven principal strategies of performance management (as depicted in Fig 4). However, there can be some more strategies like motivation strategy, morale strategy, and so on.

Each strategy can be designed, executed, evaluated, renewed and institutionalized with the help of certain 'interventions' because an 'intervention' is an initiative the implement of which adds a substantive value to an organization's effort in embracing performance management. Kandula has identified two formidable interventions for each of his seven principal strategies as depicted in Fig.4

The structure and the contents of an intervention is formed of certain drivers; A 'driver' is a combination of actions initiated as a part of implementing a performance centric intervention. For example, a set of 10 drivers, according to Kandula, forms the structure and content of each of his 14 interventions

depicted in Fig 4. For an instance, there may be 10 drivers of intervention nurturing reward-based performance management as shown in Fig 5.

Similarly, the remaining 13 interventions may have 10 drivers each and each driver may involve several steps.

What purposes are served by a Performance Management System?

Performance management system can serve several purposes. Cleveland and Murphy (1989) have identified six purposes served by performance management system, viz., strategic (to help top management achieve strategic business objectives); administrative (to furnish valid and useful information for making administrative decisions about employees); informational (to inform employees about how they are doing and about the organization's and the supervisor's expectations); developmental (to allow managers to provide coaching to their employees); organizational maintenance (to provide information to be used in

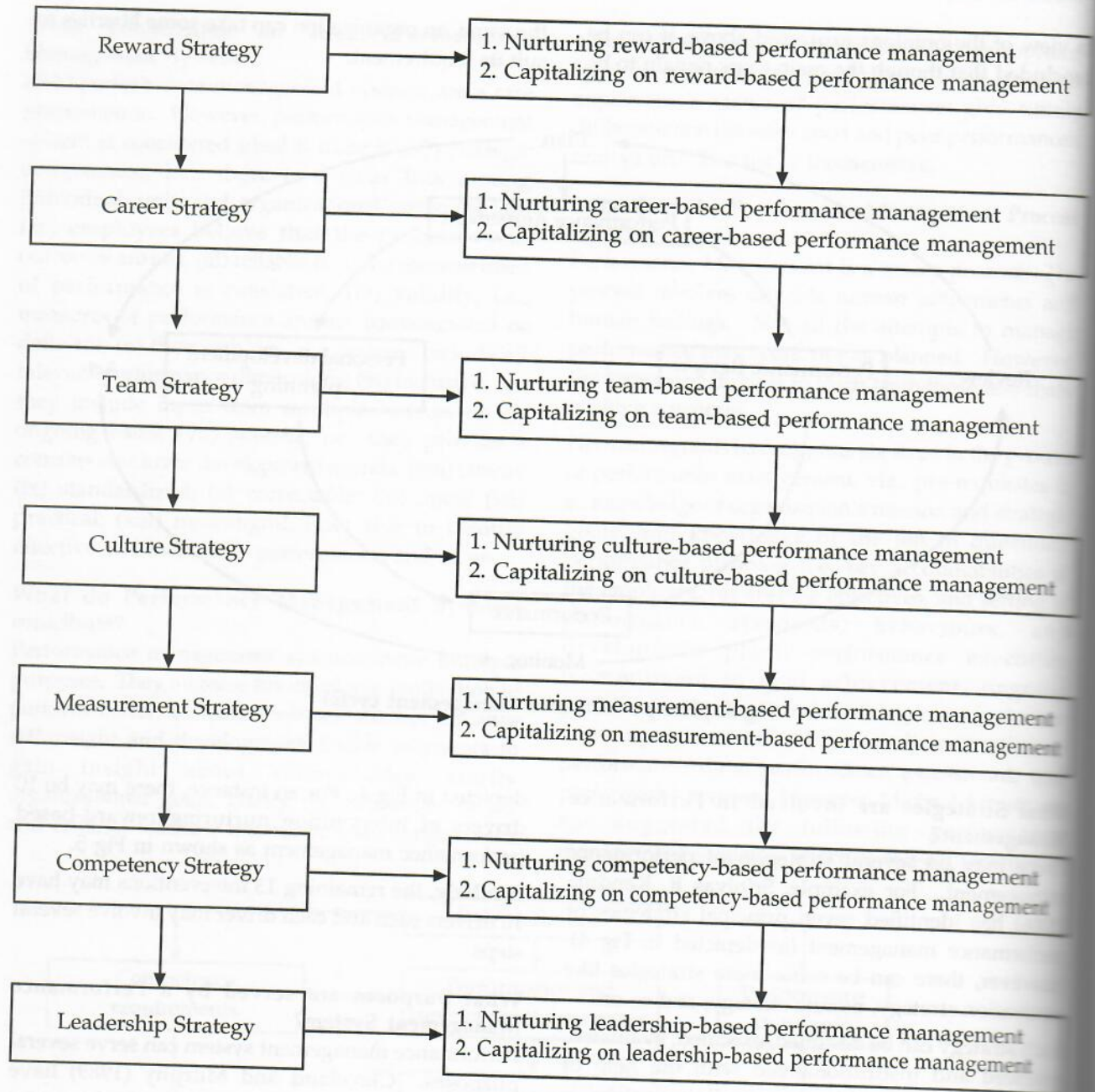


Fig 4. (Strategies and interventions of performance management)

workplace planning and allocation of human resources); and documental (to collect useful information that can be used for various purposes like administrative decisions etc.).

What Skills Managers Should Possess to Enable Performance Management Systems to Help Employees Develop and Improve Their Performance?

In order to manage the performance of employees effectively, the managers should possess a number of important skills like the following:

(i) **Coaching Skills** – According to GE Allenbough (1983), coaching is a collaborative on-going process in which manager interacts with his employees and takes an active role and interest in their performance. In it, the manager directs, motivates, and rewards

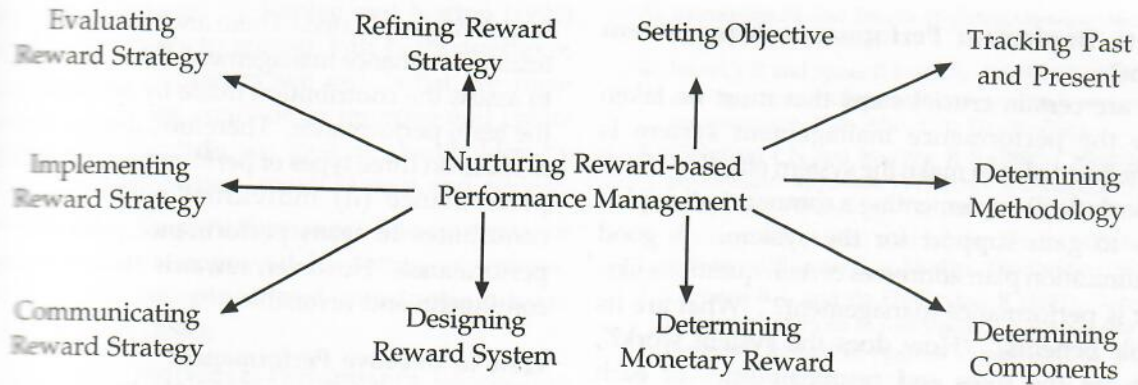


Fig 5. (Drivers of the intervention nurturing reward-based performance management)

employee behaviour. Coaching comprises many key functions like advising on what is expected about performance and how to perform well, guiding for acquisition of skills and knowledge for improving performance, supporting the employee as and when needed, infusing confidence in the employee, and helping the employee in gaining greater competence to improve his performance. A coach should know how to establish developmental objectives, communicate effectively, motivate properly, document performance, give feedback, diagnose performance problems, and develop employees. However, it is the personality and behavioural preferences that determine the coaching style of a manager. For example, a particular manager-coach may prefer to be a driver and tell his employees what to do, while another may believe in persuading and selling his ideas, and so on. A good manager-coach is one who can change his style and adapt according to requirements from time to time.

The coaching process is cyclical in nature and is an ongoing one. It consists of five steps and the manager-coach should be good at each of these steps which are: setting developmental goals; identifying resources and strategies to achieve the said goals; implementing strategies; observing and documenting developmental behaviour; and providing feedback which should be timely, specific, frequent according to requirement, verifiable, consistent, private, consequential, descriptive first and evaluative second, related to a performance continuum, based on identifiable patterns of performance, a confidence builder, and a tool for generating advice and ideas. A manager-coach should have the skill of observing

and documenting performance, in general, and performance regarding developmental goals, in particular. In this regard time constraints, situation constraints and activity constraints pose hurdles in the way of managers. However, observation and documentation of performance can be improved by (i) implementing a good communication plan, (ii) implementing training programmes, (iii) sharing notions of what it means to successfully complete developmental activities, (iv) observe performance more accurately, and (v) become more confident in managing employee performance. Correct feedback too is very important which serves several useful purposes.

(ii) Performance Review Skills – Supervisors have to coach and judge at the same time during the performance review meetings which may consist of upto six separate formal meetings, viz., system inauguration, self-appraisal, classical performance review, merit/ salary review, developmental plan, and objective setting. Normally these meetings are merged into just one or two though it is advisable to separate these meetings. It has also been observed that in meeting with supervisor to discuss performance issues, employees may become defensive. Such defensiveness should be and can be minimized by the supervisor by establishing rapport, observing verbal and non-verbal cues, being emphatic, minimizing threats, and stimulating employee participation. If the defensiveness becomes unavoidable and situation becomes intolerable, it will be desirable to postpone the meeting for sometime.

How to Implement Performance Management System?

There are certain crucial steps that must be taken before the performance management system is launched and also to make the system effective. Such steps include (i) implementing a communication plan (so as to gain support for the system. A good communication plan addresses certain questions like: 'What is performance management?', 'What are its tangible benefits?', 'How does the system work?', 'What are the roles and responsibilities of each employee?', and 'How does it relate to other initiatives and programmes?'), (ii) setting up an appeals process (so as to gain more acceptance of the system because, through this, disagreements can be resolved amicably), (iii) training programmes (so as to acquire required skills and tools and increased satisfaction with the system; it also includes training the raters so as to eliminate or, at least, minimize the chances of the raters committing intentional or unintentional errors in rating the employees; it also includes frame of reference training (FOR) so as to familiarize the raters with the various performance dimensions to be assessed; it may also encompass behavioural observation (BO) training and self-leadership training); (iv) pilot testing the system before it is instituted fully so as to identify potential problems, if there are any, and finally (v) ongoing monitoring of and evaluating the performance management system.

How to Manage Team Performance?

According to J. R. Hackman (1998), a team is in place when two or more people interact dynamically and independently and share a common and valued goal, objective, or mission. However, it has been observed that team performance often does not fulfil its promise and leaves much to be desired. Hence, the performance management system should target not only individual performance, but also an individual's contribution to the performance of his or her team as well as the performance of the team(s) as a whole. The three main types of teams are: work or service teams, project teams, and network teams. It will be desirable if team performance management considers the type of team in question before performance measures are put in place because different performance measurement methods are particularly appropriate depending on the type of

team being evaluated. There are many challenges of team performance management, the main being how to assess the contribution made by an individual to the team performance. Therefore, the system needs to focus on three types of performance, (i) individual performance (ii) individual performance that contributes to team performance, and (iii) team performance. However, rewards should be visible, contingent, and reversible.

How to Improve Performance?

It is tempting for managements to say that poor performance is always someone else's fault, particularly that of employees, never their's (management's). However, the fault can be anywhere e. g. even at the top of the organization. According to R. H. Schaffer (1991), managers sometimes use a variety of psychological mechanisms for avoiding the unpleasant truth that performance gaps exist. Such mechanisms may include evasion through rationalization, too much reliance on procedures, and attacks that skirt the target. In order to deal with these problems and get better results, managers are advised to select the goals, specify the minimum expectations of results, communicate expectations clearly, allocate responsibility and expand and extend the process. In order to improve organizational performance, top management needs to focus on developing a high performance culture.

The issue of performance improvement can be discussed at the following levels:

(a) **At the Organizational Level** – The beginning of performance management process is the formulation of a pertinent and appropriate 'Mission' statement, (i. e. what the organization exists to do), followed by value statement (which helps in developing a value-driven and committed organization); critical success factors like product development, process innovation, etc. (which are vital for accomplishment of the organization's mission), strategies (under such headings as 'corporate strategy', 'marketing', 'operations', 'R&D', 'IT', 'HR', etc.); objectives (like performance improvement, production development, people, growth, etc.), organizational performance measures (to measure achievements and progress of the organization vis-a-vis objectives. The three most important things to be measured include: customer satisfaction, employee satisfaction, and cash flow), balanced scorecard (the original concept of balanced

challenges of
n being how
individual to
system needs
individual
ance than
(iii) team
to visible.

scorecard developed by Kaplan and Norton (1992) required managers to answer four basic questions, viz., 'how do customers see us?', 'what we must excel at?', 'can we continue to improve and create value?', and 'how do we look at shareholders?'); and finally plan, action, measurement and review.

(b) Improving Team Performance – The performance of teams can be improved by setting objectives, preparing work plans and conducting team performance reviews.

(c) Improving Individual Performance – According to Prucell et al (2003), performance is a function of ability + motivation + opportunity. Hence in order to improve individual performance, managers should try to concentrate on these three things.

(d) Managing Underperformers – Special attention needs to be paid to those who do not meet expectations. Here we can implement the advice given by Charles Hardy (1989) i.e. 'applauding success and forgiving failures'. Poor performance needs special encouragement. Michael Armstrong (2007) has suggested five basic steps to manage underperformance: identify and agree the problem, establish the reasons for the short fall, decide and agree on the action required, resource the action, and monitor and provide feedback.

Conclusion

In case there is a conceptual clarity about the various dimensions of performance management and further that measures suggested in the paper are undertaken, performance management becomes instrumental in enhancing organizational effectiveness and serves as a lubricant to the machinery of organizational system.

References

1. Aguinis H & Adams S K R (1998), "Social-role versus structural models of gender and influence use in organizations: A strong inference approach", *Group and Organization Management*, 23, 414-446
2. Allenbaugh G E (1983), "Coaching..... A management tool for a more effective work performance", *Management Review*, 72, 21-26

3. Armstrong M and Murlis H (1994), *Reward Management*, Kogan Page, London
4. Bacon T R and Spear K I (2003), *Adaptive coaching: The art and practice of client-centered approach to performance improvement*, Palo Alto, CA: Davies-Black
5. Cleveland J N and Murphy R E (1989), "Multiple uses of performance appraisal: Prevalence and Correlates", *Journal of Applied Psychology*, 74, 130-135
6. Deming WE (1986), *Out of the Crisis*, MIT Centre for Advanced Engineering Studies, Cambridge, MA
7. Dipboye R L and de Pontbriand R (1981), "Correlates of employee reactions to performance appraisal and appraisal systems", *Journal of Applied Psychology*, 66, 248-251
8. Hackman J R (1998), "Why teams don't work", in S R Tindale & L Health (Eds.), *Theory and research on small groups* (pp. 245-265), New York: Plenum
9. Handy C (1989), *The Age of Unreason*, Business Books, London
10. Herman Aguinis (2007), *Performance Management*, New Delhi, Pearson Education
11. Kaplan R S and Norton D P (1992), "The balanced scorecard – measures that drive performance", *Harvard Business Review*, January – February, pp 71-79
12. Lockett J (1992), *Effective Performance Management*, Kogan Page, London
13. Martocchio Joseph J (1998), *Strategic Compensation*, New Jersey: Prentice Hall Inc
14. McGregor D (1957), "An uneasy look at performance appraisal", *Harvard Business Review*, 35 (3), 89-94
15. McNally Kathleen (1992), "Compensation as a strategic Tool", *HR Magazine*, 37 (7), pp 59-66
16. Meyer C (1994), "How the right measures help teams excel", *Harvard Business Review*, 72, 95-101
17. Michael Armstrong (2007), *Performance Management – Key Strategies and Practice Guidelines*, New Delhi, Kogan Page India Pvt Ltd
18. Purcell J et al (2003), "Understanding the People and Performance Link: Unlocking the black box", CIPD, London
19. R K Sahu (2007), *Performance Management System*, New Delhi, Excel Books
20. Reynolds J (2004), *Helping People Learn*, CIPD, London
21. Robert L Cardy (2004), *Performance Management – Concepts, Skills, And Exercises*, New Delhi, Prentice – Hall of India Pvt Ltd
22. Schaffer R H (1991), "Demand better results and get them", *Harvard Business Review*, March-April, pp 142-49
23. Srinivas R Kandula (2006), *Performance Management – Strategies · Interventions · Drivers*, New Delhi, Prentice – Hall of India Pvt Ltd
24. T V Rao (2007), *Performance Management and Appraisal Systems*, New Delhi, Response Books
25. Walters M (1995), *The Performance Management Handbook*, Institute of Personnel and Development, London
26. Watkins T (2004), *Have a heart*, New Zealand Management, 51 (2), 46/48

An Empirical Study on Transfer Pricing Practices in Indian Corporate Sector

Dr Sanjay J Bhayani*

This paper examines the tension between coordination and profit determination in a profit center organization using transfer prices. This conflict is most pronounced in the descriptive situation that the same transfer price is used for both functions. In the present paper an attempt has been made to study the transfer pricing practices of Indian corporate sector. For the purpose of study researcher has selected 200 units as sample for the study. Out of 200 units, 140 units have responded for further research. Out of 140 units researcher has sent a questionnaire to 120 units which have more than one profit centre. 72 filled up questionnaire have been received by the researcher. For further analysis researcher has divided all units according to sales turnover and types of ownership. The bases for setting transfer prices, and bases for fixing cost based transfer pricing. The results of study indicates that most popular transfer pricing methods is Market Price (56 per cent), followed by Full Cost manufacturing plus Profit method (28 per cent), and 11 per cent units use Full cost manufacturing cost as transfer price. 61 per cent units use standard cost and 39 per cent units use as actual cost as basis for fixing transfer prices.

Key Words: Transfer Pricing, Indian Corporate

Introduction

Transfer prices are valuations of (intermediate) products within a firm and represent a common and important instrument in management accounting, financial reporting, and taxation. Although there have been named many objectives of transfer pricing, most of them can be ascribed to the two most important functions, namely coordination and profit determination. Conflicts may arise when decentralised organizational units interact with each other. Potential for such conflicts will be more when goods produced in one unit are transferred to another. If both units are organized as profit centres, a price must be placed on such transfers; this price represents revenue to the producing division and a cost to the purchasing division. Therefore, the transfer price affects the profitability of both divisions and thus the divisions has to see how this price is determined.

Statement of Problem

Transfer pricing is best described as the price charged by one enterprise to an associated or connected enterprise for the supply of goods, services, know-how etc. In examining the concept of transfer pricing both the terms, "transfer" and "pricing" are relevant.

The concern of transfer of goods and services and appropriate pricing of these arise because multinational and global companies set up production facilities in different countries which necessitates transfer of materials, know how and services from one country to another and each country has different direct and indirect tax levels.

Transfer Pricing Methods

Transfer price is typically based on cost, market price, marginal cost or a negotiated price. To some extent, transfer price determination is based on the type of product, the type of firm, and the degree of decentralization within the firm. The transfer pricing methods may be broadly classified into cost-based transfer pricing, market prices and negotiated prices based transfer pricing. The issues concerning transfer pricing are discussed below:

1. Cost

Transfers between cost centres are typically based on cost. When the "transfer price" is some version of cost, such transfer pricing is indistinguishable from the "cost allocation" of interdepartmental services. Normally, this should be standard cost

* Associate Professor, Department of Business Management, Saurashtra University, Rajkot

include both variable and fixed costs. Since managers of cost centres are evaluated on their conformity to standard cost, transfer price based on actual cost, does not normally present any problem.

When transfers at actual cost rather than standard cost, problems may develop. The transfer at actual cost provides no incentive for efficiency in the transferring division, since all actual costs, even waste costs, are transferred to the transferee division. In addition, the receiving division is unfairly charged with the cost of inefficiencies of the transferring division. If the receiving unit is an investment centre then the rate of return is affected by the inefficiency of the cost centre. For this reason, the use of standard cost as the base is considered appropriate.

Cost-plus a profit

If the selling division is a profit or investment centre, it would like to sell / transfer its products to the buying division at some price greater than cost, i.e., cost plus some mark up for profits. It will add some profit, which is the required rate on return, or adequate profit for the division. In certain cases, the transfer price and the rate of profit may be based on the outside market price. If no outside market price exists, it would, then be difficult to determine the rate of profit to be charged. However, if the selling division sells other products, it may calculate its profits on internal transfer in the same way as it calculates on the other products, say, a percentage of cost. Or it may also be based on negotiations between the buying and selling divisions.

Variable cost: The price equal to variable cost will be very attractive to the buying division but not the selling division. However, when the objective is to measure the overall profitability of the company but not purely to measure the profit performance of each division, this method is useful. This method is particularly useful when there is idle capacity in the selling division.

3. Standard Cost

Under this method, the transfer pricing is based on standard cost. The variances from standard cost are normally absorbed by the selling division. In certain cases, variances are transferred to buying division, and therefore inventories are carried both by the selling and buying divisions at standard cost. Once the standards are properly set, operation of this

system is simple. Here, the responsibility of profit performance is centralized. Profit performance of each division cannot be measured.

4. Market Prices

When an organisation has profit centres and investment centres, market price would be the ideal base for setting the transfer prices. If there were an outside market for the products being transferred between the divisions of a firm, then the market price would serve as the basis for the transfer price. Many times the outside market price is the ideal transfer price for it is considered to objectively determine the amount that was arrived at by factors outside the firm and therefore no one within the firm was able to influence it.

A competitive market being considered efficient provides incentive for efficient production because excessive costs cannot be passed on to the buyers. Since market prices are, by and large, determined by the free play of demand and supply forces, it is considered that profits, which result under market price method, will provide a good indicator of the overall efficiency of the various divisions.

Frequently, internal transfers are made at market-price-minus. That is the selling division may avoid some transport or marketing costs by transferring goods internally instead of selling them to outside customers. These savings are often deducted when the transfer price is fixed. When market prices are non-existent or impossible to determine, the cost-plus-profit method may be used. It is supposed to provide a fair or 'equitable' substitute for regular market prices

5. Negotiated Price

Under this method, each decentralized unit is considered as an independent unit and competitive price is arrived at by negotiation or bargaining. The negotiating process typically begins when the producing division offers a price quotation plus all relevant delivery conditions (say, timeliness, quality, and so on). The buying division may accept the deal or bargain to obtain a lower price or better conditions. In a different sequence, the buying division may make an offer to the producing division for a portion of its current output or an increment to current output. The producing division can then bargain with the purchasing division over terms or decide not to accept

or reject a price at any stage of the negotiation.

Literature Review

Previous research has identified a mechanism of transfer prices and its practices in the corporate sector. The several studies conducted in India, U. S. A., Canada, Australia, U. K. towards the use of transfer price methods, are as follows:

Tang, Walter and Raymond (1979) reported about the transfer pricing style in the industries of U. S. A. They observed that the style of transfer is dependent, in any organization, on the philosophy of management.

In India Govindarajan and Ramamurthy (1983) found that 53% of organizations use cost based transfer price methods followed by market price method (47%) in Indian corporate sector units.

Drury Braund, Osborne and Tayles, based on survey of management accounting practices in U. K. (in 1993) manufacturing companies state that some 38% of the companies used full cost based and 26% used market price while 24% used negotiated price based transfer pricing.

R. Tang (1990) observed that most of the large Canadian firms sampled, follow methods of transfer price with full cost and market price. Also some units used negotiated price method for deciding price of the goods.

Joye and Blayney (1991) on the basis of the style of "Cost and Management Accounting Practices in Australian manufacturing companies" found, most popular transfer price method was cost based.

As per the study of Govindarajan (1994) in U. S. corporations, out of 470 respondents units, 249 units were used cost based methods. While 80 units and 75 units used the competitor's market price and negotiated price respectively.

With respect to U.S.A, Vancil (1974) observed that, use of cost based method is high but negotiated price method is used most often.

According to the 'Survey of Transfer Price Practices in large U. S. Corporation' (1990) by Borkowski, 41% of participating companies uses full cost pricing while 32.7% and 22.6% participating companies use market price and negotiated price methods respectively for transfer of goods from one profit

centre to another profit centre.

Bhayani S J (2004) has confirmed in his study "Transfer Pricing Practices in Corporate Sector of Gujarat State" that 54 per cent of sample study view market based transfer pricing while 38 percent use full manufacturing cost plus profit as transfer pricing methods. 38 percent units use actual cost method while 62 per cent use standard cost method in transfer pricing.

In 1909, Schmalenbach describes these two basic transfer pricing functions and concludes that they cannot be fully served by a single transfer price unless there is a perfect external market for the product to be priced. The tension between coordination and profit determination arises since (single) transfer price couples both functions and "good" coordination typically goes along with extreme divisional profits, and vice versa.

Ernst & Young (2003) confirm that this situation is descriptive as 80 percent of 641 multinational parent companies report that they use the same transfer prices for management and tax purposes.

Objectives of the Study

- To study the conceptual frame work of transfer pricing
- To examine the transfer pricing practices in Indian Corporate Sector
- To draw conclusions based on findings.

Research Methodology

Methodology includes an administration of questionnaire in selected companies. The method of data collection was in two phases as indicated below.

Phase I

Since only the large corporations are likely to experience the problems singled out for study, the 200 companies of India in the private sector were chosen as potential research sites. A letter was sent to the Chief Executives of these 200 companies asking them for information on

- A. whether the company has more than one profit center, and, if so,
- B. whether the company would like to participate in this study

Out of 200 companies 140 companies responded. (70% response rate). This high response rate may be attributable to a proper identification of the target group, the procedure of mailing the letters directly to the Chief Executives in their personal name, and an increased awareness and interest among Indian companies in the use of formal control system. For Phase II, the researcher only connected the 120 companies, which have more than one profit center since companies where the entire unit is treated as a profit centre do not have transfer-pricing problems.

Phase II

A detailed questionnaire was sent to 120 companies who responded in Phase I. The questionnaire sought information on the current practices of companies with regard to their transfer pricing policies. It was sent to the person whose name was suggested by the Chief Executive in his reply for future contact. I got 72 questionnaire (a 60% response rate) were received. The researcher further collected data on the annual sales of these 72 companies from their latest Annual Report. The sales figure were used as a proxy for the size of the company. The researcher also classified these companies by their type of 'ownership' (such as family-owned, public sector, etc.).

Number of Profit Centres

Table 1 presents the analysis of number of profit centers in each of the 72 respondents and it also relates number of profit centers in a company to its size and its ownership type. The research depicts that large organizations have a greater number of profit centers. The field interviews reveals that product diversity is a more crucial determinant of the number of profit centers in a company therefore, follows that the size diversity is closely related to types of ownership. However, the researcher does not support any significant relationship between the type of ownership and number of profit centers in a company. That is to say that the degree of decentralization in a company is not significantly influenced by ownership type.

Significance of transfers

As per table 2, 13 of the 72 companies do not have any transfer of goods or services across profit centers as such, these 13 companies are included from further analysis, also Table 2 clarifies that neither number of profit centers in a company nor its ownership type seem to effect the significance of transfers. In fact the field interviews revealed that product interdependence affects significance of internal transfer.

Results

Table 1

Number of Profit Centres

| Number of Profit Centres | Size in Terms of Sales (in crores of rupees) | | | Types of Ownership | | | |
|--------------------------|---|---------|------------------|--------------------|--------|--------|-------|
| | 0-100 | 100-200 | Greater Than 200 | Corporate Unit | Family | Others | Total |
| 2-5 | 15 | 10 | 10 | 19 | 07 | 07 | 33 |
| Greater Than 5 | 13 | 10 | 14 | 28 | 05 | 06 | 39 |
| Total | 28 | 20 | 24 | 47 | 12 | 13 | 72 |

Source: Compiled and calculated on the basis of survey conducted by the author

TABLE 2
Significance of Internal Transfers

| Internal transfer as a % of the turn-over of the division | Number of Profit Centres | | Sales (In crores of Rs.) | | | Type of Ownership | | | |
|---|--------------------------|----------------|--------------------------|---------|------------------|-------------------|--------|--------|-------|
| | 2 - 5 | Greater Than 5 | 0-100 | 100-200 | Greater Than 200 | Corporate Unit | Family | Others | Total |
| 0 - 30% | 15 | 06 | 16 | 09 | 10 | 06 | 04 | 05 | 15 |
| 30 - 60% | 05 | 10 | 04 | 08 | 05 | 12 | 02 | 06 | 20 |
| 60 -100% | 10 | 15 | 03 | 02 | 06 | 17 | 06 | 01 | 24 |
| No Transfer | 05 | 06 | 05 | 01 | 02 | 12 | 00 | 01 | 13 |
| Total | 35 | 37 | 28 | 20 | 24 | 47 | 12 | 13 | 72 |

Source: Compiled and calculated on the basis of survey conducted by the author

Transfer pricing policy

Table 3 presents the basis followed by companies in setting transfer prices. The study reveals that the market price based transfers are the most popular with 56% of the companies following this method.

But this phenomenon is still not satisfactory if we consider the fact that 64% of the respondents said that a similar product was available outside. This is further compounded by the fact that only 20% of the companies gave their managers freedom to sell

Table 3
Basis for Setting Transfer Prices

| Basis for Setting Transfer Prices | Type of Ownership | | | Sales (In crores of Rs.) | | | Total | % |
|--|-------------------|--------|--------|--------------------------|---------|------------------|-------|-----|
| | Corp-rate Unit | Family | Others | 0-100 | 100-200 | Greater Than 200 | | |
| Market Price | 22 | 07 | 06 | 17 | 11 | 12 | 40 | 56 |
| Variable Manufacturing Cost | 01 | - | 01 | 03 | - | - | 03 | 05 |
| Full Manufacturing Cost | 06 | 03 | 04 | 05 | 02 | 01 | 08 | 11 |
| Full Manufacturing Cost Plus a Profit Margin | 18 | 02 | 02 | 03 | 07 | 10 | 20 | 28 |
| Total | 47 | 12 | 13 | 28 | 20 | 24 | 72 | 100 |

Source: Compiled and calculated on the basis of survey conducted by the author

Table 4
Bases for Fixing Cost Based Transfer Prices

| Basis for Fixing Cost Based Transfer Rates | Sales (in crores of rupees) | | | Types of Ownership | | | | % |
|--|--------------------------------|---------|------------------|--------------------|--------|--------|-------|-----|
| | 0-100 | 100-200 | Greater Than 200 | Corporate Unit | Family | Others | Total | |
| Actual Cost | 13 | 10 | 12 | 15 | 09 | 04 | 28 | 39 |
| Standard Cost | 15 | 10 | 12 | 32 | 03 | 09 | 44 | 61 |
| Total | 28 | 20 | 24 | 47 | 12 | 13 | 72 | 100 |

Source: Compiled and calculated on the basis of survey conducted by the author

their products outside instead of transferring them internally and similarly only 55 % of the companies were given freedom to buy from outside what they can acquire internally. The field interviews could not generate satisfactory explanations neither for the sourcing policies of companies with similar products available in the market nor for the non-use of market prices as transfer prices by such companies.

Full manufacturing cost plus a profit (28% of the companies) is the next most popular basis. Only one company followed variable manufacturing cost as a basis. This was justified since this one company have not operated at or near full capacity for the past few years and hence variable cost become the relevant cost for decision making. Neither size nor ownership types seem to affect the transfer pricing policy. However, a notable exception is the public ltd. units, which seem to follow a market price.

Actual vs. standard Costs very surprisingly, 39% of the companies using a cost based system for transfer pricing did so on actual costs (see Table 4). Though this issue was probed in the personal interviews, no satisfactory answers could be given as to why they used actual costs. This phenomenon occurred in all the corporate sector units included in this study. Such a practice is not desirable since under this system the efficiency or inefficiency of the division is likely to be passed on to another.

Conclusions

From the above discussions, it is found that transfer pricing is an issue influenced by many factors.

Judging by the number of companies using transfer prices and the enthusiasm shown by the controllers to better their system. It is concluded that transfer pricing is a very important issue in Indian industry though we have not been very successful in an attempt to explain why a particular firm uses a particular transfer price. An answer to this question would be of immense use for practicing managers involved in evolving and administering transfer prices and hence this topic offers immense potential for future research.

References

1. Alles M and Datar S (1998), "Strategic Transfer Pricing", *Management Science* 44 (4), pp 451-461
2. Anthony R N and Govindarajan V (2000), *Management Control Systems*, 12th edition, McGraw-Hill
3. Atkinson A A (1987), *Intra-firm Cost and Resource Allocations: Theory and Practice*, The Canadian Academic Accounting Association
4. Balachandran K R and Li S H (1996), "Effects of Differential Tax Rates on Transfer Pricing", *Journal of Accounting, Auditing and Finance*, 11 (2), pp 183-196
5. Baldenius T, Melumad N D and Reichelstein S (2004), "Integrating Managerial and Tax Objectives in Transfer Pricing", *The Accounting Review*, 79 (3), pp 591-615
6. Bhayani S J (2004), "Transfer Pricing Practices in Corporate Sector of Gujarat State", *Management Trends*, March, 40-46
7. Cravens K S (1997), "Examining the Role of Transfer Pricing as a Strategy for Multinational Firms", *International Business Review*, 6 (2), pp 127-145
8. Davis H T Jr (1994), "Transfer prices in the real world - 10 steps companies should take before it's too late", *CPA Journal* (Online)

9. Drury C S Braund, Osborne P and Tayles M (1993), *A Survey of Management Accounting Practices in UK Manufacturing Companies*, London, UK, Chartered Association of Certified Accountants
10. Eden L (1998), *Taxing multinationals: transfer pricing and corporate income taxation in North America*, University of Toronto Press
11. Elitzur R and Mintz J (1996), "Transfer pricing rules and corporate tax competition", *Journal of Public Economics*, 60 (3), pp 401-422
12. Ernst & Young (2003), *Transfer Pricing Global Survey*, Ernst & Young International Ltd <http://www.ey.com>
13. Govindrajana Vijay (1994), *Profit Centre Measurement: An Empirical Study*, The Amos Tuck School of Business Administration, Dartmouth College
14. Govindrajana V and Ramamurthy B (1983), "Transfer Pricing Policies in Indian Companies: A Survey," *The Chartered Accountant*, November
15. Gox R F (2000), "Strategic Transfer Pricing, Absorption Costing, and Observability", *Management Accounting Research*, 11, pp 327-348
16. Haake C J and Martini J T (2004), *Negotiated Transfer Pricing in a Team-Investment Setting*, Discussion Paper 523, Bielefeld University, Department of Business Administration and Economics, <http://bieson.uni-bielefeld.de>
17. Halperin R and Srinidhi B (1987), "The Effects of the U.S. Income Tax Regulations' Transfer Pricing Rules on Allocative Efficiency", *The Accounting Review*, 62 (4), pp 686-706
18. Harris D G and Sansing R C (1998), "Distortions Caused by the Use of Arm's-Length Transfer Prices", *Journal of the American Taxation Association*, 20 (supplement), pp 40-50
19. Hyde C E and Choe C (2005), "Keeping Two Sets of Books: The Relationship Between Tax and Incentive Transfer Prices", *Journal of Economics & Management Strategy*, 14 (1), pp 165-186
20. Joye M and Blayney P (1991), *Cost and Management Accounting Practices in Australian Manufacturing Companies*, Accounting Research Centre, The University of Sydney
21. Kant C (1988), "Endogenous transfer pricing and the effects of uncertain regulation", *Journal of International Economics*, 24 (1-2), pp 147-157
22. Martini J T (2005), *Transfer Pricing for Coordination and Profit Determination: An Analysis of Alternative Schemes*, Discussion Paper 534, Bielefeld University, Department of Business Administration and Economics, <http://bieson.uni-bielefeld.de>
23. Merchant K A (1989), *Rewarding Results: Motivating Profit Center Managers*, Harvard Business School Press
24. Narayanan V G and Smith M (2000), "Impact of Competition and Taxes on Responsibility Center Organization and Transfer Prices", *Contemporary Accounting Research*, 17 (3), pp 497-529
25. Nielsen S B, Raimondos Miller P and Schjelderup G (2003), "Formula Apportionment and Transfer Pricing under Oligopolistic Competition", *Journal of Public Economic Theory*, 5 (2), pp 419-437
26. OECD (1995), *Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations*, Organization for Economic Co-operation and Development (OECD), Report of the OECD Committee on Fiscal Affairs
27. Rosenmuller J (2000), *Game Theory: Stochastics, Information, Strategies and Cooperation*, Kluwer Academic Publishers
28. Samuelson L (1982), "The multinational firm with arm's length transfer price limits", *Journal of International Economics*, 13 (3-4), pp 365-374
29. Sansing R (1999), "Relationship-Specific Investments and the Transfer Pricing Paradox", *Review of Accounting Studies*, 4 (2), pp 119-134
30. Scapens R W and Sale J T (1985), "An International Study of Accounting Practices in Divisionalized Companies and Their Associations with Organizational Variables", *The Accounting Review*, 60 (2), pp 231-247
31. Schjelderup G and Sorgard L (1997), "Transfer Pricing as a Strategic Device for Decentralized Multinationals", *International Tax and Public Finance*, 4 (3), pp 277-290
32. Smith M (2002), "Ex Ante and Ex Post Discretion over Arm's Length Transfer Prices", *Accounting Review*, 77 (1), pp 161-184
33. Tang R Y W (1993), *Transfer Pricing in the 1990s: Tax and Management Perspectives*, Quorum Books
34. Tang R (1992), "Canadian Transfer Pricing in 1990s," *Management Accounting*, February
35. Tang R, Walter C, and Raymond R (1979), "Transfer Pricing-Japanese Vs. American Style," *Management Accounting*, January

Enigma of Employment in Manufacturing Sector in Haryana

Dr Ashok Kumar Chauhan*

Introduction

In Haryana, it is continuously being felt that people should be shifted from primary sector to the secondary sector as it can provide gainful employment to large number of persons. If we observe the figures in the Table I, we can understand the strong reasons for such thinking. It is clear that more persons are dependent on primary sector than the secondary sector although its share in gross state domestic product (GSDP) is marginally higher. Persons engaged in tertiary sector have almost same proportion in the pie of GSDP. Moreover, the share of tertiary sector in GSDP has been increasing and that of primary sector has been falling whereas it is marginally increasing in case of secondary sector. A simple policy prescription comes out that the by promoting the growth in secondary sector, there can be a more equitable distribution of income. Probably the disguised employment in the agriculture can be reduced to a large extent, if people can be shifted from agriculture to industry. The question is how much employment can be generated by the industry? What is the pattern of demand for labor in the industry? In the present paper, the demand for labor in the manufacturing sector in Haryana has been analyzed using ASI Data from 1979-80 to 2001-02

with Cobb-Douglas production function. The technique and methodology used has been explained along with presentation of findings where ever necessary.

The two-digit level data on the basis of NIC 87 classification on selected characteristics by major industry groups of the factory sector in Haryana has been taken from 1979-80 to 2001-02. The manufacturing sector data has been taken for eighteen industries depending upon the availability which include manufacture of food products (20-21), beverages, tobacco and tobacco products (22), cotton textiles (23), wool, silk and synthetic fiber textiles (24), jute and vegetable fiber textiles except cotton (25), textile products including wearing apparel (26), wood and wood products, furniture and fixtures (27), paper and paper products and printing, publishing and allied industries (28), leather and products of leather, fur substitutes of leather (29), basic chemicals and chemical products except products of petroleum and coal (30), rubber, plastic, petroleum and coal products; processing of nuclear fuels (31), non-metallic mineral products (32), basic metal and alloys industries (33), metal products and parts, except machinery & equipment (34), machinery and equipment other than transport

Table 1 Share of Broad Sectors in GSDP and Employment in Haryana

| | Primary | Secondary | Tertiary |
|---|---------|-----------|----------|
| Share in GSDP at constant (1993-94) prices 2003-04(Q) | 29.6 | (-3.979) | 27.8 |
| and Growth rate of shares (1994-2004) | (0.489) | 42.6 | (3.513) |
| Share in Employment (2000) | 45.15 | 12.45 | 42.4 |

Sources: Economic Survey of Haryana 2004-05 and NSSO Data

*Lecturer, Department of Economics, Kurukshetra University, Kurukshetra

equipment (35), electrical machinery, apparatus, appliance and supplies (36), transport equipment and parts (37) and other manufacturing industries (38). From year 1991-92 to 1997-98 combined data of industries 35-36 is available. Although NIC classification has been changed from year 1998-99 onwards but we have included the same set of industries throughout the data.

2. Growth Trends in the Manufacturing Sector in Haryana

Before we move to the Cobb-Douglas analysis, let us try to have a broad view of the manufacturing sector in Haryana with aggregates of all principal characteristics of all industries by computing growth rates in this section. Table 2 gives the compounded annual growth rates of principal characteristics of manufacturing sector in Haryana for periods 1979-80 to 2002-03, 1979-80 to 1990-91 and 1990-91 to 2002-03. It can be observed that the growth rates of number of factories, net value added, net income and profits are significantly higher in the post reform

period in the manufacturing sector. Particularly the profits have been growing after reversal of the trend in the prereform period. The increase in corporate profitability is the outcome of government policies. It can be explained by the combination of low interest rates and numerous tax concessions and implicit subsidies that have significantly increased the retained earnings leading to increased growth rates of capital formation. It is notable that growth rates of items of variable costs related with labour, material and fuel are lower in the post reform period. The only two components of cost whose growth rate is significantly higher in the post reform period are rent paid and depreciation but their shares in the total cost are very low and are less than one per cent and 4.5 per cent respectively whose impact has been very little. The higher depreciation charged can be the reason of slower growth rate of net fixed capital formation but may have helped in increasing the retained earnings.

It can be seen that the growth rates of the number of workers, total persons engaged and all kinds of

Table 2 Growth Rates of Principal Characteristics of Manufacturing Sector in Haryana

| Principal Characteristics | 1979-80 to 2002-03 | 1979-80 to 1989-90 | 1990-91 to 2002-03 |
|---|-----------------------|-----------------------|-----------------------|
| 1. Number of Factories | 2.792 | 2.184 | 3.376 |
| 2. Fixed Capital | 13.463 | 13.331 | 12.165 |
| 3. Working Capital | 14.532 | 15.520 | 10.381 |
| 4. Invested Capital | 13.757 | 13.806 | 11.863 |
| 5. Outstanding Loans | 9.846 | 13.435 | 6.169 |
| 6. Number of Workers | 2.604 | 3.543 | 1.263 |
| 7. Total Persons Engaged | 2.506 | 3.204 | 1.163 |
| 8. Wages to Workers | 13.323 | 15.443 | 9.060 |
| 9. Total Emoluments | 13.706 | 14.263 | 11.808 |
| 10. Provident Fund and Other Welfare Exp. | 16.680 | 18.300 | 13.193 |
| 11. Fuels Consumed | 13.515 | 18.985 | 8.851 |
| 12. Materials Consumed | 16.296 | 16.160 | 14.135 |
| 13. Total Inputs | 16.369 | 15.809 | 14.726 |
| 14. Products & By-products | 15.814 | 15.490 | 14.078 |

| | | | |
|-------------------------------|--------|---------|--------|
| Value of Output | 16.019 | 15.008 | 14.655 |
| Depreciation | 16.096 | 16.239 | 16.451 |
| Net Value Added | 14.386 | 11.264 | 13.919 |
| Rent Paid | 20.172 | 13.843 | 21.284 |
| Interest Paid | 14.486 | 21.843 | 7.681 |
| Net Income | 14.308 | 7.476 | 15.939 |
| Net Fixed Capital Formation | 17.219 | 59.895 | 51.176 |
| Gross Fixed Capital Formation | 8.391 | 12.473 | 56.280 |
| Gross Capital Formation | 7.344 | 12.756 | 52.406 |
| Profits | 17.592 | -53.622 | 63.093 |

Source: Based on ASI Data

expenses on them are also lower in the post reform period. A number of profitability and efficiency ratios as shown in the Table 3 describe the picture in a prominent way. The average return on total capital employed and fixed assets is significantly higher in the post reform period. The average profit per worker/employee has gone up more than 6.4 times in the post reform period than the same in pre reform period. The average value of the output per worker/employee has gone up by more than 5.4 times in the latter period. Despite of the increased contribution of the labour, their share in the output has gone down.

The share of wages in total cost has also gone down. The fuel efficiency has increased in the post reform period but material efficiency has not increased. It can be derived that reasons of efficiency lie in relatively slower growth of employment and wage rates, falling interest rates and more prudent use of fuels. The question is why industrialists are not hiring more workers which can boost the employment rate in the state? The next section attempts to analyze the behavior of manufacturing sector using Cobb-Douglas Production function analysis.

Table 3 Financial Ratios for Manufacturing Sector in Haryana

| Ratio | Average for 1979-80 to 1989-90 | Average for 1990-91 to 2002-03 |
|---|--------------------------------|--------------------------------|
| Return on Total Capital Employed (%) | 6.82 | 7.69 |
| Return on Fixed Assets (%) | 10.14 | 12.16 |
| Return on Working Capital (%) | 32.64 | 31.03 |
| Average Profit per worker (Rs) | 8989 | 57633 |
| Average Profit per employee (Rs) | 6399 | 41841 |
| Average product of workers (Rs) | 242071 | 1319058 |
| Average product of employees (Rs) | 174622 | 954968 |
| Ratio of value of output to total wage bill | 11.79 | 15.02 |
| Ratio of total wage bill (emoluments) to total cost | 8.68 | 6.33 |

| | | |
|--|-------|-------|
| Ratio of fuel to total cost | 8.28 | 5.97 |
| Ratio of material to total cost | 73.96 | 74.70 |
| Ratio of all inputs to total cost | 90.58 | 91.65 |
| Ratio of output to all inputs | 1.27 | 1.22 |
| Rent to total costs (%) | 0.32 | 0.48 |
| Depreciation to total costs (%) | 3.78 | 3.48 |
| Interest paid to total cost (%) | 5.32 | 4.39 |
| Ratio of variable cost to total cost | 0.87 | 0.84 |
| Ratio of fixed cost to total cost | 0.13 | 0.16 |
| Share of labour in value of output (%) | 7.51 | 5.66 |
| Percentage of managers in workers | 28.26 | 27.74 |

Source: Based on ASI Data

3. Production Function Analysis

Using the cross-sectional data on all industries, a Cobb-Douglas production function for each year has been estimated of the following type:

$$Q = A L^\alpha K^\beta u \quad \text{and with condition } \alpha + \beta = 1.$$

Where Q is the value of total output of the industry in Rs. Lakhs, L is the total number of persons engaged in the industry in thousands, K is the total capital employed in the industry and u is the random error term with usual assumptions of ordinary least square method. In a pure engineering production function, all variables are taken in terms of physical quantities and the coefficient A represents the technical efficiency. Here the coefficient A is carrying the effect of price level and technology. The random error term reflects the contribution of management across the industries. It can be safely assumed that the technology is improving with time but is constant in a particular year. It means the assumed inputs are labour, capital, management and technology. Some researchers take money spent on materials, fuels, managerial inputs, labour and fixed capital as inputs. Here, total capital employed has been taken as input which includes the fixed and working capital and it is the management of working capital through which materials and fuel are acquired. The technology is partly embedded in capital and partly it is in the minds of persons engaged in work. Theoretically, there should be

homogeneous units of labour in the production function, practically it is not possible to have even two persons of same skill level. Many researchers take the total wage bill as the proxy for labour input which includes money spent on wages of labour and other benefits or simply the total emoluments paid to bring homogeneity in the production function. In our case, total persons engaged, not the number of workers dependent on wages, has been taken as labour. The condition $\alpha + \beta = 1$ has been imposed to ensure that all output comes only from capital and labour. At a point of time i.e. in any given year, the impact of constant technology is captured by A and the variations in management have been imputed to random error term u .

It will be appropriate to disclose here that the researcher has tried various models of the C-D production function to track the behavior of various elasticities of output. One of such model is $Q = A K^{\alpha_K} L^{\alpha_L} M^{\alpha_M} F^{\alpha_F} G^{\alpha_G} u$, where Q , K , L , M , F and G are value of the output, total capital employed, total wage bill including all benefits of workers, expenditure on materials, fuel expenses and expenses on managerial input respectively. The regression results of this model are given in Table 4. The important observations are that we observe a high R^2 -square and high F -ratio indicating the explanatory power and overall significance of the model in all the years. The $D-W$ ratio is also close to 2 in most cases which means absence of autocorrelation. The

concept i.e. $b_0 = \text{Log } A$ is highly significant and is showing a regular trend as it may be having effects on technical efficiency and price level of outputs. The material elasticity of output (α_M) and managerial elasticity of output (α_C) also show a consistent behavior. The former is highly significant and the latter becomes significant only after 1997-98. Probably the share of expenditure on managers (total persons engaged less workers) started playing an important role in production function. What disturbs us is the observation that the labour elasticity of output (α_L) is found just significant only in six years with high variance and inconsistency. Although the elasticity coefficient of total capital employed (α_K) is found significant in eighteen years out of total twenty two years data but again it cannot be trusted to explain the real behavior of the manufacturing sector as it is highly inconsistent. It means the problem with model is that the expenses on material have a large share in total cost (more than 74 per cent) and value of output which absorbs a lot of variation of the dependent variable and makes other variables insignificant. The researcher also replaced the expenses on labour with the number of workers in another model (results not given) but the pattern of results remains almost same.

Hence, it can be concluded that we should use a simpler model where we assume that whole value of output is a function of the total capital employed and the persons working with it. All other inputs are the result of management (manipulation) of the working capital which is already included in the total capital employed. The results of such model i.e. $Q = A K^{\alpha_K} L^{\alpha_L} u$ have been given in Table 5(a) and (b).

From Table 5(a) we observe that F-ratio is highly significant in most cases except the year 1985-86 and the coefficient of multiple determination i.e. R-square is also higher than sixty per cent in fourteen cases but significantly lower than as it was in earlier model. In earlier model the higher R-square may be a result of cost of materials included as the independent variable. While in the present model, lower R-square and a fluctuating D-W ratio shows presence of some residuals unexplained by the independent variables. The average D-W in the old model is 2.01 and in the present model is 2.11. Still, there are some advantages in this model which make it useful for our purpose. The behavior of the coefficients A , α_K and α_L is more consistent and shows a definite pattern which can be analyzed and understood.

Table 4 (a) Results of Regression Model $Q = A K^{\alpha_K} L^{\alpha_L} M^{\alpha_M} F^{\alpha_F} G^{\alpha_G} u$

| Year | R Square | D-W | F Ratio | Df |
|---------|----------|------|---------|--------|
| 1979-80 | 0.96 | 1.79 | 77.63 | (4,13) |
| 1980-81 | 0.937 | 1.7 | 48.44 | (4,13) |
| 1981-82 | 0.937 | 1.9 | 48.28 | (4,13) |
| 1982-83 | 0.955 | 1.65 | 69.37 | (4,13) |
| 1983-84 | 0.983 | 2.28 | 184.54 | (4,13) |
| 1984-85 | 0.976 | 1.92 | 132.46 | (4,13) |
| 1985-86 | 0.987 | 1.34 | 243.48 | (4,13) |
| 1986-87 | 0.989 | 2.25 | 290.65 | (4,13) |
| 1987-88 | 0.99 | 2.11 | 320.29 | (4,13) |
| 1988-89 | 0.984 | 2.38 | 203.44 | (4,13) |
| 1989-90 | 0.994 | 2.03 | 573.75 | (4,13) |
| 1990-91 | 0.987 | 1.6 | 242.95 | (4,13) |

| | | | | |
|-----------|-------|------|--------|--------|
| 1991-92 | 0.983 | 2.79 | 157.83 | (4,11) |
| 1992-93 | 0.981 | 2.9 | 145.02 | (4,11) |
| 1993-94 | 0.984 | 2.03 | 167.12 | (4,11) |
| 1994-95 | 0.979 | 2.24 | 143.25 | (4,12) |
| 1995-96 | 0.968 | 2.32 | 89.96 | (4,12) |
| 1996-97 | 0.913 | 2 | 31.35 | (4,12) |
| 1997-98 | 0.922 | 1.81 | 32.66 | (4,11) |
| 1998-99 | 0.835 | 1.1 | 26.65 | (4,21) |
| 1999-2000 | 0.69 | 1.86 | 9.99 | (4,18) |
| 2000-01 | 0.843 | 2.57 | 24.14 | (4,18) |
| 2001-02 | 0.852 | 1.83 | 25.88 | (4,18) |

Source: Based on ASI Data

Note: All F values are significant at 1% level

Table 4 (b) Results of Regression Model $Q = A K^{\alpha_K} L^{\alpha_L} M^{\alpha_M} F^{\alpha_F} G^{\alpha_G} u$

| Year | $b_0 = \text{Log } A$ | α_K | α_L | α_M | α_F | α_G |
|---------|-----------------------|------------|------------|------------|------------|------------|
| 1979-80 | 0.7629* | 0.0911 | 0.0644 | 0.8205* | 0.0224 | 0.0016 |
| 1980-81 | 1.1335* | 0.2169** | 0.0997 | 0.6039* | 0.0017 | 0.0777 |
| 1981-82 | 0.7837* | 0.1623 | 0.1000 | 0.7531* | 0.0068 | -0.0223 |
| 1982-83 | 1.1288* | 0.148** | 0.1585** | 0.6383* | 0.0458 | 0.0093 |
| 1983-84 | 0.7049* | 0.2032* | 0.0877 | 0.7205* | 0.0344 | -0.0458 |
| 1984-85 | 0.8022* | 0.2092* | 0.0596 | 0.6773* | 0.0867* | -0.0327 |
| 1985-86 | 0.9505* | 0.1104 | 0.1677** | 0.7065* | 0.0666 | -0.0513 |
| 1986-87 | 0.7808* | 0.3356* | 0.0711 | 0.5686* | 0.0717* | -0.047 |
| 1987-88 | 0.899* | 0.3791* | 0.1187* | 0.4984* | 0.0414** | -0.0375 |
| 1988-89 | 0.8041* | 0.2689* | 0.0855 | 0.6279* | 0.0183 | -0.0006 |
| 1989-90 | 1.1078* | 0.1501* | 0.0787** | 0.642* | 0.068* | 0.0612 |
| 1990-91 | 0.9127* | 0.2678* | 0.1222** | 0.594* | 0.0403 | -0.0243 |
| 1991-92 | 0.8234* | 0.3154* | 0.0889 | 0.5807* | 0.0483 | -0.0333 |
| 1992-93 | 0.9555* | 0.2143* | 0.07 | 0.6289* | 0.0543** | 0.0324 |
| 1993-94 | 1.0066* | 0.2258* | 0.0827 | 0.6002* | 0.0524 | 0.0389 |
| 1994-95 | 1.0688* | 0.2431* | 0.101 | 0.5698* | 0.0406 | 0.0455 |
| 1995-96 | 0.9535* | 0.2624* | 0.1355** | 0.5881* | -0.0104 | 0.0244 |

| | | | | | | |
|-----------|---------|----------|---------|---------|---------|----------|
| 1996-97 | 1.1794* | 0.1787 | 0.2669* | 0.585* | 0.034 | -0.0647 |
| 1997-98 | 1.4189* | 0.1703 | 0.0122 | 0.5748* | -0.0242 | 0.2669 |
| 1998-99 | 1.5005* | 0.5538* | -0.0109 | 0.1498 | 0.1266 | 0.1806** |
| 1999-2000 | 1.799* | 0.2948** | -0.1747 | 0.2894* | 0.0644 | 0.526** |
| 2000-01 | 1.2137* | 0.5403* | 0.0628 | 0.2462* | 0.001 | 0.1497** |
| 2001-02 | 1.4184* | 0.3227* | 0.0485 | 0.4029* | -0.0203 | 0.2461** |

Source: Based on ASI Data

* significant at 5% level

** Significant at 10% level

Table 5 (a) Results of Regression Model $Q = A K^{\alpha_K} L^{\alpha_L} u$

| Year | R | R Square | Std. Error of the Estimate | Durbin-Watson | F | Df | Sig. |
|-----------|--------|----------|----------------------------|---------------|---------|------|--------|
| 1979-80 | 0.5568 | 0.3100 | 0.3306 | 2.4601 | 7.1900 | 1,16 | 0.0164 |
| 1980-81 | 0.5226 | 0.2731 | 0.3008 | 1.1943 | 6.0105 | 1,16 | 0.0261 |
| 1981-82 | 0.7672 | 0.5886 | 0.2798 | 1.4700 | 22.8916 | 1,16 | 0.0002 |
| 1982-83 | 0.7053 | 0.4975 | 0.2550 | 1.3971 | 14.8505 | 1,15 | 0.0016 |
| 1983-84 | 0.7328 | 0.5370 | 0.3231 | 1.8250 | 17.3977 | 1,15 | 0.0008 |
| 1984-85 | 0.8190 | 0.6708 | 0.2984 | 1.3735 | 30.5696 | 1,15 | 0.0001 |
| 1985-86 | 0.4418 | 0.1952 | 0.4873 | 2.8048 | 3.8810 | 1,16 | 0.0664 |
| 1986-87 | 0.8735 | 0.7631 | 0.2437 | 1.9181 | 48.3084 | 1,15 | 0.0000 |
| 1987-88 | 0.9049 | 0.8188 | 0.2052 | 2.2800 | 72.3181 | 1,16 | 0.0000 |
| 1988-89 | 0.9049 | 0.8188 | 0.2052 | 2.2800 | 72.3181 | 1,16 | 0.0000 |
| 1989-90 | 0.8478 | 0.7188 | 0.2744 | 2.7774 | 38.3390 | 1,15 | 0.0000 |
| 1990-91 | 0.8055 | 0.6488 | 0.2849 | 2.4854 | 27.7116 | 1,15 | 0.0001 |
| 1991-92 | 0.8382 | 0.7025 | 0.2821 | 2.5295 | 35.4257 | 1,15 | 0.0000 |
| 1992-93 | 0.7877 | 0.6204 | 0.2994 | 2.2998 | 22.8808 | 1,14 | 0.0003 |
| 1993-94 | 0.7843 | 0.6151 | 0.3188 | 2.7096 | 22.3765 | 1,14 | 0.0003 |
| 1994-95 | 0.7566 | 0.5725 | 0.3089 | 2.0181 | 18.7456 | 1,14 | 0.0007 |
| 1995-96 | 0.8313 | 0.6910 | 0.2700 | 2.4282 | 33.5491 | 1,14 | 0.0000 |
| 1996-97 | 0.7691 | 0.5915 | 0.3264 | 2.3876 | 21.7209 | 1,15 | 0.0003 |
| 1997-98 | 0.6306 | 0.3977 | 0.3465 | 1.8651 | 9.9030 | 1,15 | 0.0066 |
| 1998-99 | 0.8300 | 0.6889 | 0.2850 | 2.2419 | 31.0003 | 1,14 | 0.0001 |
| 1999-2000 | 0.8814 | 0.7768 | 0.4297 | 1.2041 | 83.5448 | 1,24 | 0.0000 |
| 2000-01 | 0.7873 | 0.6198 | 0.4215 | 2.3982 | 34.2334 | 1,21 | 0.0000 |
| 2001-02 | 0.8416 | 0.7083 | 0.3859 | 2.2246 | 50.9927 | 1,21 | 0.0000 |

Source: Based on ASI Data

Table 5 (b) Results of Regression Model $Q = A K^{\alpha_K} L^{\alpha_L} u$

| Year | $b_0 = \text{Log A}$ | T | α_K | t | α_L | t | Sig. |
|-----------|----------------------|--------|------------|-------|------------|-------|-------|
| 1979-80 | 0.175 | 1.333 | 0.300* | 2.681 | 0.700* | 6.243 | 0.000 |
| 1980-81 | 0.204** | 1.967 | 0.237* | 2.452 | 0.763* | 7.871 | 0.000 |
| 1981-82 | 0.572* | 5.193 | 0.485* | 4.785 | 0.515* | 5.075 | 0.000 |
| 1982-83 | 0.554* | 5.508 | 0.456* | 3.854 | 0.544* | 4.602 | 0.000 |
| 1983-84 | 0.595* | 5.604 | 0.610* | 4.171 | 0.390* | 2.661 | 0.018 |
| 1984-85 | 0.673* | 7.545 | 0.768* | 5.529 | 0.232 | 1.673 | 0.115 |
| 1985-86 | 0.670* | 5.259 | 0.387** | 1.970 | 0.613* | 3.115 | 0.007 |
| 1986-87 | 0.735* | 11.906 | 0.800* | 6.950 | 0.200 | 1.735 | 0.103 |
| 1987-88 | 0.809* | 16.359 | 0.768* | 8.504 | 0.232* | 2.573 | 0.020 |
| 1988-89 | 0.778* | 11.054 | 0.816* | 6.192 | 0.184 | 1.394 | 0.184 |
| 1989-90 | 0.914* | 11.016 | 0.692* | 5.264 | 0.308* | 2.347 | 0.033 |
| 1990-91 | 0.918* | 9.637 | 0.767* | 5.952 | 0.233** | 1.804 | 0.091 |
| 1991-92 | 0.950* | 8.074 | 0.723* | 4.783 | 0.277** | 1.832 | 0.088 |
| 1992-93 | 0.962* | 7.149 | 0.769* | 4.730 | 0.231 | 1.421 | 0.177 |
| 1993-94 | 0.862* | 4.587 | 0.780* | 4.330 | 0.220 | 1.219 | 0.243 |
| 1994-95 | 0.808* | 4.549 | 0.878* | 5.792 | 0.122 | 0.807 | 0.432 |
| 1995-96 | 0.958* | 4.489 | 0.792* | 4.926 | 0.208 | 1.291 | 0.218 |
| 1996-97 | 0.902* | 2.516 | 0.737* | 3.147 | 0.263 | 1.123 | 0.279 |
| 1997-98 | 0.732* | 2.829 | 0.933* | 5.568 | 0.067 | 0.403 | 0.693 |
| 1998-99 | 0.967* | 5.630 | 0.775* | 9.140 | 0.225* | 2.647 | 0.014 |
| 1999-2000 | 0.861* | 3.030 | 0.844* | 5.851 | 0.156 | 1.083 | 0.291 |
| 2000-01 | 0.685* | 2.757 | 0.936* | 7.444 | 0.064 | 0.505 | 0.619 |
| 2001-02 | 1.141* | 5.121 | 0.734* | 7.141 | 0.266* | 2.590 | 0.017 |

Source: Based on ASI Data

Note: * significant at 5% level

** Significant at 10% level

We can mark that after 1988, the coefficients Log A and α_K have been above α_L and the gap is also widening (See Fig 1). It means more of output is attributed to favourable policies, better price conditions, technology and capital. The labour elasticity of output i.e. α_L has been falling and at a faster rate in the post liberalization period. As we mentioned earlier that the coefficient A can have

effects of price level and technology, therefore it will be interesting to break these effects. However, there may be a common trend effect present in the coefficient A and price level represented by WPI (See Fig 2). Thus it would be appropriate to eliminate the trend from coefficient A and WPI. The detrended A i.e. dA has been regressed with an indicator of technology TECH and detrended WPI i.e. $dWPI$.

The indicator of technology i.e. TECH has been shown after conducting a number of experiments. It consists of total cost of production to variable cost of production. It has been assumed that if variable cost falls with increase in fixed cost representing higher investment in fixed capital then there must be an

improvement in the technology over changing time period for the industry as a whole. The results of the regression equation

$dA = b_1 \text{TECH} + b_2 \text{dWPI} + u$ have been shown in Table 6.

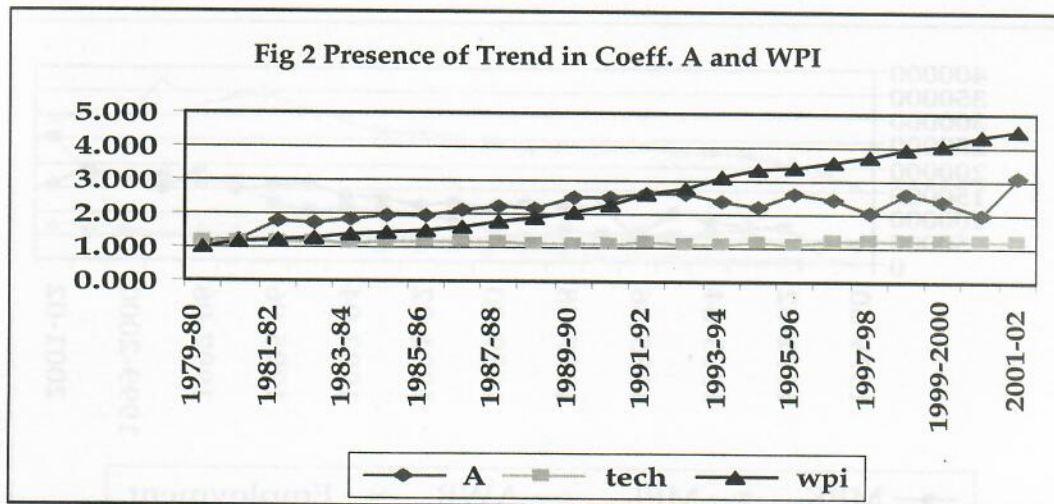
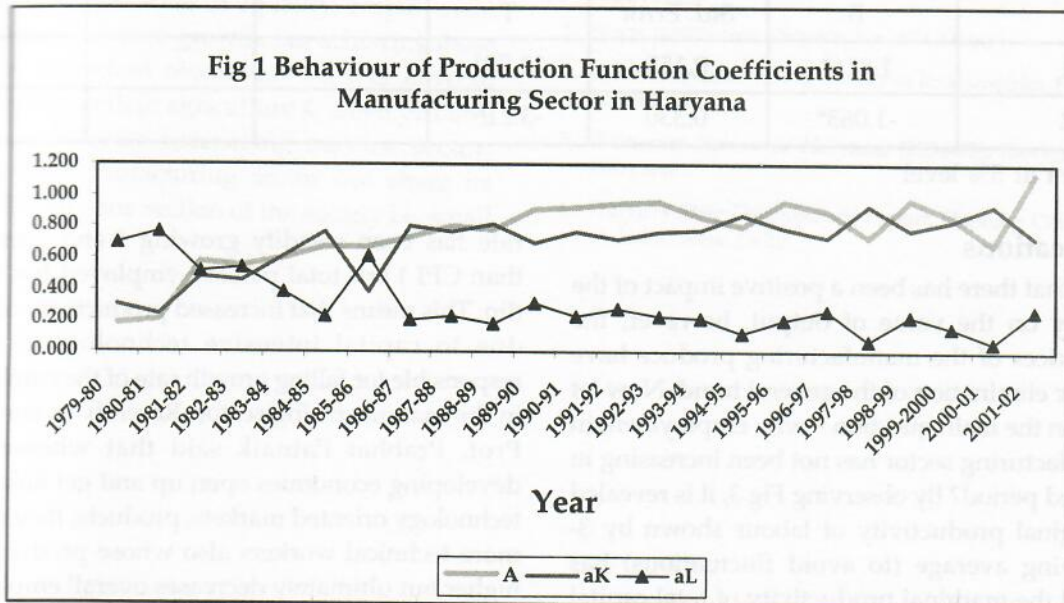


Table 6 Results of Regression Equation $dA = b_1 \text{ TECH} + b_2 \text{ dWPI} + u$

| R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson | F | df |
|-------|----------|-------------------|----------------------------|---------------|----------|-------|
| 0.987 | 0.974 | 0.971 | 0.272 | 1.610 | 387.615* | 2, 21 |
| | B | Std. Error | T | | | |
| b1 | 1.816* | 0.155 | 11.701 | | | |
| b2 | -1.063* | 0.330 | -3.216 | | | |

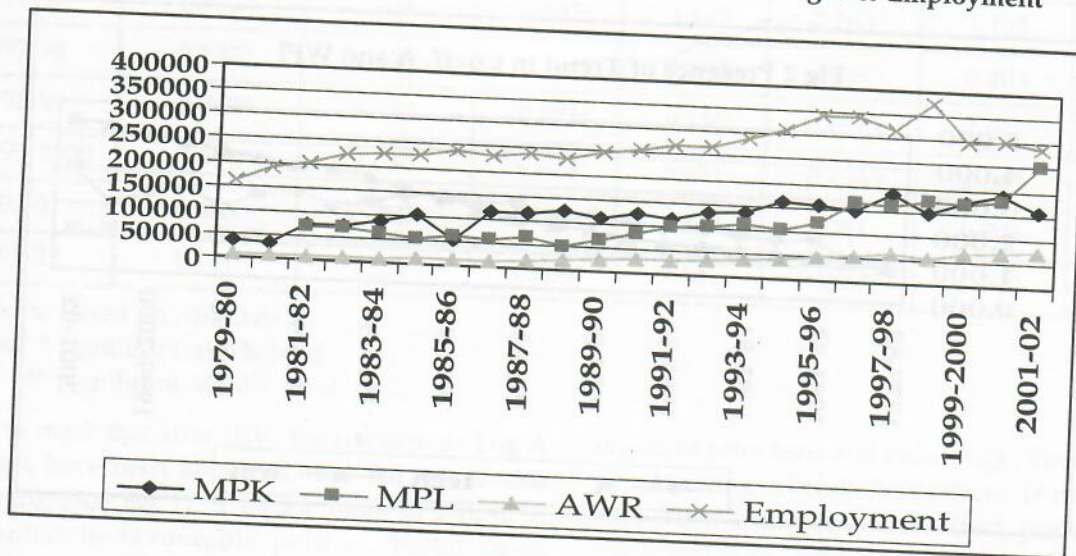
*Significant at 5% level

4. Implications

It is clear that there has been a positive impact of the technology on the value of output, however, the relative prices of the manufacturing produce have fallen after elimination of the general trend. Now let us focus on the main question – why employment in the manufacturing sector has not been increasing in the selected period? By observing Fig 3, it is revealed that marginal productivity of labour shown by 3-year moving average (to avoid fluctuations) has surpassed the marginal productivity of total capital employed (for Rs per lakh) although average wage

rate has been steadily growing (and even faster than CPI) but total persons employed has taken a dip. This means that increased productivity of labour due to capital intensive technology is clearly responsible for falling growth rate of the employment in the manufacturing sector. Recently in one lecture Prof. Prabhat Patnaik said that whenever the developing economies open up and get linked with technology oriented markets, products, they demand more technical workers also whose productivity is higher but ultimately decreases overall employment growth rate. The phenomenon seems to be true for Haryana also.

Fig 3 Marginal Productivities of Capital & Labour and Wages & Employment



Such kind of manufacturing economy is more suitable for achieving targets of higher growth beneficial for raising efficiency, productivity, competitiveness leading to better share in world exports, increased level of foreign exchange reserves, better tax revenues for the State, cheaper products to consumers and higher market capitalization rates, but it is of little use to serve the objectives of equality, employment generation and inclusive growth. For achieving these latter more important objectives, we will have to look towards growth in agriculture & allied primary activities and faster increasing service sector. Probably, the manufacturing sector can share its growth with only one section of the society i.e. small

savers through investment in mutual funds schemes. The increased competitiveness in the manufacturing sector helps the other sectors also in increasing their competitiveness as it provides inputs to them at cheaper rates.

References

1. www.msopi.com (Source for ASI Data)
2. A Koutsoyiannis (1977), *Theory of Econometrics*, ELBS with Macmillan
3. *Economic Survey of Haryana*, (2004-05), Government of Haryana
4. *Haryana State Development Report*, Planning Commission of India, New Delhi

| |
|-------|
| df |
| 2, 21 |
| |
| |
| |

en faster
s taken a
of labour
s clearly
ployment
e lecture
ver the
ed with
demand
tivity is
oyment
rue for

Performance Evaluation of Mutual Funds in India - A Risk - adjusted Return Analysis

Dr N S Malik*, Dr Suresh Kumar Mittal**

The past few years have witnessed the proliferation of mutual funds as international diversifications have become a reality to reduce market risks, and attractiveness to many investors around the globe. The past performance alone cannot be indicative of future performance, but, frankly speaking, it is the only quantitative way to judge how good a fund is at present. Hence, it has been realized that there is now a pressing need for a credible and robust measure for assessing and ranking the performance of mutual funds. The quality of risk adjusted excess returns has been evaluated by using volatility measure of Sharpe and beta measure of Treynor.

In India, it has been found that during the last five years all the 74 schemes have outperformed the benchmark index. The private sector funds have a clear cut edge over public sector funds in terms of delivering better returns over varying periods. Over this period of 5 years, 15 out of 74 schemes have beaten the benchmark index by at least 100 per cent or more. Of these 11 schemes belongs to private sector. It has been found that most of the out performing funds have been able to confine to lower associated risk.

The returns if measured in US Dollars would have been higher by 0.26% per annum during the last five years.

Key Words: AUM (Assets Under Management); AMFI (Association of Mutual Funds in India); NAV (Net Assets Value); CAGR (Compounded Annual Growth Rate); USD (US Dollar).

1.0 Introduction

Mutual funds performance assessment has emerged as an important area of research in finance due to its academic and practical importance. The past few years have witnessed the proliferation of mutual funds as international diversifications have become a reality to reduce market risks, and attractiveness to many investors around the globe.

Indian Mutual Fund industry today, with 30 players and more than seven hundred schemes, is one of the most preferred investment avenues in India. The AUM represents close to 10 per cent of Market Capitalization of Indian Stock Market and has grown at the CAGR of more than 46 per cent since March 2003. However, with a plethora of schemes to choose from, the retail investor faces problems in selecting funds. Factors such as investment strategy and management style are qualitative, but the funds record is an important indicator too. Though past performance alone cannot be indicative of future performance, it is, frankly, the only quantitative way to judge how good a fund is at present. Hence there

is now a pressing need for a credible and robust measure for assessing and ranking the performance of mutual funds. Therefore, the researchers have been prompted to carry out the present study.

Return alone should not be considered as the basis of measurement of the performance of a mutual fund scheme, it should also include the risk taken by the fund manager because different funds will have different levels of risk attached to them. Risk associated with a fund, in general, can be defined as variability or fluctuations in the returns generated by it. The higher the fluctuations in the returns of a fund during a given period, higher will be the risk associated with it. These fluctuations in the returns generated by a fund are resultant of two guiding forces. First, general market fluctuations which affect all the securities, present in the market, called market risk or systematic risk, and second, fluctuations due to specific securities, present in the portfolio of the fund, called unsystematic risk. The total risk of a given fund is sum of these two and is measured in terms of standard deviation of returns of the fund.

*Reader, Department of Business Management, G J University of Science and Technology, Hisar

**Lecturer, Department of Business Management, G J University of Science and Technology, Hisar

Systematic risk, on the other hand, is measured in terms of Beta, which represents fluctuations in the NAV of the fund vis-à-vis market. The more responsive the NAV of a mutual fund is to the changes in the market; higher will be its beta. Beta is calculated by relating the returns on a mutual fund with the returns in the market. While unsystematic risk can be diversified through investments in a number of instruments, systematic risk cannot be. By using the risk return relationship, we try to assess the competitive strength of the mutual funds vis-à-vis one another in a better way.

Evaluating mutual fund performance is always an exercise fraught with risks. Funds which performed best in terms of absolute returns may not necessarily be the most consistent over longer periods of time. Although there is no better benchmark than performance, investors would do well to keep in mind the risk factor as well as consistency factor also.

In order to determine the risk-adjusted returns of investment portfolios, several eminent authors have worked since 1960s to develop composite performance indices to evaluate a portfolio by comparing alternative portfolios within a particular risk class. In most of these studies, a comparison is established between the results of the assessed fund and the results of a passively managed portfolio. The aim is to measure the difference between the results obtained from an actively managed investment fund and those obtained from a passively managed portfolio; in both cases, the results include both the returns yielded and the risk taken over a varying period of time. When this difference in returns is significantly greater than the attributable charges resulting from the active management of the assessed fund, it can be concluded that the fund gives a positive performance. Hence it would be prudent to imply that a remunerated active management of the portfolio would be more advantageous than the passive management.

Within the literature available on the performance of fund management across the globe, the most eminent studies worth mentioning have been conducted by Sharpe (1966 & 1992); Treynor (1965); Jensen (1968); McDonald (1974); Gupta (1974); Admiti & Ross (1985); Elton (1993 & 1996); Daniel (1997); Gupta & Sehgal (1998). All the above mentioned authors have

assessed the performance of actively managed funds over varying period of time broadly with respect to risk adjusted return analysis.

2.0 Indian Mutual Fund Industry

The mutual fund industry in India started in 1963 with the formation of Unit Trust of India, at the initiative of the Government of India and Reserve Bank of India. The history of mutual funds in India can be broadly divided into four distinct phases.

First Phase – 1964-87:

The first phase of the mutual fund industry in India came into existence with the inception of the Unit Trust of India in 1963 with the basic idea of providing a plat form for small investors to take part in the equity investment through the mutual fund route and take advantage of the professional fund management.

Second Phase – 1987-1993:

The second phase began in the year 1987 with the entry of large number of public sector banks and financial institutions, which formed their respective assets management companies (AMCs). At the end of 1993, the mutual fund industry had assets under management of Rs.47,004 crores.

Third Phase – 1993-2003:

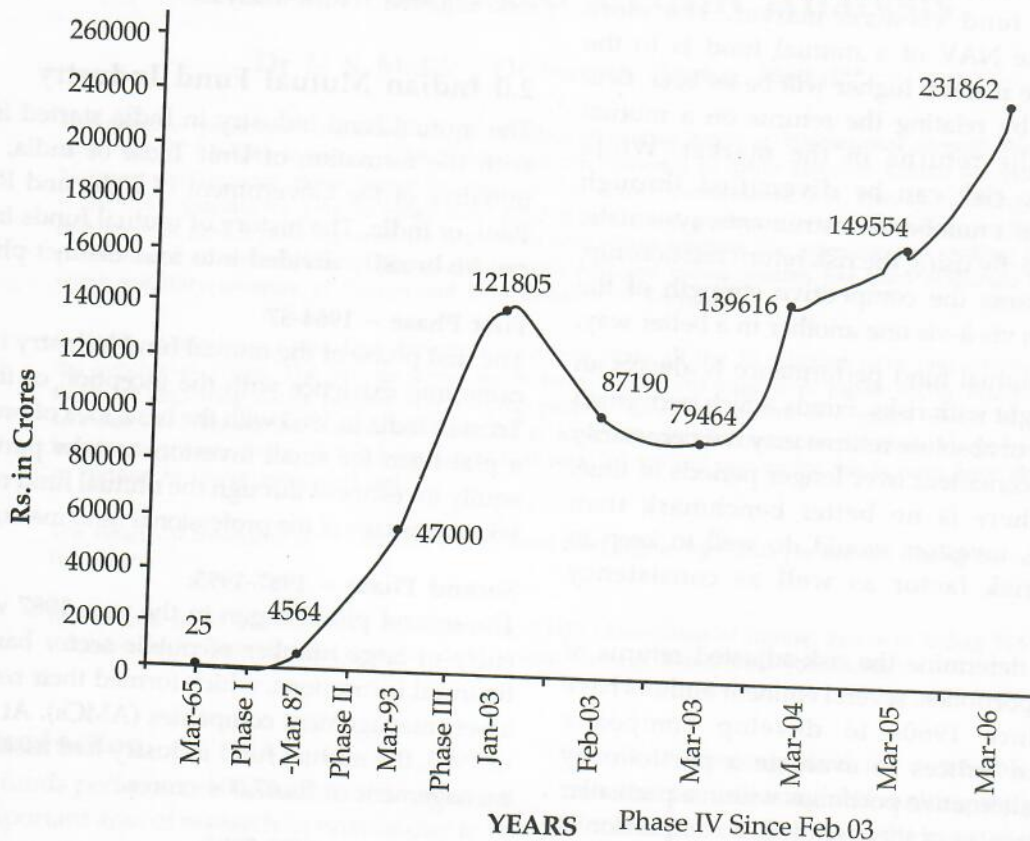
The third phase was marked by the entry of private sector funds in the Indian Mutual Fund industry in the year 1993. The erstwhile Kothari Pioneer (now merged with Franklin Templeton) was the first private sector mutual fund in India, which was registered in July 1993. By the end of January 2003, there were 33 mutual funds with AUM of Rs. 1,21,805 crores grown from Rs.47,004 crores at the end of 1993.

Fourth Phase – since February 2003

Erstwhile UTI was bifurcated into UTI Mutual Fund and the Specified Undertaking of the Unit Trust of India effective from February 2003. The assets under management of the Specified Undertaking of the Unit Trust of India have therefore been excluded from the total assets of the industry as a whole from February 2003 onwards.

As at the end of September, 2004, there were 29 funds which manage assets of Rs.1,53,108 crores under 421 schemes. By the end of March 2006, the

Figure-1
GROWTH IN ASSETS UNDER MANAGEMENT



total assets under the management (AUM) of various mutual funds grew to Rs.2,31,862 crores.

As per the latest data released by Association of Mutual Funds in India (AMFI), the AUM has grown to Rs. 3,09,829.86 crores on 31st October 2006. Hence the AUM has almost doubled in a period of twenty five months, i.e, between September 2004 and October 2006.

3.0 Objectives of the Study

The study is aimed at achieving the following objectives:

- To assess and examine the quality of the actual rate of return of various mutual fund schemes in India.
- To compare the performance of public sector mutual funds and the private sector mutual funds in India.

4.0 Research Methodology

To evaluate the performance of various mutual fund schemes in India, we have used the various

descriptive statistical tools including rate of return, average, range, and standard deviation alongwith graphical illustration

4.1 Sample Size

Seventy four equity growth fund schemes, those which have completed, at least, five years of operation as on 31st May 2006, out of which 55 are equity diversified funds and 19 are tax saving (ELSS) funds, have been sampled for evaluating the performance of funds in India. The sampled schemes include twenty six owned by public sector AMC's and the rest belong to the private sector AMC's.

All these schemes have broadly the same investment pattern (up to 100 % investment in equities) and philosophy except the one in case of tax-saving (ELSS) funds, where three years lock in period from the initial subscription is must if the tax benefit is to be availed.

The data has also been grouped in terms of time (age of the funds) i.e. 5-10 years old; 10-15 years old and

Table 1
Sample Descriptions: as on 31/05/2006

| Age of Funds | Equity: Diversified | | Tax -Saving (ELSS) | | Total |
|--------------|---------------------|----------------------|---------------------|----------------------|-------|
| | Public Sector Funds | Private Sector Funds | Public Sector Funds | Private Sector Funds | |
| 5-10 years | 8 | 20 | 2 | 8 | 38 |
| 10-15 years | 12 | 14 | 3 | 6 | 35 |
| 15-20 years | 1 | Nil | Nil | Nil | 1 |
| Total | 21 | 34 | 5 | 14 | 74 |

15-20 years old. Hence total period of the data used in this study has been just five months less to 20 years, i.e. since October 1986 (UTI Schemes- Master share). For details, refer Table no. 1: Sample Descriptions

The data has been taken as on 31st May 2006 and presented in the form of annual returns of various mutual fund schemes for one; two; three; five years and since their launch.

4.2 Sources of Data

The following sources (unless and otherwise mentioned) have been used to source the data for the present study:

- (1) valueresearchonline.com;
- (2) mutualfundsindia.com;
- (3) amfiindia.com;
- (4) mutualfunds.yahoo.com;

4.3 Measures of Portfolio Performance

- A) Performance measures based on absolute rate of return: The compounded annual growth rate (CAGR) for one, two, three, five years and since the launch of fund has been calculated. The performance of funds has been assessed against the benchmark indices. The performance so assessed has been grouped into seven, namely:
- i) Top Most Out Performers (TMOP): 150 % or more return over and above the benchmark return;
 - ii) Distantly Out Performers (DOP): (100% or more but less than 150 % return over and above the benchmark return);

iii) Moderately Out Performers (MOP): 50% or more but less than 100% return over and above the benchmark return;

iv) Out Performers (OP): less than 50% return over and above the benchmark return;

v) Under Performers (UP): less than 25% under return than the benchmark return;

vi) Poorly Under Performers (PUP): 25% or more but less than 50% under return than the benchmark return;

vii) Very Poorly Under Performers (VPUP): 50% or more under return than the benchmark return.

B) In order to assess how well a mutual fund scheme is performing in relative terms, the S & P CNX Nifty (called "Stock of the Nation") has been chosen as the benchmark index, being wider than the BSE Sensex, besides the aggregate value of all the funds have also been used as a benchmark for intra group comparison.

C) Performance measures based on risk-adjusted excess returns in the case of equity growth funds, that are most widely used, are:

- 1) Excess return to volatility measure, known as Sharpe measure (Sharpe, 1966). This uses the total risk measure:

$$\text{Sharpe Index} = \frac{\bar{R} - R_f}{\sigma}$$

Where,

R = average monthly return of the fund over the last three years,

R_f = risk free rate of return over the same interval as

above (8% p.a has been considered), and
 σ = standard deviation of the monthly return of the fund over the last three years.

- 2) Excess return to beta measure, known as the Treynor measure (Treynor 1965). This uses the systematic risk measure:

$$\text{Treynor's Index} = \frac{\bar{R} - R_f}{\beta}$$

Where,

β = beta of the fund, calculated on the monthly returns over the last three years.

Average risk free return of 8% p.a. has been considered as it is the return offered by most of the government saving schemes including NSCs, PPF and other products by Post Office (Indian Postal Services) and banks, which is considered as a fairly risk free rate of return on investment by public at large over a longer time horizon.

5.0 Results and Inferences

The summary of results on account of the out or under performance of funds vis-à-vis the benchmark index i.e. S&P CNX Nifty have been presented through table number 2,3,4 and 5 for one year, two year, three year and five year respectively. The detailed analysis of out performer funds has been presented through table no. 6, that shows that in terms of absolute rate of return within category 38, 31, 27, 32, (ranges between 51.35% to 36.49%) funds out of 74 have outperformed over a period of 1, 2, 3, & 5 years respectively whereas this number comes out to be 47, 67, 68 & 74 (63.51% to 100%) when compared with the benchmark (S&P CNX Nifty) over the same period. From the closer observation it has emerged that there is positive relation over the out-performance of a fund and the time horizon. The proportion of out performance against the benchmark is higher in case of private sector funds (77.08, 100.00, 93.75 and 100.00 per cent over a period of one, two, three and five years respectively) as compared to their counterpart in the public sector (38.46, 73.08, 88.46 and 100.00 per cent) over the same period. Table no. 6 also reveals that the private sector funds have proved to be the out performers vis-à-vis to their counterparts from public sector on both the parameters i.e. within the category as well as against the benchmark indices over all the varying periods

of time used in the present study.

In the case of public sector funds all the five funds (including one tax-saving fund) from SBI Mutual Fund during the last five preceding years have exceptionally been proved to be out performers with a exception on a very few occasions and that too only within the category and not against the overall benchmark index.

Table nos. 7 & 9, depict that over a long time horizon of more than 10 years but upto 15 years, HDFC Tax-Saver (since March 1996); Reliance Growth (since October, 1995); Alliance (Birla) Capital Tax Relief 96 (since March 1996); Principal Personal Tax saver (since March 1996) and Franklin India Bluechip (since November 1993) have been ranked at number 1,2,3,4,5th position with a CAGR of 43.62%, 33.69%, 33.44%, 32.07%, and 29.08% respectively. Interestingly, all the five schemes are from private sector funds. Another interesting finding is that a fund manager performs better if provided with a longer period of time for investment since three of these above mentioned first five funds are tax-saving (ELSS) schemes, where there is a initial lock in period of three years from the date of investment.

In the category of more than 5 years but up-to 10 years of age of the fund, HDFC Long Term Advantage (tax-saving fund since December 2000); Birla Equity Plan (tax saving fund since February 1998); Birla Sunlife Equity (since August 1998); Tata Select Equity (since April 2001) and Franklin India Taxshield (since April 1998) have been ranked at number 1,2,3,4 & 5th position with a CAGR of 46.34%, 40.34%, 40.23% & 39.72% and 39.59% respectively. In this case too all the five funds are from private sector and three of the five funds are from tax-saving (ELSS) category.

In the category of five years, Reliance Growth; Magnum Contra; Reliance Vision; Franklin India Prima and HDFC Long Term Advantage with a CAGR of 59.57%, 56.03%, 55.96%, 55.11% and 52.59% respectively have captured the first five positions. In this case again, with the exception of only one fund i.e. Magnum Contra from SBI Mutual Fund, all other are from private sector.

In the category of more than 15 years but up-to 20 years of time horizon there is only one fund i.e. UTI Master (from UTI Mutual Fund) a public sector fund.

The fund has given a CAGR of 21.46 % since its launch in October 1986 just 5 months short of 20 years. Its return has been well over the benchmark index (BSE Sensex has been considered in this case as the other benchmark referred above was not in existence at that point of time).

On account of associated risk with the out performer funds, in general, and the above mentioned top most out performers, in particular, across varying period of time. The standard deviations of the rate of return of these funds have either remained below or in the close vicinity of the average standard deviation of all the 74 funds in aggregate. This has also been duly endorsed by the exercise carried out with the help of most widely used performance measures of Sharpe measure (Sharpe Index) and Treynor measure (Treynor Index) based on risk-adjusted excess returns (refer table no.8 & 10).

6.0 Conclusions

It has been found that the actively managed funds intend to out perform, in general, and over a longer period of time, in particular. This is also endorsed by the better relative performance by the tax-saving funds that come with three years initial lock in period. Over a period of five years, all the funds out performed the benchmark. It is signifying to note that 21.92 per cent of private sector funds have outperformed benchmark by 100 per cent or more, whereas this proportion is only 15.38 per cent in case of public sector funds.

In terms of out performing fund houses in aggregate, the SBI Mutual Fund (over the last five years) has emerged as leader from public sector. Amongst the private sector funds schemes that have emerged as top out performers are from Reliance Mutual Fund, HDFC Mutual Fund, Birla Sunlife Mutual Fund, Franklin India Mutual Fund, Prudential ICICI Mutual Fund and Principal Mutual Fund.

Table 2
Summarized Results: Equity Diversified Growth Funds
for 1 -Year ending as on 31/05/2006 (Nifty Return: 47.11%)

| Category of Performance | Range of Retrn (%) | Equity: Diversified | | Tax-Saving (ELSS) | | Category Total | | Grand Total |
|-------------------------|------------------------|---------------------|----------------|-------------------|----------------|----------------|----------------|-------------|
| | | Public Sector | Private Sector | Public Sector | Private Sector | Public Sector | Private Sector | |
| TMOP | 117.78 or more | - | - | - | - | - | - | - |
| DOP | 94.22 < 117.78 | - | - | - | - | - | - | - |
| MOP | 70.67 < 94.22 | 3 | 1 | - | - | 3 | 1 | 4 |
| OP | 47.11 < 70.67 | 5 | 25 | 2 | 11 | 7 | 36 | 43 |
| UP | 35.33 < 47.11 | 11 | 6 | 1 | - | 12 | 6 | 18 |
| PUP | 23.56 < 35.33 | 2 | 2 | 2 | 2 | 4 | 4 | 8 |
| VPUP | Less than 23.56 | - | - | - | 1 | - | 1 | 1 |
| | Total | 21 | 34 | 5 | 14 | 26 | 48 | 74 |
| | % of Out Performers | 38.10 | 76.47 | 40.00 | 78.57 | 38.46 | 77.08 | 63.51 |
| | % Amongst OuPerformers | 23.53 | 76.47 | 15.38 | 84.62 | 21.28 | 78.72 | |

Source: calculated and compiled by author

Table 3
Summarized Results: Equity Diversified Growth Funds
for 2-Years ending as on 31/05/2006 (Nifty Annualized Return: 43.87%)

| Category of Performance | Range of Return (%) | Equity:Diversified | | Tax-Saving (ELSS) | | Category Total | | Grand Total |
|-------------------------|--------------------------|--------------------|----------------|-------------------|----------------|----------------|----------------|-------------|
| | | Public Sector | Private Sector | Public Sector | Private Sector | Public Sector | Private Sector | |
| TMOP | 109.68 or more | - | - | - | - | - | - | - |
| DOP | 87.74 < 109.68 | 2 | - | 1 | - | 3 | - | - |
| MOP | 65.81 < 87.74 | 2 | 5 | - | 3 | 2 | 8 | 4 |
| OP | 43.87 < 65.81 | 12 | 29 | 2 | 11 | 14 | 40 | 43 |
| UP | 32.90 < 43.87 | 4 | - | 1 | - | 5 | - | 18 |
| PUP | 21.94 < 32.90 | 1 | - | 1 | - | 2 | - | 8 |
| VPUP | Less than 21.94 | - | - | - | - | - | - | 1 |
| | Total | 21 | 34 | 5 | 14 | 26 | 48 | 74 |
| | % of Out Performers | 76.19 | 100.00 | 60.00 | 100.00 | 73.08 | 100.00 | 63.51 |
| | % Amongst Out Performers | 32.00 | 68.00 | 17.65 | 82.35 | 28.36 | 71.64 | |

Source: calculated and compiled by author

Table 4
Summarized Results: Equity Diversified Growth Funds
For 3-Years ending as on 31/05/2006 (Nifty Annualized Return: 45.03%)

| Category of Performance | Range of Return (%) | Equity: Diversified | | Tax-Saving (ELSS) | | Category Total | | Grand Total |
|-------------------------|--------------------------|---------------------|----------------|-------------------|----------------|----------------|----------------|-------------|
| | | Public Sector | Private Sector | Public Sector | Private Sector | Public Sector | Private Sector | |
| TMOP | 112.58 or more | - | - | - | - | - | - | - |
| DOP | 90.06 < 112.58 | 1 | - | 1 | - | 2 | - | 2 |
| MOP | 67.55 < 90.06 | 2 | 9 | - | 3 | 2 | 12 | 14 |
| OP | 45.03 < 67.55 | 16 | 24 | 3 | 9 | 19 | 33 | 52 |
| UP | 33.77 < 45.03 | 2 | 1 | 1 | 2 | 3 | 3 | 6 |
| PUP | 22.52 < 33.77 | - | - | - | - | - | - | - |
| VPUP | Less than 22.52 | - | - | - | - | - | - | - |
| | Total | 21 | 34 | 5 | 14 | 26 | 48 | 74 |
| | % of Out Performers | 90.48 | 97.06 | 80.00 | 85.71 | 88.46 | 93.75 | 91.89 |
| | % Amongst Out Performers | 36.54 | 63.46 | 25.00 | 75.00 | 33.82 | 66.18 | |

Source: calculated and compiled by author

Table 5
Summarized Results: Equity Diversified Growth Funds

For 5 - Years ending as on 31/05/2006 (Nifty Annualized Return: 21.33%)

| Category of Performance | Range of Return (%) | Equity: Diversified | | Tax-Saving (ELSS) | | Category Total | | Grand Total |
|-------------------------|--------------------------|---------------------|----------------|-------------------|----------------|----------------|----------------|-------------|
| | | Public Sector | Private Sector | Public Sector | Private Sector | Public Sector | Private Sector | |
| TMOP | 53.33 or more | 1 | 3 | - | - | 1 | 3 | 4 |
| DOP | 42.66 < 53.33 | 2 | 4 | 1 | 4 | 3 | 8 | 11 |
| MOP | 32.00 < 42.66 | 6 | 20 | - | 6 | 6 | 26 | 32 |
| OP | 21.33 < 32.00 | 12 | 7 | 4 | 4 | 16 | 11 | 27 |
| UP | 16.00 < 21.33 | - | - | - | - | - | - | - |
| PUP | 10.67 < 16.00 | - | - | - | - | - | - | - |
| VPUP | Less than 10.67 | - | - | - | - | - | - | - |
| | Total | 21 | 34 | 5 | 14 | 26 | 48 | 74 |
| | % of Out Performers | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 |
| | % Amongst Out Performers | 38.18 | 61.82 | 26.32 | 73.68 | 35.14 | 64.86 | |

Table 6
Analysis of Out Performer Funds

| Period of Time | Basis of Out Performance | Equity: Diversified | | Tax-Saving (ELSS) | | Category Total | | Grand Total |
|----------------|-------------------------------------|---------------------|----------------|-------------------|----------------|----------------|----------------|----------------|
| | | Public Sector | Private Sector | Public Sector | Private Sector | Public Sector | Private Sector | |
| 1-Year | With in category | 08 (38.10) | 19 (55.88) | 02 (40.00) | 09 (64.29) | 10 (38.46) | 28 (58.33) | 38 (51.35) |
| | With the Bench Mark (S&P CNX Nifty) | 08 (38.10) | 26 (76.47) | 02 (40.00) | 11 (78.57) | 10 (38.46) | 37 (77.08) | 47 (63.51) |
| 2-Years | Within category | 04 (19.05) | 19 (55.88) | 02 (40.00) | 06 (42.86) | 06 (23.08) | 25 (52.08) | 31 (41.89) |
| | With the Bench Mark (S&P CNX Nifty) | 16 (76.19) | 34 (100.00) | 03 (60.00) | 14 (100.00) | 19 (73.08) | 48 (100.00) | 67 (90.54) |
| 3-Years | With in category | 03 (14.29) | 16 (47.06) | 01 (20.00) | 07 (50.00) | 04 (15.38) | 23 (47.92) | 27 (36.49) |
| | With the Bench Mark (S&P CNX Nifty) | 19 (90.48) | 33 (97.06) | 04 (80.00) | 12 (85.71) | 23 (88.46) | 45 (93.75) | 68 (91.89) |
| 5-Years | With in category | 5 (23.81) | 19 (55.88) | 01 (20.00) | 07 (50.00) | 06 (23.08) | 26 (54.17) | 32 (43.24) |
| | With the Bench Mark (S&P CNX Nifty) | 21 (100.00) | 34 (100.00) | 05 (100.00) | 14 (100.00) | 26 (100.00) | 48 (100.00) | 74 (100.00) |
| | Total Number of Funds | 21 | 34 | 05 | 14 | 26 | 48 | 74 |

Source: calculated and compiled by author

Table 7

Rate of Return: Equity Diversified Funds as on 31/05/2006

| | Funds | Date of Launch | Total Return (%) as on 31/05/2006 (Annualized) | | | | Since Launch |
|----|---------------------------------|----------------|--|--------|--------|--------|--------------|
| | | | 1-year | 2-year | 3-year | 5-year | |
| | Public Sector | | | | | | |
| 1 | BOB Bonanza Exclusive Growth | Feb-95 | 63.72 | 67.40 | 56.26 | 43.26 | 13.89 |
| 2 | Can D' Mat | Apr-99 | 60.47 | 46.94 | 49.48 | 28.17 | 17.47 |
| 3 | Canexpo | Mar-94 | 40.44 | 52.36 | 55.01 | 29.56 | 14.36 |
| 4 | Canfortune 94 | Dec-94 | 40.23 | 50.51 | 53.80 | 39.35 | 9.46 |
| 5 | Cangrowth Plus | Jan-94 | 38.46 | 47.53 | 48.32 | 24.70 | 12.65 |
| 6 | LICMF Equity | Feb-93 | 33.30 | 30.14 | 38.58 | 23.09 | 4.10 |
| 7 | LICMF Growth | Aug-94 | 46.49 | 38.53 | 52.22 | 34.84 | -0.84 |
| 8 | Magnum Contra | Jul-99 | 78.26 | 89.55 | 89.53 | 56.03 | 34.44 |
| 9 | Magnum Equity | Nov-90 | 64.08 | 53.79 | 58.85 | 29.31 | 16.56 |
| 10 | Magnum Global | Sep-94 | 82.68 | 99.32 | 96.83 | 48.40 | 15.73 |
| 11 | Magnum Multiplier Plus | Feb-93 | 80.37 | 79.26 | 81.06 | 35.90 | 15.00 |
| 12 | UTI Brand Value | Jun-99 | 41.21 | 47.01 | 46.61 | 26.80 | 15.54 |
| 13 | UTI Growth & Value | Oct-99 | 38.75 | 41.44 | 53.91 | 35.58 | 26.80 |
| 14 | UTI Index Select Equity | Jun-97 | 53.49 | 47.24 | 50.44 | 27.17 | 20.75 |
| 15 | UTI Master Growth | Feb-93 | 43.14 | 45.10 | 52.59 | 32.88 | 15.34 |
| 16 | UTI Master Plus 91 | Dec-91 | 54.77 | 48.79 | 51.74 | 29.40 | 14.87 |
| 17 | UTI Master Value | Jun-98 | 37.39 | 44.21 | 49.55 | 41.01 | 28.45 |
| 18 | UTI Equity(Master Gain 92) | May-92 | 41.30 | 47.37 | 54.42 | 30.47 | 11.36 |
| 19 | UTI Master Share | Oct-86 | 34.07 | 36.71 | 43.57 | 24.01 | 21.46 |
| 20 | UTI MNC | May-98 | 37.97 | 47.79 | 48.72 | 28.51 | 19.19 |
| 21 | UTI Services Sector | Jun-99 | 37.29 | 43.62 | 52.40 | 27.22 | 33.60 |
| | Private Sector | | | | | | |
| 1 | Birla Advantage | Feb-95 | 48.30 | 53.68 | 53.65 | 32.57 | 24.63 |
| 2 | Birla MNC | Dec-99 | 42.48 | 47.50 | 50.05 | 31.67 | 17.91 |
| 3 | Birla Sun Life Basic Industries | Jan-00 | 52.90 | 53.55 | 56.45 | 45.19 | 31.48 |
| 4 | Birla Sun Life Buy India | Jan-00 | 42.55 | 65.53 | 69.12 | 35.66 | 13.86 |
| 5 | Birla Sun Life Equity | Aug-98 | 52.82 | 65.91 | 69.36 | 39.68 | 40.23 |

| | | | | | | | | |
|--|--|----------------------------------|----------------------------|-------|--------------|--------------|--------------|--------------|
| | | DSPML Equity | Apr97 | 65.68 | 66.47 | 68.71 | 38.05 | 27.35 |
| | | DSPML Opportunites | Apr00 | 64.14 | 58.24 | 66.14 | 42.49 | 27.33 |
| | | Escort Gorwth | Mar01 | 62.61 | 62.27 | 58.03 | 35.73 | 35.59 |
| | | Franklin India Bluechip | Nov93 | 58.62 | 50.13 | 58.47 | 36.25 | 29.08 |
| | | Franklin India Prima | Nov93 | 44.11 | 62.26 | 68.93 | 55.11 | 25.97 |
| | | Franklin India Prima Plus | Sep-94 | 54.86 | 51.28 | 58.43 | 37.53 | 22.08 |
| | | HDFC Capital Builder | Jan-94 | 51.25 | 62.62 | 68.82 | 41.62 | 15.14 |
| | | HDFC Equity | Dec-94 | 61.11 | 59.47 | 63.12 | 44.95 | 23.82 |
| | | HDFC Growth Fund | Aug00 | 48.47 | 53.98 | 58.03 | 38.01 | 25.74 |
| | | HDFC Top 200 | Sep-96 | 58.99 | 58.05 | 61.02 | 43.19 | 27.59 |
| | | ING Vysya Select Stocks | May-99 | 60.00 | 60.45 | 57.12 | 25.00 | 12.53 |
| | | JM Equity | Dec-94 | 53.92 | 54.37 | 56.62 | 31.91 | 10.21 |
| | | Kotak 30 | Dec-98 | 72.47 | 59.67 | 65.51 | 36.76 | 31.50 |
| | | Kotak MNC | Mar00 | 34.66 | 52.71 | 54.59 | 29.39 | 20.13 |
| | | Principal Equity | May95 | 47.82 | 45.20 | 44.68 | 28.63 | 10.81 |
| | | Principal Growth | Oct00 | 50.02 | 53.46 | 58.69 | 36.45 | 29.25 |
| | | Principal Resurgent India Equity | May-00 | 45.62 | 52.65 | 56.48 | 43.10 | 34.40 |
| | | Prudential ICICI Growth | Jun-98 | 62.93 | 57.98 | 53.55 | 31.45 | 28.75 |
| | | Prudential ICICI Power | Sep-94 | 69.15 | 62.49 | 61.71 | 40.10 | 17.25 |
| | | Reliance Growth | Oct-95 | 66.52 | 78.85 | 86.01 | 59.57 | 33.69 |
| | | Reliance Vision | Oct-95 | 54.78 | 61.41 | 65.22 | 55.96 | 28.26 |
| | | Sundaram Growth | Mar-97 | 59.28 | 52.75 | 57.07 | 36.21 | 24.45 |
| | | Tata Growth | Jun-94 | 37.80 | 57.22 | 58.12 | 36.43 | 9.72 |
| | | Tata Life Science & Tech. | Jun-99 | 50.11 | 49.78 | 63.59 | 33.99 | 23.29 |
| | | Tata Pure Euity | May-98 | 54.52 | 57.35 | 69.37 | 35.91 | 34.56 |
| | | Tata Select Equity | Apr01 | 60.07 | 66.76 | 69.19 | 39.42 | 39.72 |
| | | Taurus Discovery Stock | Sep-94 | 26.76 | 53.91 | 48.15 | 23.63 | 2.37 |
| | | Taurus Strshare | Jan-94 | 61.84 | 73.04 | 70.34 | 40.22 | 9.88 |
| | | Templeton India Growth | Aug96 | 46.68 | 46.15 | 55.27 | 34.78 | 20.26 |
| | | Aggregate | Equity: Diversified | | 52.87 | 54.46 | 59.01 | 36.22 |
| | | Bench Mark Index | S&P CNX Nifty | | 47.11 | 43.87 | 45.03 | 21.33 |

Source: calculated and compiled by author

Table 8
Efficiency Measures: Equity Diversified as on 31/05/2006

| Funds | | Date of Launch | Sharpe | Treydor |
|-----------------------|---------------------------------|----------------|--------|---------|
| Sr. No. | Public Sector | | | |
| 1 | BOB Bonanza Exclusive Growth | Feb-95 | 0.46 | 3.87 |
| 2 | Can D' Mat | Apr-99 | 0.49 | 4.02 |
| 3 | Canexpo | Mar-94 | 0.50 | 4.04 |
| 4 | Canfortune 94 | Dec-94 | 0.52 | 4.24 |
| 5 | Cangrowth Bb | Jan-94 | 0.55 | 4.54 |
| 6 | LICMF Equity | Feb-93 | 0.35 | 2.68 |
| 7 | LICMF Growth | Aug-94 | 0.50 | 4.14 |
| 8 | Magnum Contra | Jul-99 | 0.94 | 7.81 |
| 9 | Magnum Equity | Nov-90 | 0.58 | 4.46 |
| 10 | Magnum Global | Sep-94 | 1.07 | 9.25 |
| 11 | Magnum Multiplier Plus | Feb-93 | 0.75 | 6.03 |
| 12 | UTI Brand Value | Jun-99 | 0.52 | 4.07 |
| 13 | UTI Growth & Value | Oct-99 | 0.54 | 4.16 |
| 14 | UTI Index Select Equity | Jun-97 | 0.51 | 3.80 |
| 15 | UTI Master Growth | Feb-93 | 0.51 | 3.87 |
| 16 | UTI Master Plus 91 | Dec-91 | 0.51 | 3.84 |
| 17 | UTI Master Value | Jun-98 | 0.51 | 4.22 |
| 18 | UTI Equity(Master Gain 92) | May-92 | 0.54 | 4.16 |
| 19 | UTI Master Share | Oct-86 | 0.46 | 3.49 |
| 20 | UTI MNC | May-98 | 0.53 | 4.46 |
| 21 | UTI Services Sector | Jun-99 | 0.57 | 4.46 |
| Private Sector | | | | |
| 1 | Birla Advantage | Feb-95 | 0.53 | 4.09 |
| 2 | Birla MNC | Dec-99 | 0.52 | 4.55 |
| 3 | Birla Sun Life Basic Industries | Jan-00 | 0.50 | 3.96 |
| 4 | Birla Sun Life Buy India | Jan-00 | 0.70 | 6.79 |
| 5 | Birla Sun Life Equity | Aug-98 | 0.68 | 5.38 |
| 6 | DSPML Equity | Apr-97 | 0.67 | 5.16 |
| 7 | DSPML Opportunities | Apr-00 | 0.65 | 4.94 |
| 8 | Escort Growth | Mar-01 | 0.58 | 4.68 |

| | | | | |
|----|----------------------------------|--------|------|------|
| 9 | Franklin India Bluechip | Nov-93 | 0.58 | 4.38 |
| 10 | Franklin IndiPrima | Nov-93 | 0.68 | 6.27 |
| 11 | Franklin India Prima Plus | Sep-94 | 0.63 | 4.89 |
| 12 | HDFC Capital Builder | Jan-94 | 0.73 | 6.26 |
| 13 | HDFC Equity | Dec-94 | 0.66 | 5.10 |
| 14 | HDFC Growth Fund | Aug-00 | 0.59 | 4.63 |
| 15 | HDFC Top 200 | Sep-96 | 0.63 | 4.80 |
| 16 | ING Vysya Select Stocks | May-99 | 0.60 | 4.76 |
| 17 | JM Equity | Dec-94 | 0.60 | 4.66 |
| 18 | Kotak 30 | Dec-98 | 0.68 | 5.33 |
| 19 | Kotak MNC | Mar-00 | 0.58 | 5.39 |
| 20 | Principal Equity | May-95 | 0.46 | 3.73 |
| 21 | Principal Growth | Oct-00 | 0.60 | 4.86 |
| 22 | Principal Resurgent India Equity | May-00 | 0.54 | 4.30 |
| 23 | Prudential ICICI Growth | Jun-98 | 0.50 | 3.83 |
| 24 | Prudential ICICI Power | Sep-94 | 0.61 | 4.76 |
| 25 | Reliance Growth | Oct-95 | 0.86 | 7.22 |
| 26 | Reliance Vision | Oct-95 | 0.63 | 4.92 |
| 27 | Sundaram Growth | Mar-97 | 0.57 | 4.40 |
| 28 | Tata Growth | Jun-94 | 0.55 | 4.80 |
| 29 | Tata Life Science & Tech. | Jun-99 | 0.60 | 5.09 |
| 30 | Tata Pure Euity | May-98 | 0.68 | 5.27 |
| 31 | Tata Select Equity | Apr-01 | 0.62 | 5.15 |
| 32 | Taurus Discovery Stock | Sep-94 | 0.36 | 3.60 |
| 33 | Taurus Starshare | Jan-94 | 0.59 | 5.77 |
| 34 | Templeton India Growth | Aug-96 | 0.54 | 4.15 |

Source: calculated and compiled by author

Table 9
Rate of Return: Tax Saving (ELSS) as on 31/05/2006

| | Funds | Date of Launch | Total Return(%) as on 31/05/2006 (Annualized) | | | | |
|-------------------------|--------------------------------|----------------|---|--------------|--------------|--------------|--------------|
| | | | 1-year | 2-year | 3-year | 5-year | Since Launch |
| | Public Sector | | | | | | |
| 1 | BOB ELSS96 | Mar96 | 27.47 | 40.79 | 49.51 | 29.08 | 16.11 |
| 2 | CanequityTax Saver | Mar93 | 55.52 | 55.89 | 46.78 | 22.13 | 14.18 |
| 3 | LICMF-Tax Plan | Mar97 | 32.17 | 29.92 | 41.54 | 24.67 | 9.15 |
| 4 | SBI-Magnum Taxgain | Mar93 | 59.49 | 99.79 | 98.61 | 45.76 | 20.86 |
| 5 | UTI Equity Tax Savings | Dec-99 | 38.61 | 45.45 | 52.88 | 31.66 | 24.80 |
| | Private Sector | | | | | | |
| 1 | Alliance Capital Tax Relief 96 | Mar96 | 54.71 | 58.56 | 65.06 | 45.02 | 33.44 |
| 2 | Birla Equity Plan | Feb-99 | 57.73 | 44.32 | 53.86 | 34.80 | 40.34 |
| 3 | Escorts Tax Plan | Mar00 | 53.33 | 53.06 | 54.28 | 32.84 | 23.62 |
| 4 | Franklin India Index Tax | Feb-01 | 47.32 | 44.30 | 44.91 | 21.72 | 18.08 |
| 5 | Franklin India Taxshield | Apr99 | 53.58 | 53.42 | 59.95 | 35.88 | 39.59 |
| 6 | HDFC Long Term Advantage | Dec-00 | 49.11 | 62.81 | 68.42 | 52.59 | 46.34 |
| 7 | HDFC Tax saver | Mar96 | 59.56 | 79.16 | 76.29 | 47.97 | 43.62 |
| 8 | Libra Taxshield 96 | Mar96 | 15.46 | 48.96 | 35.95 | 25.99 | 9.55 |
| 9 | Principal Personal Tax saver | Mar96 | 46.80 | 52.95 | 56.99 | 31.89 | 32.07 |
| 10 | Principal Tax Savings | Mar96 | 64.85 | 61.67 | 64.72 | 40.41 | 23.55 |
| 11 | Prudential ICICI Tax Plan | Aug99 | 60.86 | 85.98 | 79.87 | 50.12 | 36.72 |
| 12 | Sahara Tax Plan | Mar97 | 61.18 | 54.72 | 58.22 | 31.57 | 34.72 |
| 13 | Sundaram Tax saver | Nov-99 | 61.49 | 75.64 | 67.17 | 40.83 | 26.37 |
| 14 | Tata Tax Saving | Mar96 | 43.88 | 50.58 | 64.87 | 38.37 | 27.51 |
| Aggregate | Equity: Tax Planning | | 50.30 | 58.08 | 59.99 | 35.96 | |
| Bench Mark Index | S&P CNX Nifty | | 47.11 | 43.87 | 45.03 | 21.33 | |

Source: calculated and compiled by author

Table 10
Efficiency Measures: Tax Saving (ELSS) as on 31/05/2006

| Funds | | Date of Launch | Sharpe | Treydor |
|----------------|--------------------------------|----------------|--------|---------|
| Sr. No | Public Sector | | | |
| 1 | BOB ELSS96 | Mar96 | 0.46 | 3.64 |
| 2 | CanequityTax Saver | Mar93 | 0.43 | 3.85 |
| 3 | LICMF-Tax Plan | Mar97 | 0.40 | 3.14 |
| 4 | SBI-Magnum Taxgain | Mar93 | 0.96 | 8.39 |
| 5 | UTI Equity Tax Savings | Dec99 | 0.58 | 4.62 |
| Private Sector | | | | |
| 1 | Alliance Capital Tax Relief 96 | Mar96 | 0.64 | 5.11 |
| 2 | Birla Equity Plan | Feb99 | 0.53 | 4.20 |
| 3 | Escorts Tax Plan | Mar00 | 0.51 | 4.10 |
| 4 | Franklin India Index Tax | Feb01 | 0.43 | 3.14 |
| 5 | Franklin India Taxshield | Apr99 | 0.64 | 4.98 |
| 6 | HDFC Long Term Advantage | Dec00 | 0.78 | 6.90 |
| 7 | HDFC Tax saver | Mar96 | 0.77 | 6.25 |
| 8 | Libra Taxshield 96 | Mar96 | 0.25 | 2.68 |
| 9 | Principal Personal Tax saver | Mar96 | 0.53 | 4.30 |
| 10 | Principal Tax Savings | Mar96 | 0.68 | 5.37 |
| 11 | Prudential ICICI Tax Plan | Aug99 | 0.70 | 6.05 |
| 12 | SaharaTax Plan | Mar97 | 0.58 | 4.70 |
| 13 | Sundaram Tax saver | Nov99 | 0.62 | 5.19 |
| 14 | Tata Tax Saving | Mar96 | 0.63 | 5.32 |

Source: calculated and compiled by author

References

1. Admiti A & Ross S (1985), "Measuring investment performance in a rational expectations equilibrium model", *Journal of Business*, 58, 1-26
2. Carhart Mark M (1997), "On Persistence in Mutual Fund Performance," *Journal of Finance*, 52, 57-82
3. Davis James L (2001), "Mutual Fund Performance and Manager Style", *Financial Analysts Journal*, 57, 19-27
4. Elton E, Gruber M & Blake C (1996), "The persistence of risk-adjusted mutual fund performance", *Journal of Business*, 69, 133-157
5. Elton E J and Gruber M J (1995), *Modern Portfolio Theory and Investment Analysis*, John Wiley, New York
6. Fama E (1972), "Components of Investment Performance", *Journal of Finance*, 27, 551-567
7. Francis J C (1995), *Investments*, McGraw-Hill, Singapore
8. Gupta Manak C (1974), "The Mutual Fund Industry and its comparative Performance", *Journal of Financial and Quantitative Analysis*, 6, 894
9. Gupta O P and Sehgal Sanjay (1998), *Investment Performance of Mutual Funds: The Indian Experience*, presented at UTI-ICM Second Capital Markets Conference, Vasi, Navi Mumbai, December 23-24
10. Jensen Michael C (1968), "The Performance of Mutual Funds in the period 1945-1964", *Journal of Finance*, 23, 389-415
11. Lehman B & Modest D (1987), "Mutual Fund performance evaluation: a comparison of benchmarks and benchmark comparisons", *Journal of Finance*, 42, 233-256
12. Malkiel Burton G (1995), "Returns from investing in Equity Mutual Funds, 1971-1991", *Journal of Finance*, 2, 550-572
13. Matallin J C & Nieto L (2002), "Mutual funds as an alternative to direct stock investment: A co-integration approach", *Applied Financial Economics*, 12, 743-750
14. McDonald John G (1974), "Objectives and Performance of Mutual funds, 1960-69", *Journal of Financial and Quantitative Analysis*, 9, 311-333
15. Obaidullah M and Ganeshan Sridhar (1991), "Do Mutual Funds in India Provide Abnormal Returns", *Chartered Financial Analysts*, 5, 11-15
16. Quigley Garrett, and Rex A Sinuefield (2000), "Performance of UK Equity Unit Trusts", *Journal of Asset Management* 1, 72-92
17. Sarkar A K (1991), "Performance Evaluation of Mutual Funds", *Management Accountant*, 12, 924-928
18. Sharpe W F (1966), "Mutual Fund Performance", *Journal of Business*, 39, 119-138
19. Sharpe W F, Alexander G and Baily J (1995), *Investments*, Prentice-Hall, Englewood Cliff, NJ
20. Treynor Jack L (1965), "How to Rate Management of Investment Funds", *Harvard Business Review*, 43, 63-75
21. Treynor Jack L and Mazuy Kay K (1966), "Can Mutual Funds Outguess the Markets", *Harvard Business Review*, 44, 131-136

| | | | |
|----|-------------------------|------|------|
| 10 | Principal Tax Savings | 0.70 | 0.68 |
| 11 | Prudential ICI Tax Plan | 0.70 | 0.68 |
| 12 | Substar Tax Plan | 0.70 | 0.68 |
| 13 | Sundaram Taxaver | 0.70 | 0.68 |
| 14 | Tata Tax Saving | 0.70 | 0.68 |

Source: calculated and compiled by author

Asset Securitisation: An Innovative Financial Instrument

Shefali Sharma*

The process of economic liberalization and globalization of corporate activities coupled with exponential growth of the financial markets has opened up new vistas for the growth of the financial service sector. Proliferation of innovative financial techniques and new financial instruments in the financial market has started in recent years. These innovative financial instruments not only keep the markets more active but also tap the savings of investors. Various innovative investment techniques such as factoring, forfeiting, asset securitisation, derivatives, etc, have developed over a period of time. Asset securitisation is one such financial innovation that has contributed to the growth of financial market in the US and has also become very popular in other countries. In India, asset securitisation is gaining popularity as a result of deepening of financial market. In this paper, an attempt has been made to discuss the nascent state of the securitization market in India, its potential and thereby making an attempt to identify what needs to be done by various stakeholders in this market for securitization to grow to its full potential in India. It is found that market for securitisation increased with issuance volume almost doubling each year since financial year 2003 to financial year 2006. Asset Backed Securitisation (ABS) issuances continued to account for a dominant share of the Structured Finance market in India. The share of new class of assets such as loans for financing two wheelers, used cars and personal loans in ABS increased further.

Keywords: Special Purpose Vehicle, Asset-Backed Securitisation, Mortgage-Backed securitisation

Introduction

Securitisation is a process of converting receivables into negotiable instruments as assignable debt. These securities are backed by a package of individual loans and receivables and may carry a variety of enhancements (Taneja 1999). It is a process by which financial assets are pooled and the cash flows are used to guarantee and service a security. The market for securitisation has been limited by the creativity of the arrangers and the boundaries created by the legal, regulatory, tax and accounting disciplines.

Securitisation has been the most important innovations affecting banks over the past decade. The new functions involving creating new products in the form of securitised assets make financial markets more complete. These innovative products respond to investors' preference about the size, timing and riskiness of cash flows and take into account the ability of different investors to bear different types of risk (Ansari 2003). Securitisation has fundamentally changed financial management and has made risk management prominent feature of corporate banking and finance.

Securitisation as a financial instrument has been in practice in India since the early 1990s as a device of bilateral acquisitions of portfolios of finance companies. Having started in 1996 securitisation volumes has been scaling new peaks every year and this trend continued till 2005. In early 2006, the RBI came out with guidelines on regulatory capital treatment for securitisation and these dealt a severe blow to the securitisation market and as a result in 2006-07, the volumes was lower than those in 2005-06.

Securitisation emerged as a versatile financial tool providing access to diversified sources of funds throughout the world, particularly in western countries, for more than 25 years. In India, though the efforts started during early 90s, signs of growth were noticed in 1998, when Citibank securitised its automobile loans of Rs. 100 crores. This was followed by ICICI securitising its assets worth Rs. 750 crores in 1999 and Globe-Tele Systems Limited securitising its telecom receivable of around Rs. 30 crores in 2000. Some of the other deals included NHB-HDFC securitisation deal for housing loans and ICICI's

* Research Scholar, Department of Commerce and Business Management, G N D University, Amritsar

Asset-backed Securitisation as well as Future Receivable Securitisation. However, notable non-participants in the securitisation market were Public Sector Banks (Krishnan 2004).

The reason for this constrained growth of Securitisation market in India were attributed to unclear and inadequate legal, taxation, accounting and regulatory environment. There was no comprehensive framework for securitisation. It was time and again felt that there was an absolute need for such a framework. There was no provision for the setting up of companies to take over the sticky loans of banks and financial institutions. This deficiency was made good by the enactment of the securitisation and reconstruction of financial assets and enforcement of security interest act (SARFAESI) 2002 (Varshney 2005). The SARFAESI Act was aimed at addressing some of these issues. The SARFAESI act 2002 empowered banks to side step the courts and dispose off the defaulters' properties given as securities and to recover the dues after giving due notice. Though this act was seen as the panacea to the problem of Non-Performing Assets (NPAs) but it was plagued by one hurdle or the other (Kamashetty 2004).

Present paper has been divided into four sections; section-I deals with mechanism of securitisation, section-II defines the objectives, need and research methodology of the study, section-III discusses securitisation environment in India and section-IV concludes the findings.

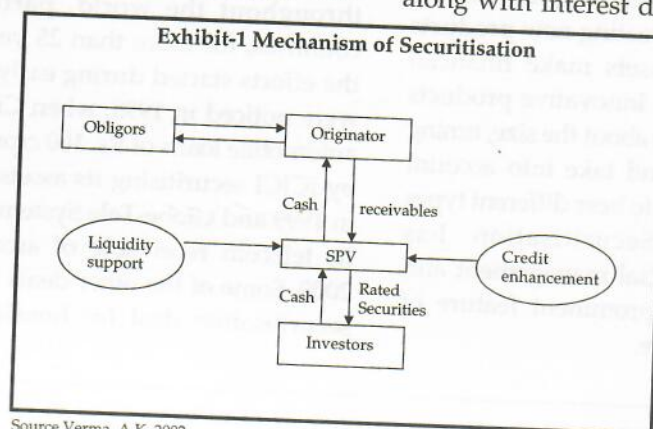
Section I: Mechanism of Securitisation

The process of securitisation as shown in Exhibit 1 involves three parties, viz., the originator, the special purpose vehicle (SPV) and the investor. The

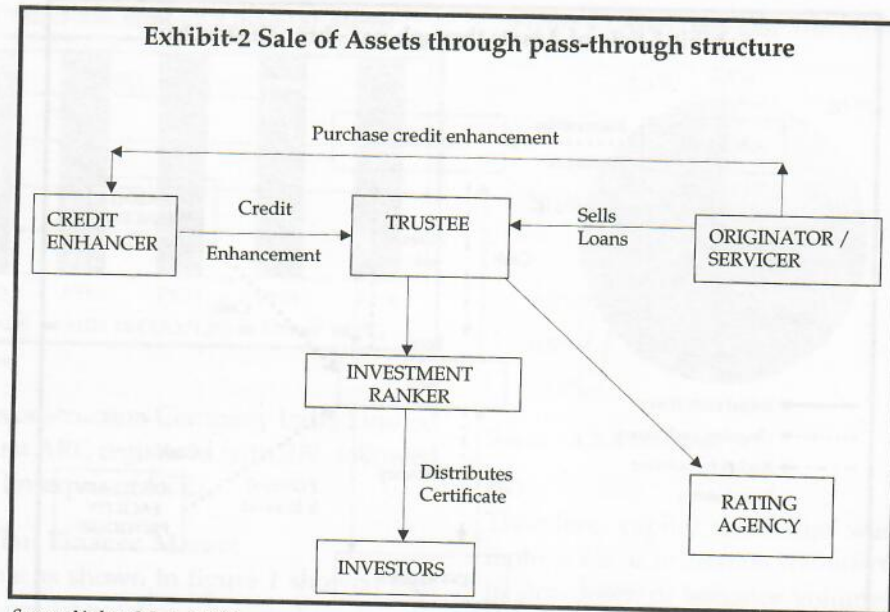
originator is the one who owns the financial asset and who wants to offload the same in the market. Obligor is the originator's debtor. The originator could be a banking, industrial or finance company. The SPV or in other words the issuer is the one, who issues mortgage-backed securities to investor in the market. Generally, merchant bankers function as SPV's. The investor is the one who buys securities from the SPV. Securities are created by SPV for investors, which are in the form of a certificate called "pass through certificate" (PTC) indicating the maturity period that synchronizes with maturity of portfolio securitised.

To increase marketability of securitised assets in form of certificates, these may be rated by some reputed credit rating agency. Credit rating increases the trading potentials of the certificate to enhance its liquidity. Such securities are also credit enhanced through a letter of credit or even insurance so that investors considering these safe are tempted to invest in them.

Credit enhancement aims at improving the credit quality in the absence of a reliable intermediary on whom the investor has confidence. The investors usually take their decision based upon the rating given to a pool of assets by the rating agency (Taneja 1999). CRISIL rated the first securitisation program in India in 1991 when Citibank securitised a pool from its auto loan portfolio and placed the paper with GIC mutual fund. Since then, securitisation of assets has emerged as a option of raising fund by corporates. Other rating agencies in India, viz., ICRA, DCR and CARE have also been actively involved in the process (Murthy 1999). On maturity the end investor gets the redemption amount from the issuer along with interest due on it.



Source Verma, A.K. 2002



Source: Yadav, S.S. et al 1999

Different Forms of Securitisation Structures

• **Pass-through structure:** A pass-through structure is an instrument that gives the investor a direct undivided ownership interest in the underlying pool of assets. These securities are not the debt obligations of the originator. Accordingly, the assets are removed from the balance sheet of the originator. From exhibit 2 it can be seen that the originator sells the assets to a trust then trustee on behalf of the trust issues certificates to the investors. Each certificate represents an undivided interest in the entire portfolio of loans. Along with the loans the originator conveys to the trust for the benefit of the investors all rights, title, and interest in the assets and rights to receive payments due under the credit enhancements (Yadav 1999). In this case, the payment cycle of the security holders corresponds with that of the receivables.

• **Pay-through structure:** As can be seen from exhibit 3, the receivable payments are assigned to a special purpose vehicle (SPV). The SPV is a bankruptcy remote entity, confined to activities envisaged under the transaction. Obligors usually make payment to the originators to direct to the SPV. The cash flows received by SPV are used to make the required payment of interest and principal to investors. However in this case, the payment cycle of the receivable and that of the security holders do not match (Yadav 1999).

Section II: Objectives of the Study

This study has been undertaken with the following objectives:

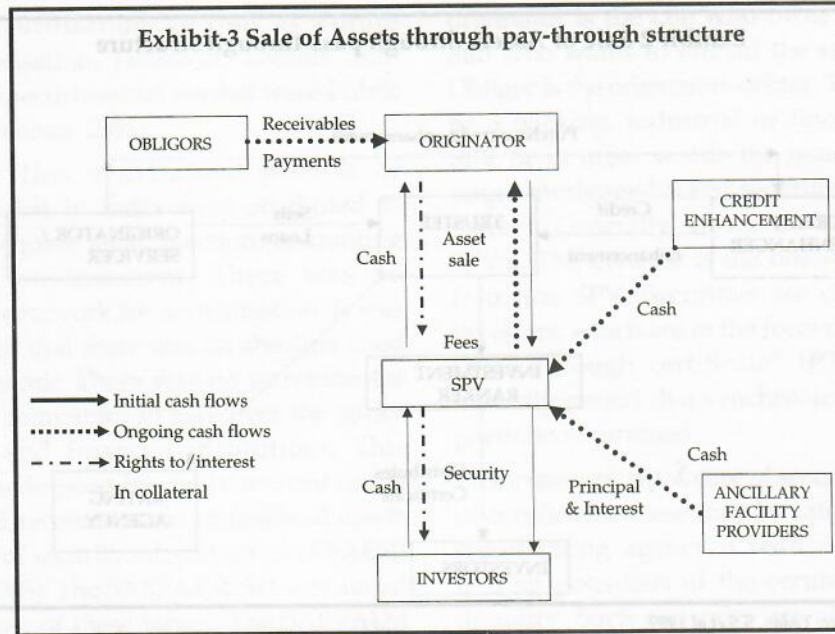
- To understand the mechanism of securitisation
- To analyze the evolution of securitisation in India
- To study the various forms of securitisation structures
- To study the progress of securitisation in India

Need for the study

Securitisation began in India in the early nineties. Since, then it is regarded as a useful process of converting illiquid, non-negotiable and highly valued financial assets into securities of small value that are tradable and transferable. The market for securitisation is fast developing in India. The volume and the class of assets have grown over a number of years. Besides this, securitisation can be applied gainfully in a variety of situations. This has made the present study on securitisation imperative.

Research Methodology

The present study is based on data collected from secondary sources. Progress of securitisation in India is studied over a period of five years from 2002 to 2006. The required information is derived from various newspapers and websites on securitisation.



Source: Yadav, S.S. et al 1999

Section III: Securitisation Progress in India

The market for securitisation zoomed from the year 2002 to year 2005, with a cumulative growth rate of nearly 100%. The volume of issue in Indian securities market declined by 17% to Rs.256 billion during financial year 2006 as compared to previous year. Although, the issuance volume has been doubling each year since financial year 2003.

Asset Backed Securitisation (ABS) issuances which had been the key growth driver in the past, dropped by 20% to Rs. 178 billion during financial year 2006, although continuing to account for a dominant share of the finance market. The Residential Mortgage Backed Securitisation (RMBS) market, aided by some new originators reported a healthy growth of 50% during the year 2006 over a relatively lower base of the previous fiscal.

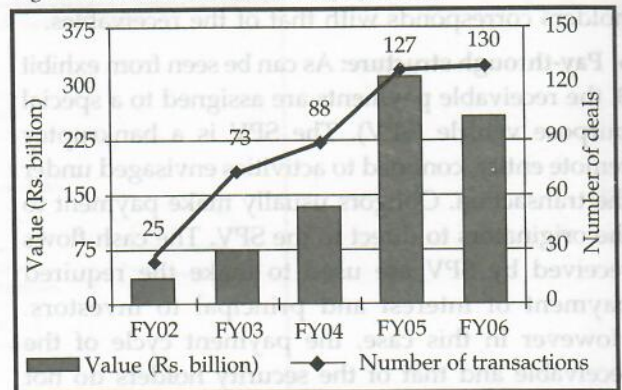
In the year 2002, Government of India enacted Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest Act (SARFAESI Act). The Act was promulgated after many deliberations on management of non-performing assets (NPAs) in the financial sector. The primary objective was to speed up the process of managing NPAs and it went a step further on developing Securitisation market in India. The Act paved way for setting up of Asset Reconstruction Companies

(ARCs), which in turn helped banks and financial institutions to clean up their balance sheets. The Act also provided special powers to lenders and Securitisation companies, to enable them to take over assets of borrowers without intervention of courts. Thus, one single law addressed the issues of Securitisation, the issues of Reconstruction Company and the issue of Enforcement of Security Interests (Krishna 2004).

Reserve Bank India (RBI) had issued guidelines for the regulatory framework of establishment of ARCs. To start with RBI gave license to two ARCs till November 2003 out of 12 applications. ICICI Bank, IDBI, SBI, HDFC and a few institutions had jointly

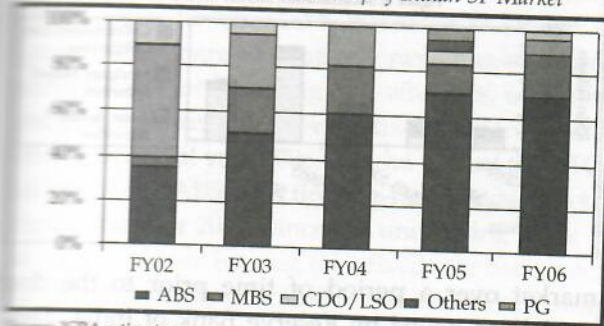
Structured Finance Market

Figure 1 : Issuance volumes in Indian SF Market



Source: ICRA estimates

Figure 2 : Product-wise Break-up of Indian SF Market



Source: ICRA estimates

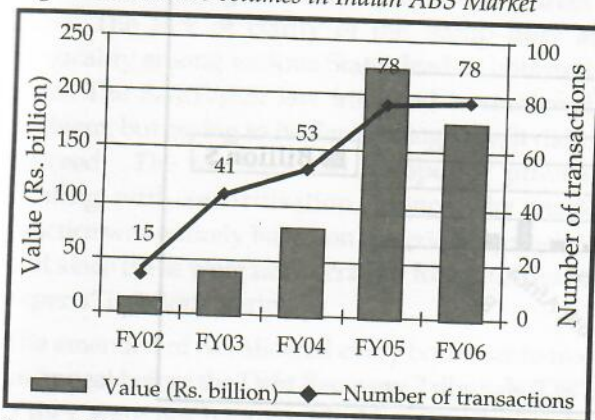
Asset Reconstruction Company India Limited (ARCIL), the first ARC registered with RBI, followed by Asset Care Enterprise (ACE).

Trends in Indian Finance Market

Issuance volume as shown in figure 1 showed that structured finance transactions declined by 17% in the year 2006 as compared to the previous year. The number of transactions increased from Rs. 25 billion to Rs. 130 billion from year 2002 to 2006. Product-wise break-up of Indian finance market as shown in figure 2 shows that asset backed securitisation (ABS) continued to be the largest product class in comparison to others. The share of ABS increased from 35% in the year 2002 to 69% in the year 2006.

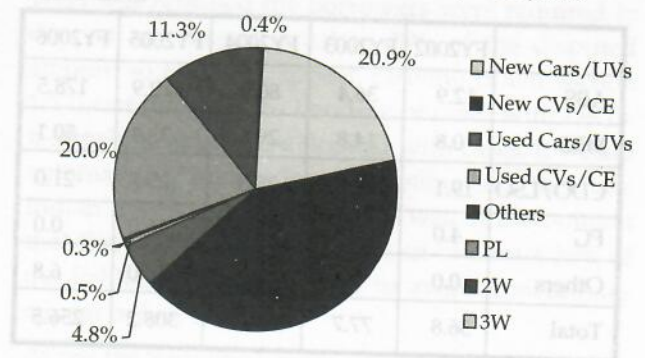
Asset Backed Securitisation issuance volume as shown in table 1 declined to Rs.178.5 billion in the year 2006 from Rs.222.9 billion in the year 2005. It was 21% lower in the year 2006 as compared to previous year as shown in figure 3 due to the draft guidelines issued by Reserve Bank of India that laid down certain stringent norms on capital adequacy as well as reporting requirements for the Originator.

Figure 3 : Issuance volumes in Indian ABS Market



Source: ICRA estimates

Figure 4 : Asset class-wise distribution of ABS pools

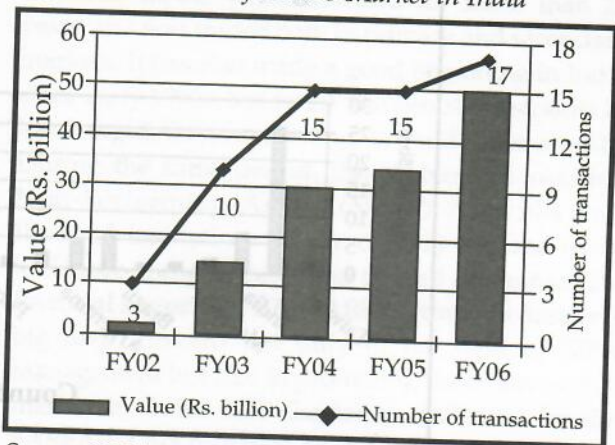


Source : ICRA estimates

Therefore, capital relief that was one of the key motives for securitisation was affected which resulted in slowdown of issuance volumes of Asset backed securitisation. The tight liquidity conditions and the rise in rate of interest also accounted for slowdown of securitisation issues during the second half of 2006.

Residential Mortgage-Backed Securitisation (RMBS) issuances grew by 50% during the year 2006 as is evident from figure 5. Two foreign banks HSBC and Standard Chartered Bank, placed their maiden RMBS issue during the year. Given a small base, the RMBS issuances recorded 50% growth over the volume in the previous year. Overall, RMBS issuances crossed Rs. 50 billion during FY2006. RMBS has a potential for even higher growth, given the significant expansion in the underlying housing finance business under way. However, the long tenure of the RMBS paper together with the lack of secondary

Figure 5 : Growth of RMBS Market in India



Source: ICRA estimates

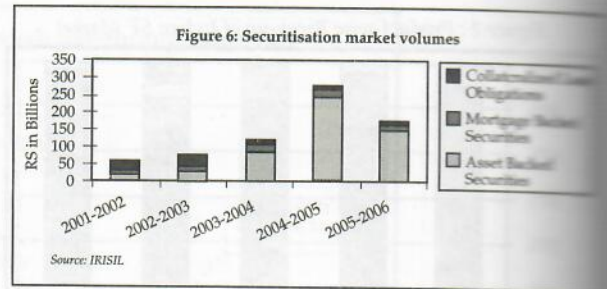
Table 1: Trend in SF Issuance Volumes

| | In Rs. billion | | | | |
|---------|----------------|--------|--------|--------|--------|
| | FY2002 | FY2003 | FY2004 | FY2005 | FY2006 |
| ABS | 12.9 | 36.4 | 80.9 | 222.9 | 178.5 |
| MBS | 0.8 | 14.8 | 29.6 | 33.4 | 50.1 |
| CDO/LSO | 19.1 | 24.3 | 28.3 | 25.8 | 21.0 |
| PG | 4.0 | 1.9 | 0.0 | 16.0 | 0.0 |
| Others | 0.0 | 0.4 | 0.5 | 10.0 | 6.8 |
| Total | 36.8 | 77.7 | 139.2 | 308.2 | 256.5 |

Source: ICRA estimates

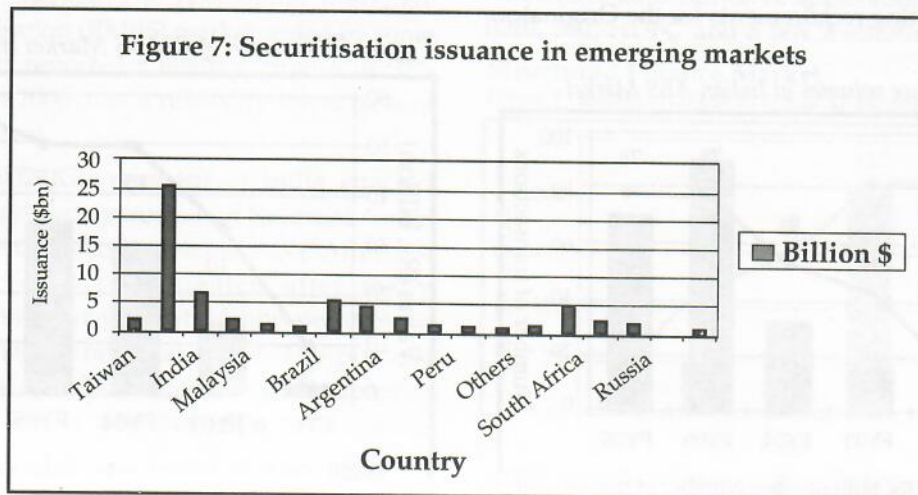
market liquidity deterred certain investors from investing in it. Further, unlike retail vehicle loans home loans in India either got re-priced or prepaid and so exposed the structures to significant interest rate risk leading to higher credit enhancement requirements.

Asset Backed Securitisation covers a variety of assets such as cars and utility vehicles (UVs), commercial vehicles (CVs), construction equipments (CE), two-wheelers and personal loans. Asset backed securities issuance volume increased from year 2001-2002 to 2005-2006 as shown in figure 6. Asset Backed Securitisation issuance volume reduced in financial year 2006, although the number of transactions were same as that in the previous year as shown in figure 3. The average deal size reduced from Rs. 2.9 billion in year 2005 to Rs.2.3 billion in the year 2006. The basic reason for such reduction in size was that originator could subscribe to the unplaced portion of the senior issue and sell the same in the secondary



market over a period of time prior to the draft guidelines issued by Reserve Bank of India. These guidelines restricted the investment of the originator to maximum 5% of the issue size in the senior-most tranche. Consequent to the draft guidelines on securitisation issued by the Reserve Bank of India (RBI) in April 2005, various Originators slowed down their securitisation activity, reduced the sizes of their transactions and preferred to place the issues on bilateral/direct assignment basis rather than issuing Pass Through Certificates (PTCs) to multiple investors. The tight liquidity conditions and the resulting rise in interest rates during the second half also contributed to the slowdown in securitisation issuances.

While the issuance volume continued to suffer during the first half of 2006-07 as issuers and arrangers weighed the benefits of securitising in the backdrop of the stringent norms on capital allocation and profit recognition under the final guidelines issued by RBI in February 2006. The strong growth and increasing capital adequacy requirements continued to prompt retail finance players to securitise their assets.



Source: Rao 2005

The share of newer asset classes in Asset backed securitisation for year 2006 increased as shown in figure 4. The share of relatively newer asset classes such as loans for financing two-wheelers, used cars and personal loans in the securitized pool increased. During financial year 2006, around 11% of the PTCs issued under ABS had floating-rate yields of 14% during the year 2005. Since the underlying loans in an ABS pool paid interest on a fixed rate basis, such structures typically provided for an interest rate swap (IRS) to enable payment of floating-rate yields to investors. India accounted for \$26 billion of securitisation issues among emerging markets in the year 2005 as shown in figure 7. The market share of new private sector banks was rising that lead to greater securitisation activity in India.

Section IV: Problems and Suggestions

Despite issuance of securitisation guidelines by RBI in February 2006 one hurdle or the other has plagued its progress. It was felt that the SARFAESI Act was narrow in approach, as it was applicable only to financial assets and that too by banks and financial institutions and this would have a negative effect on the growth of securitisation market. The act allowed only lenders to benefit. Equity investors, depositors and other service providers were also stakeholders of borrower companies and the act had unfairly shut them out of the debate and killed their chances of recovering their investments. Two petitions of Maheswar Dam case and Midas Touch Investors Association before Supreme Court had argued that act had no provision for effective recovery of money looted from lending institutions.

Further, the problem of stamp duty was seen as a hindrance for the growth of securitisation market in India. The lack of clarity of the stamp duty and illogicality among various States lead to unbearable costs. The SARFAESI law intended to resolve this problem, but owing to its flawed language, it did not succeed. The tax laws had no specific provision dealing with securitisation. Hence, the market practice was entirely based on generic tax principles, and since these were never crafted for securitisation, experts' opinions varied.

The amended of Act allowed every borrower to make an appeal before the Debt Recovery Tribunals (DRTs) if they were not happy with the action initiated by

the banker, without any pre-deposit. Before section 17(2) was repealed the borrowers were required to deposit an amount equal to 75% of the disputed amount to make an appeal. Striking down section 17(2) certainly lead to flooding of cases with DRTs. If appellate court were flooded with cases, it would automatically lead to delays in getting back the dues. Indian Banks Association (IBA) was of the opinion that there should be a pre-deposit of atleast 25% of the liabilities, which helped to avoid unnecessary appeal before DRTs.

As per the Supreme Courts order, banks had to serve 60-days notice before proceeding to take any of the measures provided in the act. An internal mechanism needed to be evolved to consider any objections if raised in the reply to the notice. The borrowers residing in Jammu and Kashmir were denied the right to make an appeal as the DRTs was not applicable to that state. Therefore, Securitisation Act need to be amended to allow the facility of appeals to the borrowers from Jammu and Kashmir. Several banks instead of selling off the assets directly, sold it to the Asset Reconstruction Company of India (ARCIL), which made the sale costly due to high stamp duty. Various state governments should levy a nominal stamp duty on the assignment of debt to Asset Reconstruction Company (ARCs) in order to help banks to resolve their NPA problem. Only a few states have relaxed the stamp duty levy. The need of the hour is to amend Securitisation Act suitably so as to help banks to recover their bad debts

Conclusions

Securitisation as a financial instrument has been in existence in the western world for more than 25 years, and was traded both in primary and secondary markets. It has also made a good beginning in India since early 1990s, but faced numerous constraints in legal, regulatory, accounting, tax and other aspects. During the same period, the problem of swelling Non-Performing Assets (NPAs) in banks and financial institutions of the country became more and more unmanageable and created a threat for the financial sector. The SARFAESI Act was definitely a big leap forward not only in the field of NPA management but also in promoting the securitisation market in India. RBI Guidelines followed by the SARFAESI Act provided an impetus to securitisation

in India but at the same time certain areas such as Stamp duty, Tax aspects etc., need to be clarified.

References

1. Ansari A A and Paramasivan T (2003), "Securitisation-A Strategic Financial Management Tool for Financial Intermediaries", *The Indian Journal of Commerce*, Vol 56, No 1, January-March 2003, pp 97-107
2. Datey V S (2000), *Law Relating to Securitisation, Reconstruction of Financial Assets & Enforcement of Security Interest*, Taxmann Publication
3. Kalpesh G (2006), "Update on Indian Structured Finance Market" retrieved from www.icraratings.com on 10th Feb, 2007
4. Kamashetty S B (2004), "Securitisation Act: A Toothless Tiger", *Professional Banker*, The ICAI University Press, November 2004, pp 42-45
5. Krishnan R (2004), "SARFAESI Act 2002-Is it a Boon to Securitisation or a Tool for NPA Management?", *Professional Banker*, May 2004, pp 27-32
6. Rao (2005), "Securitisation Market in India" retrieved from www.fitchindia.com/fridays/events/profrao/securitisationindia.pdf on 2nd of February 2007
7. Taneja S (1999), "Securitisation and Indian Financial Markets", *Abhigyan*, Vol XVII, No 2, April-June 1999
8. Verma A K (2002), "Securitisation: Future of Structural Financing for Indian Railways", retrieved from www.irastimes.org/securitisation2.pdf on 26th January 2007
9. Murthy V S N (1999), "A Report of the In house Working Group on Asset Securitisation" retrieved from www.rbi.org.in/scripts/bs_viewpublicationreport.aspx on 10th February 2007
10. Yadav S S et al (1999), "Securitisation: A New form of Financing" *Indian Management*, Vol 38, No 8 August 1999

Conclusions

Securitisation as a financial instrument has been in existence in the western world for more than 25 years and was traded both in primary and secondary markets. It has also made a good beginning in India since early 1980s, but faced numerous constraints in legal, regulatory, accounting, tax and other aspects. During the same period, the problem of swelling Non-Performing Assets (NPAs) in banks and financial institutions of the country became more and more unmanageable and created a threat for the financial sector. The SARFAESI Act was definitely a big step forward not only in the field of NPA management but also in promoting the securitisation market in India. RBI Guidelines followed by the SARFAESI Act provided an impetus to securitisation

Section IV: Problems and Suggestions

The issues of securitisation guidelines by RBI in January 2002 are hurdle or the other has played a major role in the progress. It was felt that the SARFAESI Act was a step in the right direction as it was applicable only to financial assets and that too by banks and financial institutions and this would have a negative effect on the growth of securitisation market. The act allowed only banks to benefit. Equity investors, depositors and other service providers were also stakeholders of borrower companies and the act had unfairly put them out of the debate and killed their chances of recovering their investments. Two petitions of Maharashtra Dam case and Midea Touch Investor Association before Supreme Court had argued that act had no provision for effective recovery of money lent from leading institutions.

Further, the problem of stamp duty was seen as a major hurdle for the growth of securitisation market in India. The lack of clarity of the stamp duty and applicability among various states lead to unbearable complexity. The SARFAESI law intended to resolve this problem but owing to its flawed language, it did not succeed. The act had no specific provision dealing with securitisation. Hence, the market practice was entirely based on generic tax principles and since these were never crafted for securitisation, specific opinions varied.

The amended act allowed every borrower to make an appeal before the Debt Recovery Tribunal (DRT) if borrower not happy with the action initiated by

**Amartya Sen – Identity and Violence
The Illusion of Destiny**
Penguin Books, 2006, Pages 215, Price: 295/-

The violent events and atrocities of the last few years have ushered in a period of terrible confusion as well as dreadful conflicts. The politics of global confrontation is frequently seen as a corollary of religious or cultural divisions in the world. Indeed, the world is increasingly seen, if only implicitly, as a loose federation of religions or of civilizations, thereby ignoring all the other ways in which people see themselves. In this scenario of doubt, mistrust, terrorism on the one hand and co-operation, proximity, groupings on the other hand; global trade takes place. Identity and Violence - The Illusion of Destiny is an attempt to remove the clouds of uncertainty engulfing the world.

The book has been written by Amartya Sen who is an international celebrity and noble prize winner in economics. Of late, Amartya Sen is writing philosophical pieces touching relevant and contemporary issues facing the world. From pure macro economics one can feel shift towards political, religious, managerial issues in his work.

The book revolves around the central idea, identity. The author has tried to explain the sense of identity and issues related to it. The book has been divided into nine chapters. First chapter focuses on the violence of illusion. Chapter two helps in understanding of the concept of identity. Other chapter present the issues related to civilisational confinement; religious affiliations and Muslim history; West and Anti-West: culture and captivity; globalization and voice; multiculturalism and freedom; and freedom to think. All the issues have imprints of Amartya Sen's philosophy.

This book is meant for curious learned readers having flare and interest in contemporary world issues. the book may also help senior managers and executives to understand the and what mistakes they are making in interpreting them. The book is also beneficial to the students for pure understanding and in avoiding the pre-conceived notions.

Dr. Atul Dhingra

Professor & Head,

Department of Business Management,
CCS Haryana Agricultural University,

Hisar-125004

atuldhingra@hau.ernet.in

STATEMENT ABOUT OWNERSHIP AND OTHER PARTICULARS OF THE JOURNAL
AMITY MANAGEMENT ANALYST
FORM - IV
(Rule 8)

| | | |
|---|---|---|
| 01. Place of Publication | : | Amity Education Valley, Panchgaon, Manesar (Gurgaon) |
| 02. Periodicity of its Publication | : | Bi-Annual |
| 03. Printer's Name | : | Dr (Prof) R C Sharma |
| Whether citizen of India | : | Yes |
| Address | : | Amity Education Valley, Panchgaon - 122413 Manesar, Gurgaon |
| 04. Publisher's Name | : | Dr (Prof) R C Sharma |
| Whether citizen of India | : | Yes |
| Address | : | Amity Business School Amity Education Valley, Panchgaon - 122413 Manesar, Gurgaon |
| 05. Editor's Name | : | Prof (Dr) R C Sharma |
| Whether citizen of India | : | Yes |
| Address | : | Amity Business School, Amity Education Valley, Panchgaon - 122413 Manesar, Gurgaon |
| 06. Name and address of the individuals (who own the Newspaper and Partners or Shareholders holding more than one per cent of the total capital) | : | Amity Business School Amity Education Valley, Panchgaon - 122413, Manesar, Gurgaon |

I, Prof (Dr) R C Sharma, hereby declare that the particulars given are true to the best of my knowledge and belief.

(Sd/-)
Prof (Dr) R C Sharma
 (Signature of the Editor)

Subscription Form

I wish to subscribe / renew my subscription to "Amity Management Analyst" for 1/2/3 years(s)
 A bank draft/cheque bearing no. _____ dated _____ for Rs/US\$ _____
 drawn in favour of "Amity Business School Manesar" towards subscription for _____
 years is enclosed.

Name _____

Address _____

City _____ Pin _____

Country _____

Phone _____

_____ Fax _____

E-mail _____

| Category | 1 year | 2 years | 3 years |
|--------------------------|--------|---------|---------|
| Indian (in Rs.) | | | |
| Institutions | 300 | 550 | 800 |
| Individuals | 200 | 350 | 500 |
| Alumni | 150 | 225 | 350 |
| Students | 150 | 225 | 350 |
| Foreign (in US\$) | | | |
| Air-Mail | 75 | 125 | 170 |
| Sea-Mail | 60 | 100 | 135 |

Signature with date

Please send the amount by DD/Crossed account payee cheque favouring
 "Amity Business School, Manesar" for timely receipt of the Journal.
 For outstation cheques, please add Rs 30 towards bank charges.

gaon,

knowledge

ma
(r)

Guidelines for Contributors

Amity Management Analyst invites original research-based papers, communications and management cases from both academicians and practitioners on topics of current concern in the area of management and related social sciences. General guidelines for contributors is listed below:

01. Manuscripts should be sent along with the authorization letter in favour of the Editor-in-Chief that it may be published after necessary editing and the copyright shall remain with the Editor-in-Chief. Manuscript should also accompany a brief resume of the author on a separate sheet.
02. Manuscripts should normally be of around 8,000 words (to an extent of 10 to 15 A-4 size pages, typed double space). Manuscripts should be submitted by electronic mail followed by typed copies in triplicate with the cover page bearing only title of the paper and author (s) names, designations, official addresses, phone/fax numbers and e-mail address.
03. Abstracts: All the manuscripts should include an abstract of about 100 to 200 words. No abstracts are required for review essays or case studies.
04. Footnotes: All footnotes should be indicated by serial numbers in the text and literature cited should be detailed under Notes at the end of the chapter bearing corresponding numbers.
05. Tables and Figures: Tables should approximate the appearance of printed tables and preferably submitted in a floppy disc. Tables/Figures should be placed at the end of the text, after footnotes, appendices and references. Tables should contain the source and units of measurement. Their location in the text should be indicated as follows:

Table 1

06. References: Place the references at the end of the manuscript following the footnotes. The list should mention only those sources actually cited in the text or notes. Author's name should be the same as in the original source. For more than one publication by the same author, list them in chronological order, with the older item first. For more than one publication in one year by the same author, use small (lower case) letters to distinguish them (e.g., 1980a, 1980b). Following are some hypothetical examples:
Books – Robert S (1988), *Managerial Effectiveness and Quality of Worklife: India Insights*, New Delhi, Tata McGraw Hill Publishing Co Ltd
Journal – Robert S (Oct 1982), "The Giving Model and Corporate Excellence: A Field Report", *Decision*, pp 219-224. Manikutty S (1997), "Telecom Services in Urban and Corporate Segments: A Consumer Perspective" *Vikalpa*, Vol 22, No 3, pp 15-28
07. No stops after abbreviations (UK, USA, MBA, etc)
08. Use double quotes throughout. The use of single quotes to be restricted for use within double quotes, e.g., "In the words of Churchill, 'Anyone can suggest you when you are right; friends are there to support you when you are wrong'" Quotations in excess of 50 words should be separated from the text with a line space above and below and indented on the left. Quotes should be cited accurately from the original source, should not be edited and should give the page numbers of the original publication.
09. Capitalization should be kept to the minimum and should be consistent.
10. An author will receive a complimentary copy of the issue in which his/her paper appears.
11. Book Reviews sent to Amity Management Analyst, must provide the following details and in this order: Name of author/title of book reviewed, place of publication/publisher/year of publication/number of pages, in Roman and Arabic Figures to include preliminary pages and price, with binding.

Manuscripts and all editorial correspondence should be addressed/e-mailed to:

Prof Shivali,

Managing Editor,

Amity Management Analyst, Amity Business School, Panchgaon-122413, Manesar (Gurgaon)

Tel.: 0124-2337639/ 40/ 51; Fax: 0124-2337641

e-mail: absmanesar@absm.amity.edu; website: www.amity.edu