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From Editor's Pen

The current issue of Arth Anvesan covers various emerging aspects of business and economic containing multitude of themes linked with each other in one or the other way, the journal throws light on the effective management practices and empirical analysis. The present volume of Arth Anvesan is divided into two sections. The first section comprises of research papers/articles followed by book reviews in the second section.

The paper by J.P.Singh and Laszlo Konya leads the existing volume of journal with a debate on the linkages between trade openness and economic growth in third world countries. It, on the basis of various trades' openness ratios, asserts that trade openness is the crucial determinant of economic growth and third party of reforms has recorded notable growth in this area. With the use stochastic frontier production function Surender Singh indicates that small size farms are more technically efficient as compare to their large and medium size counterparts and maintains that this improvement in efficiency will bring gain in terms of higher profits for farmers. Ashok Kumar and Karampal at the same time reviewing the previous literature avows that literature recommend that EVA is a better measurement tool as compared to other traditional methods and underline that the companies should adopt this tool to measure Shareholders' Value. An attempt in providing an understanding on operational risk and the methodologies to establish it,, is deliberated by Mandeep Kaur and Simranjeet Kaur accentuate that key to successful management lies in banks ability to assess its processes for establishing controls and safeguard measures. Furthermore, Bodha and Bishnoi bringing out the recent trends in mutual fund industry in India affirms that though both open-end and close-end schemes have registered excellent growth in fund mobilization, but currently the former category of schemes is more popular among the investors On the other side, Simranjeet Sandhar and others make an attempt to investigate the efficacy of efficient market hypothesis in context of Indian securities market. Neera Verma in her endeavor to study the spillover from the growth of FDI in India, states that even though most of the countries have experienced positive spillovers, yet such influences are conditional and depend, to a large extent, on various factors. R. K. Mahajan while throwing light on the scope of service sector in rural economy concludes this section of journal. The reviews of two important books in the second section of the journal bring an end to the present issue of the Art Anvesan.

Suparn Sharma



Arth Anvesan

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INDIA'S TRADE REFORMS, TRADE OPENNESS AND GDP GROWTH

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Abstract

Trade is considered an integral part of economic activity throughout the world and, among developed nations at least, it is widely perceived that open economy engenders trade and hence economic development. Trade openness has been considered as one of the main determinants of economic growth in developing countries. The purpose of this paper is to study the growth of gross domestic product (GDP), exports, imports and trade openness in India in different periods of her trade reforms.

1. Introduction

Trade is considered an integral part of economic activity throughout the world and, among developed nations at least, it is widely perceived that open economy engenders trade and hence economic development. There has been much debate on the macroeconomic consequences of trade openness for developing countries. The role of trade policy, and in particular, outward versus inward-oriented trade strategies, has been the focus of considerable academic pursuits. Trade openness has been considered one of the main determinants of economic growth in developing countries.

This debate has particularly focused on the effect of trade openness on economic growth with the dominant message being that trade openness is good for growth. Since the mid-seventies onward, there has been a paradigm shift from an import substitution strategy to an outward (or export) oriented approach and considerable progress in trade reforms in most developing countries.

How does trade openness contribute toward growth of a country? Do open economies grow faster than closed economies? Almost all empirical growth studies have provided an affirmative answer to this question. The reason for this strong support of trade liberalization is partly due to the conclusions of a wide range of empirical studies, which claimed that outward-oriented economies consistently have higher growth rates than inward-oriented countries.

Panagariya (2003) opined that as far as developing countries are concerned, there is compelling evidence that openness is required for rapid growth. Indeed, only a few developing countries have grown rapidly on a sustained basis without simultaneously experiencing rapid export and/or import growth. Yet, openness by itself is not sufficient to promote growth - macroeconomic stability, policy credibility and perhaps other policies must usually accompany it -, and one can surely find examples of countries opening up without experiencing growth.

The purpose of this paper is to study the growth of gross domestic product (GDP), export, import and trade openness in India in different periods of her trade reforms.

2. India's Trade Reforms

The Indian economy is often termed a 'mixed economy', referring to a blend of public control over important areas of industrial development combined with some freedom for private enterprises. The main characteristic of India's trade regime is import substitution. According to World Bank (1987), India is strongly inward oriented. Her import policy was liberalized not long after gaining independence in 1947, and although the foreign exchange crisis in 1956-57 ended this first wave of reforms, systematic and deeper reforms were initiated in July 1991 in order to deal with the consequences of the balance of payments crisis. At the same time, India also started to open its economy to international trade.

The extent of openness of an economy is judged by the permissiveness of its trade policies. An economy becomes more open with liberalization of export and import measures. Trade openness is also an indicator of the extent of global integration of the country. Opening up trade is associated with dilution of protection, as tariff and non-tariff restrictions are progressively withdrawn.

India's external economy changed significantly in the last three decades. Though the majority of measures came into force in the 1990s, the restructuring process had begun in the 1980s. Since then, India's trade policy regime drifted from an inward-looking and protected perspective to an open and globally integrated one.

Following Panagariya (2004), in the discussion below, we divide India's post-independence external-sector reforms into three phases: 1950-75, when the main trend was toward tighter control and virtual autarky; 1976-91, which was characterized by some liberalization, especially during the last 5-7 years of this period; and 1992 onward, when deeper and more systematic liberalization took place.

First Phase: 1950-75

After 1947, the regulation of the balance of payments became the central concern of the Indian government and it introduced explicit restrictions on the foreign exchange rates. In the following couple of years, until the launch of First Five Year Plan in 1951, India moved to and from between liberalization and control. The period of the First Five Year Plan, however, was one of progressive liberalization as the Tariff Act of 1954 stepped up tariff rates for thirty-two items and cleared the way for liberalization of import quotas through additional licenses over and above normal entitlements. India restored to comprehensive import control after the balance-of-payments crisis in 1956-57.

India introduced an important switch in her economic policy in June 1966 in the form of a major devaluation of the local currency; the Indian rupee was devaluated from 4.7 to 7.5 in comparison to the US dollar. At the same time, India also took steps in



the direction of liberalization of import licensing, tariffs, and export subsidies. These measures allowed the imports of raw materials and components to fifty-nine industries, covering 80 percent of the organized sector's output.

In response to the intense domestic criticisms of the devaluation, the 1966 liberalization measures were partially reversed and the import controls were tightened once again in the late 1960s and early 1970s. As a result, India's trade regime had become extremely authoritarian and the share of non-oil, non-cereals imports in GDP fell from an already low 7 percent in 1957-58 to 3 percent in 1975-76. Not surprisingly, following this downturn, there was another return to liberalization in the late 1970s, mainly due to the adverse effect of the tight import restrictions on the profitability of local industrialists and to the improved export performance and remittances from the Middle East, which improved the balance of payments of India.

Second Phase: 1976-91

In 1976, the reintroduction of the Open General Licensing (OGL) list, which was part of the original wartime regime, marked the beginning of the new phase of liberalization. At this stage, the OGL list of items that no longer required a specific import license from the Ministry of Commerce contained only 79 capital goods items, but it was further extended to cover 1170 capital goods items and 949 intermediate inputs by April 1988. The government also introduced several export incentives, especially after 1985, which partly neutralized the antitrade bias of import controls. During 1985-90, the Indian rupee was devalued in nominal effective terms by 45 percent, leading to a real depreciation of 30 percent. Additionally, thirty-one sectors had been freed from industrial licensing by 1990. Since this measure freed machinery imports in these sectors from industrial licensing clearance, it had a trade-liberalizing dimension as well. Moreover, improved agricultural performance and the discovery of oil made room for non-food and non-oil imports, mainly machinery and intermediate inputs.

Matched by fiscal policy reforms, trade liberalization raised India's average growth rate from 3.5 percent during 1950-80 to 5.6 percent during 1981-91. However, the external and internal borrowings that supported fiscal expansion were unsustainable and led to the June 1991 balance of payment crisis.

Third Phase: 1992 onward

In July 1991, India switched over to an outward-oriented, market based economy. The trade liberalization initiation was compressive with occasional hiccups. As regards merchandise trade, the new reforms did away with import licensing on all but a handful of intermediate inputs and capital goods. Consumer goods, however, remained under licensing, though later they were also freed of licensing in 2001. Currently, all goods may be imported without a license or restrictions, except some goods that are disallowed on environmental or health and safety grounds and a few others, such as fertilizer, cereals, edible oils, and petroleum products, which can be imported by the government only.

With the removal of licensing, tariff rates, which had been raised substantially during 1980s, became effective restrictions on imports. Consequently, since 1991 one of the important goals of the reforms has been to lower tariffs. These tariff reductions, however, have been limited to non-agricultural and industrial goods. On some agricultural products, such as skimmed milk powder, rice, corn, wheat, and millet, India traditionally had zero or very low bound rates.

Traditionally, India had also restricted exports of several commodities. With the advent of liberalization policy, India began to reduce the number of products that were otherwise subject to export control. The 1992 Export-Import Policy reduced the number of items subject to controls from 439 to 296 and the number of prohibited items from 185 to 16. Nowadays, export prohibition applies only to a small number of items on health, environmental, or moral grounds, and export restrictions are maintained mainly only on cattle, camel, fertilizers, cereals, groundnut, oil, and pulses.

As part of the liberalization reforms, India devalued her currency from 21.2 rupees to 25.8 rupees to the dollar in 1991. In February 1992, dual exchange rate system was introduced to allow exporters to sell 60 percent of their foreign exchange receipts in the free market while the rest had to be sold to the government at a lower official price. On the other hand, importers were allowed to purchase foreign exchange in the open market at the higher market price. As a further step, the official exchange rate was unified with the market exchange rate within a year. Since February 1994, many current account transactions, including all current business transactions, education, medical expenses, and foreign travel have been also permitted at the market exchange rate. India has accumulated approximately US \$ 120 billion worth of foreign exchange reserve and freed up many capital account transactions.

India has also substantially liberalized her trade in services since 1991. While previously the service sector has been subject to heavy government intervention, considerable progress has been made toward opening the door for private sector participation, including foreign investors.

3. Methodology, Results and Discussion

In order to estimate the extent of India's trade openness we have used the ratio of exports to GDP (export orientation), the ratio of imports to GDP (import orientation), and the trade to GDP ratio (ratio of exports plus imports to GDP). The time series data for nominal exports, imports and gross domestic product (GDP) from 1950/51 to 2005/06 were extracted from Economic Survey 2007-2008 (<http://indiabudget.nic.in>).

The raw data and time trends fitted to GDP, exports, imports, trade orientation, export orientation, and import orientation are displayed in Charts 1 through 6. Table 1 presents the annual compound growth rates of GDP, exports, imports, trade orientation, export orientation, and import orientation in different periods of trade policy reforms. Annual trade openness ratios are shown in table 2.

GDP Growth

Looking at Chart 1, there is clear indication that during the sample period GDP increased exponentially, with an estimated compound growth rate of 12.19 percent annually (table 1). The first period of reforms observed the slowest GDP growth, 8.88 percent annual rate, while the second period witnessed the highest annual growth of 13.66 percent. The third period of reforms which started in mid 1991 after the adoption of WTO agreement, has also recorded 13.29 percent annual increase which is just marginally lower than in the previous period of reforms.



Export Growth

Though India has been an inward-looking country, her export growth has been appreciable (see Chart 2). If the fitted exponential time trend is any indication of growth, export, like GDP, has grown fast, by 14.03 percent annually (Table 1). If we compare growth performance in the three phases of trade reforms, the third period has witnessed the fastest growth, 16.99 percent annually, probably due to the various liberalization and export promotion measures after mid 1991. Export growth was at its lowest, 6.58 percent, in the first period of trade policy reforms, while the second period exhibited 13.34 percent annual increase in exports. The overall growth in exports has outpaced marginally the growth in imports (Table 1).

Import Growth

World Bank (1987) categorized a number of countries according to their trade orientation for the period 1973-85, and India was termed strongly inward oriented. Nevertheless, import has been increasing exponentially in India (Chart 3), particularly in the past decade, mainly due to the move towards trade liberalization. India has liberalized her international trade in line with the agreements with the World Trade Organization in 1991 and has progressively reduced tariff rates, which resulted in an impressive 18.63 percent annual growth in the third period of reforms. In contrast, during the first and second periods, imports increased by 6.50 and 14.66 percent annually respectively.

Trade to GDP ratio

One indicator of the significance of international trade to the economy is the “trade-to-GDP ratio” which is the sum of exports and imports divided by the gross domestic product. It is probably safe to say that a country with a progressively high ratio is economically sensitive to changes in the level of global trade.

Table 1 shows that the trade to GDP ratio decreased 2.15 % annually in the first period, remained stagnant in second period and dramatically increased in the third period of reforms. Chart 4 also indicates that the trade to GDP ratio first declined and then gradually increased from 1950/51 through 2005/06. In particular, it decreased from 13.52% in 1950/51 to 7.97% in 1969/70 and then progressively increased to 34.09% in 2005/06 (see Table 2). This indicates that trade could not increase in line with that of GDP during 1950/51 – 1969/70. Finally, the trade to GDP ratio more than doubled from 15.85 per cent in 1990/91 to 34.09 per cent in 2005/06 indicating favorable trade environment in the country.

Export to GDP ratio

The behavior of the export to GDP ratio is similar to that of the trade to GDP ratio. The fitted line (Chart 5) indicates that this ratio first declined and increased gradually. Namely, the export to GDP ratio declined at the annual rate of 2.12 % in first period, remained almost constant in the second period and bounced back by increasing at 3.26 % annually in the third period (see Table 1). Table 2 also shows that the export to GDP ratio declined from 6.75% to 3.37 % between 1950/51 and 1965/66, but thereafter it progressively increased to 13.93% by 2005/06. The reason behind this behavior seems to be the dramatic fall in the value of the rupee over the first three years of the reforms, which made exports more profitable, and imports more expensive.

Import to GDP ratio

Pattern of growth of import to GDP ratio during the three periods of reforms is almost similar. It declined 2.19 percent annually in the first period, increased 0.88 percent annually in the second and registered dramatic increase of 4.71 percent annually in the third period. Like the trade to GDP and export to GDP ratios, the import to GDP ratio first declined and recovered gradually (see Chart 6). Table 2 also shows that the import to GDP ratio decreased from 6.77% in 1950/51 to 4.02% in 1972/73. Thereafter it gradually increased, with some annual fluctuations, to the level of 20.16% by 2005/06. During the last 5 and the half decades, on year-to-year basis, the import to GDP ratio was almost always higher than the export to GDP ratio indicating that India has been adopting inward looking trade policy measures.

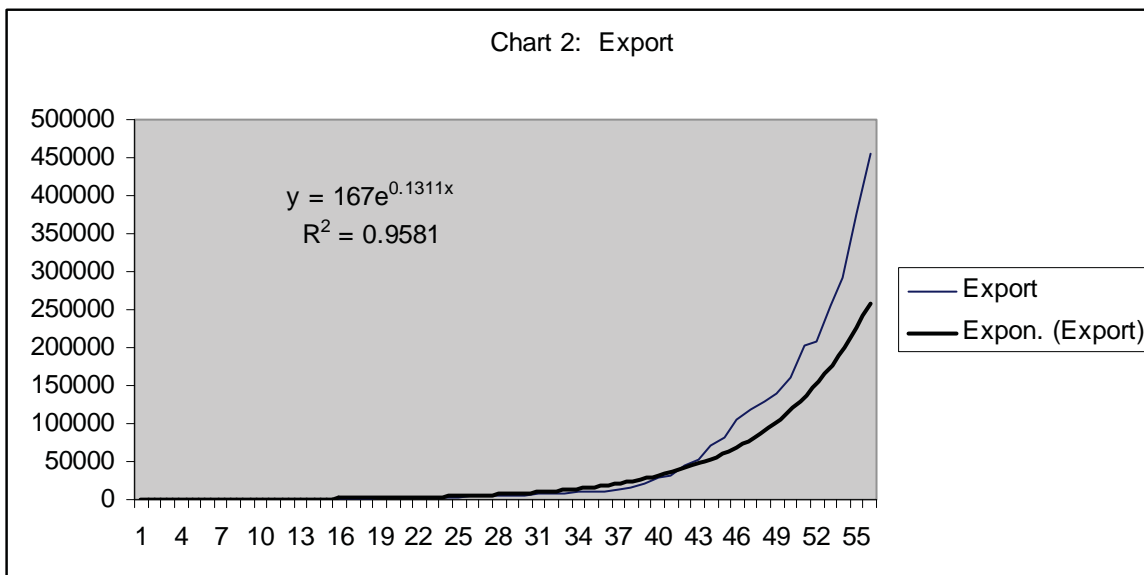
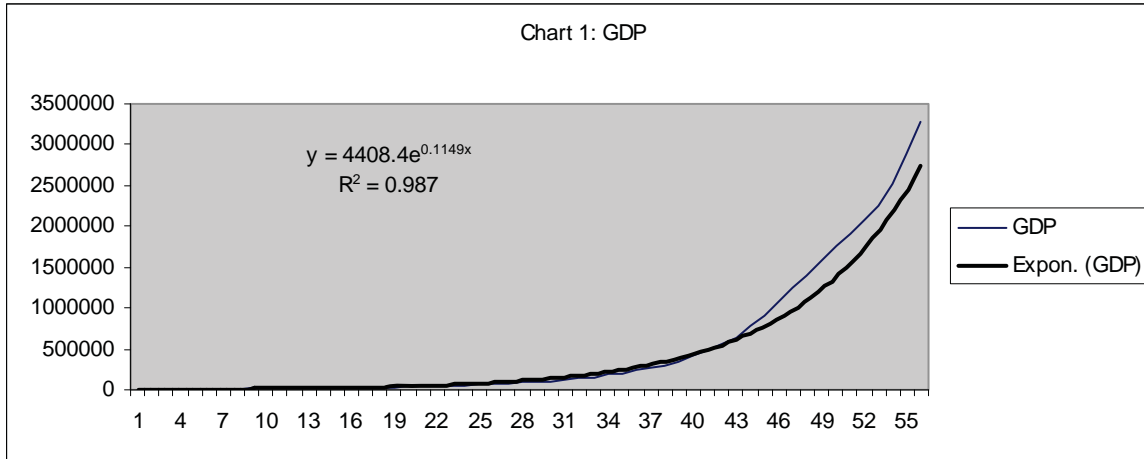
At the time the reforms were initiated, the most dramatic change was, of course, in the field of import licensing, coupled with a deliberate easing of the foreign exchange constraint to imports. This has more than doubled the import to GDP ratio from 9.04% in 1990/91 to 20.16% in 2005/06.

Summary

Trade openness has been considered as one of the main determinants of economic growth in developing countries. India has also substantially liberalized her trade in services since 1991. While previously the service sector has been subject to heavy government intervention, considerable progress has been made toward opening the door for private sector participation, including foreign investors. First period of reforms witnessed slowest growth rate (8.88 percent) while second and third period observed 13.66 and 13.29 percents, respectively. Indian export and import have gradually increased in first and second periods and the third period of reforms witnessed annual compound growth of 16.99 and 18.63 percent respectively in export and import. Trade openness ratios name trade to GDP, export to GDP, import to GDP ratios have shown notable growth in the third period of reforms in comparison of first and second period of reforms indicating that India trade policy reforms have shown positive impact on the trade.

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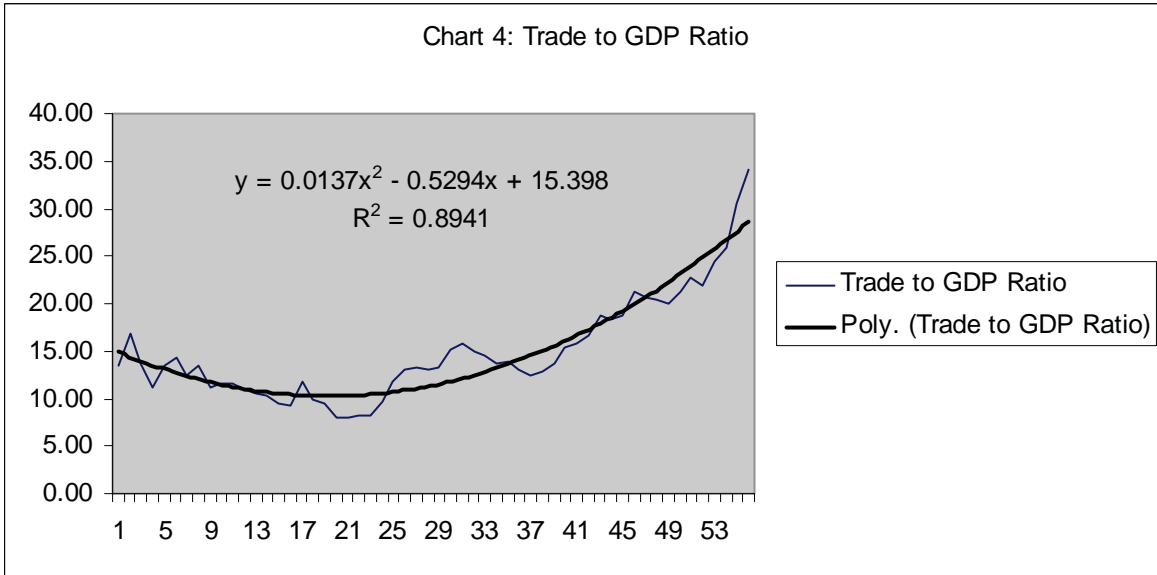
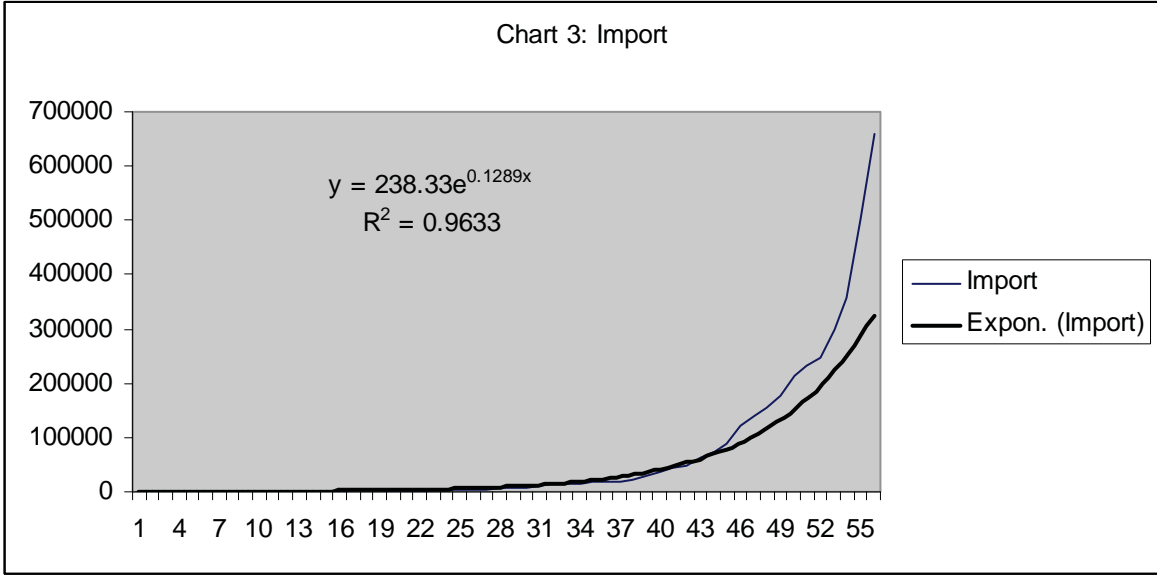




Chart 5: Export Orientation

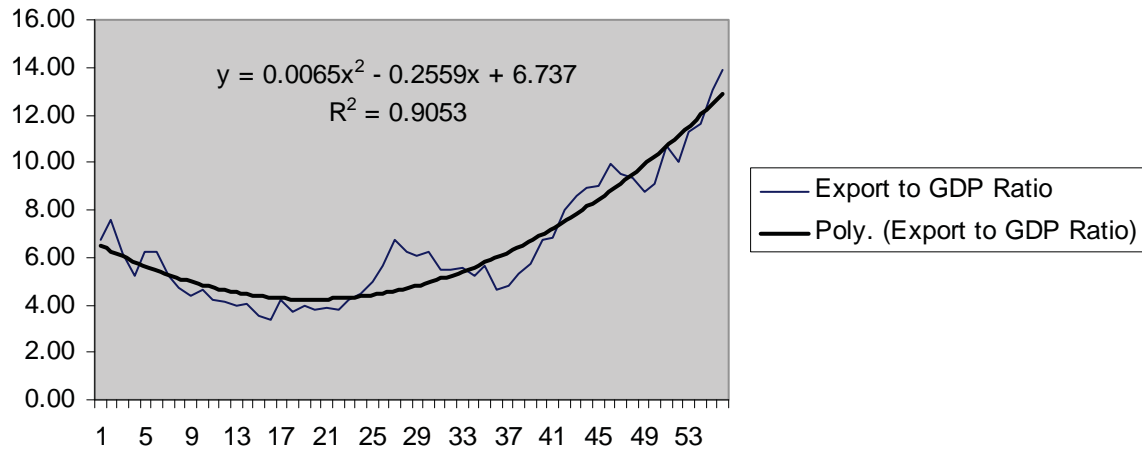


Chart 6: Import Orientation

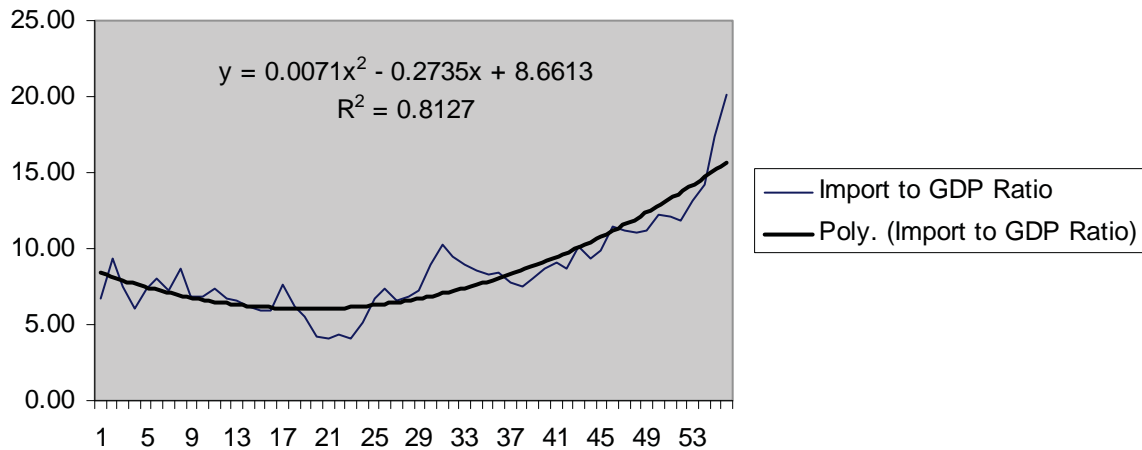


Table 1: Compound Growth Rates

Reform Period	GDP	Export	Import	Trade to GDP ratio	Export to GDP ratio	Import to GDP ratio
I: 1950/51-1974/75	8.88	6.58	6.50	-2.15	-2.12	-2.19
II: 1975/76-1990/91	13.66	13.34	14.66	0.35	-0.28	0.88
III: 1991/92 onward	13.29	16.99	18.63	4.06	3.26	4.71
Aggregate	12.19	14.03	13.78	1.50	1.64	1.41

**Table 2: Trade Openness Ratios**

Year	Trade to GDP ratio	Export to GDP ratio	Import to GDP ratio
1950-51	13.52	6.75	6.77
1951-52	16.94	7.55	9.39
1952-53	13.69	6.18	7.51
1953-54	11.21	5.22	5.99
1954-55	13.52	6.20	7.32
1955-56	14.23	6.27	7.97
1956-57	12.47	5.22	7.25
1957-58	13.46	4.73	8.73
1958-59	11.21	4.38	6.83
1959-60	11.49	4.59	6.90
1960-61	11.56	4.21	7.36
1961-62	10.87	4.10	6.77
1962-63	10.55	3.98	6.57
1963-64	10.25	4.03	6.22
1964-65	9.42	3.55	5.87
1965-66	9.22	3.37	5.86
1966-67	11.81	4.22	7.59
1967-68	9.90	3.70	6.20
1968-69	9.56	3.98	5.59
1969-70	7.97	3.76	4.21
1970-71	7.98	3.87	4.12
1971-72	8.13	3.81	4.32
1972-73	8.26	4.24	4.02
1973-74	9.62	4.43	5.19
1974-75	11.71	4.97	6.74
1975-76	13.06	5.67	7.39
1976-77	13.35	6.72	6.63
1977-78	13.08	6.19	6.89
1978-79	13.35	6.10	7.26
1979-80	15.19	6.27	8.93
1980-81	15.73	5.48	10.25
1981-82	14.99	5.46	9.52
1982-83	14.54	5.54	9.00
1983-84	13.77	5.25	8.51
1984-85	13.89	5.65	8.24
1985-86	13.05	4.65	8.40
1986-87	12.50	4.78	7.72
1987-88	12.86	5.32	7.55
1988-89	13.73	5.73	8.00
1989-90	15.41	6.77	8.64
1990-91	15.85	6.81	9.04
1991-92	16.65	7.98	8.67
1992-93	18.65	8.56	10.10
1993-94	18.28	8.93	9.36
1994-95	18.83	9.02	9.81
1995-96	21.34	9.91	11.43



1996-97	20.73	9.55	11.17
1997-98	20.45	9.36	11.09
1998-99	19.90	8.74	11.16
1999-00	21.27	9.06	12.22
2000-01	22.83	10.70	12.13
2001-02	21.82	10.04	11.78
2002-03	24.50	11.31	13.18
2003-04	25.89	11.64	14.25
2004-05	30.45	13.04	17.41
2005-06	34.09	13.93	20.16



AN ANALYSIS OF FACTORS AFFECTING TECHNICAL EFFICIENCY: A STUDY OF WHEAT CULTIVATION IN HARYANA

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Abstract

The study investigates farm-specific technical inefficiency effects of wheat farms in Haryana using stochastic frontier production function, which incorporates a model for technical inefficiency effects. Technical inefficiency effects are modelled as a function of age, schooling, experience of farmer, extension contacts and hired-labour ratio. The study reveals that the traditional average response function was not an adequate representation of the data. The mean technical efficiency turns out to be 0.85. Thus, yield of wheat in the State can be increased by 15 percent without increasing the level of inputs, if the inefficiency is reduced. Small-size wheat farms are found more technically efficient as compared to their large and medium-size counterparts. The results further indicate that technical inefficiency is influenced by age, education, farming experience and extension of the farmer. There is a need to promote young farmers as decision makers along with raising the education level of farming community and also efforts should be made to further strengthen the extension contacts for farmers.

Introduction

India has made substantial progress in agriculture sector generating self-sufficiency in food grains and exports of some other crops. Despite this, due to improper use of resources, productivity in India is low even as compared to some developing countries. The phase of input-intensification is over and at the same time with 'new economic policies' subsidies offered on crucial inputs are being reduced so as to eliminate them eventually. Increase in agricultural production depends not only upon land use but also on productivity or efficiency of this sector. Increasing the efficiency in production is a very important factor of productivity growth especially in resource scarce economies. Under these circumstances reducing inefficiency is the best way to enhance productivity.

Inefficiency is the inability of the farm to produce maximum possible output with a given bundle of inputs. Recent researches have shown that farmers particularly in developing countries, fail to exploit the full potential of technology or inputs [Taylor and Shonkwiler (1986), Kalirajan and Shand (1989), Sharma and Dutta (1997)]. The identification of those factors, which influence the technical efficiency of farming, is undoubtedly very significant for policy makers. In this background, the present paper investigates; i) the technical efficiency (inefficiency) prevailing in wheat cultivation in Haryana; and ii) the influence of some farmer-specific attributes on inefficiency.

Methodology

The technical inefficiency of an individual farm was estimated by fitting stochastic frontier production function proposed by Aigner, Lovel and Schmidt (1977) and Meeusen and Van Den Broeck (1977). In Such a specification, output of each farm is bounded above by a frontier, which varies across observations. This technique measures efficiency of farms relative to their own frontier. In stochastic frontier production the disturbance term is composed of two parts; one symmetric, which captures the random effects outside the control of farms including droughts, floods etc. and the statistical noise contained in every empirical relationship and the other one-sided, which captures deviations from the frontier due to technical inefficiency.

Most of the studies, investigating the influence of factors that cause inefficiency used a two-stage approach. The first stage involves estimation of a stochastic frontier production function and the prediction of farm level technical inefficiency. In the second stage these estimated technical inefficiencies are related to farm specific factors using OLS¹. This approach has been used by Kumbhkar, Ghosh and McGuckin (1991), Haung and Lui (1994), Bravo-Ureata and Pinherio (1993) and Reddy and Sen (2004).

Battese and Coelli (1995) have specified stochastic frontiers and models for the technical inefficiency effects and simultaneously estimate all the parameters involved. This one stage approach is less objectionable from a statistical point of view and is expected to bring more efficient inference with respect to the parameters involved. The present study incorporates the model specified by Battese and Coelli (1995) in the analysis of data for wheat cultivation in Haryana Agriculture.

Model Specification

Technical inefficiency of individual farm is estimated through the stochastic frontier production function, which is defined as:

$$\ln Y_i = b_0 + b_1 \ln X_1 + b_2 \ln X_2 + b_3 \ln X_3 + b_4 \ln X_4 + V_i - U_i$$

Y_i = Total value of output in Rs.
 X_1 = Land in acres
 X_2 = Total value of agrochemicals in Rs²



X_3 = Total labour man-days³
 X_4 = Cost of capital in rupees⁴
 b 's = Parameters to be estimated

V_i = Symmetric error term which is assumed to be independently and identically distributed having $N(0, \sigma_v^2)$ distribution; and
 U_i = One sided error term, reflecting technical inefficiency, which is assumed to be independent of V_i , is such that U_i is the non-negative truncation (at zero) of the normal distribution with mean μ and variance σ^2 where U_i is defined as

$$U_i = \delta_0 + \delta_1 z_1 + \delta_2 z_2 + \delta_3 z_3 + \delta_4 z_4 + \delta_5 z_5$$

Where

z_1 = Age of the farmer (in years)
 z_2 = Schooling of the farmer (in years)
 z_3 = Farming experience (in years)
 z_4 = Extension contacts
 z_5 = Hired labour to total labour ratio
 δ_i 's = Parameters to be estimated

The variables $z_1 \dots z_5$ are included in the model for technical inefficiency effects to indicate possible effects of farmer specific characteristics on the efficiency of wheat production in Haryana. The b s and δ s are unknown parameters to be estimated together with the various parameter, which are expressed in terms of

$$\sigma_s^2 = \sigma_v^2 + \sigma^2 \quad \text{and} \quad \gamma = \sigma^2 / \sigma_s^2,$$

where γ lies between zero and one.

It is worthy to mention here that the above model for the inefficiency effects can only be estimated if the inefficiency effects are stochastic and have a particular distributional specification. Hence it is interesting to test the following hypotheses:

- 1) $H_0: \gamma = \delta_0 = \dots = \delta_5 = 0$, i.e., inefficiency is absent.
- 2) $H_0: \gamma = 0$, i.e., inefficiency effects are not stochastic.
- 3) $H_0: \delta_0 = \dots = \delta_5 = 0$, i.e., the coefficients of explanatory variables in the model are simultaneously zero.
- 4) $H_0: \delta_1 = \dots = \delta_5 = 0$, i.e., the coefficients of the variables in the model for inefficiency effects are zero.

The tests of these hypotheses for the parameters of the frontier are conducted using the generalized likelihood ratio statistics, λ defined as;

$$\lambda = -2 \ln [L(H_0)/L(H_1)],$$

where $L(H_0)$ is the value of likelihood function for the frontier model, in which parameter restrictions are specified by null hypothesis, H_0 , are imposed, and $L(H_1)$ is the value of the likelihood function for the general linear frontier model. If the null hypothesis is true, then λ has approximately a chi-square (or mixed square) distribution with degrees of freedom equal to the difference between the parameter estimated under H_1 and H_0 respectively.

The variables age, schooling, farming experience, extension contacts and hired-labour ratio are included in the model for technical inefficiency to indicate the possible effects of farmers' characteristics on the efficiency of wheat production. The age of the farmer could be expected to have positive or negative effect upon the size of inefficiency. The older farmers are likely to have more farming experience and hence, have more efficiency. However, they are likely to be more conservative in adopting the new techniques and practice in farming, thereby having more inefficiency. As regards to schooling, it is expected that greater years of formal education will reduce inefficiency. Similarly the farming experience and extension contacts are expected to have negative impact on inefficiency. Regarding hired labor to total labour ratio, it is expected that both hired and family labour are equally efficient.

The technical efficiency of the farmer, given the specification of the model, is defined by $TE_i = E(-U_i)$. Thus the technical efficiency of farmer is between zero and one and is inversely related to the inefficiency model. The parameters of the stochastic frontier production function model are estimated by the method of maximum likelihood using the Computer Program FRONTIER Version 4.1.

The Data

The Present study uses farm-level cross section data for the year 1998-99. The sample farms were selected by using a three stage stratified random sampling technique. In the first stage two tehsils from each district of the state were selected randomly. At the second stage one village from each of the selected tehsils was selected at random. Selection of farmers from each village formed the third stage. All the farmers of the selected villages were grouped into three categories based on their land ownership, i.e., small-size farms (up to 5 acres), medium size farms (5 to 15) and large size farms (15 acres and above). A proportionate random sample (10 percent of each farm size) was taken. In all, a sample, comprising of 314 farms was selected. The required data on input-output coefficients, input-output prices and related variables was collected through questionnaire-cum-interview method. Information was also gathered on some socio-economic variables such as age, schooling, farming experiences, all measured in years. Extension contacts were also taken into account as a dummy variable, where a contact to extension personnel in past one year was considered



equal to 1 and 0, otherwise.

Results and Discussion

A basic summary of the values of the key variables used in stochastic frontier production function model is presented in Table 1. The average size of operational holding was 6.87 acres at aggregate level and 16.86, 4.20 and 4.52 acres for large-size, medium-size and small-size farms respectively. The average size of holding under medium-size farms turned out to be less than the average-size under small-size farms⁵. The value of output per acre was highest in medium-size farms (Rs. 8613) followed by small and large-size farms (Rs. 8233 and Rs. 8004 respectively), and for farms at aggregate level, it came out to be Rs. 8282. The table brings out the positive association between output per acre and use of labour man-days per acre. Output per acre and use of labour per acre are the highest in case of medium-size farms followed by small and large-size farms. There exist diminishing returns to scale to the labour input. The large-size farms are found using more agrochemicals per acre (Rs. 1332) followed by medium and small-size farms (Rs. 1245 and Rs. 1049 respectively), whereas the farms at aggregate level used agrochemicals of Rs. 1216. The table reveals that per acre capital cost is much higher in the case of large-size farms than in medium and small-size farms. The average education level of the decision maker at aggregate level was 7.45 years of formal education. The average age of the decision maker was 42.47 years. The average farming experience of the decision maker was 13.44 years.

Table 1: Summary Statistics for Variables in the Stochastic Frontier Model for Wheat farmers in Haryana

Variable	Small farm size	Medium Farm size	Large farm size	Aggregate Level
Average area under wheat cultivation (in Acres)	4.52	4.20	16.86	6.84
Output per Acre (Rs.)	8233	8613	8004	8282
Labour man-days (per acre)	11.68	15.82	9.48	12.33
Hired Labour (Man-days (per acre)	4.81	6.7	6.54	6.03
Output per labour (Rs.)	704	545	844	672
Agrochemical (Per acre)	1049	1245	1332	1216
Capital cost (per acre)	784	708	979	826
Average age of farmer (in year)	45.04	42.80	44.09	42.47
Average years of schooling	6.96	7.04	7.09	7.45
Average farming experience (in years)	14.79	13.17	16.85	15.44

The maximum likelihood estimates for the parameters in stochastic frontier and inefficiency model, for different farm sizes, are presented in Table 2. Tests of various null hypotheses associated with the models were carried out using likelihood-ratio (LR) statistics and the results are presented in Table 3. The first null hypothesis, $H_0: \gamma = \delta_0 = \dots = \delta_5 = 0$, i.e., inefficiency is absent from the model, is strongly rejected at all the three farm-size levels and hence at aggregate level. It also indicates that traditional mean response function is not adequate representation of the data for wheat cultivation. The second null hypothesis, $H_0: \gamma = 0$, which specifies that the inefficiency effects are not stochastic, is again strongly rejected at all the farm size levels. So we do not accept the null hypothesis that there was no technical inefficiency. The parameter γ is estimated to be 0.99 at aggregate level and 0.94, 0.97 and 0.73 for large, medium and small-size farms respectively, which suggest that the inefficiency effects are highly significant in the analysis of production of wheat by the farmers.

The third null hypothesis considered in the model, $H_0: \delta_0 = \dots = \delta_5 = 0$, i.e., the coefficients of the explanatory variables in the inefficiency models are simultaneously zero, is also rejected at aggregate and three farms-size levels. It indicates that the five explanatory variables taken in the model make a significant contribution in the explanation of inefficiency effects associated with the value of output for the sample farmers.

The last null hypothesis considered, $H_0: \delta_1 = \dots = \delta_5 = 0$, i.e., the coefficients of the variables in the model for inefficiency effects are zero, is also rejected at three farm size levels as well as at aggregate level. Thus, given the specification of frontier production function, the tests of hypotheses indicate that the five variables in the efficiency model make a significant contribution in explaining the inefficiency associated with wheat cultivation.

The estimated coefficients in the explanatory variables in the model for technical inefficiency effects are of interest and have important implications. Its results are presented in Table 2, which indicate a positive association between age of farmer and inefficiency effects at aggregate and three farm-size levels. The results indicate that older farmers tend to have more inefficiencies than younger ones. This could be explained in terms of adoption of modern technology, as older farmers tend to be more conservative and less receptive to modern technologies. As the age increases the farmers tends to be more risk averter and hesitate to adopt new technologies making the production process inefficient.



Table 2: Maximum-Likelihood Estimates for Parameters of the Stochastic Frontier and Inefficiency Models for Wheat Cultivation in Haryana

Variable	Parameter	Small Farm Size	Medium Farm Size	Large Farm Size	Aggregate Level
Constant	β_0	2.453* (0.152)	2.691* (0.236)	4.109* (0.283)	3.207* (0.1230)
Land	β_1	0.169* (0.066)	0.179 (0.103)	0.083 (0.104)	0.652* (0.051)
Agrochemicals	β_2	0.397* (0.049)	0.275* (0.092)	0.667* (0.113)	0.193* (0.041)
Labour	β_3	0.225* (0.0161)	0.412* (0.135)	0.015 (0.047)	0.098* (0.041)
Capital Cost	β_4	0.008* (0.019)	0.018 (0.033)	0.039 (0.031)	0.015 (0.010)

Inefficiency Model

Constant	δ_0	0.367 (0.373)	0.097 (0.98)	0.275 (0.219)	-5.237* (0.478)
Age	δ_1	0.041* (0.007)	0.048 (0.048)	0.001 (0.001)	2.254* (0.359)
Schooling	δ_2	-0.136* (0.035)	-0.269* (0.135)	-0.011* (0.001)	-1.867* (0.595)
Farming Experience	δ_3	-0.016* (0.007)	-0.101* (0.098)	-0.001 (0.001)	-1.666* (0.236)
Extension Contacts	δ_4	-0.460* (0.229)	-2.401* (1.07)	-0.279* (0.075)	-0.092 (0.081)
Hired-Labour Ratio	δ_5	0.411 (0.290)	-2.267 (1.397)	0.184 (0.115)	-0.639* (0.220)
Variance Parameters	σ^2	0.732* (0.196)	0.972* (0.028)	0.941* (0.078)	0.987* (0.003)
	Γ	0.048* (0.025)	0.822* (0.418)	0.018* (0.006)	0.568* (0.156)
Log likelihood function		69.63	-18.01	53.46	162.08

Note: Figures in parentheses represent standard errors

*Significant at 5 percent level

Table 3: Likelihood Ratio Tests of Hypotheses for parameters of the Stochastic Frontier Production Function for Wheat cultivators in Haryana

Null Hypotheses	Farm Level	Log Likelihood	λ	Critical Value	Decision
1. $H_0: \gamma = \delta_0 = \dots = \delta_5 = 0$	Small farms	56.98	25.3	13.40	Reject H_0
	Medium farms	-49.61	62.28	13.40	Reject H_0
	Large farms	41.31	24.32	13.40	Reject H_0
	Aggregated farms	136.27	51.62	13.40	Reject H_0
2. $H_0: \gamma = 0$	Small farms	59.49	20.14	7.95	Reject H_0
	Medium farms	-34.17	32.30	7.05	Reject H_0
	Large farms	43.69	19.54	7.05	Reject H_0
	Aggregated farms	146.33	31.52	7.05	Reject H_0
3. $H_0: \delta_0 = \dots = \delta_5 = 0$	Small farms	59.90	19.46	11.91	Reject H_0
	Medium farms	-30.20	24.36	11.91	Reject H_0
	Large farms	44.04	18.84	11.91	Reject H_0
	Aggregated farms	151.27	21.62	11.91	Reject H_0
4. $H_0: \delta_1 = \dots = \delta_5 = 0$	Small farms	60.38	18.05	11.07	Reject H_0
	Medium farms	-30.17	24.28	11.07	Reject H_0
	Large farms	46.69	13.54	11.07	Reject H_0
	Aggregated farms	156.43	11.30	11.07	Reject H_0

Note: 1. The critical values for the hypotheses are obtained from Table 1 of Kodde and Palm (1986, p. 1246) at $q + 1$ degrees of freedom, where q is the number of parameters to be estimated.

2. The Log-Likelihood values in Column No. 3 are compared with the base values of the model in Table No. 2, i.e., for large-size farms (53.46), for medium-size farms (-18.01), for small-size farms, (69.63) and for aggregate level (162.08).

3. All values are significant at 5% level.



The coefficient of schooling is estimated to be negative and statistically significant for all the three farm-size levels as well as at aggregate level, which indicate that inefficiency tends to decline as the level of schooling increases. It indicated that the educated farmers follow and implement the new techniques in a better way and achieve more efficiency in wheat production. The perusal of Table 2 also reveals a negative association between farming experience and inefficiency effects at aggregate as well as three farm-size levels. It indicates that more experienced farmers tend to be more efficient. It stems from the fact that experienced farmers use scarce resources efficiently; timely and capable of taking right decision in farming.

The coefficient of extension contacts variable in the model for the inefficiency effects is estimated to be negative for all the categories of farms sizes, indicating that farmers who establish contact with extension agencies tends to be less inefficient (or more efficient). This negative coefficient highlights the role of extension service in the improving technical efficiency of the farmers. The coefficient of hired labour to total labour ratio turns out to be statistically insignificant for all the three farms size levels whereas, for medium-size farms it appeared with a negative sign. On the other hand this ratio is found statistically significant bearing a negative sign.

Technical Efficiency

The technical efficiency of individual farm under wheat cultivation was estimated using production frontier function. Because of large sample size, the individual technical efficiency values are not presented. However, for better indication of the distribution of individual technical efficiencies, a frequency distribution of predicted efficiencies within range of 0.10 and mean efficiency are presented in Table 4. The table indicates that there were wide variations in technical efficiencies at aggregate level, which ranged from 23 to 98 percent with a mean technical efficiency of 85 percent. Further, it is observed that just 9 percent of the wheat cultivators have technical efficiency below 70 percent level. However, the largest proportion of the farmers, i.e., 39 percent, had technical efficiency ranging from 80 percent to 90 percent followed by 28 percent of the sample farmers who had technical efficiency above 90 percent level.

The farm size-wise analysis indicates that the variation in technical efficiency is relatively low in case of large-size and small-sized farms, i.e., from 69 to 83 percent for large-sized farms and from 65 to 90 percent for small-sized farms, with mean technical efficiency being 83 and 90 percent respectively. Further, it was observed that about 2/3rd of sample farmers had realized efficiency above 90 percent level in both the categories of farms sizes, whereas no farm had below 60 percent level of technical efficiency. On the other hand, medium-size farms, with a mean technical efficiency of 78 percent, observed a wide variation in technical efficiency, i.e., technical efficiency ranking from 27 to 96 percent. About 70 percent of the sample farmers of farmers have attained 80 percent of technical efficiency level and about 17 percent of the sampled farmers had technical efficiency below 70 percent level. It stems from the above discussion that there is a potential of increasing wheat production using the same levels of inputs and technology.

Table 4: Relative frequency distribution of Technical Efficiency of Wheat cultivation in Haryana

Technical Efficiency	Small-size farms	Medium-size farms	Large-size farms	Aggregate farm level
Below 0.50	00 (00)	11 (08.11)	00 (00)	03 (01.13)
0.50-0.60	00 (00)	09 (06.13)	00 (00)	0 (02.26)
0.60-0.70	04 (04.24)	04 (03.47)	02 (03.12)	18 (05.68)
0.70-0.80	05 (05.18)	18 (13.15)	05 (07.81)	76 (24.11)
0.80-0.90	29 (25.88)	49 (34.35)	13 (21.32)	121 (39.21)
0.90-0.99	72 (65.26)	52 (36.44)	41 (67.68)	89 (28.79)
Mean	90	78	83	0.85
Maximum	97	96	98	0.98
Minimum	65	27	68	0.23
Total Farms	110	143	61	314

Note: Figures in the parenthesis represent percentage to total number of farms.

Conclusion

The study reveals that the traditional average response function was not an adequate representation of the data. The technical efficiency showed wide variation across sample farms ranging from 0.23 to 0.98 in the study area. The mean technical efficiency turns out to be 0.85. Thus, yield of wheat in the State could be increased by 15 percent without increasing the level of inputs if the inefficiency is reduced. Small-sized farms with a mean technical efficiency of 90 percent are found more technical efficient as compared to their large-sized (mean technical efficiency 85 percent) and medium-size farms (mean technical efficiency 78 percent).



If the efficiency is improved, farmers will gain considerably in terms of higher profits. Further, technical inefficiency of wheat production is influenced positively by age and negatively by education, farming experience, extension contacts and hired-labour ratio. There is thus a need to promote young farmers as decision makers along with raising the education level of farming community and also efforts should be made to further strengthen the extension contacts for farmers.

Notes:

1. The two-stage approach is problematic as the inefficiency effects are assumed to be independently and identically distributed in the first stage, while in the second stage the predicted inefficiency effects are assumed to be a function of number of farm specific factors. This means that the farmer specific factors are not identically distributed unless all the coefficients of the factors are simultaneously equal to zero.
2. Agrochemicals include expenditure on fertilizers, FYM and plant protection measures.
3. Human labour includes both family and hired labour.
4. Capital cost includes maintenance charges, depreciation and interest on capital.
5. The sample farmers have been categorized into small, medium and large size farms according to their ownership land holding. The present study only pertains to wheat cultivation and the average farm size reflects the area under wheat cultivation (see Table 1 also). By chance the average area under wheat cultivation of medium size farms came out to be smaller than the average area of wheat cultivation under small size farms, which is net of rented-out and rented-in area.

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ECONOMIC VALUE ADDED: A TOOL OF MEASURING SHAREHOLDERS' VALUE

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Abstract

Shareholder's Value is a concept of capitalist economy. It is based on the principle of "The survival of the fittest" of economics. In India, all business decisions are taken purely on commercial basis and it cannot be fully implemented in an economy where business decisions are influenced by socio-economy factors. Corporates are adopting different measurement tools to measure shareholders' value but different studies found that Economic Value Added (EVA) is an appropriate tool for measuring Shareholders' Value. EVA is tool for identifying whether the company has created or eroded the wealth of shareholders. This study reviewed the previous literature and found that majority of authors recommend that EVA is a better measurement tool as compared to other traditional methods and companies should adopt this tool to measure Shareholders' Value

Introduction

Measuring shareholders' value has been the subject of intellectual interest among the academicians, corporate managers and practitioners in recent times. Earlier studies have documented the literature that can measure the shareholders' value through different traditional models. The Recent studies, using a variety of evaluation technique and wide database, have however re-examined the issue and found that the earlier conclusion is less unequivocal than it was thought to be. Stern (1990) documented that Economic Value Added (EVA) as a performance measurement model captures the true economic profit of an organization. EVA based financial management and incentive compensation scheme provides manager a quality information and superior motivation for decision-making that will create the maximum shareholders' wealth in an organization.

EVA is a performance evaluation model, which is most closely linked to the creation of shareholders' wealth over a given period of time. The financial management and the incentive compensation system based on EVA give the manager a superior information and higher motivation. Accordingly, EVA makes the measurement process as the focal point for financial reporting, planning, and decision-making. The executives of an organization need to look out for appropriate techniques that may guard them against any future attacks from any corporate offender. The best way of maximizing shareholders' return is to offer incentives to managers for making decisions that boost long term corporate value. A major step is to provide cash bonus or stock option arrangements with incentives that create built-in share value. The objective is to motivate the managers to look beyond short-term measures of economic performance by essentially turning them into owners. The managers may be guided by EVA and pursue such objectives that improve operating profits by investing more capital. The managers can be remunerated in terms of a proportion of both the total EVA and the positive increase in EVA.

Mechanism of EVA

The mechanism of EVA is very simple. It seeks to jog managers' memories by deduction from a firm's net operating profit a charge for the amount of capital it employed. If the result is positive then the firm created value over the period in question, if EVA is negative, then the company has eroded the value of its shareholders'.

Theoretical Background and literature Survey:

The present section briefly throws light on the researches carried out so far by the scholars actively engaged in the field. Some important studies are reviewed as under:

Ghanbari and Sarlak (2006) made it clear that maximizing shareholders' value is fast becoming a corporate standard in India. EVA is an appropriate performance measure, which evaluates the manner in which managerial actions affect shareholders' value. EVA is a tool for determining whether the management of the company has created wealth or destroyed it. In his study he reviews the trends of EVA of Indian automobile companies. The result indicates that there was a significant increasing trend in EVA during the period of the study and the firms of the automobile industry were moving towards the improvement of their firms' value.

Pitabas (2006) argues that contrary to popular perception, EVA is actually the excess free cash flow the company generates to meet the expectations of the investors. In this sense, it is not only a cash flow based measure, but also positively associated with the return the investors get on their investment in the company. The study recommends an alternative performance measure that addresses some of the limitations of both the traditional EVA-based and Employee Stock Option Program (ESOP) based performance measurement system.

Reddy (2005) find that EVA stories in the west are quite encouraging; empirical research is not sufficient for establishing the claim of EVA as a better measure. There is also not much research to prove it otherwise. In the case of India either way research is very inadequate. Although not a panacea, EVA based compensation plans will drive managers to employ a firm's assets more productively and also to reduce the difference in the interest of managers and shareholders, if not, perfectly align them.

Pal and Garg (2004) concluded that EVA may be a broader gauge for judging the contribution of an organization towards the national economic development and growth. Pressure for better financial performance is increasing mainly because of cutthroat competition in the present globally competitive era. The researchers are duty bound to evaluate their previous recommendations and to develop newer ways of analyzing and interpreting corporate financial statements. Now, Economic Value Added is, to a certain extent an acceptable model round the globe.



Pablo (2003) analyzed 582 companies in respect of correlation between increase in the MVA and EVA, NOPAT, and WACC for successive ten years. The results revealed that the average correlation between the increase in the MVA and EVA, NOPAT and WACC was 16%, 21% and -21%. The author has also analyzed the relationship between shareholders' value creation and various other parameters, including economic profit and EVA, from 1991 to 1997. The increase in the firm's value was basically determined with the changes in the growth in the firm's cash flow, and by the changes in the firm's risk, which lead to changes in the discount rate.

McLaren (2003) in his study, conducted on three firms in New Zealand observed that none of the company saw EVA as a complete measure of performance. They all made use of extra measures such as payback period for investment decision making, earnings before interest and tax both internally and externally, and balanced scorecard for its focus on value drivers. He suggested that it's meaningless to classify firms simply as EVA users and non-users, because usage level can differ widely. The three firms could all be described as integrated network business, yet they all varied in how they used EVA.

Bardia (2002) described that the concept of EVA has made a status in the mind of investment analysts as a tool of measuring corporate performance. In a dynamic corporate environment a common investor finds it increasingly difficult to monitor his investments. It is claimed that EVA is the sole method of accounting various dimensions by which a company's value may be added or eroded. In fact the method emphasizes the quality of earning and not just the quantity. As a matter of fact the number of companies adopting EVA as a tool of performance measurement is increasing sharply in India.

However, no system or technique will bear fruits until it is well implemented under certain set of principles and has the support of all the concerned and EVA is no exception to this general rule. Further, as with any other system, EVA also has limitations especially in the context of various adjustments necessarily made at the time of its computation out of accounting profit, but it still stands as an improvement over trade performance measures like Return on Investment (ROI), Earning Per share (EPS), Return on Net Worth (RONW), Price Earning Ratio etc. If the concept of EVA is implemented well, taking the limitations into account, it reveals better results in analyzing the performance of a corporate entity.

Jagannathan (2002) observed that companies thought more about squeezing higher revenues in protected markets and less about the cost of achieving these revenues. But another equally important reason is the way companies have been looking at returns; earning per share, which is basically after tax profits per share. For an accountant company is doing fine as long as debtors and the taxman are paid and depreciation provided for. Since equity is post tax charge on profit, it doesn't figure much in calculation. Management have been happy to treat equity as 'free' money on which no return are due unless there is profit. Result: shareholders' value is often the result of fortuitous circumstances rather than great management.

Mangala and Simpy (2002) clarified that maximizing shareholders' value has become the new corporate perception. Although shareholder's wealth maximization the ultimate corporate goal, had already been recognized by managers and researchers, it has gained a new dimension only in the recent years, due to the introduction of the concept Economic Value Added (EVA). EVA was invented and registered by Stern Stewart and Co., New York, believing that EVA is the most important driver influencing the market value of a share. So, if the company improves EVA by increasing its Return on capital employed and lowering its cost of capital, its market value will increase. The paper attempted to study the relationship between EVA and Market Value among various companies in India. The EVA of 15 companies among five industries (Fast Moving Consumer Goods, Information Technology, Pharma, Automobile, and Textile) has been computed. The results of the analysis confirmed Stern's hypothesis concluding that company's current operational value (COV) is more significant in contributing to a change in market value of shares in Indian Context.

Mishra et al (2002) explained that how market value added (a measure of external performance and considered to be the best indicator of shareholders' value creation) was correlated with the firm's performance in terms of financial measures of the company such as economic value added, Net Operating Profit After Tax, Return on Capital Employed, Return on Net Worth and Earning Per Share on the one hand and the purely economic factor of the company such as labour productivity, capital productivity, total factor productivity, sales and R&D expenditure on the other hand. They selected a sample of 28 Indian pharmaceutical companies 1992-93 to 2000-01 and conclude that EVA and NOPAT outperform other financial and economic measures in predicting MVA in most of the Indian pharmaceutical company.

Sangameshwaran (2002) find that EVA being taking care of the performance-related aspects of compensation, many organizations like Godrej have decided to do without stock options (ESOPs). Not TCS though. "You have to get into ESOPs. This EVA is certainly not in lieu of that," he says. EVA focuses on value creation and ESOPs provide the commitment as well as reward over the long term. EVA in TCS is being administered for a large number of employees whereas ESOPs will be restricted to a few.

Shrieves & Wascowicz (2001) brings to light that the researcher should help the users of Discounted Cash Flow (DCF) methods by clearly setting up the relationship between the concept of free-cash-flow (FCF) and economic value added (EVA) and with the more traditional applications of DCF. They follow others in demonstrating the equivalence between EVA and NPV, but their approach is more general in that it links the problems of security valuation, organization valuation and investment project selection, and additionally, our approach relates more directly to the use of standard financial accounting information. Beginning with the cash budget identity, they show that the discounting of appropriately defined cash flows under the free-cash valuation approach (FCF) is mathematically equivalent to the 'discounting of appropriately defined economic profits' under the EVATM approach. The concept of net operating profit after-tax (NOPAT), derived by adding after-tax interest payments to net profit after taxes, is central to both approaches, but there are no computational similarities between the two. The FCF approach focuses on the periodic total cash flows obtained by deducting total net investment and adding net debt issuance to net operating cash flow, whereas the EVATM approach requires defining the periodic total investment in the firm. In a project valuation context, both FCF and EVATM are conceptually equivalent to NPV. Each approach necessitates a myriad of adjustments to the accounting information available for most corporations.



Saha (2000) observed that liberalization of the Indian economy over the last ten years had led to a shift in the corporate goal of the public and private corporate in the country. Earlier it was mandatory for their goal to have a socio-economic focus. There is a major change with the focus now being primarily on enhancing the shareholders' value in a company. He examined the different ways of ascertaining shareholder value and recommended shift from Earning Per Share, Price Earning Ratio, etc. to Economic Value Added and Market Value Added. He demonstrated how EVA was the best measure for measuring shareholders value enhancement.

Anand, et. al. (1999) noted that EVA, REVA (Refined Economic Value Added) and MVA were better measures of business performance as compared to NOPAT and EPS in terms of shareholders' value creation and competitive advantage of a firm. Since conventional management compensation systems emphasize the growth of sales/asset at the expense of profitability and shareholders' value. Thus, EVA is a measure that shifts focus on an organizational culture of concern for value.

Kumar (1999) observes that shareholder's wealth is measured by the return they receive on their investment. Returns are in the form of dividends and in the form of capital appreciation reflected in the market value of the shares, of which market value is the dominant part. Various measures like EPS, ROE, ROCE, have been used to evaluate the performance of the business and he finds that EVA is the best method to measure the shareholder's wealth.

Banerjee (1999) agreed upon that among the selected independent variables (EPS, EVA, Kp, Lp and ARONW) EVA proved to be the most explanatory variable, when MVA was taken as the dependent variable and Backward Elimination Method was applied to find the most explanatory independent variable in an empirical study. For this purpose the time frame was of eight years and all the variables were calculated over this period for the sample companies.

McIntyre (1999) reveals in his study that as other accounting income measures can be manipulated, EVA can also be increased in short run by action having harmful long-term effects. For example, postponing or eliminating outlays for R&D, maintenance, advertising or training will increase immediate value of EVA, regardless of whether these cost are expensed or capitalized and amortized.

Thus, in evaluating EVA, companies may wish to estimate what it would be under different sets of accounting methods. They may also look for trends in other data to confirm value added. Trends in sales, market share and cash flow from operations, as well as changes in key financial ratios (such as inventory turnover) and non-financial data (customer satisfaction or rate of defects) may confirm or call into question reported changes in value added. The strongest advocates of EVA recommended using it as the sole basis for judging corporate performance and rewarding management. Using multiple measures can improve the evaluation process by adding other relevant data and reduce the impact of the flaws inherent in the measurement of the value added.

Singh (1999) tried to provide a new framework of decision-making based on EVA and BPR. Both of these technological models have gained a lot of attention of corporate managers in the fortune 500 companies but still a lot needs to be done. Many of the finance managers in India are unable to properly appreciate the potential of EVA and BPR. Although, Indian corporate sector has slowly started giving recognition to these critical concepts of success in the light of competitive global village but it seems that it may take a few more years for the corporate executives to realize the potential of the buzzwords of 21st century. It can be concluded that maximizing the value of shareholders is the prime concern of any business organization, and it should be kept in mind that change is the only thing, which is permanent in nature. Obliteration should be welcomed if it is for the better and the managers of public organizations should take decisions as if it is a private organization so that the capital is optimally utilized and may result in maximizing the shareholders' wealth.

Thenmozhi (1999) elucidated the concept of EVA and compared it with some other traditional measure of corporate performance viz.; ROI, EPS, RONW, ROE, ROCE etc. He used the coefficient of determination to demonstrate that the traditional measures did not reflect the real value of the shareholders, and thus EVA has to be taken into account to measure the value of shareholders' wealth. He also described the concept of EVA in the Indian scenario with specific reference to companies like NIIT, Hindustan Lever and ITC. He highlighted some of the deficiencies of the concept of EVA by maintaining it as a better measure of corporate performance in comparison to the traditional measures.

Pattanayak and Mukherjee (1998) found in his study that there are traditional styles to measure corporate income which are known as accounting concept, and there are also some modern styles to measure corporate income which are known as economic concept. EVA, which is based on economic concept, is apparent to be a superior technique to identify whether the organization's NOPAT during a period is covering its WACC and generating value for its owners. But it is very complicated to calculate EVA of a company. Companies trying to implement EVA are asked to incorporate 164 amendments to their financial accounts.

Saxena (1998) revealed that there is no single method that is totally perfect to measure financial performance. Thus, a method should be such that satisfies shareholders' expectations and is also being committed by top management. EVA is a measure that should be used by top management to evaluate investment centre managers, because it considers goal similarity between shareholders and manages.

Booth (1997) observed that economic profit should be a part of company's performance measurement structure. Value based management and shareholders' value analysis have been well known concepts in 1980s. However, recently, there is a transformed interest in them and also the newer related concept of EVA. Previously many corporate strategies were criticized for destroying rather than creating shareholders' value. A device which can be used to reduce this risk is to build an analysis of shareholders' value into selection of corporate strategy.

Brands (1997) held that management accountants who want to grind their financial management skills, they can attend the Financial Management Workshop being offered by the Institute of Management Accountants to learn about theory as well as practical examples and cases, and are given handouts in addition to the course material. In workshop at the beginning of the course, a discussion on the financial manager's role is arranged. It is subsequently followed by the topics as capital budgeting, cost of money and international finance. Apart from these basics, the workshop also deals with current developments in the field of financial



management. For instance, the concept of economic profit is discussed. Management accountants aiming to supplement their education benefited greatly from the workshop.

Burkette and Hedley (1997) elucidated that the Economic Value Added concept can be used to assess organizational performance known as economic profit, which is useful for profit making companies, public sector organizations and non-profit organizations. EVA is being used by these entities in different ways, including management communication base, as a measure of corporate and divisional performance, to tighten management, stockholder interests, and to emphasize the long term benefits of industrial research and employee training. The profit can be calculated by determining the company's cost of equity capital, the weighted average cost of the firm, the adjusted operating income, the operating income plus back expenses providing a future benefit, assets employed on a book basis, the capital investment, and the difference between the readjusted operation and the capital charge.

Kroll (1997) describes with the help of examples that businesses with the intention of making use of an Economic Value Added system, or a system oriented to the cost of capital find that it improves both financial and operating results. Those who achieve the best results usually run the system with their organizational and business strategy.

Rajagopalan (1997) discussed that the added value is influenced by different factors, which are design, engineering, marketing, production, purchasing, manufacturing and servicing. All those who work in an organisation influence the added value. Added value per capita is an indication of the contribution per employee. Added value is sometimes used as basis for group incentive scheme. According to him different ratios may be developed using other factors such as sales, working capital, plant capacity all in association with added value. Here it is concerned with the mechanics of using added value as a means of measuring manpower productivity.

Todd (1997) expressed that EVA is a better compensation measure than NPV because EVA is a flow measure whereas NPV is a stock measure. The author stressed on the use of measures that can be computed periodically as they are realized (i.e. a flow measure). EVA also takes into account the cost of capital and the amount of capital invested in the company. Thus, EVA is more useful than another flow measure (i.e. cash flow).

Tully (1997) disclosed that EVA is a method for understanding that what is happening to the financial performance of an organization. The paper presents the method for calculating EVA, and also shows some graphic presentations of EVA's of several companies like Bajaj Auto, Asian Paints, Procter and Gamble (India) Ltd., Siemens India. It has been concluded in the paper that EVA can be a better financial performance evaluation measure than other traditional measures.

Blair (1996) concludes that John Knight who operates HSBC's income trust unit has been giving outstanding performance since taking up this assignment in 1989. He evaluates the trends in the U.K. economy as part of his decision making, and he always tries to concentrate on the accounts of companies. In addition to Economic Value Added, he plans to invest in 'Cash Flow Return on Investment' another technique he uses. He argues that he evaluate the products in terms of disasters rather than selecting winners.

Lehn and Makhija (1996) state that Economic Value Added and Market Value Added are increasingly observed as alternative measures of business performance and strategic development. Despite the attention, however, the empirical research has been devoted to these two metrics. To provide clarifications on the subject, a study was conducted using data of 241 firms for the period 1987-1996, the study affirmed that EVA and MVA effectively measured the quality of strategic decisions and served as signals of strategic change. EVA and MVA were found to be significantly correlated with stock price performance and inversely correlated to turnover. Firms having more focus on their business activities had higher MVA and those having less focus had lower MVA.

Luber (1996) identified that MVA is in conformity with the direction of the market. It has been observed from the study that a company which shows a positive EVA over a period of time will also have an increasing MVA, while negative EVA will bring down MVA as the market loses confidence in the competence of a company to ensure an attractive return on the invested capital. The five topmost companies as the wealth creators - Coke, GE, Microsoft, Merck and Philip Morris - have strong EVA and are expected to remain in the top position in the imminent period.

Ochsner (1995) observed that through Economic Value Added we can examine the company's financial results in economic language. He also describes the annual constituent of free cash inflows minus total capital expenses. The methodology which is over 50-years old becoming popular once again because it is not an accounting based approach which managers may have found unreliable. Moreover, EVA technique is making a comeback because they can judge better whether a firm is generating economic returns. This capability of EVA technique to have such record of companies satisfies the investors. In addition, EVA can be used as a tool for assessing financial performance. This performance measure also has a negative aspect that makes it undesirable to some managers, who accept the fact that EVA uses software in computing financial results, resulting that the managers are not knowing about the deviation of performance.

Recently a lot of emphasis is being positioned on EVA rather than return on investment (ROI), as a measure of corporate performance in the Indian financial literature. However, using the concept with a blind faith may not be suitable since it is not without deficiencies and pitfalls. Lahiri (1988) and Kumar (2000) have explained some pitfalls of EVA, which are as follows

- Most of the Indian companies are plagued with over-capacity situations, which distort the EVA results.
- EVA model does not incorporate items like brand equity, human resources etc.
- EVA analysis does not give any idea about the financial performance of companies that are affected by business cycle variations.
- Possibility of error in estimating weighted average cost of capital (WACC) is another gray area.
- All the individual projects are selected or rejected on the basis of net present value (NPV) over their economic life. A project with positive NPV is selected. But, when all the project are taken together or in other words, when the company as a whole is



taken, the present value may be negative in some initial years for the simple reason that some companies that grow rapidly on a large scale, need a huge investment in fixed assets. Such a phenomenon may pull in the EVA figure on a negative scale for some initial years. Even if NPV is positive for a company in a particular financial year, the acquisition of assets can result in a decrease in the value of EVA.

- When EVA is used as a measure to evaluate the performance of managers and their units, they feel reluctant to acquire new fixed assets even if the circumstances demand so. Further, even if managers acquire new fixed assets they are tempted to use annuity method for depreciation in order to report positive EVAs. The managers of various divisions also try to take assets on lease rather than acquiring them in order to report positive EVAs. Taking assets on lease increases the risk involved which pushes the cost of capital on the higher side. But EVA usually does not take into account such factors while calculating the cost of capital.
- Generally, the cost of equity is considered to be more than that of cost of debt. But as the company raises equity to pay off debt, the company becomes less risk prone thus reducing the total cost. Such factors are not taken into account in EVA calculations.
- Fast moving consumer goods (FMCGs) and pharmaceutical companies are less capital intensive because of which EVA of such companies is generally higher as compared to the capital-intensive companies. This makes the inter-firm comparison in different industries, unrealistic.

But in spite all these limitations, EVA has made a position for itself not only in the Western business community but also in the Indian corporate sector. However, the recognition of this concept in India is gradually picking up and it is expected that in the coming years, more and more Indian companies will start relying upon this new measure of financial performance.

Conclusions

The research review evidently reveals that the concept is fairly clear in the minds of almost all these researchers whose studies have been reviewed. The entire business world seems to be moving towards greater transparency, supporting financial disclosure mechanism and superior corporate governance. In such a fast changing business environment, the investor friendly financial performance measures may, perhaps, compose this corridor full of spanking new air. In the emerging international economic order where globally well-known companies are competing for lowest cost of capital and understandably the lower cost of capital may help them in providing some avenues such as they can provide better products to the consumers at cheaper rates and better returns to the investors.

From the academic appraisal of various studies on the subject under reference, it is clear that the concept has originally emerged in the West and later turns out to be time-honored across the world. Many researchers have applied sophisticated econometric tools for assessing the impact of EVA concept on corporate financial performance.

Shareholders' Value is Concept of capitalist economy and it is based on the principle of "The survival of the fittest" of Economics. In India, all business decisions are to taken on purely commercial basis. So, it cannot be fully implemented in an economy wherein business decisions are influenced by socio-economy factors. As our economy approaching towards complete liberalisation and government control is gradually going away, companies are bound to take decision purely on commercial basis to safe guard the interest of their shareholders'. The concept of Shareholders' Value and Economic Value Added are well known to Indian corporate. But its applicability in our country is of recent origin. Hence the practitioners differ in regard to methodology of calculation of adjustment required for conversion for accounting profit to net operating profit after tax, beta, and risk free rate of return.

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OPERATIONAL RISK MANAGEMENT: THE ACID TEST FOR BANKS

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Abstract

Today's turbulent financial markets, growing regulatory environments, and increasingly complex financial systems have led risk managers to realize the importance of measuring and managing Operational Risk (OR). OR is "the risk of losses resulting from inadequate or failed internal processes, people and systems, and external events". Although it is not new, its control and management have acquired increased importance for financial institutions to remain competitive. Frauds and regulatory risks have become the motivators. A new vision for Operational Risk Management (ORM) emerged due to regulatory and management requirements approved by the Basel Committee. The accord offers different management-oriented alternative methodologies to quantify capital. The more sophisticated the methodology, the lower the capital charge. This means that OR should be adequately managed in order to assume lower levels of capital. In the light of above, the present study is an attempt to provide an understanding on operational risk and the methodologies to establish ORM. We have also tried to estimate the regulatory capital requirements for few banks in India. As a result, it has been emphasized that key to successful management lies in banks ability to assess its processes for establishing controls and safeguard measures.

Introduction

Deregulation and globalisation of financial services, along with the growing sophistication of financial technology, have created a variety of new operational risks for banks. Such risks arise from factors including:

- ❖ Growing importance of IT integration and shared services across entities
- ❖ Necessity of reducing earnings volatility and achieving cost efficiencies
- ❖ Increasing complexity of products and product development
- ❖ Increasing large-scale mergers and acquisitions
- ❖ Evolving outsourcing arrangements
- ❖ Proliferating complex credit and market risk mitigation techniques (derivatives)
- ❖ Increasing focus by regulators on legal, fraud, and compliance issues

To address such business issues adequately, Operational Risk Management (ORM) is receiving increasing attention from financial institutions due to regulatory pressures, e.g., Sarbanes-Oxley Act of 2002 Basel II, ICRA (2005) and catastrophic events (e.g., terrorist threats, rogue traders, corporate scandals). However, a majority of financial institutions are struggling with ORM. ORM practices are complicated by the fact that there are no sophisticated models, such as Value at Risk (VaR), Expected Loss, and Unexpected Loss, that can identify and quantify operational risk. Another difficulty is that, unlike when dealing with Credit and Market Risks, which are relatively similar across leading financial institutions, ORM's governance model, policies, procedures and supporting tools vary considerably from one institution to another. Lastly, ORM is made confusing by the abundant number of jargons that are emerging. These terms often sound like new names for old terms that organizations have already been doing for long time (Cummins, et. al, 2004). There are many other factors that are driving entire financial institutions and even non-financial companies to ORM programs:

(i) Regulations

The Sarbanes-Oxley Act (SOX) requires public companies to disclose material changes in financial and operational conditions on a rapid and current basis (Section 409)

- SOX also requires corporate executives to certify financial statements (Sections 302 and 906) and to verify adequacy of internal control systems (Section 404)
- The Basel II Accord requires banks to measure risk capital requirements based on their Operational Risk in addition to Market and Credit Risks

(ii) Terrorist Attacks and Money Laundering

- Trades totaling over \$100 Billion could not be settled through the Bank of New York following the September 11 terrorist attack
- Under the USA Patriot Act, financial institutions are obliged to make all efforts to block terrorist access to the US financial systems
- Rogue Traders
- Due to insufficient compliance and audit processes, a trader was allowed to take large-value, high-risk positions without oversight, resulting in a settlement exposure of over \$80 Billion and the ultimate insolvency of Barings in 1995
- Daiwa Bank was ousted from the US after \$1.1 Billion losses incurred by unauthorized trading activities in 1995
- Sumitomo Trading lost \$1.8 Billion from its copper trading due to lack of sound internal control mechanisms in 1996

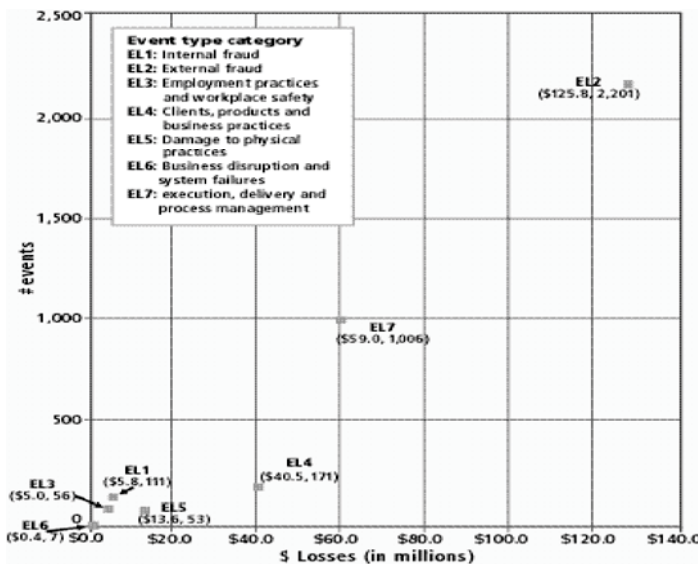


(iii) Accounting Scandals and Corporate Insolvency

- Enron, WorldCom, and Adelphia quickly and unexpectedly become insolvent
- Increased Complexity and Volume of Financial Transactions
- Cross-border Money Transfer transaction volume is exponentially growing. Accordingly, losses incurred from these transactions are significantly increasing
- The use of a number of complex financial instruments is significantly increasing

Given the aforementioned facts, companies are becoming more vulnerable than before to operational loss events (Marc and Til, 2003). Operational risks are difficult to identify, and thus banks have made less progress in quantifying operational risks than they have with market and credit risks. In a survey conducted by ABA's (American Bankers Association, 2005-06) Surveys and Statistics Division offered banks submitted 3,605 loss events as of Feb. 23, 2005, of those, fully 61% were reported as losses to outsiders. Only 3% of the loss events were due to similar frauds by insiders. However, employees' mistakes led to 28% of the loss events. Less than 1% of member's loss events came from vandals, terrorists, or natural disasters (Please see Table 2: Basic Loss Event Type Classification, for details). A similarly small number were due to employment practices or breaches of workplace safety. To map these losses for frequency and severity, the ABA used 16 financial loss bands, with a median at \$500,000. Thirty-one of the reported losses exceeded \$1 million. It recognizes the importance of operational risk management in Banks.

Fig 1: ABA Operational Loss event database (as on 23/2/2005)



Source:

ABA Loss event Database, 2005

Need of the study

The introduction of the Basel II norms has ushered a sea change as regards the regulatory framework for the banking system. Although the regulatory framework for the structure has gradually been tightened over the years with the objective of moving towards international best practices, relatively little attention has been paid towards assessing the effectiveness of regulations. Most of the studies on the subject till date have analyzed the limited impact of implementation of capital adequacy norms. So, the present study is an attempt to analyse the impact of risk based standards on the capital and risk. The important contribution of the study is:

1. To study the importance of management of operational loss events and to assess if the current regulatory scrutiny is justified in present scenario
2. To identify the various practices adopted by financial institutions to successfully conduct the banking business.

Organisation of the Paper

In spite of the widespread recognition of the importance of operational risk among managers, investors, and regulators, there is little systematic information on the extent of operational risk, the magnitude of losses from this source of risk, or its impact on the affected. In this study we first review the scenarios with respect to operational risk in banking industry. Section II defines operational risk and identifies the principal types of events that are considered sources of loss from this type of risk. Section III reviews the Basel framework provided for capital measurement and calculates the capital required for operational risk by Indian banks. Section IV discusses the implementation of Operational risk management. Further the consequences for regulation of OR management is given in Section V.

**Table 1: Basic Business Line Classification**

Investment Banking	Corporate Finance
	Trading and Sales
Banking	Retail and Commercial Banking
	Payment and Settlement
	Agency Services and Custody
Others	Asset Management
	Retail Brokerage

Table 2: Basic Loss Event Type Classification

Event- Type Category (Level 1)	Subcategories
L1. Internal Fraud	Unauthorized Activity, Theft and Fraud
L2. External Fraud	Theft and Fraud, Systems Security
L3. Employment Practices & Workplace Safety	Employee Relations, Safe Environment, Diversity & Discrimination
L4. Clients, Products & Business Practices	Suitability, Disclosure & Fiduciary, Improper Business or Market Practices, Product Flaws, Selection, Sponsorship & Exposure, Advisory Activities
L5. Damage to Physical Assets	Disasters and other events
L6. Business Disruption and System Failure	Systems
L7. Execution, Delivery & Process Management	Transaction Capture, Execution & Maintenance, Monitoring and Reporting, Customer Intake and Documentation, Customer/Client Account Management, Trade Counterparties Vendors & Supplies

SECTION II

Definition and Categorization of Operational Risk

Operational risk contains the losses that follow from acts undertaken (or neglected) in carrying out business activities. For example if a branch of a bank in India which is supposed to send a remittance of one million Hong Kong dollars, inadvertently sends the SWIFT message for US \$ 1 million. Considering another case, the branch manager may forget to renew the insurance cover of a branch for the cash on the counter and a dacoity may take place leading to substantial loss of money. An ATM may fail to debit the account of a customer who may close his transactions (Dasgupta, 2003). To help classifications of various internal loss data, the Committee breaks losses into eight standard business lines for banks (table 1).

In order to capture the most significant causes of operational losses and to provide guidance on what types of events should be recorded for internal loss data, the Basel Committee breaks operational risk losses into seven event types. These are given in table 2.

However, the event type classification is easily extendible to be used for the management of operational risk within an insurance company. Many of the risks have been managed by purchasing insurance. For example, fraud by bank employees has long been insured under the so-called bankers blanket bond, and damage to physical assets has been covered by property insurance. Insurance also exists to cover information systems failures, although the coverage is often limited to specific types of failures (Geiger, 2000).

Operational risk needs to be distinguished from credit and market risk so that they don't overlap each other. Sometimes a mixture of cause and effect is used for identification and demarcation. Examining the case of Barings' derivatives losses indicates found that actually not market risks but operational risks were there. It is not a matter of "either or" but "cause and effect". The causes were grossly negligent breach of recognized internal control principles. Figure 2 shows "Risk Identification Matrix" (RIM) that is used to identify and demarcate operational risks. The causes are used to demarcate the operational from other risks. Operational risks are all unexpected losses which have their origin in internal errors or staff related deficiencies, in processes and systems and in external events. The (negative) effect is manifested either directly in unexpected credit (I), market (II) or operational losses (unexpected extra costs (III) or lower revenues (IV) or indirectly, in an unexpected reduction of market value (V) of the bank. The direct losses are reflected in the balance sheet and profit and loss statement and the indirect ones in the value of the discounted future cash flow. Using the RIM, credit and market risks can be defined more clearly. The possible effects of operational risks are marked in Figure 2 with a bent up arrow .



Figure 2: Risk Identification Matrix (RIM)

		Effect					
		direct manifestation					indirect manifest. NPV, market value
		loss from counterparty value	loss from change market value	other losses	operational loss more expense less income		
Cause	uncertain/wrong info about counterparty	A / B / a	B	B	B	B	B
	uncertain/wrong info about market develop	a					
	other causes	a					
	inadequate/failed processes persons systems external events	I / a ⬆	II ⬆		III ⬆	IV ⬆	V ⬆

Source: Geiger, 2000

SECTION III

Capital Measurement

Basel II has indicated three methodologies for measuring operational risk - Basic indicator approach (BIA), Standardized Approach and Advanced Measurement approach (AMA). Banks are expected to move to sophisticated approaches as they develop more sophisticated ORM systems.

- ❖ **Basic Indicator Approach:** Banks using this method are required to hold capital for operational risk equal to a fixed percentage of a single indicator – gross income. This method of calculating the capital is not sensitive to different levels of operational risk in different types of income generating activities. The capital charge is described as:

$$KBIA = EI * \alpha$$

KBIA = the capital charge under the Basic Indicator Approach

EI = the level of Exposure Indicator, Gross Income

α = a fixed percentage, set by the Committee.

The α is estimated to be between 17-20 %. As per RBI's guidelines, banks in India are required to follow the Basic Indicator Approach. Banks thus, must hold capital for operational risk equal to fixed percentage (denoted by alpha- α) of average annual gross income over the previous three years excluding any year when gross income was negative (Rajeev, 2002). Gross income is defined as non interest income excluding realized profits/ losses from the sale of securities. Under this approach, the additional capital is calculated as shown in table 3 by taking an example of XYZ Bank.

Table 3: Calculation of additional capital for XYZ Bank under Basic Indicator Approach

Year	Gross income (Rs. In Millions)	Average gross income for 3 years (Rs. In Millions)	α	Capital charge for operational risk (Rs. In Millions)
2000-02	50,000	60,000	15	9,000
2002-03	60,000			
2003-04	70,000			

- ❖ **Standardized Approach:** Under the Standardized Approach the activities in the bank is divided into eight business lines. Within each business line gross income is used as a proxy for the scale of the operations and presumably also the amount of risk. The capital charge is then calculated by multiplying the indicator by a factor (beta) that is set by the Basel Committee for each business line. The method is more risk sensitive than the basic approach in that it includes information on how much activity a



bank is pursuing in different business lines. However it does not take into account the existence of insurance coverage or any other risk mitigation techniques (Sharma and Rajashekhar, 2002). The total capital charge is the sum of the charges across the business lines. The capital charge is described as:

$$KTSA = \sum_{i=1}^8 (EI_i - 8 * \beta_i)$$

KTSA = the capital charge under the Standardized Approach

EI_i-8 = the level of an Exposure Indicator, gross income, for each of the eight business lines

β_{1-8} = a fixed percentage, set by the Committee

Table 4 explains the calculation of OR capital requirement as per standardised approach by taking a hypothetical example of ABC bank.

Table 4: Calculation of additional capital for ABC Bank under Standardized Approach

Year	Business Line	Gross Income	Average Income for three years	Beta	Capital charge for operational risk
2001	Commercial	1000.00	1200.00	15	180.00
	Others*	300.00	350.00	18	63.00
	Total Gross Income	1300.00			
2002	Commercial	1200.00	Total Capital Charge		243.00
	Others*	350.00			
	Total Gross Income	1550.00			
2003	Commercial	1400.00			
	Others*	400.00			
	Total Gross Income	1800.00			

(*) Highest beta factor

As per standardized approach, the operational risk capital requirement for the year 2003-2004, is Rs. 243.00 Crore and hence the risk weighted assets is Rs. 2700 Crore @ 9 % risk weighted assets. The betas values for industry are given in table 5 below (Waish, 2003):

Table 5: Eight business lines and the corresponding betas.

Business Line	Beta Factors
Corporate finance	18 %
Trading and sales	18 %
Retail banking	12 %
Commercial banking 15%	15%
Payment and settlement 18%	18 %
Agency services 15%	15 %
Asset management 12%	12 %
Retail brokerage 12%	12 %

- ❖ **Advanced Measurement Approach:** It is directed only to the most sophisticated banks, with substantial systems in place to control operational risk. Use of this approach is conditional upon the explicit approval of the supervisory authority. Under this approach, banks are allowed to use their internal risk measurement models to calculate the capital charge for operational risk. The Basel Committee has identified three methods that are used by banks: Internal Measurement Approaches (IMA), Loss Distribution Approaches (LDA), and Scorecard Approaches. In IMA the business lines of the standardized approach are overlaid with a series of Operational risk types. For each business line/risk type combination, regulators define an Exposure Indicator (EI). Banks then use internal data to define the Probability of a Loss Event (PE) per unit of the EI, and the Expected Loss Given (LGE) such an event (LGE). Expected losses (EL) by business line and risk type are the product of these three components. Regulators supply a fixed multiplier (gamma) to translate these expected losses into a capital charge, i.e., Value-at-Risk (VaR) figure for unexpected losses. LDA involves estimating two distributions based on internal loss data (Besses, 2002). One distribution is the loss associated with a single event, and the other is the frequency of loss events over a given time horizon (usually one year). Scorecard Approach uses forward-looking risk indicators, built into "scorecards," to measure relative levels of risk. In order to qualify for the AMA, the approach must have a sound quantitative basis. The bank also has to show that the risk measure reflects a holding period of one year and a confidence level of 99.9%. To make sure that the "tail" of the operational loss distribution is captured the system also has to be checked. The Advanced Measurement Approach allows banks to take into account correlations in operational risk across business lines and event types, which should result in a more accurate reflection of operational risk for the bank as a whole. In addition banks are allowed to incorporate insurance coverage in the model under this approach (Nystrom and Skoglund, 2002). The following example can illustrate the use of the AMA and the effect of insurance coverage: A Bank has risk-weighted assets of \$20 billion under the current Basel Accord. It is



required to hold \$1,6 billion in total minimum regulatory capital under present capital regulation. Under the standardized approach, using gross income from its eight business lines and the values for the betas given to it by the regulator, a basic charge of \$192 million for operational risk is calculated. However, the bank has purchased an extensive \$100 million blanket cover insurance policy, which it is allowed to incorporate in its internal model using its own loss data. The internal model shows that the capital needed with the insurance policy is actually 100 million. However, the 75% floor set by the standardized approach means that the capital requirement will be $0.75 * 192 = \$144$ million. One way to try to get an estimate of that result is to compare the savings the bank made in the reduction of capital with the insurance premium. A calculation, with a cost of capital set at 15 %, would produce savings of 7.2 million ($=\$48$ million * 0.15).

According to an estimate by ICRA (ICRA Rating feature, 2005) Rs. 120 billion capitals in the coming years will be needed by Indian banks to meet capital charge requirement for operational risk. Rating feature 2005, most of the capital will be required by the public sector banks followed by the new generation private sector banks. Table 6 explains this calculation by taking the data of all scheduled commercial banks.

Table 6: Calculation of additional capital for All Scheduled Commercial Banks under Basic Indicator Approach
Rs. (Million)

Year	Interest Income	Interest Expanses	Net Interest Income	Non interest Income	Annual gross Income	Capital Required
2001-02	1,269,692	8,75,157	394,535	240,562	635,097	95,265
2002-03	1,407,425	935,963	471,462	316,025	787,488	118,123
2003-04	1,440,284	875,668	564,615	397,389	962,004	144.301
Total Capital Charge						119,229

Source: Reserve Bank of India, (2005)

According to Basel, "A capital charge for operational risk should cover unexpected losses and provisions should cover expected losses." The measurement of Operational risks along the different Line of Business (LOB) will enable the allocation of risk capital to be determined from historical loss information and/or scenario analysis. It will highlight risky business activities, and help management monitor and manage the risk. An Operational risk system should take a tool-kit approach, permitting users to select various combinations of quantification approaches, depending on their preferences. Futures should include curve fitting using maximum likelihood estimators to various types of distributions; Monte Carlo simulations; modeling the benefits of insurance; and methods to consider both internal and external data for calibration.

Having selected the "model" distribution, the risk manager uses the available sets of data to estimate the model parameters. The parameters might be selected on the basis of opinion, or by visually inspection, or by applying "goodness of fit" tests to the existing data, for example, Chi-square, Kolmogorov-Smirnov (KS) and weighted KS tests. However, "goodness of fit" tests make sense when a moderate amount of data is available. Once the distributions have been established, Capital adequacy ratio model can be applied and Capital adequacy ratio results obtained. The key to stable and robust Capital adequacy ratio numbers is to find distributions that best fit the data. For example, using multiple distributions to estimate the distribution of the underlying data means that the Capital adequacy ratio results will be more robust, as long as the basis for selecting the curves can be justified. There are several problems to overcome: sample size (usually limited data sets), "fat tails" (a relatively high proportion of "unusual" or "catastrophic" events); truncation; data-capture; biases, scale; inflation; mixing internal and external data for calibration; fitting data to the most appropriate frequency and severity distributions, factoring in insurance; Value at risk, etc (Harmantzis, 2003). There is a series of techniques that can be applied to limited data sets or that estimate/extrapolate data using limited data samples, for example "resampling with replacing" ("bootstrapping").

To combat fitting problems, the severity distribution can be broken up and different distributions can be fitted to different portions of the curve. For example, the risk manager might use an empirical distribution for the bulk, lognormal for the middle and generalized Pareto for the tail (Harmantzis, op.cit.).

Currently, most Operational risk groups have adopted an actuarial-based approach, using either real loss data (when available) or scenario analysis. The approach is theoretically valid for the purposes of quantification of Operational risk. The model, e.g., a compound Poisson, derives frequency and severity distributions, which drive the cumulative loss distribution (losses due to different risk types) for each LOB. For example, a compound Poisson process with Lognormal severity intensity is commonly used. Monte Carlo simulation calculates the expected losses and the Operational Value at risk percentiles. In addition to the actuarial approach for risk quantification, Operational risk specialists experiment with Bayesian modeling, extreme value theory and causal modeling. Extreme Value Theory (EVT) provides a useful framework for the application of parametric smoothing methods to fit the tail of loss distribution beyond a certain level. That is, EVT helps the risk manager to estimate the shape of the distribution deep into the tail, where relatively little data are available (Harmantzis, op.cit.).



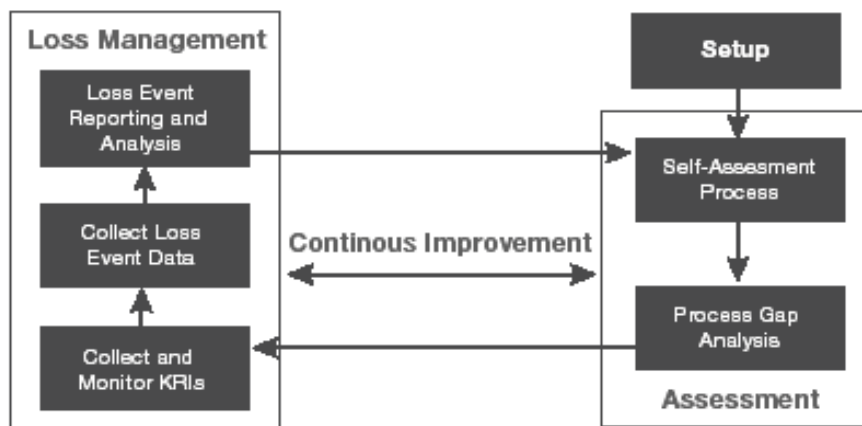
SECTION IV

Implementation of Operational Risk Management

The banks are in the process of building a framework that provides an enterprise-wide view of losses and allows them to proactively manage Operational risk, no matter if the risks lie in operational processes, resources, systems or external events. This framework should meet the compliance requirements with the BIS II Regulations, in terms of data collection, data tracking and a robust internal risk-control system. Figure 3 depicts the entire operational risk management process. It includes an initial setup stage, an assessment stage, a process improvement stage and, finally, a loss management stage.

The setup stage involves detailing the institution's risk appetite, developing high-level policy and allocating resources. This is a top-down process, conducted at board of director and senior management level. The framework should deal with operational risk measurement and management issues, such as: developing efficient management and organizational frameworks; economic capital allocation; advanced operational Value at Risk measurement techniques; internal loss database design and implementation; data collection and reporting; definition and categorization issues; risk indicators analysis; and the integration of operational risk measurement with control self-assessment scores and insurance.

Figure 3: Operational Risk Management Process.



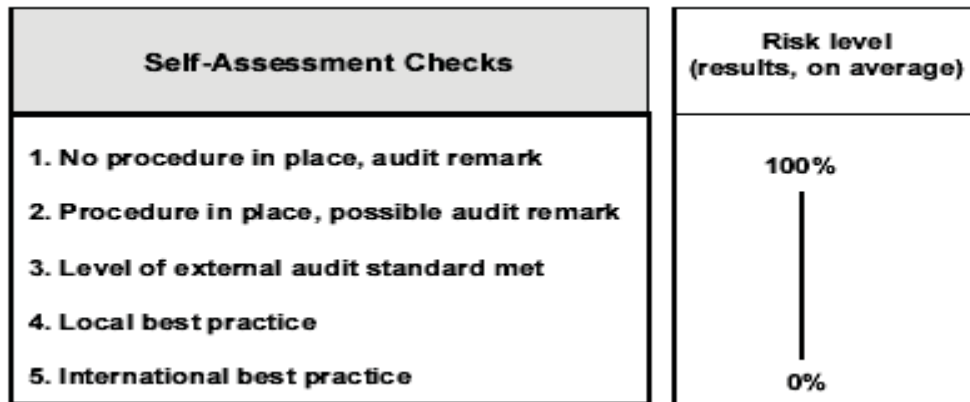
Source: Waish, 2003

The basic components of the Operational risk framework are as follows:

- ❖ **Risk Identification & Assessment:** This is usually done through a risk and control self-assessment (RCSA) program. Line of business (LOB) managers identifies key processes, risks and controls in those processes, gaps and action plans to close gaps. Control and Risk Self-Assessment (CRSA) is a work team-based technique to help managers identify and measure Operational value at risk through estimates based on the consensus opinion of a group of knowledgeable managers and staff. The ultimate objective of this process is to foster the identification, assessment and mitigation of OR. Figure 4 explains the process of Self Assessment.



Figure 4: The Process Self-Assessment

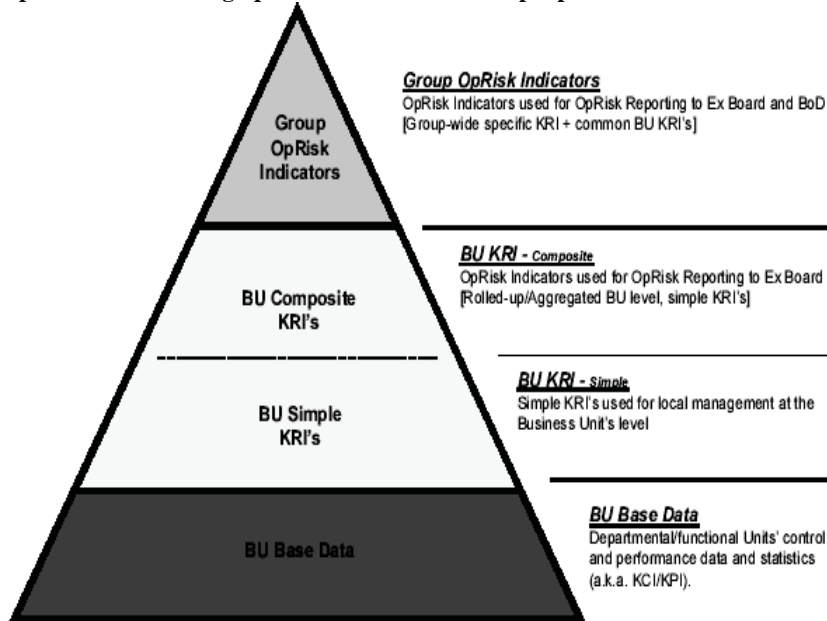


Source: CSG (Credit Suisse Group), 1999

- ❖ **Risk Analysis, Monitor & Reporting:** Analysis contributes to the integration of risk and business performance, making risks transparent and identifying gaps. Monitoring of operational risks, KRDs/KRIs and action plans should reflect changes in the enterprise and raise awareness. Risk management performance, which links the risk to value creation, becomes important. Consolidated reporting across the enterprise should be appropriate for various levels of management, including the Board of Directors.
- ❖ **Risk Quantification & Measurement:** A quantitative framework that follows the AMA is suggested, so operational risk can be measured accurately. Typically, exposure indicators, e.g., gross income, past losses and key risk drivers/indicators (KRDs/KRIs) constitute the internal database. Availability and integrity of internal data as well as relevance and scalability of external data are important issues. Risk profiles, provided by RCSAs, contain fundamental information as well. A few important KRIs are more relevant for management tracking and escalation triggering than the unimportant many. The example of in figure 6 is based on the structure applied by CSG (Credit Suisse Group, 1999).
- ❖ **Risk Capital Allocation:** Operational capital at risk (CaR) is calculated for every LOB to protect for unexpected losses at a certain time horizon and percentile, e.g., one year — 99.9 percent OpVaR.
- ❖ **Risk Management & Mitigation:** This consists of sophisticated alternative risk financing and transfer arrangements (through insurance programs), as well as updated business continuity plans. Ongoing communication making risks transparent, training and sharing of best practices become vital. Insurance is a valuable instrument to transfer risk and to complement also OR management; it forces a bank to analyse its OR and to differentiate between their impact and frequency; it avoids the high risk/low frequency situation; it helps to optimise economic risk capital and regulatory capital requirements - if the insurance coverage can be deducted; it smoothes earnings and provides liquidity - assuming a proper contract: insurance is part of OR management (Figure 6).

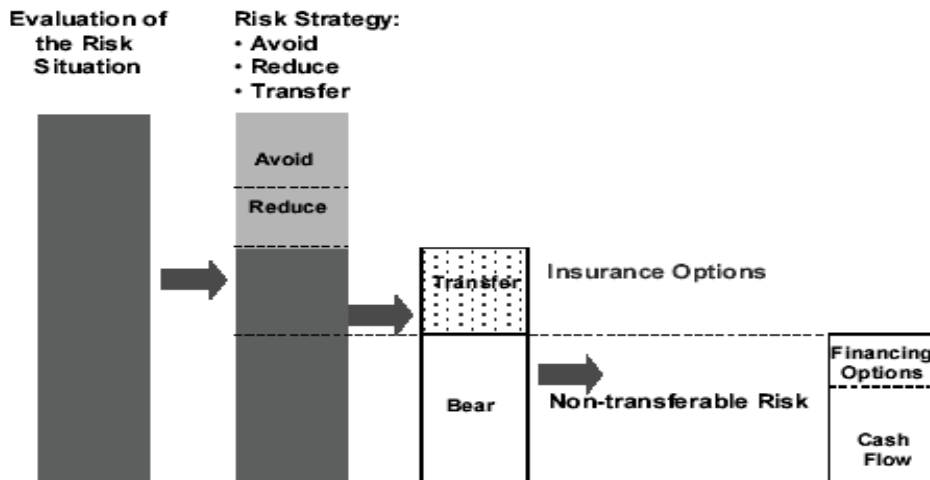


Figure 5: Group-wide KRI - Rolling up from Base Data to Group OpRisk Indicators



Source: CSG (Credit Suisse Group), 1999

Figure 6: Insurance - Part of the Risk Management Process



Source: CSG (Credit Suisse Group), 1999

A bank should - if possible - hedge non-core risk areas that cannot be diversified within the bank itself as they most often represent low probability high impact risks. An insurance company per se is in the business of pricing and holding a portfolio of such risks; it can diversify these risks across many banks, corporations and non-correlated risk classes (Jane, 2005).

SECTION V

Consequences for Regulation and Supervision of Operational Risk

From the standpoint discussed above of defining and demarcating operational risks, it would seem inappropriate for several reasons for the regulatory authorities to plan extra capital charges for operational risks in Pillar 1 in addition to credit and market risks. Operational risks are frequently reflected in unexpected credit and market losses. Where this is the case, the current regulations already include them in the calculation of statutory capital and provisions.

It would thus be implausible to have them underpinned twice over in arbitrary fashion, for example by capital charges on non-interest income, as stated in the Consultative Paper of the Basel Committee and the related commentaries since its publication (Geiger,op.cit.). The problems of operational risks are of quite a different order than those of market and credit risks: it is not a



matter of unexpected losses from transactions and external events but of the behavior of the bank management and staff and of prevention and measures which the bank has to take or avoid. The assumption of operational risk does not lead to higher yields and the risks are hardly proportional to business volume. Capital charges are basically the wrong way to tackle operational risks. If expected and unexpected credit and market losses actually occur, then both the business and the capital will have theoretically vanished and the bank will be no more. If on the other hand the expected and unexpected operational risks occur (as causes), the capital base would be gone but the business would still be there, at least to some extent. The result would be a bank which would or could no longer fulfill its capital requirements. Further, it can hardly be argued that big and well-known operational losses could have been avoided or reduced by capital requirements.

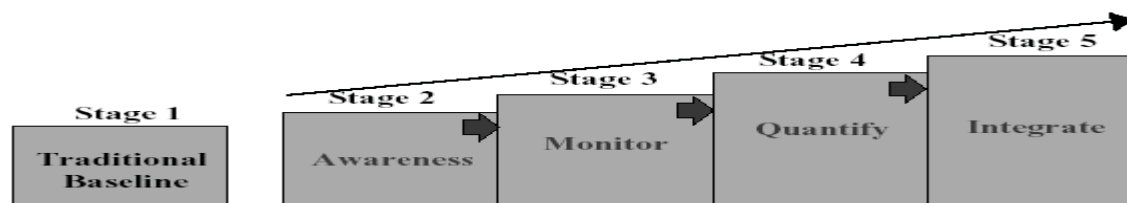
The insurance solution is decisive given the possibility of extreme operational losses. The development of a model for measuring Operational risk begins by building an internal database. The aiming target is a comprehensive database that provides reliable information on significant losses, e.g., losses above a certain threshold. Major financial institutions have started putting in place a process for ongoing tracking and monitoring of Operational risk losses to facilitate the effective measurement and management of Operational risk. A Managers face several technical issues when it comes down to designing an internal Operational risk database. What data to collect and why, regarding losses, exposures, KRIs and management control information? What is the optimal database structure? What about "near misses" data — mistakes that almost cost the bank but which are sorted out just in time? Further, some managers worry that admitting to mistakes and totaling losses will weaken their position. Also, to the collection of KRIs, The bank would need to be convinced that there will be benefits. Banks cannot develop their Operational risk strategy in isolation. Once a bank has begun to gather a rich set of data on internal losses and KRIs, it may decide that it needs to compare this information to the pattern of losses incurred by other banks. The use of external loss data can also strengthen and extend the knowledge that has been gleaned from internal data gathering. In addition, by sharing data, the possibility of creating efficient Operational risk financing and transfer markets, increases dramatically. However, issues related to the use of external data, makes the whole problem more challenging. Reliability issues arise when data is drawn from so many different institutions of varying sizes, and from different control structures, cultures and countries. This information is also subject to numerous truncations and data capture biases.

Conclusion

Deregulation and globalization of Bank's, together with the growing sophistication of financial technology, has made the activities of banks (and thus their risk profiles) more diverse and complex. Developing banking practices at internationally active banks suggest that risks other than credit and market risk can be substantial.

Although the OR management is still immature, there is a growing industry. The Risk Management Group of Basle and other regulatory bodies, have been stressing the importance of OR the last years. By creating an OR awareness culture, banks have enhance their ability to achieve their objectives and improve their processes, technology and business practices. Sustainable best practices would lead to reduced losses, higher profitability, improved customer and employee satisfaction. Finally, demonstrating regulators that serious and careful consideration has to be given. In the case of Pillar two, the regulatory authorities ought to ascertain whether the banks are adhering to best practice in their corporate governance and internal control systems. They should take action if this is not the case. In the case of Pillar three, the regulatory authorities should prescribe that banks provide systematic and transparent reporting on operational risks to their shareholders and the public. Positive and powerful incentives for boards of directors and management can be expected from the reputational aspects and possible civil law actions often associated with operational risks. To start with an operational risk function, we can consider five stages of development as given by Pricewaterhouse Coopers (Figure 7).

Figure 7: Five stages of Operational Risk function



Source:

Pricewaterhouse Coopers

At an operational risk conference in New York, Roger (2002), a member of the Federal Reserve Board of Governors and chairman of the Risk Management Group of the Basel Committee on Banking Supervision, addressed the difficulties presented by the very nature of the risk. The designers of operational risk measurement frameworks need to be more innovative.



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EMERGING TRENDS OF MUTUAL FUNDS IN INDIA: A STUDY ACROSS CATEGORY AND TYPE OF SCHEMES

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Abstract

The present paper aims to bring out the recent trends in mutual fund industry in India. The emerging scenario and growth of mutual funds have been analyzed across category, sector and type of portfolio. Year-on-Year percent change, Compound Annual Growth Rate (CAGR) and proportionate market share are the major tools applied for analysing growth in number of schemes, assets under management and resources mobilized. The reference period ranges from 1998-2006, i.e. period of second-generation financial sector reforms. The study brings out that the mutual fund investors in India at present have as many as 609 schemes with variety of features such as dividend, growth, cumulative interest income, monthly income plans, sectoral plans, equity linked schemes, money market schemes, etc. Though both open-end and close-end schemes have registered excellent growth in fund mobilization, but currently the former category of schemes is more popular among the investors. Portfolio-wise analysis has brought that income schemes have an edge over growth schemes in terms of assets under management. Moreover UTI's share in total assets under management has come down to 11.8 percent in 2006 from 82.5 percent in 1998.

Introduction

A mutual fund is a financial intermediary that pools the savings of investors for collective investment in a diversified portfolio of securities. A fund is "mutual" as all of its returns minus its expenses, are shared by the fund investors. Thus mutual fund is a collective saving scheme. Globally, mutual funds have established themselves as the means of investment for the retail investor. Professional managers who have the requisite skills and experience to analyse the performance and prospects of companies manage mutual funds. They make possible an organised investment strategy, which, is hardly possible for an individual investor. Mutual fund invests in a number of companies across various industries, sectors and securities. This diversification reduces the riskiness of the investments. Besides professional management and risk diversification, mutual funds offer the benefits of increased liquidity, flexibility, tax benefits, transparency and stability to the stock market. On account of the numerous benefits offered by mutual funds, they have grown phenomenally.

In India, the first mutual fund made its entry in 1964 when Unit Trust of India launched its Unit Scheme (US) 64. Till 1986-87, UTI was the only institution functioning as mutual fund in India and its first scheme (US-64) remained the largest mutual fund scheme in the country. The investible funds of UTI increased to Rs.4563.7 crore in 1986-87 from Rs. 206.8 crore in 1976-77. In 1987, the Government of India permitted public sector banks to launch mutual funds. Consequently, the period of five years (1987-92) witnessed rapid expansion of the capital markets, both in terms of the total funds raised and turnover on the stock exchanges. The total funds raised through public sector mutual funds went up to Rs. 47733.5 crore in 1992-93. The period 1987-92 is termed as the *broadening base phase* of mutual fund industry in India. The Government of India under its economic reforms and liberalization policy allowed private sector to enter into mutual funds in February 1992. The year 1993 marked a turning point in the history of mutual funds in India as the Securities and Exchange Board of India (SEBI) issued the mutual funds regulation in the beginning of this year. The cumulative resources mobilized by mutual funds increased to Rs. 75050.2 crore in 1994-95. The above may be attributed to the competition created due to the entry of large number of private and public sector mutual funds. However, the years 1995 and 1996 brought erosion in the value of investments of unit holders due to a decline in the NAVs of the equity funds. Investor's perception about mutual funds gradually turned negative because of the poor performance of all categories of mutual funds irrespective of the sector to which they were concerned. But beyond 1997, the flow of funds into the kitty of mutual funds sharply increased due to a more positive sentiment in the capital market, significant tax benefits, improvement in the quality of investor services, and use of better information technology. The cumulative funds raised by MFs rose to Rs. 10.98 lakh crore during 2005-06.

Infact, the Indian financial systems in general, and securities market in particular, have seen sweeping reforms during the last decade. Resultantly, Indian mutual fund industry has seen a remarkable growth in its various dimensions. The present study is an attempt to find answer to the question: "What is the pattern of growth and development of Mutual fund schemes in India?"

Review of Existing Studies

Numerous studies have been conducted in the past with respect to mutual funds in India. The most frequently quoted among them are: Ansari (1993), Gupta (1994), Shah and Thomas (1994), Jaydeep (1996), Sahadevan and Thiripalraju (1997), Gupta (2001), Turan and Bodla (2001), Ravindran and Rao (2003), Gupta and Gupta (2004), Sondhi and Jain (2005), Sharma (2006), Swaminathan and Buvanmeswaran (2006), Hemant (2007).

Ansari (1993) in his article singles out the various innovative schemes of mutual funds that are helping for mobilizing huge funds from the small savers and argued for a separate legislation for mutual funds as in the case of UTI. He mentions that mutual funds have successfully launched various innovative schemes tailored to the diversified saving investment motives and have managed to mobilize massive funds from the savers, particularly the smaller ones. With the creditable performance in the past and encouraging public response they are expected to become predominant financial service institutions by the turn of this century. However, he alleged that in spite of the valuable services being rendered by mutual funds, their working is not free from certain



shortcomings. Therefore, he suggests that there should be a separate regulatory body for mutual funds as the SEBI is already overburdened with many other functions, and as such it is not effectively supervising the working of each mutual fund.

Shah and Thomas (1994) evaluate the performance of eleven mutual funds schemes on the basis of market price data. The study computed the weekly returns for these schemes since their commencement to April 1994. Jensen and Sharpe measures were used to evaluate the performance of the schemes. The study concluded that except UGC 2000 of UTI, none of the schemes earned superior return than that of the market, in general.

Gupta (1994) conducted a survey covering the bearish phase of Indian stock markets from 30 June 1994 to 31 December 1995 for the Delhi-based value research India Pvt. Ltd. The survey examined 83 mutual fund schemes-53 growth schemes, 15 income schemes and 15 income - cum -growth schemes. The study reveals that 15 schemes provided negative returns of which 13 were growth schemes. None of the income or income -cum-growth schemes provided returns above 20 per cent. The survey also reveals that of the 53 growth schemes, 28 (52.8%) could beat the index even in a bear phase. On the whole, the survey reveals that Indian mutual funds are generally safe avenues for investment. However there is a scope for improving portfolio structure and portfolio readjustment keeping in view the schemes fundamentals and investment objectives.

Kaura and Jayadev (1995) evaluated the performance of five growth-oriented schemes in the year 1993-94 by employing the Sharpe, Treynor and Jensen measures. According to this study the Master Gain 91, Canous and Indsagar have performed well above than market in terms of risk adjusted returns.

Jaydeep (1996) made an attempt to evaluate the performance of two growth oriented mutual funds (Master gain and Magnum express) on the basis of monthly returns compared to benchmark returns. For this purpose, risk-adjusted performance measures suggested by Jensen (1968), Treynor (1965) and Sharpe (1966) were employed. The study found that, Master Gain had performed better according to Jensen and Treynor measures. But, on the basis of Sharpe ratio its performance was not up to the benchmark. The performance of Magnum Express was poor on the basis of all these three measures. However, Magnum Express was well diversified and had reduced its unique risk where as Master Gain did not.

Sahadevan and Thiripalraju (1997) analyze performance of public sector as well as private sector funds. For the analysis of private sector funds they compiled and analyzed the monthly average return and standard deviation of ten-selected private sector funds and that of the BSE National Index. This analysis was performed by using monthly net asset value (NAV) of the selected schemes for varying periods falling between March 94 and July 96. The investigation reveals that in terms of the rate of return, 5 funds viz. Alliance 95, ICICI Power, Kothari Prima, Kothari Pioneer Blue Chip and Morgan Stanley Growth Fund out performed the market, during the period of comparison. The authors analyzed the average monthly return on 32 schemes of public sector mutual funds. Moreover, a comparison of the performance of 14 growth schemes of UTI was made with that of the BSE National index. The analysis also shows that, by and large, performance of a fund is not closely associated with its size. Even small size funds like blue chip and alliance 95 have done much better than the market, while relatively bigger size funds like CRB Arihant Mangal and ICICI Premier have not performed as good as the market. According to this analysis, seven schemes of UTI were judged as outperforming the market

Gupta (2001) in his study examine the investment performance of 73 mutual funds schemes for a period of 5 years (April 1994 to march 1999) by using the following six performance measures (a) rate of return measure (b) Sharpe ratio (c) treynor ratio (d) Jensen differential return measure (e) Sharpe differential return measure (f) Fama's components of investors performance. He collected weekly NAV data. The empirical results gave a mixed performance of sample schemes for the study period. The sample schemes were not properly diversified

Narshima and Vijaylakshmi (2001) explain an empirical evaluation of diversification and timing performance. The study reveals that the mutual funds in India compete each other to show superior performance. The study analyzed the performance of 46 MFs schemes of various asset management companies'. Similar conclusion was drawn by Turan and Bodla (2001) in the study of risk and return performance of Indian mutual funds

Ravindran and Rao (2003) analysed the performance evaluation of 269 open-end Indian mutual funds in a bear market. This evolution is carried out through relative performance index risk-returns analysis, Treynor's ratio, Sharpe's ratio, Jensen measure and Fama's measure. The study period is Sept 1998 to April 2002. The investigators started with a sample of 269 open- end schemes for computing relative performance index and excluding those funds whose return is less than risk free return. In this manner 58 schemes were left which were for further analysis. They conclude that all 58 schemes were able to satisfy investor's expectation based on both premium for systematic risk and total risk.

Gupta and Gupta (2004) evaluate the investment performance of 57 growth schemes, for the period of April 1999 to March 2003. They conclude that there is no conclusive evidence that suggest that performance of sample mutual funds is superior to the market but some funds are performing well.

Sondhi and Jain (2005) examines the rates of returns generated by equity mutual funds, vis-a vis 364 days T-bills and the BSE-100, National Index during the period 1993-2002. Return on 364 T-bills is the surrogate measure for risk free return and the BSE-100 national index has been chosen as proxy for the market portfolio in the analysis. A sample of 36 equity mutual funds has been selected from 21 Asset Management Companies belonging to private and public sectors. This study reveals overall inferior performance by mutual funds compared to risk free return of 364 days t-bills. The study also indicate that private sector sponsored mutual funds have been able to earn returns much higher than the market returns. The private equity mutual funds seem to have followed superior fund management practices backed by well researched 'stock' selection and timing skills. In the case of public sector sponsored mutual funds, the fund managers seem to have followed poor investment strategies that may have resulted in inferior performance by the PSU sponsored equity mutual funds. They also seem to have lacked the skills to identify superior stocks for their portfolios.

The review of earlier studies shows that majority of them concentrates on risk and return analysis.. In view of this, the



present research work is an attempt to find answer of this question by studying the growth performance of mutual funds industry in India.

Database and Research Methodology

The present study utilises secondary data, which was collected from websites of SEBI, AMFI, Value Research, RBI, Money Control and UTI. The reference period of this study ranges from 1998 to 2006. The growth performance of India's mutual fund industry has been measured in terms of increase in numbers of schemes, amount of funds mobilised and assets under management. To render the analysis more precise and useful, the following tools of analysis have been used:

- Year-on-Year percentage change in number of mutual fund schemes and assets under management;
- Compound Annual Growth Rate (CAGR); and
- Percentage share of various types of schemes in total schemes and asset under management.

Moreover, the analysis is carried across various types of schemes classified according to sector, portfolio objective and category (i.e. open-end/close-end). For determining CAGR, curve estimation's compound option available in SPSS software has been used.

Results and Discussion

Growth in number of mutual fund schemes: At the outset, we have examined the growth in number of mutual fund schemes across various categories and types. While the former dimension includes open-end, close-end and assured return schemes, the later comprises income, growth, balanced, liquidity, gilt and ELSS (expanded abbreviations) schemes. The category-wise and portfolio objective-wise number of schemes in India from 1998 to 2006 are shown in Tables 1 and 2 respectively.

Table 1 indicates that, at the overall level, the number of MF schemes has risen to 609 in December 2006, from 263 in December 1998. The number of MF schemes has registered Compound Annual Growth Rate (CAGR) of 8.5 percent, on the whole. The category wise analysis indicates that the annual growth of open- schemes is significantly higher (21.4%) than that of close-end funds (-8.2%). Table 1A reveals that the market share of open end schemes has reached to 91.8 percent in 2004 as against 29.7 percent in year 1998. Conversely, the percentage share of close end schemes to total number of MF schemes, has been declining continuously from 1998 to 2004 and it came down to 8.2 percent from 50.6 percent in the corresponding duration. A further glance through table 1 offers that the assured return schemes, which were quite popular up to 1999, have almost disappeared from the Indian MF industry. The above analysis gives a conclusion that now-a-days the MF investors are primarily interested in open-end schemes.

Table 1: Category-wise Growth in Number of MF Schemes in India

Year (31 Dec)	Open End		Close End		Assured Return		Total	
	No.	% Δ	No.	% Δ	No.	% Δ		
1998	78		133		52		263	
1999	155	98.71	129	-3.00	41	-21.15	325	23.57
2000	221	42.58	116	-10.07	37	-9.75	374	15.07
2001	297	34.38	92	-20.68	28	-24.32	417	11.49
2002	312	5.05	61	-33.69	21	-25	394	-5.51
2003	350	12.17	40	-34.42	3	-85.71	393	-0.25
2004	394	12.57	35	-12.5	0	-100	429	9.16
2005	445	12.94	64	82.85	0	-	509	18.64
2006	468	5.16	141	120.31	0	-	609	19.64
CAGR	21.4*		-8.2		-	-	8.5*	

Source: Compiled from SEBI Annual Reports and AMFI Updates

- Significant at 0.01 level of significance.

Table 1A: Category-wise Percentage Share in Total Number of MF Schemes

Year	Open End	Close End	Assured Return	Total
1998	29.7	50.6	19.8	100
1999	47.7	39.7	12.6	100
2000	59.1	31.0	9.9	100
2001	71.2	22.1	6.7	100
2002	79.2	15.5	5.3	100
2003	89.1	10.2	0.8	100
2004	91.8	8.2	0.0	100
2005	87.4	12.6	0.0	100
2006	76.8	23.2	0.0	100

Source: Compiled from data given in table 1



Table-2 which indicates the growth in number of MF schemes according to type of portfolio from 1996 to 2006 conveys that the overall annual growth rate of MF schemes is 13.2 percent. Inter-category analysis indicates that the number of income schemes has reached to 253 in 2006 as against 66 in 1996. The CAGR of these schemes is worked at 9.81 percent in this period. The market share of income schemes has varied between 32.5 and 36.9 percent in various years with the exception of 1998 and 2006 when the market share rose to 39.2 and 41.5 percent respectively.

Table 2: Growth of MF Schemes across Type of Portfolio

Year	Income		Growth		Balanced		Liquid/ M. market		ELSS		Venture Capital /Gilt		Total
	No.	% Δ	No.	% Δ	No.	% Δ	No.	% Δ	No.	% Δ	No.	% Δ	
1996	66		56		28				44		3		197
1997	76	15.15	63	12.5	30	7.14			59	34.09	3	0	231
1998	103	35.52	78	23.80	20	-33.33			58	-1.69	4	33.33	263
1999	111	7.76	99	26.92	21	5	18		65	12.06	11	175	325
2000	119	7.20	101	2.02	30	42.85	21	16.66	77	18.46	18	63.63	366
2001	152	27.73	114	12.87	36	20	27	28.57	24	-68.83	64	255.5	417
2002	129	-15.13	115	0.87	36	0	31	14.81	31	29.16	52	-18.7	394
2003	128	-0.77	121	5.21	37	2.77	33	6.45	31	0	43	-17.3	393
2004	143	11.71	142	17.35	38	2.70	39	18.18	30	-3.22	37	-13.9	429
2005	188	31.46	178	25.35	36	-5.26	43	10.25	30	0	34	-8.10	509
2006	253	34.57	207	16.29	36	0	50	16.27	28	-6.66	35	2.94	609
CAGR	9.81*		10.9*		5.9**		15.2*		-11.2		34.3*		13.2*

Source: Compiled from SEBI Annual Reports and AMFI Updates

* Significant at 0.01 level of significance.

** Significant at 0.05 level of significance.

Table 2A: Portfolio-Type –wise Percentage Share in Total Schemes

Year	Income	Growth	Balanced	Liquid/ M. Market	ELSS	Venture Capital /Gilt	Total
1996	33.5	28.4	14.2		22.3	1.5	100
1997	32.9	27.3	13.0		25.5	1.3	100
1998	39.2	29.7	7.6		22.1	1.5	100
1999	34.2	30.5	6.5	5.5	20.0	3.4	100
2000	32.5	27.6	8.2	5.7	21.0	4.9	100
2001	36.5	27.3	8.6	6.5	5.8	15.3	100
2002	32.7	29.2	9.1	7.9	7.9	13.2	100
2003	32.6	30.8	9.4	8.4	7.9	10.9	100
2004	33.3	33.1	8.9	9.1	7.0	8.6	100
2005	36.9	35.0	7.1	8.4	5.9	6.7	100
2006	41.5	34.0	5.9	8.2	4.6	5.7	100

Source: Compiled from data given in table 2

* Significant at 0.01 level of significance.

** Significant at 0.05 level of significance.

Table 2, further shows that number of growth schemes rose to 114 in 2001 from 56, in 1996 and the number further increased to 207 in December 2006. The Growth schemes have registered a robust growth as evidenced by CAGR of 10.9 percent. In terms of market share in total number of schemes also the growth schemes have fared satisfactorily as according to table 2A their share has risen to as high as 34 percent in 2006 as against 28.4 and 27.3 percent in 1996 and 2001 respectively. Both the number and market share declined sharply in 1998, in so far as the balanced schemes are concerned. However, the market share and the number of schemes kept on rising from 1999 to 2004. The balanced schemes showed CAGR of 5.9 percent during last 11 years.

The liquid schemes, which came into existence in the year 1999 gained a ground in the market in first year itself as 18 liquid schemes, were launched in this year. These schemes further gained momentum and overtook both the number of balanced and



ELSS in year 2004 and the number rose to 39 in 2004 and 50 in 2006. Total share of liquid /money market schemes became 8.2 percent in 2006 as against 6.5 percent in 2001. CAGR liquid/ money market schemes are found at 15.2 percent, which is the highest amongst various categories except venture capital schemes.

Further it shows that the ELSS schemes which have enjoyed more than 20 percent share in the total mutual fund schemes up to year 2000 lost their glow thereafter and they have constituted below 8 percent share during last five years. The number of these schemes has declined at the rate of 11.2 percent annually. These schemes got a major set back in 2001 when their number came down to 24 from 77, just in one-year back.

A glance through tables 2 and 2A further provides that the venture capital/ gilt funds have been rising continuously both in terms of market share and number of schemes from 1996 to 2001. However, despite downward trend in the share and number of these schemes since 2002, the CAGR for the entire period is found the highest (34.3%) in this category

Mobilization of Resources: Resource Mobilization is one of the prime objectives of mutual funds. A mutual fund not only provides liquidity and safety to the investors, but also mobilise funds for the corporate sector and they act as supplier of both short term and long term capital. So the amount of funds raised, is an important parameter of their performance. Gross amount of resources mobilized during last nine years, according to sector, is presented in Table 3. It is obvious from the table that total resources raised by mutual fund industry in India rose to Rs.92957.4 crore in 1999-2000 as compared to Rs. 11406 crore in 1997-98. In a period of two years, the funds mobilized crossed the boundary of three lakhs crore when they amounted to Rs. 314706.2 crore in 2002-03.

Table 3: Mobilization of Gross Resources by Indian Mutual Fund Industry (During 1998-2006) (Rs.crore)

Year	Private Sector	UTI	Public Sector	Total
1997-98	1974	9100	332	11406
	(17.30)	(79.78)	(2.91)	(100)
1998-99	7846.50	13192.89	1671.34	22710.73
	(34.55)	(58.1)	(7.36)	(100)
1999-00	43725.66	13698.44	3817.13	61241.23
	(71.40)	(22.37)	(6.23)	(100)
2000-01	75009.11	12413.00	5535.28	92957.39
	(80.69)	(13.35)	(5.95)	(100)
2001-02	147798.26	4643	12081.91	164523.17
	(89.83)	(2.82)	(7.34)	(100)
2002-03	284095.49	7095.82	23514.88	314706.19
	(90.27)	(2.25)	(7.47)	(100)
2003-04	534649.28	23992.40	31548.19	590189.87
	(90.59)	(4.07)	(5.35)	(100)
2004-05	736463.30	46656.08	56588.99	839708.37
	(87.70)	(5.56)	(6.74)	(100)
2005-06	914703.26	73127.42	110318.63	1098149.31
	(83.29)	(6.66)	(10.05)	(100)

Source: Compiled from SEBI Annual Reports and RBI Annual Reports

Note: Figures in parentheses are percentage to total in respective years

Table 3 further shows that mutual funds have broken all previous records of absolute increase in funds raised through them during 2003-06. The gross funds raised by MFs rose to rupees 5.90, 8.39 and 10.98 lakh crore during 2003-04, 2004-05 and 2005-06 respectively. The pattern of funds mobilization by the private sector funds conforms to that obtained at the overall level. The funds raised by the private sector mutual funds in 2000-01 and 2001-02 are approximately ten times and twenty times higher respectively as compared to those of the year 1998-99. Private sector funds raised Rs.75009.1 crore in 2000-01 and Rs. 147789.3 crore in 2001-02. The fund mobilization by Private sector funds rose to Rs. 5.35, Rs.7.4 and Rs 9.15 lakh crore during 2003-04, 2004-05 and 2005-06 respectively. UTI which is the pioneer in mutual fund industry in India, had struggled to raise funds from 1997-98 to 2002-03. However, after UTI's split in 2003 and formation of UTI AMC Private Limited, it seems to have re-



strengthened its position as the funds mobilized rose to Rs. 23992.4 crore in 2004-05 as against Rs.4643 crore and Rs.7095.8 crore in 2001-02 and 2003-04 respectively. The funds mobilized in 2004-05 doubled and 2005-06 tripled as compared to 2002-03. The Public sector funds (excluding UTI) have registered an uptrend since the very beginning in so far as funds mobilization is concerned. Resources raised by public sector funds have risen to rupees 1.10 lakh crore in 2005-06 from its one-fourth (i.e. Rs.23514.9 crore) in year 2002-03 and approximately one-tenth in 2001-02.

A comparison of funds raised across sectors, in terms of market share as presented in Table 3 gives interesting results. The market share of private sector in gross funds mobilized, by Indian mutual fund industry, has climbed to as high as 90.27 percent in 2002-03 from 17.34 percent in 1997-98. In contrast the share of UTI came down to 2.82 percent from 79.78 percent in the corresponding duration. The share of other public sector funds remained varying from 2.91 percent to 7.47 percent between 1998 to 2004. It is also noteworthy that year 2004-05 has brought a turnaround when for the first time a decrease in market share of private sector funds and a significant increase in the market share of UTI were observed. The combined share of UTI and other public sector funds climbed to 16.65 percent, in 2005-06 which brought down the share of their counterpart private sector to 83.29 percent.

After analyzing the pattern of gross resources mobilized, let us undertake an appraisal of net assets mobilized by mutual fund industry. Table 4 which presents data about net assets reveals that the amount of net asset mobilized was the highest (Rs.13021 crore) in 1992-93 followed by 1994-95. After a slump of four years duration, the net assets mobilized turned as high as Rs. 22166.8 crore in 1999-00. But in next three years the net assets raised remained significantly low. This may be due to depression in the securities market. The net assets raised by Indian mutual fund industry are found the highest (Rs. 50673.9 crore in 2005-06), during the last fifteen years. Inter-sector analysis offers that net assets mobilized are positive in every year in case of the private sector mutual funds, financial institutions sponsored funds and bank sponsored with minor exceptions. However, UTI has encountered the problem of excess of outflows over inflows in majority years during last ten years. This has happened because of diminishing level of confidence of investors in UTI. Since 1995-96, the private sector has consistently maintained its supremacy in terms of their contribution to net assets mobilized by mutual funds in India.

Table-4: Net Asset Mobilized by Mutual Funds

(Rs. crore)

Year	UTI *	Bank-sponsored	FI-sponsored	Private sector	Total
		mutual funds	mutual funds	mutual funds	(2 to 5)
1	2	3	4	5	6
1990-91	4553.0	2351.9	603.5	-	7508.4
1991-92	8685.4	2140.4	427.1	-	11252.9
1992-93	11057.0	1204.0	760.0	-	13021.0
1993-94	9297.0	148.1	238.6	1559.5	11243.2
1994-95	8611.0	765.5	576.3	1321.8	11274.6
1995-96	-6314.0	113.3	234.8	133.0	-5832.9
1996-97	-3043.0 @	5.9	136.9	863.6	-2036.7
1997-98	2875.0	236.9	203.4	748.6	4063.9
1998-99	170.0	-88.3	546.8	2066.9	2695.4
1999-00	4548.0	335.9	295.5	16937.4	22116.8
2000-01	322.0	247.8	1272.8	9292.1	11134.7
2001-02	-7284.0	862.8	406.8	16134.1	10119.7
2002-03	-9434.1	1033.4	861.5	12122.2	4583.0
2003-04	1049.9 **	4526.2	786.8	41509.8	47872.7
2004-05	-2467.2 #	706.5	-3383.5	7933.1	2788.9
2005-06 P	3472.5	4278.2	2111.9	40811.3	50673.9

Source: www.rbi.org.in

@: excludes reinvestment sales;
operation after the bifurcation of UTI;

** Data pertain to UTI mutual fund for the period Feb 1 2003 to March 31 2004 being the first year in

Data pertain to UTI mutual fund only



Growth in Asset Under Management: The amount of asset under management (AUM) of mutual funds is also an important parameter of their performance measurement. Therefore, an attempt has been made to ascertain and analyse the sector wise, category-wise, and type-wise AUM of mutual funds in India from 1998 to 2006. Table 5, which presents sector –wise assets under management of mutual funds, indicates a robust CAGR of 17.5 percent, at the overall level. The AUM of India's mutual fund industry rose to Rs 323697 crore in December 2006 from just their half (i.e. Rs. 150537 crore) two years back. The percentage increase in AUM of mutual funds was the highest (62.4%) in 2006 followed by 1999 (47.4%) and 2005 (32.4%).

Table 5: Sector-wise Amount of Assets under Management of Mutual Funds in India (Rs. crore)

Year	UTI		Public Sector		Private Sector		Pre-Dominated Foreign		Total	
	No.	% Δ	No.	% Δ	No.	% Δ	No.	% Δ	No.	% Δ
1998	54339.0		6501.0		4988.0		1986.0		65828.0	
1999	67207	23.7	10289	58.3	19532	291.6	9330	369.8	97028	47.4
2000	64239.0	-4.4	7051.0	-31.5	28036.0	43.5	14831.0	59.0	99326.0	2.4
2001	51181	-20.3	8385	18.9	42256	50.7	21145	42.6	101822	2.5
2002	45899.0	-10.3	12393.0	47.8	64308.0	52.2	35279.0	66.8	122600.0	20.4
2003	19059	-58.5	14343	15.7	106689	65.9	50037	41.8	140091	14.3
2004	20976	10.1	10670	-25.6	118891	11.4	61506	22.9	150537.0	7.5
2005	25228	20.3	18760	75.8	155260	30.6	50974	-17.1	199248	32.4
2006	38109.0	51.1	28764.0	53.3	256724.0	65.4	80833.0	58.6	323597.0	62.4
CAGR	-11.8**		16.4*		53.7*		48.3*		17.5*	

Source: Compiled from SEBI Annual Reports and RBI Annual Reports

* Significant at 0.01 level of significance.

** Significant at 0.05 level of significance

Table 5A: Sector-wise Percentage Share of MFs in Total Assets under Management

Year	UTI	Public Sector	Private sector	Total
1998	82.54	9.87	7.57	100
1999	69.26	10.60	20.13	100
2000	64.67	7.09	28.22	100
2001	50.26	8.23	41.49	100
2002	37.43	10.10	52.45	100
2003	13.60	10.23	76.15	100
2004	13.93	7.08	78.97	100
2005	12.66	9.41	77.92	100
2006	11.77	8.88	79.33	100

Source: Compiled from data given in table 5

The analysis of AUM across the sector reveals that the private sector has emerged as the most important constituent of mutual fund industry in India in the twenty-first century. Table 5 indicates that the amount of AUM of private sector mutual funds has risen to Rs. 256724 crore in 2006 from Rs. 4988 crore in 1998 and Rs. 64308 crore in 2002. This sector has registered a significantly higher CAGR (53.7%) as compared to UTI (-11.8%) and public sector funds (16.4%) in so far as AUM is concerned. The ever increasing role of private sector mutual funds is also obvious from Table 5A, which shows sector-wise share in total AUM over the years. It has captured more than 79 percent share in 2006 as against only 7.58 percent in 1998. Interestingly, after a drastic fall in the amount of AUM and market share for five years continuously from 1999 to 2003, UTI seems to have consolidated its position up to some extent in recent three years. In the year 2003, UTI was bifurcated in two separate entities. Because of this step in recent years AUM of UTI have risen to Rs. 38109 crores in 2006 from just its half (i.e. Rs. 19059 crore) in 2003.

In 2006, although UTI has shown a remarkable growth of 51.1 percent in its AUM but this growth rate is lower as compared to that of private sector funds. As is evident from Table 5A, the bank sponsored and other public sector funds have also been contributing significantly since the very beginning and their share in total AUM of mutual funds is varying between 7 to 10 percent. Public sector mutual funds have shown 16.4 percent annual growth rate in their AUM over the study period. In year 1998, public sector's total asset under management was Rs 6501 crore, which rose to Rs. 10289 crore in 1999, but the year 2000 brought a decline of 31.5 percent in their assets. Next year (i.e. 2001) public sector came up with an increase of 18.9 percent in its assets. In year 2004, AUM of public sector mutual funds declined by 25.6 percent. But in year 2005 and 2006 the AUM of public sector funds have increased approximately 76 percent and 53 percent respectively.

After analysing sector wise AUM of mutual funds, we have examined category –wise position of the same. Table 6 exhibits data on the asset under management according to category of mutual fund schemes. The table reveals that amount of AUM has been



rising through out the study period in case of open end schemes. It rose to Rs.275676 crore in 2006 from Rs. 37661 crore in 1998. Open end schemes have registered a compound growth rate of 25.1 percent in their AUM. The year-on-year growth in AUM of open end schemes was found the highest (50.9%) in 1999 followed by the growth rate in year (41.5%), 2003 (39.2%), 2002 (32.6%) and so on. In contrast, the close end funds have faced alarming ups and downs in recent years so far as the amount of their AUM is concerned. Table 6 clearly indicates that AUM of these funds declined by 23 and 31.8 percent in 2000 and 2001 respectively after showing an impressive increase of 57.8 percent in year 1999 over 1998. A severe shock to AUM of close end funds was observed in 2003 when they came down to Rs. 4021 crore from Rs11457 crore in just a year back. It has been observed that close end funds have broken all the records of growth in their AUM during last three years.

Table 6: Category-wise Amount of Assets under Management of MFs in India (Rs. crore)

Year	Open		Closed		Assured		Total	
	Amt.	% Δ	Amt.	% Δ	Amt.	% Δ	Amt	% Δ
1998	37661		12962		15137		65760	
1999	56827	50.9	19677	51.8	20524	35.6	97028	47.5
2000	63060	11.0	15157	-23.0	21109	2.9	99326	2.4
2001	73693	16.9	10330	-31.8	17799	-15.7	101822	2.5
2002	97695	32.6	11457	10.9	13448	-24.4	122600	20.4
2003	135964	39.2	4021	-64.9	108	-99.2	140093	14.3
2004	142749	5.0	7788	93.7	0		150537	7.5
2005	182660	28.0	16588	113.0	0		199248	32.4
2006	257676	41.1	65922	297.4	0		323598	62.4
	25.1*		6.4				17.5*	

Source: Compiled from SEBI Annual Reports and RBI Annual Reports

* Significant at 0.01 level of significance.

** Significant at 0.05 level of significance

Table 6 A: Category-wise Percentage Share in Total Assets Under management of MFs in India

Year	Open end	Closed	Assured	Total
1998	57.27	19.71	23.01	100
1999	58.56	20.27	21.15	100
2000	63.48	15.25	21.25	100
2001	72.37	10.14	17.48	100
2002	79.68	9.34	10.96	100
2003	97.05	2.87	0.07	100
2004	94.82	5.17	0	100
2005	91.67	8.32	0	100
2006	79.62	20.37	0	100

Source: Compiled from data given in table 6

During 2006, AUM of these funds have registered a record increase of 297.4 percent when the same rose to Rs. 65922 crore from Rs. 16588 crore in 2005. Because of periodic slumps faced by close end funds, the CAGR of 6.4 percent only could be registered by them. The assured schemes, which were very popular among the investors up to 1999, have now, disappeared completely from the mutual fund industry in India.

Further, the study has analysed the amount of AUM of mutual fund schemes according to portfolio objectives. The table 7 which exhibits portfolio objective-wise amount of AUM indicates a positive CAGR in every type of schemes. CAGR in AUM is found at the highest level (68.4%) in case of liquid/money market schemes followed with a very wide difference by growth (29.24%), and ELSS (11.1%). The income scheme could ensure annual growth of only 5.46 percent over the years. The year-on-year changes in the amount of AUM, reveals very interesting phenomenon. While AUM of growth schemes went up by 59.5 percent in 1999, the income schemes faced a decline of 4.9 percent over the previous year. Conversely, AUM of the growth schemes declined 16.7 percent and 35.3 percent in 2000 and 2001 respectively. The income schemes enjoyed 8.4 percent and 10.9 percent growth in their AUM in the corresponding period. The above may be attributed to the great depression faced by Indian stock market during 2000 and 2001. Sensex, which is an important parameter of the growth of equity market in India, plummeted by 23.13 and 19.69 percent during 2000 and 2001 respectively, as shown by Turan and Bodla (2004) in their study on risk and rewards of equity investments. The aforesaid study shows that Sensex rose marginally (i.e. 1.48 %) in 2002 over the previous year. Both CNX S&P Nifty and BSE Sensex are rising appreciably continuously since 2003. Therefore, the rising stock prices have brought considerable increase in AUM of growth schemes in last five years. The maximum addition (112.80%) in AUM of growth schemes was seen in year 2005 followed by that in 2006 (78.0%). In contrast, the income schemes, gilt schemes and ELSS suffered decline in their AUM



to the tune of 33.4, 29.5 and 8.1 percent respectively in 2004. The above indicates lack of favour for interest bearing schemes. Most probably, the considerable decline in interest rates during 2004 and 2005 is the major cause behind the negative growth of gilt and income schemes in India.

Table 7: Assets under Management of MFs in India According to Portfolio Objective (Amt. Rs. Crore)

Year	Income		Growth		Balanced		Liquid/ Money market		Gilt		ELSS		Total	
	Amt	% Δ	Amt	% Δ	Amt	% Δ	Amt.	% Δ	Amt	% Δ	Amt.	% Δ	Amt.	% Δ
1998	47389		13557		1874		619		-		2321		65760	
1999	45073	-4.9	21625	59.5	23330	1144.9	2836	358.2	1501		2663	14.7	97028	47.5
2000	48869	8.4	18010	-16.7	22173	-5.0	4705	65.9	2118	41.1	3451	29.6	99326	2.4
2001	54194	10.9	11659	-35.3	17996	-18.8	12105	157.3	3908	84.5	1960	-43.2	101822	2.5
2002	77469	42.9	14371	23.3	14164	-21.3	10801	-10.8	4316	10.4	1479	-24.5	122600	20.4
2003	71258	-8.0	22938	59.6	4663	-67.1	32424	200.2	6917	60.3	1893	28.0	140093	14.3
2004	47451	-33.4	31551	37.5	5472	17.3	59447	83.3	4876	-29.5	1740	-8.1	150537	7.5
2005	52903	11.5	67144	112.8	6833	24.9	64711	8.9	3730	-23.5	3927	125.7	199248	32.4
2006	86350	63.2	119538	78.0	9170	34.2	97757	51.1	2057	-44.9	8726	122.2	323598	62.4
CAGR	5.46		29.94**		-18.4**		68.4*		7.6		11.1		17.5*	

Source: Compiled from SEBI Annual Reports and RBI Annual Reports

* Significant at 0.01 level of significance.

** Significant at 0.05 level of significance

Table 7A: Portfolio-wise Percentage Share in Total Assets under Management

Year	Income	Growth	Balanced	Liquid	Gilt	ELSS	Total
1998	72.9	20.61	2.84	.94	-	3.52	100
1999	46.45	22.29	24.04	2.92	1.55	2.74	100
2000	49.20	18.13	22.32	4.74	2.13	3.47	100
2001	53.22	11.45	17.76	11.84	3.84	1.93	100
2002	63.19	11.72	11.55	8.81	3.52	1.21	100
2003	50.86	16.37	3.33	23.14	4.94	1.35	100
2004	31.52	20.96	3.64	39.49	3.24	1.16	100
2005	26.55	33.70	3.43	32.48	1.87	1.97	100
2006	26.68	36.94	2.83	30.31	.64	2.67	100

Source: Derived from AUM shown in Table 7

Inter portfolio analysis of AUM makes important revelations (Table 7A). The income schemes were the most favorable among investors up to 2002 when these schemes got the credit of mobilizing the maximum amount amongst various types of schemes. However, the market share of income schemes in total AUM of Indian mutual fund industry started declining in 2003. The share of these schemes came down to 26.68 percent in 2006 from 50.86 percent in 2003. Contrarily growth schemes emerged as the most popular as their share in total AUM of mutual funds rose to 36.94 percent from 16.37 percent in the corresponding period.

Table 7A shows a very high resemblance between the pattern of market share of balanced schemes and income schemes in AUM as the share of both have declined significantly during the last five years. In contrast, liquid/ money market schemes have come approximately at par with growth schemes in terms of their share in AUM. We may also note from table 7 A that gilt schemes have lost their shining over the last three years as the share in total AUM has left to 0.64 percent in 2006 from 4.94 percent in 2003. It may have been caused by the lowering of interest rates on government securities in the above mentioned period. ELSS have fared excellently during 2005 and 2006 when they ensured 125.7 and 122.2 percent growth respectively in their AUM. But their share in total AUM of the mutual funds remained the lowest after gilt. From the above analysis, we can conclude that pattern of AUM under various schemes, is a function of stock price behavior.

Fund-wise AUM: Besides category, type and objective-wise analysis of AUM, the fund-wise position in regard to AUM has been studied and, the data on this are presented in Table 8. It is obvious from the table that UTI Asset Management Company Pvt. Ltd. has dominated the mutual fund industry in India every year in so far as assets under management are concerned. Its AUM is ranked at top during each year. The AUM of Franklin Templeton Asset Management Private Limited stood at Rs.15187 crore, Rs. 15354 crore and Rs. 57827 crore at March end of years 2004, 2005 and 2006 and this AMC obtained 2nd rank for the former two years but slipped to 5th rank in 2006. Contrary to this, Reliance Capital Asset Management Limited rose to second rank in 2006 from 7th and 6th rank in March 2004 and 2005 respectively. HDFC Asset Management Company Limited has succeeded to maintain to its 4th rank in three years out of last four years. However, Standard Chartered Asset Management Company Private Limited, which is about to cross net assets of Rupees 10,000 crore slipped from 6th rank in 2003 and 2004 to 7th rank in 2005 and 10th rank in



2006. Birla Sun Life Asset Management Company Limited has also the honour of being in top 6 Asset Management Companies in terms of the amount of their AUM.

Table 8: Assets under Management of Various Mutual Funds

(Rs. Crore)

S.N	Name of AMC	1997-98	2002-03	2003-04	2004-05	2005-06
A	BANK SPONSORED					
	BOB Asset Management Co. Ltd.	62	178	454	145	191
	BOI mutual fund	722				
	Canbank Investment Management Services Ltd.	2764	952	1698	1623	2223
	Ind. Bank mutual fund	638				
	PNB Asset Management Co. Ltd.	422	141	114		
	SBI Funds Management Ltd.	2837	3220	5202	6595	13186
	UTI Asset Management Company Pvt. Ltd.	80874	13516	20617	20740	29519
	Total A	88319	18007	28085	29103	45119
B	INSTITUTIONS					
	GIC Asset Management Co. Ltd.	1381	252	234	120	
	IL & FS Asset Management Co. Ltd.		1059	2096		
	Jeevan Bima Sahayog Asset Management Co. Ltd.	1744	2939	4209	2890	5229
	IDBI Principal Asset Management Co. Lmt.	384	1685			
	Total B	3509	5935	6539	3010	5229
C	PRIVATE SECTOR					
	(i) INDIAN					
	20 th Century mutual fund	170				
	Benchmark Asset Management Co. Pvt. Ltd.		10	71	487	982
	Cholamandalam Asset Management Co. Ltd.		856	1125	1024	2007
	Credit Capital Asset Management Co. Ltd.				169	232
	Escorts Asset Management Ltd.		83	156	131	164
	First India Asset Management Pvt. Ltd.					
	Kothari Pioneer mutual fund	347				
	Tauras mutual fund	304				
	Apple mutual fund	109				
	CRB mutual fund	229				
	Jardine Fleming mutual fund	16				
	. J.M.Capital Management Pvt. Ltd.	745	2655	3644	4061	2596
	Kotak Mahindra Asset Management Co. Ltd		2987	5290	6452	9941
	Quantum Asset Management Co. Pvt. Ltd.					11
	Reliance Capital Asset Management Ltd.	948	2420	7241	9543	24670
	Sahara Asset Management Co. (Pvt) Ltd.			349	239	282
	Sundaram Asset Management Company Ltd.		1169	2009	1860	3278
	Tata Asset Management Ltd.				6784	9717
	Total ci	2868	10180	19885	30750	53880
C	(ii) FOREIGN					
	Principal Asset Management Co. Pvt. Ltd.	-		3633		
	Total cii	-		3633		
C	(iii) JOINT VENTURES- PREDOMINANTLY INDIAN					
	Birla Sun Life Asset Management Co. Ltd.	697	5488	8873	10373	15019
	Credit Capital Asset Management Co. Ltd	-	75	144		
	DSP Merrill Lynch Fund Managers Ltd.	-	2279	5127	5502	10795
	First India Asset Management Private Ltd.	-	107			
	HDFC Asset Management Co. Ltd.	-	6482	14985	14964	21550
	Tata TD Asset Management Private Ltd.	147	1028	4014		
	Total C(iii)	844	15459	33143	30839	47364
C	JOINT VENTURES – PREDOMINANTLY FOREIGN					
	ABN AMRO Asset Management (india) Ltd.	-			923	2769
	Alliance Capital Asset Management (India) Pvt. Ltd.	90	2291	2091	1206	
	Deutsche Asset Management (India) Pvt. Ltd.	-	310	2073	1814	2535
	Dundee Investment Management and Research (Pvt) Ltd.	-	5			
	Fidelity Fund Management Pvt. Ltd.	-				3663



Franklin Templeton Asset Management (india) Pvt. Ltd.	-		15187	15354	17827
HSBC Asset Management (India) Private Ltd.	-	751	4528	6247	9221
ING Investment Management (India) Pvt. Ltd.	-	594	1553	1191	1961
Morgan Stanley Investment Management Pvt. Ltd.	982	705	1361	1544	2892
Principal Pnb Asset Management Co. Pvt Ltd.	-			5521	6489
Prudential ICICI Asset Management Co. Ltd.	249	9068	14057	15189	23502
Standard Chartered Asset Mgmt Co. Pvt. Ltd.	-	4163	7287	6863	9411
Sun F & C Asset Management (India) Pvt. Ltd	-	518	194		
Templeton Asset Management (India) Pvt. Ltd	-	8792			
Zurich Asset ManagementCo.(India) Pvt. Lmt.	-	2686			
Total C4(iv)	1321	29883	48331	55852	80270
Total (ci+cii+ciii+iv)	5033	55522	104992	117441	181514
Total (A + B + C)	96861	79464	139616	149554	231862

Source: Compiled from the AMFI updates

The five AMC's which were found with the lowest AUM in 2003 include Benchmark AMC limited, Escorts AMC Ltd., First India AMC Ltd., PNB AMC Ltd., and GIC AMC limited. During 2006, the AMC's with the lowest AUM were Quantum AMC limited, Escorts AMC limited, Credit Capital AMC Limited, BOB AMC limited and Sahara AMC limited.

Major Findings and Conclusion

Numerous findings have emerged from the analysis of growth and development of mutual funds in India. First, the numbers of mutual funds schemes, with various features, have risen to 609. Second, open-end schemes have overtaken the close-end schemes in all respects such as number, growth rate in number, amount mobilized, and Asset Under Management. Third, the percentage share of open-end schemes in total number of schemes has remained above 87 percent during 2003 - 2005, where as the percentage share of close-end schemes varied from 8.2 percent to 12.6 percent in this duration. Fourth, CAGR of the number of growth schemes is found marginally higher (i.e. 10.9%) than that of income schemes (9.81%). However, the number of income schemes launched by mutual funds in India is presently higher (253) than growth schemes (207). Fifth, in terms of market share in total number of MF schemes in India, the income schemes have an edge over growth schemes continuously from the last ten years. In December 2006, the income schemes enjoy the highest market share (41.5%) followed by growth (34%), liquid/money market (8.2) balanced (5.9%) and venture capital funds (5.7%). In 2006, the Assets Under Management of growth schemes were found the highest Rs. 11953 crore, followed by liquid (Rs.97775 crore) and income schemes (Rs.86350 crore), and their market share in AUM stood at 36.94, 26.68 and 30.31 percent respectively.

Sixth, UTI's share in total asset under management has come down to 11.77 percent in 2006 from 82.54 percent in 1998. Contrarily, private sector's share has risen to 79.33 percent from less than 7.57 percent in the corresponding period. CAGR in AUM is found at the highest level (68.4%) in case of liquid schemes followed by growth schemes (29.64%) and ELSS (11.5 %). Open-end schemes have succeeded to find double digit CAGR (i.e. 25.1%) and 91.67 percent share in total AUM of all mutual funds. Seventh, despite many problems faced by UTI in recent years, it has dominated the market in terms of number of schemes as well as net asset under management. Reliance Capital Asset AMC has reached to 2nd rank in 2006 from 7th in March 2004.

Thus, the emerging dimensions of MFs are:

- Open-end schemes have emerged more favorable than close-end in recent years.
- The growth, income and liquid funds are more popular than the other types of schemes.
- The private sector funds have snatched a lion's share of market from UTI and other public sector mutual funds both in terms of number as well as assets under management
- Both, domestic private sector and foreign dominated (joint venture) MFs have performed better than public sector in recent years in all dimensions of analysis.

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TESTING WEAK FORM OF EFFICIENT MARKET HYPOTHESIS: A STUDY OF NATIONAL STOCK EXCHANGE

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Abstract

The Efficient Market Hypotheses categorises the financial markets in weak, semi strong and strong forms depending upon the extent of information reflected in securities prices. The present study is an attempt to investigate the efficacy of EMH hypothesis in context of Indian securities market. The aim of this study is to investigate whether prices of Stocks in National Stock Exchange follow a Random Walk process as required by the market efficiency theory. Forty Eight companies listed on National Stock Exchange are selected and stock price behaviour of those companies is studied over a period of time. Run test and serial correlation tests are used to verify the EMH hypothesis.

1. Introduction

Formally, the market is said to be efficient with respect to some information set, if security prices would be unaffected by revealing that information to all participants. Moreover, efficiency with respect to an information set implies that it is impossible to make economic profits by trading on the basis of that information set (Malkiel, 1992).

A market in which prices always "fully reflect" available information is called "efficient." Fama (1970). The efficient market hypothesis (EMH) asserts that a discounting process determines stock prices such that they equal the discounted value (present value) of expected future cash flows. It further states that stock prices already reflect all known information and are therefore accurate, and that the future flow of news (that will determine future stock prices) is random and unknown (presently). The EMH is the central part of Efficient Markets Theory (EMT).

One can assume the market efficiency hypothesis to be the simple statement that security prices fully reflect all available information. A precondition for this strong version of the hypothesis is that information and trading costs, the costs of getting prices to reflect information, are always zero (Grossman and Stiglitz, 1980). A weaker and economically more sensible version of the efficiency hypothesis says that prices reflect information to the point where the marginal benefits of acting on information (the profits to be made) do not exceed marginal costs (Jensen, 1978). There are three forms of the efficient market hypothesis:-

1. Weak Form

The weak form says that the current prices of stocks already fully reflect all the information that is contained in the historical sequence of prices. Therefore there is no benefit- as far as forecasting the future is concerned- in examining the historical sequence of prices. This weak form of the efficient market hypothesis is popularly known as the Random-Walk Theory. Clearly, if this weak form of the efficient market hypothesis is true, it is a direct repudiation of technical analysis.

2. Semi Strong Form

The semi strong form of the efficient-market hypothesis says that current prices of stocks not only reflect all informational content of historical prices but also reflect all publicly available knowledge about the corporations being studied. Further more, the semi strong form says that efforts by analysts and investors to acquire and analyze public information will not yield consistently superior returns to the analyst.

3. Strong Form

The strong form of the efficient-market hypothesis maintains that not only is publicly available information useless to the investor or analyst but all information is useless. Specifically, no information that is available is it public or "inside" can be used to earn consistently superior investment returns.

The strict form of the efficient-market hypothesis states that two conditions are met: first that successive price changes or changes in returns are independent; and second, that these successive price changes or return changes are identically distributed-that is, these distributions will repeat themselves over the time. In a practical sense, this seems to imply that in a random-walk world, stock prices will at any time fully reflect all publicly available information, and furthermore, that when new information becomes available, stock price will instantaneously adjust to reflect it. The random-walk theorist is not interested in price or return levels, but rather in the changes between successive levels.

Implications for the Efficient Market Hypothesis

It should also be noted that the extent of predictability observed in the data is never high. Whether for stocks, exchange rates or fixed-interest securities, and whether at short or long horizons, most of the variation in prices is unexpected. The small degree of predictability that is present may not be large or stable enough to provide the basis for a trading strategy capable of generating economic profits once transaction costs are taken into account. This may explain why market participants do not 'trade away' the observed predictability in asset returns.



2. Review of Literature

Fama (1970) coined the term EMH and argued that in an active market of large numbers of well-informed and intelligent investors, stocks will be appropriately priced and reflect all available information. In these circumstances, no information or analysis can be expected to result in out performance of an appropriate benchmark. Because of the wide availability of public information, it is nearly impossible to beat the market consistently.

Burton (2003) popularized the notion of the random walk implication in his bestseller "A Random Walk down Wall Street". He suggested that throwing darts (or, more realistically, a towel) at the newspaper stock listings is a good way for anyone to pick stocks and is likely to beat most professional investment managers.

The study on the Kuala Lumpur Stock Exchange (KLSE), "Weak Form Efficiency and Mean Reversion in the Malaysian Stock Market" conducted by Kok and Goh (1995), addresses the issue of weak form market efficiency in the Malaysian case by examining the random walk behavior of stock prices over the short run in the KLSE using the closing levels of the seven KLSE stock indices. Kok and Goh used the daily, weekly and monthly closing levels of the seven KLSE stock indices over a period of 9 years, 1984 to 1992. They analysed that the short run random walk behaviour may not hold in the long run. This is because they may revert to some mean level over longer horizons and is thereby said to be mean reverting.

Pant and Bishnoi (2002) conducted a research on Testing Random Walk Hypothesis for Indian Stock Market Indices. While analyzing the behavior of daily & weekly returns of 5 Indian market indices for random walk during April 1996-June 2001, it shows that the Indian stock market indices do not follow random walk. Their results were based on the tests of Indian stock market indices for normality, autocorrelation using Q-statistic & Dickey-fuller test and also the analysis of variance ratio using homoscedastic and heteroscedastic test estimates.

Ramasastri (2001) conducted a study on stock market efficiency spectral analysis. This research studies efficiency of Indian stock market since the beginning of 1996 to 1998 using a powerful technique – spectral analysis. Correlogram, based on sensex, establishes that Indian stock market has been efficient. Spectral analysis finds that there is a presence of periodic cycles in the movements of share prices. Yet confirms market efficiency as power functions flatten at higher frequencies.

Well known Dickey Fuller unit root test and Box Pierce Q test are also widely used in literature. Ramasastri (1999) tested Indian stock market for random walk during post liberalization period using three Dickey Fuller hypotheses. Contrary to other studies he could not reject the null hypotheses that stock price are random walks. According to Ayadi & Pyun (1994) the variance ratio test has more appealing features and hence it has been used several times in the literature on random walk.

Gupta (2001) conducted a study of stock market efficiency in India. This study is principally aimed at enquiring into certain aspect of market efficiency with respect to Indian stock market during 1986 to 1995. The findings of this research are ; dividend has a powerful and positive impact on market share price; Profitability has a positive influence on market share price and Leverage had no significant effect on market share prices.

Parameswaran (2000), performed variance ratio tests corrected for bid-ask spread and non-synchronous trading on the weekly returns derived from CRSP daily returns file for a period of 23 years. His results show that eight out of ten sorted portfolios do not follow a random walk. He observed that non-trading is not a source of serial correlation in the large sized firms

Mitra (2000a) conducted a long time empirical testing of efficient market hypothesis based on rejection of forecastability of asset return. The study based on technical analysis and neural networks disprove random walk hypothesis proved that future prices can be accurately forecasted. The developed ANN model based on past stock market price as parameters and showed that network performs very well in forecasting developments in BSE sensitive index, thus rejecting criteria of non forecastability of stock prices in BOMBAY stock exchange. Ming, Nor & Guru (2002) mentioned earlier also tries to disapprove random walk by establishing the predictive capability of technical rules like VMA & FMA.

Pan, et al., (1991), applied the variance ratio test on daily and weekly returns for a five-year sample period in five Asian stock markets, namely, Hong Kong, Japan, Singapore, South Korea, and Taiwan. They rejected the null hypotheses of randomness for both daily and weekly market returns for Korea and Singapore and accepted the null hypothesis in case of Japan. The null hypotheses for Hong Kong daily returns index and the Taiwan weekly returns index were also rejected. Their results indicated that all the returns based on the five market indices were positively auto correlated except for Japan.

Darrat and Zhong (2000) examined random walk hypothesis for the two newly created stock exchanges in China. They followed two different approaches-the variance ratio test and comparison of NAÏVE model (based on assumption of random walk) with other models like ARIMA and GARCH. They rejected the random walk in newly created Chinese stock exchanges using both the methodologies. They further suggested artificial neural network (ANN) based models as strong tools for predicting prices in the stock exchanges of developing countries. Grieb and Geyes (1999) employed variance ratio on weekly stock returns to re-examine the Brazilian and Mexican stock markets. The findings indicated non-random behavior in the Mexican market while the Brazilian market indicated evidence in favor of the random walk. Koh and Goh (1994) tested the random walk hypothesis by extending the framework of Cochrane (1988) on Malaysian stock indices. The results revealed that the Malaysian stock market followed random walk in the long run.

Mitra (2000b) developed ANN model based on past stock market prices as parameters and showed that network performs very well in forecasting developments in BSE sensitive index, thus rejecting the criteria of un-forecastability of stock prices in Bombay stock exchange. Ming et al. (2000) also tries to disprove random walk by establishing the predictive capability of technical rules like VMA and FMA

This study shows that variance ratio and multiple variance ratio tests reject random walk for Kuala Lumpur stock exchange. Researchers further show that trading rules like variable leg moving average (VMA) and fixed length moving average (FMA) have predictive ability of earning profits over and above the transaction costs.



3. Objectives of the Study

- 1 The objective of this research is to study the application of Efficient Market Theory hypothesis in Indian context.
- 2 To investigate whether prices of Stocks in National Stock Exchange follow a Random Walk process as required by the market efficiency theory.
- 3 To explore new vistas for further research.

4. Research Methodology

The research is empirical in nature. For the purpose of statistical analysis of the weak form of efficient market hypothesis, the market prices of shares of National stock exchange for the different time periods have been taken as variables. Judgment sampling (non probability sampling) technique is used to select the samples. This research is a case study of NSE where Nifty has been selected for the purpose of analysis. Attempt is made to analyse the performance of Nifty keeping portfolio management perspective in view. Forty eight companies' data is used which were included in NSE index, NIFTY, the rest two companies were eliminated due to the swapping of those companies on index.

Secondary Sources are used to collect the data. Weekly price data is collected from nseindia.com for all firms and Friday closing price was taken for the period from 1st January 2005 to 31st December 2005.

To analyze the data, statistical tools like run test and serial correlation are applied so as to know the extent of correlation among different variables.

Hypothesis Formulations

For calculating the run test the following hypothesis has been formulated

- 1 Ho= The price movements in the share prices of NIFTY are not affected by past prices.

5. Results & Discussions

Run Test

Run test was used to find out whether the series of price movement had occurred by chance. Run test ignores the absolute values of the number in the series and observe only their sign. So the number of runs – consecutive sequence of signs in the same direction was counted. The consecutive rise in price was counted as a positive run and the decline was counted as negative run. For analysis weekly share prices of Nifty is selected for study from 1st January 2005 to 31st December 2005.

To test the weak form of efficient market theory the following hypothesis has been formulated;

Ho= the price movement in the share prices of Nifty are not affected by past prices.

Out of 48 companies, the value of Z of all the companies were lesser than the critical value of ± 1.96 at 5% level of significance, like the computed value of Bajaj Auto (0.9194), Dr. Reddy's lab (0.9089), HDFC bank (0.7408) etc. Hence our hypothesis is accepted that; the price movement in the share prices of Nifty is not affected by past prices or the result. Further it can be seen that the price movement in share prices of Nifty are random in behavior and therefore we can't use the historical data for predicting the future prices. So our result shows that the market is efficient (Table 2).

Serial Correlation

To test the independence between the successive price changes serial correlation technique was used. Serial correlation measures the correlation coefficient in a series of numbers with the lagging value of the same series. Correlation was calculated between the price changes in period $t+1$ (or $t +$ any number) with the price changes of the preceding period. (Table 1)

The serial correlation is calculated for weekly share prices of Nifty for the period 1st Jan to 31st December 2005. The correlation is calculated between the share prices of any period "t" and "t+1", between; "t +1" & "t + 2", between; "t + 2" & "t +3", between; "t +3" & "t + 4". To analyze the results, three limits of correlation coefficient were taken ± 0 to ± 0.25 (low correlation), ± 0.25 to ± 0.75 (moderate correlation) & ± 0.75 to ± 1 (high correlation).

It was analyzed that out of 48 companies, correlation between 't' and 't+1', three companies TATA STEEL, L&T and SBIN depicted positive moderate correlation. 14 companies had positive moderate correlation in 't+2' such as BPCL, GRASIM, TCS, etc. 19 companies from 't+3' such as TCS, ZEE TELEFILMS, TATA POWER, etc and 23 companies from 't+4' such as WIPRO, TATA MOTORS, SCI, etc. had moderate positive correlation and only 2 company i.e. HCL TECH and PNB depicted negative low correlation. To make the analysis more clear about 14% of the companies are low and moderately correlated in 't+1', about 38% are low and moderately correlated in 't+2', about 48% of the companies are low and moderately correlated in 't+3' and about 58% are low and moderately correlated in 't+4'. The number of companies in low and moderate correlation group were increased after the period of 't+1' and 't+2' significantly. And the number of companies in high correlation group was constant for the period of 't+1' and 't+2' then decreased in the period 't+3' and 't+4'.

Most of the companies of Nifty had moderate autocorrelation, some companies had low correlation while some other had high, so they may be sometime significant or sometime insignificant. So the result was that the historical price can sometimes be used to predict the future prices. The past prices affect only the immediate future prices therefore most of the companies in 't+1' and 't+2', were highly correlated.

The result of autocorrelation was generally found to be significant for t+2 and above period but not so for t+1 period. The results indicate moderate autocorrelation in prices and hence indicate a relationship between future and past prices. But it must be pointed out here that these results are indicative for a very short range of time period (t+1 to t+4).

6. Implications of the Study

There are, of course, a number of ways in which this research could be extended. One possible extension would be to use the multiple variance ratio test procedure in conjunctions with intraday data. It is generally known that weak form inefficiency is linked with the newer small capitalisation markets with lower levels of liquidity and turnover but little is known about how quickly a market approach a random walk as they become more liquid and institutionally mature.



The study is useful to the investors as it depicts the market reactions. The investors must not only rely on the technical analysts for investing in the market as there is no or very little correlation between past data and future prices which cannot be determined correctly by technical analysts. But that does not rule out technical analysis completely, in fact the results of serial correlation tests were in support of technical analysis. Therefore it is prudent to use technical analysis only as the supportive measure and not the conclusive measure for stock market investment.

The equity research companies cannot totally depend on the past data analysis but should also concentrate on elaborate studies which can determine the results correctly. The Companies should neither get demotivated nor over confident from the past highs and lows because as shown through analysis, past data does not affect future data and the current performance must be considered also.

7. Conclusion

Two tests have been applied in this research work to test the weak form of market efficiency, which are run test (z) and autocorrelation. The result of run test (z) was that the movements in the prices are random so the market is efficient in the weak form of efficient market hypothesis.

There were mixed results of the autocorrelation. Some of the companies had low correlation, some had high correlation, but most of the companies had moderate correlation, with that the researchers had analyzed that the past prices can sometime be used for predicting future prices. Mostly the past prices only affect the immediate future prices for obvious reasons as not much change is expected in companies and economy's fundamentals over a very short period of time. Prices follow previous days trend because of price momentum and predictable pattern of investors.

Table 1: Autocorrelation between weekly price changes and lagged price changes of Nifty

Company Name	t+1	t+2	t+3	t+4
abb	0.974934	0.946265	0.916673	0.898836
acc	0.970887	0.944307	0.917616	0.886776
bajajauto	0.98519	0.9751	0.9674	0.96695
bharti	0.196555	0.172176	0.160741	0.135568
bhel	0.846442	0.823068	0.787083	0.777876
bpcl	0.819115	0.706256	0.586568	0.588877
cipl	0.971665	0.958157	0.946914	0.929799
dabur	0.977454	0.965166	0.959458	0.943012
drreddy	0.909508	0.818081	0.777724	0.780286
gail	0.863866	0.794438	0.719302	0.670206
glaxo	0.972132	0.94232	0.902476	0.860085
grasim	0.892935	0.730171	0.558945	0.386745
gujambcem	0.949713	0.902933	0.856562	0.810904
hcltech	-0.01528	-0.02105	-0.02712	-0.02255
hdfc	0.942096	0.92447	0.899784	0.882369
hdfcbank	0.929447	0.854149	0.825444	0.7643
herohonda	0.968483	0.959034	0.94121	0.937281
hindlever	0.937335	0.890327	0.834568	0.812994
hindpetro	0.787369	0.668305	0.650094	0.667277
icicibank	0.956343	0.910967	0.861389	0.827146
infosystch	0.816005	0.772635	0.73477	0.796301
Ipcl	0.931278	0.90764	0.857355	0.8204
Itc	0.124885	0.107366	0.09804	0.091157
Lt	0.747132	0.713088	0.675194	0.644226
M&M	0.824567	0.667095	0.515744	0.33759



Maruti	0.90795	0.870988	0.816588	0.755701
Mtnl	0.828956	0.593943	0.463377	0.372115
Nationalum	0.894304	0.840768	0.785099	0.661864
Ongc	0.933413	0.864823	0.814854	0.754079
Orientbank	0.908499	0.787351	0.719618	0.694778
Pnb	0.00173	-0.01506	-0.02048	-0.02433
Ranbaxy	0.953837	0.913616	0.876624	0.841949
Rel	0.844156	0.715	0.571301	0.356247
Reliance	0.973549	0.957748	0.942343	0.931844
Sail	0.838674	0.670507	0.507997	0.346965
Satyamcomp	0.828034	0.663806	0.471651	0.252384
Sbin	0.728374	0.631327	0.543141	0.466469
Sci	0.830174	0.681276	0.518423	0.33409
Sunpharma	0.970322	0.953264	0.934111	0.911865
Tatachem	0.947737	0.903359	0.860805	0.81716
Tatamotors	0.936687	0.860707	0.795055	0.755073
Tatapower	0.864545	0.815708	0.732242	0.68467
Tatasteel	0.264558	-0.05783	-0.0613	-0.04855
Tatatea	0.971367	0.948496	0.930674	0.904928
Tcs	0.870378	0.747954	0.630654	0.517594
Vsnl	0.965842	0.913926	0.842129	0.761061
Wipro	0.923055	0.858656	0.791251	0.720246
Zeetele	0.834918	0.688601	0.618578	0.550317

Table 2: Analysis of Run Test

Company Name	Z
Abb	0.1878
Acc	-0.4756
Bajajauto	0.9194
Bharti	-0.4756
Bhel	-0.7787
Bpcl	-1.3457
Cipla	0.1336
Dabur	0.0000
Drreddy	0.9089
Gail	1.1917
Glaxo	-0.5958
Grasim	-1.2794
Gujambcem	0.0114



Hcltech	1.6550
Hdfc	1.2645
Hdfcbank	0.7408
Herohonda	0.9089
Hindalco	0.0000
Hindlever	0.8701
Hindpetro	-0.4736
Icicibank	-0.4736
Infosystch	-0.7787
Ipcl	0.2857
Itc	-1.5728
Jetairways	0.0000
Lt	-0.6336
M&M	0.6088
Maruti	0.9745
Mtnl	-1.5682
Nationalum	0.7282
Ongc	-0.3231
Orientbank	-0.7657
Pnb	-2.5428
Ranbaxy	0.5959
Rel	-0.2748
Reliance	0.4812
Sail	0.6844
Satyamcomp	0.1335
Sbin	-1.0809
Sci	-0.6928
Sunpharma	-0.9443
Tatachem	0.4812
Tatamotors	-0.1030
Tatapower	0.6213
Tatasteel	-0.8472
Tatatea	-1.3922
Tcs	0.5958
Vsnl	-0.8938
Wipro	0.0114
Zeetele	-1.1335



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SILLOVERS FROM FOREIGN DIRECT INVESTMENT: A SURVEY OF RECENT LITERATURE

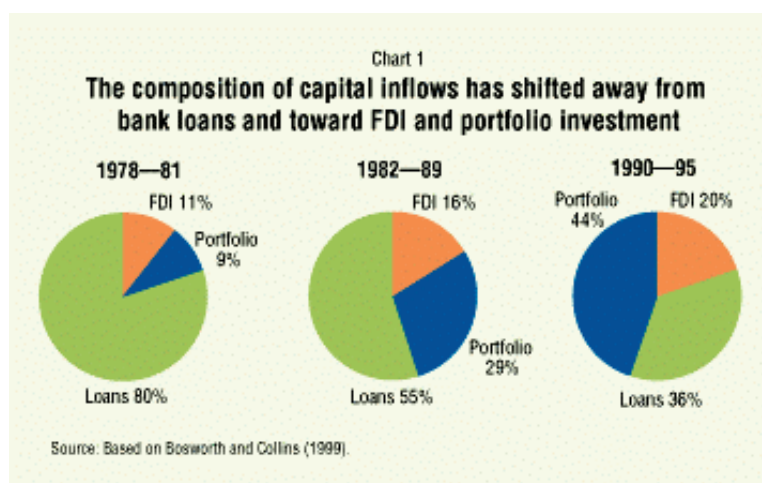
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Abstract

Global FDI flows have steadily grown since 1970s in general and 1990s in particular and have become the most important source of external resource flow to developing countries in recent years. However, FDI is much more than that. It is the spillover effects of FDI, which are most significant for the development of a country. It is popularly believed that FDI, being an important source of technology, organizational and managerial skills, marketing networks etc., stimulates competition, innovation, investment and capital formation and thus, promotes economic growth. That is why today FDI is being wooed in a big way by the developing countries and is looked upon as a kind of panacea for growth problems. In view of the growing size and role of FDI, especially in the developing economies, it is important to empirically analyze the “spillovers” of FDI both at intra- industry and inter-industry level in various economies. The present paper is an attempt to survey the recent literature on the subject so that there is a better understanding of the related issues and linkages that will, in turn, promote more focused future research in the area. The natural conclusion that follows from this survey is that most of the countries have experienced positive spillovers from FDI. However, such influences are conditional and depend, to a large extent, on the economic conditions of the host country in general and on the size, number, technology gap, competition, market share, attitude etc. of the domestic firms in particular.

Introduction

Foreign Direct Investment (FDI) has emerged as the most important external resource flow to developing countries over the 1990s and has become a significant part of their capital formation (Chart 1). FDI usually flows as a bundle of resources including, capital, production technology, organizational and managerial skills, marketing know-how and even market access through the marketing networks of Multi National Enterprises (MNEs) who undertake FDI and thus act as export ‘catalysts’ (Rhee & Belot, 1989). These skills tend to spill over to domestic enterprises in the host country. Therefore FDI can be expected to contribute to growth more than proportionately compared to domestic investments in the host country.



There are many reasons why FDI became a much-discussed topic in 1990s. One major reason is the dramatic increase in annual global FDI flow between 1985-2000 from around US\$ 60 billion to US\$ 1167 billion and the resulting rise in its relative importance as a source of investment funds for a number of countries. Stocks of FDI, in turn, have been rising and estimates suggest that the sales of foreign affiliates of Multi National Corporation (MNC) exceed the value of world trade in goods and services.

The keen interest in FDI is also a part of a broad interest in the forces propelling the on growing integration of the world economy or what is popularly described as ‘globalization’. Together with the more or less steady rise in the world trade to GDP ratio, the increased importance of foreign owned production and distribution facilities in most countries is cited as tangible evidence of globalization. Foreign Direct Investment is also viewed as a way of increasing the efficiency with which the world’s scarce resources are used. A recent and specific example is the perceived role of the FDI in stimulating economic growth in many of the world’s poorest countries in Asia and Africa. Partly, this is because of the continued decline in the role of development assistance and the resulting search for alternative resources of foreign capital. More importantly, FDI, very little of which currently flows to



the poorest countries, can be a source not just of badly needed capital, but also of new technology and importables such as organizational and managerial skills and marketing networks. FDI can also provide a stimulus to competition, innovation, savings and capital formation, and through these effects it can lead to creation of jobs and economic growth. Along with major reforms in domestic policies and practices in the poorest countries, this is precisely what is needed to turn around an otherwise pessimistic outlook.

Renewed interest in FDI within the trade community has been stimulated by the perception that trade and FDI are simply two ways – sometimes alternatives, but increasingly complementary – of servicing foreign markets and they are already interlinked in a variety of ways. As a consequence, most of the countries in WTO like OECD etc. have agreed on Trade Related Investment Measures (TRIMS). On a multinational basis, WTO's General Agreement on Trade in Services (GATS) includes rules on 'commercial presence', that recognize that FDI is a prerequisite for exporting many services (there are no corresponding rules on commercial presence in the General Agreement on Tariffs and Trade (GATT), which governs only trade in goods). A number of potential indirect economic benefits of foreign direct investment have been identified in economic literature. FDI promotes greater efficiency throughout the economy by increasing competition levels in the domestic industries. Spillover effects may also be realized from nonspecific human capital investment made by foreigners as a result of labor migration who are ultimately utilized within domestic owned firms. Other indirect economic benefits of foreign ownership include faster adoption of new technology by domestically owned firms, improved management practices, mobility of domestic resources – particularly financial capital etc. Introduction of new know-how by demonstrating new technologies and training to workers, who later take employment in local firms, either breaks down monopolies and stimulates competition and efficiency or creates a more monopolistic industry structure, depending on the strength and responses of the local firms.

In view of the ever-increasing role of FDI in promoting economic growth in the current scenario, the present paper makes a modest attempt to carry out a survey of recent empirical literature on the diverse economic impacts of FDI, especially in the case of developing economies.

Foreign Direct Investment and Externalities

There is a body of literature that analyzes the effect of FDI on growth in inter-country framework and another that analyzes knowledge spillovers to domestic enterprises from MNE, (e.g. DeMelo, 1996, Saggi, 2000, and Lim 2001). However, the mixed findings of these studies on the role of FDI inflows in promoting economic growth in the host country and generating knowledge spillovers from MNEs suggest that these relationships are not unequivocal. The primary consideration of expecting a more favorable effect of FDI on growth is externalities of MNE entry for domestic firms. However, the externalities such as spillovers may not take place in some cases because of poor linkages with the domestic enterprise or poor absorptive capacity. There is also a possibility of MNE entry affecting domestic enterprises adversely, given the market power of their proprietary assets, such as superior technology, appeal of brand names and aggressive marketing techniques. Therefore, FDI may crowd out domestic investment and may thus be immiserizing (Fry, 1993, and Agosin, & Mayer 2000). The crowding out effect may be sharper when the technology gap between foreign and domestic firms is very wide. Furthermore, FDI may be attracted to a country by high growth rates, among other factors, the observed relationships between FDI and growth rate may suffer from causality problems.

Further, there may be two rounds effect of MNE entry on domestic investment. Domestic firms in the industry may feel the initial round of effect where the foreign entry has taken place. Because of superior asset bundle of foreign entrant, domestic enterprises may be affected adversely as their market share is eroded. The subsequent round of effect may be more favorable with domestic rivals absorbing spillovers of knowledge (demonstration based learning) as well as diffusion of knowledge through vertical linkages with domestic enterprises. The net effect of FDI on domestic investments would depend on relative weights of these two rounds effects. Given the dynamic nature of the effect of FDI on domestic investment and growth, analysis in a comparative static framework may yield biased results.

In the neo-classical model, growth results from technological progress, growth of labor force (both of which are treated as exogenous), and capital accumulation, which is subject to diminishing returns. However, new growth theories incorporate the role of knowledge or technology endogenously as a factor of production in its own right and provide for the possibility of non-diminishing returns to capital (Romer 1994, Grossman & Helpman, 1991). The recognition of role of knowledge in economic growth has also led to a renewed interest in analysis of the role of FDI in growth. This is because transfer of considerable production and managerial knowledge generally accompanies FDI from investors to the host country that is likely to spill over to domestic enterprises in the host country. Romer (1994) has argued that by bringing new knowledge to their host countries, MNEs may help to reduce 'idea gaps' between developed and developing countries and thus become important sources of growth. Thus, effect of FDI on growth in host countries could be more valuable than its direct generation of output by complementing domestic investments. The indirect effect of FDI on growth in the host country may comprise a sum total of its externalities on domestic investment through knowledge spillovers and vertical linkages.

The knowledge spillover associated with FDI could be classified into two broad categories viz. intra-industry spillovers and inter-industry spillovers. Intra-industry spillovers are absorbed by competitors of foreign entrants who are prompted to respond to new improved process or product technology introduced by the technology-importing firms by upgrading their technology. In certain cases the demonstration effect from foreign firms may speed up the diffusion of new technologies. Yet another source of spillovers could be the increased competition from foreign entry which forces local firms to become more efficient users of existing technologies or to explore new technologies.



In short, intra industry efficiency spillovers of FDI can occur via three main channels (Blomstrom & Kokko, 1994):

1. Movements of highly skilled staff from, and trained in, multinationals to domestic firms.
2. 'Demonstration effects' through arm's length relationship between MNCs and domestic firms in which the latter learn superior production technology from multinationals and
3. Competition from multinationals forcing domestic rivals to update production techniques.

Another mechanism of diffusion of technology imported within the host economy is through generation of vertical inter-firm linkages. MNEs may demand higher specifications, re-tooling and technology updating from their component vendors forcing technology effort on their part. In quite a few cases, they may actually be passing on new designs, drawings and specifications that may be significant source of technology diffusion. The diffusion of knowledge through this channel could be particularly significant in the case of equipment manufacturers.

Recent Trends in FDI

Global FDI inflows and outflows have steadily grown since 1970s rising to almost four times in 1980 as compared to 1970 and again to more than four times in the next decade viz. 1980-1990 (Table-1). This trend has been further strengthened in the 1990s with the integration of the international capital markets. Recorded global inflows have grown by an average of 13% a year during 1990-1997 and by an annual average of nearly 50% during 1998-2000 reaching a record US \$1410 billion in 2000 mainly due to large cross border mergers and acquisitions. However, due to this very reason, FDI inflows declined to US \$832 billion in 2001 (Table-2). There was a further fall in 2002 and 2003 but FDI inflows have again started increasing since 2004. A similar trend is observed in case of FDI outflows.

It is to be noted that developed countries have dominated the FDI flows throughout the 1990s with an average share of 68% in inflows and 88% in outflows between 1994 and 1999. However, there is a steady decline in this share since 2000, especially in case of FDI inflows, which is significantly reduced from 80% in 2000 to 59% in 2005. Developed economies' loss has been the gain of developing economies that have almost doubled their share in global FDI inflow from 19% in 2000 to 36% in 2005.

The FDI inflows to developing countries grew by an average of 23% per year during 1990-2000. In 2001, these inflows declined by 13% to US \$ 221 billion largely reflecting reduced inflows into Hong Kong, Brazil and Argentina. If we exclude these three economies, FDI inflows to developing economies show an increase of 18% in 2001.

After a setback in 2002 and 2003, world FDI inflows again show a growth of 27% in 2004 and this has been almost a worldwide phenomenon. Nevertheless world inflows have remained far below the 2000 peak of US \$ 1.4 trillion. Similar trends in the late 90s, the recent upsurge in FDI reflects a greater level of cross border mergers and acquisitions, especially among the developed countries. It also reflects higher growth rates in some developed countries as well as strong economic performance in many developing and transition economies.

Inflows to developed countries in 2005 amounted to US \$ 542 billion, an increase of 37% over 2004, while for developing countries they rose to the highest level ever recorded – US \$ 334 billion. In percentage terms, the share of developed countries increased somewhat to 59% of global inward FDI. The share of developing countries was 36% and that of transition economies (South East Europe and Commonwealth of Independent States) was about 4%.

Global FDI outflows amounted to US \$ 779 billion in 2005 (The amount is different from that estimated for FDI inflows due to differences in data reporting and collecting methods of countries). Developed countries remain the leading sources of such outflows. In 2005, the Netherlands reported outflows of US \$ 119 billion, followed by France and UK. However, there were significant increases in outward investment by developing economies led by Hong Kong (China) with US \$ 33 billion. Indeed the role of developing and transition economies as sources of FDI is increasing. Negligible or small until the mid 1980s, outflows from these economies totaled US \$ 133 billion in 2005, corresponding to approximately 17% of the world total (Table 2).

**TABLE: 1 - FDI Flows by Region, 1970-1995****(Millions of US Dollars and Percent)**

Region/ Country	FDI inflows						FDI outflows					
	1970	1975	1980	1985	1990	1995	1970	1975	1980	1985	1990	1995
(a) Developed Economies	9564	17606	47575	43746	165637	219672	14100	28057	50676	58963	217669	304894
(b) Developing Economies	3853	9708	7674	14199	35894	115861	49	645	3148	3912	11945	54330
(c) Transition Economies	0	0	24	15	79	4803	0	0	0	0	273	635
World	13417	27314	5572	57959	201614	340336	14149	28702	53825	62604	229887	359859
Percentage share in world FDI flows												
Developed Economies	71.28	64.46	853.82	75.48	82.16	64.55	99.65	97.75	94.15	94.18	94.69	84.73
Developing Economies	28.72	35.54	137.72	24.50	17.80	34.04	0.35	2.25	5.85	6.25	5.20	15.10
Transition Economies	0.00	0.00	0.43	0.03	0.04	1.41	0.00	0.00	0.00	0.00	0.12	0.18

Source: <http://stats.unctad.org/fdi>

TABLE: 2 - FDI Flows by Region, 1994-2005**(Billions of US Dollars and Percent)**

Region/ Country	FDI inflows							FDI outflows						
	1994-99 Annual Average	2000	2001	2002	2003	2004	2005	1994-99 Annual Average	2000	2001	2002	2003	2004	2005
(a) Developed Economies	373.9	1133.7	599.3	441.2	358.5	396.1	542.3	486.6	1097.5	684.8	485.1	514.8	686.3	646.2
European Union	210.3	696.1	382.0	307.1	253.7	213.7	421.9	304.2	813.1	435.4	265.8	286.1	334.9	554.8
United States	124.9	314.0	159.5	74.5	53.1	122.4	99.4	114.3	142.6	124.9	134.9	129.4	22.4	12.7
(b) Developing Economies	166.4	266.8	221.4	163.6	175.1	275.0	334.3	64.9	143.8	76.7	49.7	35.6	112.8	117.5
Africa	8.4	9.6	19.9	13.0	18.5	17.2	30.7	2.5	1.5	2.7	0.3	1.2	1.9	1.1
Asia	92.4	148.0	112.0	96.1	110.1	156.6	199.6	43.5	82.2	47.1	34.7	19.0	83.4	83.6
South Asia	3.4	4.7	6.4	7.0	5.7	7.3	9.8	0.1	0.5	1.4	1.7	1.4	2.1	1.5
(c) Transition Economies	7.8	9.1	11.5	12.9	24.2	39.6	39.7	1.6	3.2	2.7	4.7	10.7	14.0	15.1
World	548.1	1409.6	832.2	617.7	557.9	710.8	916.3	553.1	1244.5	764.2	539.5	561.1	813.1	778.7
Percentage share in world FDI flows														
Developed Economies	68.2	80.4	72.0	71.4	64.3	55.7	59.2	88.0	88.2	89.6	89.9	91.7	84.4	83.0
Developing Economies	30.4	18.9	26.6	26.5	31.4	38.7	36.5	11.7	11.6	10.0	9.2	6.3	13.9	15.1
Transition Economies	1.4	0.6	1.4	2.1	4.3	5.6	4.3	0.3	0.3	0.4	0.9	1.9	1.7	1.9

Source: UNCTAD, World Investment Report 2006: FDI from Developing and Transition Economies.



Survey of Literature

The earliest discussion of FDI spillovers in the economic literature dates back to the 1960s. The first author to systematically include spillovers among the possible consequences of FDI was MacDougall (1960), who analyzed the general welfare effects of foreign investment. Other early contributions were provided by Corden (1967), who looked at the effects of FDI on optimum tariff policy and Caves (1971), who examined FDI in context of industrial pattern and welfare effects.

The earliest statistical analysis of intra-industry spillovers includes studies by Caves (1974) for Australia, by Globerman (1979) for Canada and by Blomstrom and Pearson (1983) for Mexico. These authors have examined the existence of spillovers by testing whether foreign investment has any effect on labor productivity in local firms in a production function framework. All these studies conclude that spillovers are significant at disaggregate level although they could not say anything about how these spillovers take place.

Some of the recent studies claim that FDI inflows make an important and significant contribution to economic growth in the recipient country. For instance, Pain (1997) and Driffied (2001) have found statistically significant spillovers in the UK. Similarly, Chuang and Lin (1999), Lipsey and Sjöholm (2004) and Dimelis and Lour (2002) report statistically significant spillovers in their studies of Taiwan, Indonesia and Greece respectively. Similar results are reported by Blomstrom and Wolff (1994) who also tried to determine the size of these effects by asking whether spillovers in the Mexican manufacturing sector were large enough to help Mexican firms converge towards US productivity levels during the period 1965-1982. Their answer is in affirmative. Foreign presence seems to have had a significant positive impact on the rates of growth of local productivity.

Nadri (1991 b) in a study of impact of US direct investment in plant and equipment on the manufacturing sectors in France, Germany, Japan and the UK between 1968 and 1998 also reaches a similar conclusion. Increases in the capital stock owned by US multinationals seem to stimulate new domestic investment in plant and equipment and it appears that there is also a positive impact of FDI on the growth of total factor productivity in the host countries' manufacturing sectors.

Several case studies (for example, Rhee and Belot, 1989) suggest that multinationals bring in information about export markets to local producers, enabling them to access markets abroad. Aitken et al (1997) have tested the possibility that other exporters can reduce the cost of foreign market access for a firm contemplating a jump into export markets. This pioneering study provides statistical evidence on the role of foreign firms as 'catalysts' for other exporters. The basis of the study is 2113 Mexican manufacturing plants over the period 1986-1990. The analysis shows that multinational firms in Mexico do act as export catalysts. Domestic firms located near multinational exporters are much more likely to export than other firms. This suggests that foreign investors bring valuable information about export possibilities to a developing country, which then spills over to domestic rivals.

Contrary to the above studies, some studies did not find spillovers (despite being based on productivity approach) suggesting that such effects of foreign presence are not always beneficial (Aitken and Harrison, 1992; Haddad and Harrison, 1993; Aitken et al., 1997; Aitken and Harrison, 1999). These studies have attempted to advance the analytical frontier by extending productivity approach and incorporating factors not considered earlier, such as industry and regional dynamics, systemic coordination and support infrastructure, and general firm-level specificities. For example, Haddad and Harrison (1993), in a test of the spillover hypothesis for Moroccan manufacturing during the period 1985-89, conclude that spillovers do not take place in all the industrial sectors. Like Blomstrom (1986), they find that foreign presence lowers the average dispersion of a sector's productivity, but they also observe that the effect is more significant in sectors with simpler technology. This is interpreted to mean that foreign presence forces local firms to become more productive in sectors where best practice technology lies within their capability, but there are no significant transfers of modern technology. Further, they do not find any significant effects of foreign presence on the rate of productivity growth of local firms, and interpret this as additional support to the conclusion that no significant technology spillovers occur.

Aitken and Harrison (1999) have estimated the impact of foreign presence on total factor productivity growth using plant level data for Venezuela for the period 1976-1989. They report that firms with foreign equity participation exhibit much higher levels of productivity and also higher productivity growth. Thus there is strong evidence that an infusion of FDI does more than simply provide additional capital- it is also accompanied by knowledge transfers, which lead to better firm performance. Yet, there is no evidence that the benefits accruing to joint ventures or local subsidiaries of multinationals are diffused to domestic firms. In other words, foreign investors provide direct benefits to those firms receiving the investment, but there are no spillovers to other plants. In fact, an increased multinational presence in Venezuela hurt the productivity of domestic competitors, in part because the multinationals took market share away from domestic plants.

In an attempt to analyze the relationship between FDI and growth in China, Shan et al (1997) tested an FDI led growth hypothesis. They constructed a vector auto-regression model on the basis of quarterly time series data over the period 1985-1996. The results indicate that there is a two-way causality between FDI and growth. However, assessment differs over FDI's contribution to technology transfer to China. Huang (1995) has stated that FDI has introduced advanced technologies in the country. Lan and Yong (1996) studied technology transfer and adaptation in the northeast city of Dalian by interviewing 36 firms. They also conclude that FDI has transferred advanced technology. However, many disagree with this conclusion. For example, Kamath (1990) argues that given the preponderance of real estates, commercial and tourism related FDI and FDI in labor intensive manufacturing industries, the major transfer has been in low level technology areas classified by the government as 'non-productive'.

Barrios et al (2001) create comparable firm level data sets that help to contrast the impact of FDI presence on domestic productivity levels and growth rates for Greece, Ireland and Spain during 1992-1997. These countries shared many characteristics such as initial low level of GDP per capita and productivity in manufacturing, compared to EU averages, until the mid 80s. The study finds evidence of positive efficiency spillovers in Ireland and Spain only, although positive spillovers in these countries also seem to depend upon two factors. Firstly, only firms with technological ability to absorb spillovers are likely to benefit from



multinationals operating in their sector. Secondly, the choice of cut off point in terms of measuring spillovers affects the magnitude as it determines both – when a firm is considered a potential recipient and when a potential creator of technological spillovers. Greece does not show any significant positive spillovers, which may be due to many reasons. The large size of firms examined, (already found not to be highly interactive with foreign firms) in contrast to small firms (which are much more responsive) may be one of them. The stress on majority foreign ownership may be another. In addition, in contrast to Ireland and Spain, FDI in Greece is predominantly located in more traditional, low technology sectors where the possibility of technology spillovers is relatively low.

Banga (2004) has undertaken a firm level analysis of the impact of Japanese and US FDI on total factor productivity of firms in 25 Indian industries in the post reforms period. The results show that Japanese affiliation had a significant positive impact on productivity growth in a firm while the impact of US affiliation is not found to be significant. The results also show that domestic firms have witnessed both efficiency growth as well as technological progress in the Electrical and Chemical industries in the post reforms period.

Patibandla and Sanyal (2004) also examined the Indian industries in the post reforms period to assess the direct and indirect productivity effects at firm level generated by foreign investment. He finds no evidence that foreign investment directly increases firm level productivity, nor that R&D spending is more productive in firms or sectors with higher foreign investment. However, there is strong evidence that local firms benefit from foreign investment in their industries and these benefits are higher for larger firms, especially those that do more business domestically.

Feinberg and Majumdar (2001) examine whether or not knowledge spillovers from local R&D activities of MNCs has benefited domestic firms in the Indian Pharmaceuticals industry for the period 1980-1994. Their results show that only MNCs have gained each other's R&D spillovers while Indian firms have gained nothing.

Kathuria (1996) using detailed firm level data for Indian manufacturing sector examines the relationship between foreign investment in a sector and productivity of domestic firms in that sector. The results suggest that the dispersion of productivity is smaller in sectors with more foreign firms. However, the spillovers are positive only for the firms belonging to low technology sector.

Another possible explanation for the divergent findings from the earlier statistical spillover tests is suggested by Kokko (1996), who analyses the effects of competition in Mexican manufacturing. Earlier studies have tested the hypothesis that productivity spillovers are strictly proportional to foreign presence but Kokko argues that this is not always the case. Spillover from competition, in particular, is not determined by foreign presence alone but rather by the simultaneous interactions between local and foreign firms. Hence, it is possible that spillovers are larger in cases where a few foreign MNCs stir up a previously protected market than in a situation where foreign affiliations hold large market shares but refrain from competing with local firms. In fact in some cases, large foreign presence may even be a sign of a weak local industry. Local firms might have failed to absorb any productivity spillovers at all and therefore forced to yield market shares to the foreign MNCs. Analyzing the operations of foreign and domestic firms in Mexican manufacturing in simultaneous framework Kokko (1996) finds support for the hypothesis. The labor productivity of foreign and local firms appears to be simultaneously determined and competition from foreign affiliates seems to have an independent effect on the productivity of local firms, even after accounting for the demonstration spillovers that are directly proportional to foreign presence. Sjöholm (1999) also concludes that competition enhances the positive productivity spillovers from FDI.

Liu (2008) offers an explanation on how foreign direct investment (FDI) generates externalities in the form of technology transfer. He distinguishes between the level and rate effects of spillovers on the productivity of domestic firms and finds that the level and rate effects of spillovers can go in opposite directions. The negative level effect underscores the fact that technology transfer is a costly process - scarce resources must be devoted to learning. The positive rate effect indicates that technology spillovers enhance domestic firms' future productive capacity. Using a large panel of Chinese manufacturing firms, he finds suggestive evidence that an increase in FDI at the four-digit industry level lowers the short-term productivity level but raises the long-term rate of productivity growth of domestic firms in the same industry. He also finds that spillovers through backward and forward linkages between industries at the two-digit level have similar effects on the productivity of domestic firms, and backward linkages seem to be statistically the most important channel through which spillovers occur.

While most of the studies mentioned above have focused on differences between industries in a given host country, efforts have also been made to assess the impact of FDI at the economy-wide and cross-country level. Recent empirical work has generally tended to find a positive correlation between FDI and economic growth. Dees (1998) finds that FDI has been important in explaining China's economic growth; while De Mello (1996) finds a positive correlation for selected Latin American countries. A recurring theme appears to be the need for the host economy to have achieved a certain threshold of development – the absorptive capacity for new technology.

Blomstrom et al (1994) have examined the role of the host country's overall development level as a determinant of spillovers. The results of this comprehensive cross country study of 101 economies suggests that spillovers are concentrated in middle income developing countries, while there is no evidence of such effects for the poorest developing countries. This highlights the importance of local competence and competition to take place. Few local firms in the poorest countries are in direct competition with foreign MNCs and very few of these countries possess the technical skills needed to absorb MNC technologies. Similar results are reported by Balasubramanian et al. (1999) who observes that FDI can be a potent instrument of development but only in the presence of human capital, well-developed infrastructure facilities and a stable economic climate. Thus only the most advanced developing countries are able to benefit from FDI.

A comprehensive study by Bosworth and Collins (1999) provides evidence on the effect of capital inflows on domestic investment for 58 developing countries during 1978-95. The sample covers nearly all of Latin America and Asia, as well as many countries in Africa. The authors distinguish among three types of inflows: FDI, portfolio investment, and other financial flows



(primarily bank loans). They find that an increase of a dollar in capital inflows is associated with an increase in domestic investment of about 50 cents. (Both capital inflows and domestic investment are expressed as percentages of GDP.) This result, however, masks significant differences among types of inflow. FDI appears to bring about a one-for-one increase in domestic investment; there is virtually no discernible relationship between portfolio inflows and investment (little or no impact); and the impact of loans falls between those of the other two. These results hold both for the 58-country sample and for a subset of 18 emerging markets. Bosworth and Collins conclude: "Are these benefits of financial inflows sufficient to offset the evident risks of allowing markets to freely allocate capital across the borders of developing countries? The answer would appear to be a strong yes for FDI".

Using panel data in a test for 69 developing countries, Borensztein et al (1998) find that while FDI is an important vehicle for the transfer of technology and a positive contributor to economic growth, its impact is greater, the higher the level of human capital stock in the host economy (proxied by the level of educational attainment). Another interesting finding is that FDI appears to have a 'crowding-in' effect on domestic investment. A priori, FDI can have two potential effects on domestic investment – by competing in product and financial markets, MNCs may displace domestic firms; however, FDI may also facilitate the expansion of domestic firms through complementarity in production and productivity spillovers. Borensztein et al. (1998) find the latter effect dominating in their study. Thus FDI can increase growth in two ways: 1) it increases total investment by attracting higher levels of domestic investment; and 2) through interaction of the more advanced technology with the host's human capital, FDI is more productive than domestic investment.

Kumar and Pradhan (2002) have examined the relationships between foreign direct investment (FDI), domestic investment and growth for 107 developing countries. They suggest a positive correlation between FDI and growth. However, the direction of causality between the two is ambiguous, since positive growth also leads to increased FDI. They also find a dynamic relationship between FDI and domestic investment. FDI at first "crowds out" domestic investment but later results in increased domestic investment as the country's business climate improves.

Another theme is the type of trade regime involved. While Balasubramanyam, et al. (1996 and 1999) also find tentative evidence regarding the importance of a certain threshold of the host's human capital; their studies in addition find that FDI's growth contribution is significantly greater in outward-oriented or neutral trade regimes compared to those pursuing import-substitution strategies (using classifications on trade regime from Bhagwati (1978) and the World bank (1987)). This latter result is also demonstrated in Kawai (1994).

However, a dissenting view is echoed in Rodrik (1999) who argues that the effect of FDI on economic growth tends to be weak, and suggests again that much, if not most, of the correlation between FDI and superior economic performance is driven by reverse causality: MNCs tend to locate in the more productive, fast growing and profitable economies. Rodrik cites Bosworth and Collins (1999) study on total capital flows, that does not find the 'crowding-in' effect of Borensztein et al (1998) above – instead, Bosworth and Collins (1999) find that the positive effect of FDI on domestic fixed investment tends to fall off significantly when more country characteristics are controlled for. That result notwithstanding, Bosworth and Collins (1999) also find that FDI inflows tend to raise a country's economic growth rate through their positive impact on total factor productivity.

In brief, it seems clear from a review of these studies that the host country and host industry characteristics determine the impact of FDI on an economy and that systematic differences between countries and industries should therefore be expected. To facilitate the contacts and coordination of activities between the parent company and its foreign affiliates, many MNCs encourage local managers to obtain training in international business. The MNCs also finance the training program in most of the cases.



Table: 3 FDI Spillovers: Summary of Select Empirical Studies

Study by:	Country/ Period under Study	Findings
Caves (1974)	Australia, Sectoral level Manufacturing, 1966	Positive correlation between FDI presence and productivity in the sector
Globerman (1979)	Canada, 1972	Positive correlation between FDI presence and productivity in the sector
Blomstrom & Pearson (1983)	Mexico, 1970, Industry Level	Positive intra-Industry spillovers from FDI on the labor productivity of domestic firms
Blomstrom (1986)	Mexico, 1970s	Positive correlation between FDI presence and productivity in the sector, but firms with large technology gaps don't learn.
Haddad & Harrison (1993)	Morocco, 1985-1989, Manufacturing Firms	Negative spillover effects on growth of productivity in domestic firms.
Balasubramanyam et al (1996)	46 developing countries, cross section over 1970-1995	Beneficial effect of FDI on real GDP is greater in export promoting countries than in import substituting countries.
Borensztein et al (1998)	69 countries, National level	Weak positive correlation between FDI and per capita GDP growth.
Barrios et al (2001)	Ireland, Spain and Greece, 1992-1997, Manufacturing Firms.	Positive efficiency spillovers in Ireland and Spain but not in Greece.
Aitken & Harrison (1999)	Venezuela, 1976-1989, Manufacturing Firms	Negative productivity spillovers on domestic firms.
Blomstrom & Sjöholm (1999)	Indonesia, 1991, Manufacturing Firms	Positive effect on productivity of domestic firms but only for non-exporters.
De Mello (1996)	Panel of 16 developed and 17 developing countries, 1970-1990	FDI has positive effect on real GDP growth in all countries but on productivity growth only in developed countries.
Bosworth & Collins (1999)	58 developing countries, 1978-1995	FDI brings in almost a one-to-one increase in domestic investment
Xu (2000)	40 countries, National level	Positive technology transfer in developed countries but not in developing countries; transfer depends on minimum level of human capital.
Kathuria (2002)	India, 1989-1996, Manufacturing Firms	Productivity of foreign owned firms has increased; only those domestic firms benefit who invested in R&D to decode the spilled knowledge.
Kumar & Pradhan (2002)	107 developing countries, 1980-1999	Positive correlation between FDI and growth, but the direction of causality between the two is ambiguous.
Alfaro (2003)	Cross country data, 1981-1999	Effect of FDI on the growth of primary sector is negative, on manufacturing positive and on service sector ambiguous.
Liu (2008)	China, Manufacturing firms	An increase in FDI at the four-digit industry level lowers the short-term productivity level but raises the long-term rate of productivity growth of domestic firms in the same industry.

Conclusion

Foreign direct investment has grown at a phenomenal rate since the early 1980s, and the world market as a result has become more competitive. Developing countries are becoming increasingly attractive investment destinations, in part because they can offer investors a range of "created" assets. In view of the growing size and role of FDI, especially in the developing economies, it is important to empirically analyze the "spillovers" of FDI both at intra- industry and inter-industry level in various economies. The present paper is an attempt to survey the recent literature on the subject. The natural conclusion that follows from this survey is that most of the countries have experienced positive spillovers from FDI. However, such influences are conditional and depend, to a large extent, on the economic conditions of the host country in general and on the size, number, technology gap, competition, market share, attitude etc. of the domestic firms in particular. Most of the studies suggest that spillovers from FDI are not automatic consequences of MNC presence; rather they largely depend on the efforts of local firms to invest in learning and R&D activities so as to de-codify the spilled knowledge. Some studies show that productivity dispersion is smaller in sector with more foreign firms. Another common finding is that the spillovers are positive mostly for the firms belonging to low-technology sectors where the technology gap between the domestic and foreign firms is not high.

In view of the above, governments in many developing countries are increasingly looking for best practice policies towards FDI. They are liberalizing FDI regimes as they associate it with positive consequences for economic development and poverty reduction. Of course in actual practice, objectives to attract FDI differs from country to country, it depends upon the economic environment of the country.



While many countries are concerned about the quantity of FDI flows, there is a shift of concern in other countries towards the quality of FDI as well. In other words, they are trying to target for high value added FDI. Since the positive effects of FDI are not automatic for the host countries and depend on many factors, ensuring a large quantity of FDI alone is not sufficient for achieving the desired objectives. In fact where does the FDI flow, how does it get assimilated into the production process and what is the nature and quantum of spillover effects it ultimately produces, largely determine how much positive benefits a country can derive from FDI flow.

Thus it can be concluded that, at the empirical level, much has been learned about spillovers from research conducted over the last two decades. However, many studies suffer from the problem of omitted variables. The vast majority of studies employ a single equation OLS model to regress labor productivity on FDI. The possible two-way causality between FDI and productivity growth is therefore ignored. More importantly, few provide careful analysis of the underlying causes for the potential negative or positive impact of FDI on domestic firms' production or productivity, and examine under what conditions spillover benefits are most pronounced. More work is needed to understand the process of technology spillovers from FDI, in particular, to help evaluate the mechanism of spillovers.

This is all the more important for developing countries like India where in-depth analysis is required to identify the factors which can promote positive spillovers from FDI both at the micro and macro level. Once industry specific conditions are short-listed, appropriate policies can be designed to give adequate incentives to domestic firms to derive maximum benefit from such spillovers. Further, such research will also act as a guide to policy makers for encouraging an economic environment conducive for the absorption of spillovers before a particular sector is opened to FDI. The debate today is not whether or not FDI is beneficial for economic development but that how can we maximize the net positive spillovers from FDI. For this, a detailed firm/industry level empirical analysis of size of industry, competition, prevailing technology, work culture, management practices, skill levels, export potential etc. are required.

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DYNAMICS OF RURAL ECONOMY AND SCOPE FOR SERVICE SECTOR: A CASE FOR BANKING

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“In India, thinking big by thinking small.”

Dr. A.P.J. Kalam

Abstract

India's recent growth has been led by the dynamism of its services sector. This growth will only be sustainable if the performance of agriculture and manufacturing sector also improves. The service sector can contribute substantially in improving the efficiency and productivity of both the primary and secondary sectors of the economy. Rural areas in India are the future markets for products and services. It has also tremendous scope for the development of non-traditional sector and rural non-farm sector. Both the development of agricultural and non-farm sector activities in the rural areas require modern banking facilities. The conventional banking system is tailored according to the needs of the customers of urban areas. Therefore, rural credit has been decreasing with the advent of new economic reforms. Most of the public sector banks could not offer products for rural people and the private sector banks have not explored the banking services in the rural areas. They followed the same strategy to sell their loans as they are following for their urban customers. The case study of ICICI bank exploring the rural areas shows that the success of the bank in rural areas is due to innovative methods adopted by its management. The success of ICICI bank has been because of the designing of the products mostly suited for the rural areas. It has proved that there is immense potential for the growth of banking sector in rural areas. There is need to provide credit for the various needs, investment, consumption, insurance etc., to rural consumers so that the dependency on moneylenders and informal sources of credit should be decreased. The implications of the case study of ICICI bank show that the commercial banks should not pursue in the rural areas the same policies which they are adopting in the urban areas. They must adequately redesign their policies according to rural-centric and flexible so as to ensure the viability of rural financial institutions for an effective rural credit delivery system. This way the financial sector services will expand in the rural areas and these neglected areas will become productive.

Introduction

Rural areas in India are the future markets for products and services. The traditional divide of rural (as traditional/agricultural sector) and urban areas (as modern/manufacturing sector) has now become meaningless. With the advent of modern information technologies, spread of economic opportunities and education, rural areas are well connected with outside world. Now most of the popular brands of various products are available in rural areas. Rural areas are attracting more modern facilities like, trade, transport, financial and business services. All these services would change the rural scenario further and make possible for rural people to enjoy maximum of their given income. There is a lot of scope for the services in the rural sector of the economy. But the declining trend in agriculture and non-existent non-farm sector in the rural areas may apply a brake to the further growth of service sector. Therefore, there is need to develop those services in the rural areas which help in the development of agriculture and non-farm activities also.

Financial sector is one of the sectors which provide capital to the other sectors. The need and role of financial services to be offered to people in rural areas has been well-documented with primary reasons being poverty alleviation and providing overall development/empowerment opportunities to the lower strata of society (Parikh 2006). In a study of financial services in rural areas, De (2006) concluded that the commercial banks see an opportunity for volumes business in microfinance and look to tap into the savings and credit appetite/potential of rural India. They are fast building the infrastructure they need to reach out to the remote pockets. Sriram (2004) presents a case study of Sangamithra finance operating in rural finance services. The objective of Sangamithra is to demonstrate that with appropriate intermediary systems like SHGs, banking with the poor is possible. Aggarwal (2006) analysed the reaching out to rural India. It is said that 60 percent of the rural people generate only 25 percent of the GDP. Therefore, the purchasing power of the people in rural areas is low. They are not in a position to purchase most of the things. Jhunjhunwala (2006) explains banking towards rural empowerment. It has been concluded that financing rural India will be the biggest challenge.

The present article is a modest attempt to study rural economic scenario and potential for spread of service sector. The case for banking sector is discussed in detail. The specific objectives of this study are: a) to assess the growing role of the service sector in rural areas in the era of globalisation; b) to illustrate that though agriculture is one of the major activities, yet it is not all in the rural areas; c) to study the opportunities and challenges of banking in rural areas; and d) to present a case study of ICICI bank as service provider in the rural areas. This study is based on the secondary data collected from different sources.



Growing Role of Service Sector

India's recent growth has been led by the dynamism of its services sector. Services have consistently grown at a faster pace than the other sectors of the economy since 1991, when the reform effort was started. They now occupy more than 54 per cent of India's gross domestic product (GDP). Manufacturing, by contrast, has maintained almost a static share in the economy at around 20 per cent, while that of agriculture – still far away the largest employer – has dwindled (see Table-I).

Table: I Relative Share of Sectors in GDP (% Share)

Sector	1951 (1)	1961/62 (2)	1971/72 (3)	1981/82 (4)	1991-92 (5)	2000/01 (6)	2005/06 (7)
Primary	59	53	47	42	34	27	22
Secondary	14	17	20	22	24	24	24
Tertiary	28	30	33	36	42	49	54

Source: *Different Issues of Economic Survey*.

The globalization of service sector has brought up substantial growth of the export of services sector. Table-II shows that there has been a tremendous growth of services trade in the post-reform period (1992-2000) as compared to pre-reform period (1983-1991). The annual growth of merchandise trade was 5.5 per cent in pre-reform period and 10.6 per cent during post-reform period, where as the figures for annual per cent growth of services trade was 7.3 per cent and 17.5 per cent. It shows that services formed an important part of the growth of total world trade.

**Table-II: Performance of India's External Sector: Pre and Post Reform Period
(Annual Percentage Growth)**

Particulars	Pre-Reform (1983-91)	Post-Reform (1992-2000)
Exports of Goods & services	7.7	11.1
Merchandise Trade	5.5	10.6
Services Trade	7.3	17.5

Source: Calculated from World Development Indicators (CD-Rom), 2002.

World exports of services are substantial. Though developed countries received major part of it, yet India could not share its benefit so far. India's share in world trade is marginal i.e. only 0.7 per cent, whereas the share of Indian services sector is 1.3 per cent in world trade of services sector. However, India has to put a lot of struggle even to come up equivalent to the countries like Hong Kong (2.9 per cent), Singapore (1.8 per cent) and Korea (1.9 per cent) in global services trade. WTO data show that there has been 19 per cent (\$1540 billion) rise in export of services trade during 1990-2002. But the major chunk (60 per cent) in trade in services is of 10 developed countries of the world. There is a strong case for developing trade in services in India, because India is a capital scarce but human resource abundant country. The factor endowment theory of international trade of Heckscher-Ohlin strongly advocates that goods/services produced by abundant factor of the country should be exported to other countries. Economists like Solow (1957), Schumpeter (1967), Romer (1986) and Lucas (1988) emphasized the utilization of human skills and human capital (along with physical capital). Therefore, India can improve its position in world trade in services by converting its population into human capital.

Keeping in view the unprecedented growth in service sector, it is usually asked whether the present service sector driven growth rate is sustainable. The answer can be in negative if the poor performance of agriculture and manufacturing sector would continue. But if the service sector improves the efficiency and productivity of the primary and secondary sectors of the economy then Indian economy can grow at faster pace.

Rural Market - A World of Opportunities

India lives in more than 6 lakh villages in which about 74 crore people reside. Although the poverty, backwardness and illiteracy are the features of India's rural areas, yet the extent of rural market for various types of goods and services is very large. An estimated annual size of the rural market for different goods and services is as follows e.g. the market for durable goods is worth Rs.5000 crore, for agricultural inputs is Rs.45000 crore and for automobiles (2/4 wheelers) Rs.8000 crore. More than 55 per cent LIC policies are sold in rural areas, more than 50 per cent BSNL mobile connection are in rural areas; and 1.5 times more rural households are enjoying banking services as comparison to the urban areas (Dhingra, 2006).

There is scope for further extension of rural market for goods and services in the coming years because both the infrastructure and income is improving in the rural areas. It is believed that in the last 50 years, only 40 per cent villages are connected by road, whereas in next 10 years another 30 per cent will be connected. Rural telephone density has gone up by 300 per cent in the last 10 years; every 1000+ population is connected by STD. Social Indicators have also improved a lot between 1981 and 2001 e.g. number of 'pucca' houses doubled from 22 per cent to 41 per cent and 'kuccha' houses halved (41 to 23 per cent);



percentage of below poverty line families declined from 46 to 27 per cent; rural literacy level improved from 36 to 59 per cent etc. However, at present there is low penetration of the goods and services in rural areas, therefore, there is a lot of scope for their marketing opportunities.

The perusal of Table-III shows that the penetration of consumer goods in rural areas is still low. One of the reasons for this low penetration may be that the marketers have not exploited the potential demand of the rural consumers. Their main concentration is only on the urban consumers. However, it is now considered that future lies with those companies which consider even rural poor as their customers.

Table-III: Low Penetration Rates of Consumer Goods in Rural Areas

Goods	Urban Areas	Rural Areas	Total (% of Rural HH)
CTV	30.4	4.5	12.1
Refrigerator	33.5	3.5	12.0
Shampoo	66.3	35.2	44.2
Toothpaste	82.2	44.9	55.6

Source: www.indiainfoline.com

Rural consumers are also becoming brand conscious. They also buy 'branded products and services'. Today, rural markets are critical for every marketer - be it for a branded shampoo or an automobile or banking service or education. In good old times marketers used to resort to van campaigns, cinema commercials and a few wall paintings to entice rural folks under their folds. Thanks to television, today a customer in a rural area is quite literate about myriad products that are on offer in the market place.

According to a National Council for Applied Economic Research (NCAER, 1998) study, there are as many 'middle income and above' households in the rural areas as there are in the urban areas. There are almost twice as many 'lower middle income' households in rural areas as in the urban areas. At the highest income level there are 2.3 million urban households as against 1.6 million households in rural areas. Trends indicate that the rural markets are coming up in a big way and growing twice as fast as the urban, witnessing a rise in sales of hitherto typical urban kitchen gadgets such as refrigerators, mixer-grinders and pressure cookers. As per NCAER projections, the number of middle and high income households in rural India is expected to grow from 80 million to 111 million by 2007. In urban India, the same is expected to grow from 46 million to 59 million only. Thus, the absolute size of rural India is expected to be double that of urban India.

Similarly, there is lot of opportunities available for service sector. When the means with the rural people will grow, they will like to get more education, connectivity and they will also become health conscious. The spread of economic activities like rural non-farm sector activities (RNFS) will require modern banking facilities. They will also like to get insurance cover for their life, assets and property by the innovative policies of the insurance sector.

Globalization, Rural Consumers and Services

Globalization is "a process through which finance, investment, production and marketing are increasingly dominated by firms (including banks) whose vision and actions are not confined by national borders or national interests" (Keller-Herzog, A., 1996). Sparr (1995) looks at globalization as a perspective which arises from the increased interdependence of national institutions and national economies. In all these definitions the term 'globalization' is used to describe recent economic developments that have not been restricted to a single country but have had characteristics and trends of a global nature. Such characteristics have been of such a fundamental nature that they are often said to have established a new economic order in which national economies are interdependent.

The impact of globalisation has been felt in both rural and urban India. However, its impact is slow on the rural consumers. But the people in rural can reap its benefits. For example, farmers can garner the benefits of the latest information technology. They can also get fast knowledge about the world markets and latest technology. The cell phones will increase their connectivity. In the light of the changing rural life style, the marketers who understand the rural consumer and fine tune their strategy will surely acquire benefits in the coming years. In fact, the leadership in any product or service is linked to leadership in the rural India except for few lifestyle-based products, which depend on urban India mainly.

There is need to pursue policies guided by two broad principles: *First*, relatively higher emphasis needs to be given on internal/domestic market; and *second*, considerations of labour market flexibility and growth of labour productivity need to be weighed alongside considerations of the level of employment. Higher employment would allow maintaining a relatively higher domestic demand, and reducing the need for government interventions in extending subsidies, income transfers and unemployment benefits. (Bhadhuri, 2005)

Agriculture is One of the Major Economic Activities, But not all in Rural Areas

Regarding this view various rounds of NSS (50th round, 1993-94, 55th round, 1999-2000 and 57th round, 2001-02) on consumer expenditure show interesting results. These are summed up as follows:

The first thing worth noting is that rural is not necessarily agricultural. According to the 50th round, the main source of livelihood of over 33 per cent of rural households was not from agriculture. Even the results of Census 2001 show almost the same thing. These statistics show that as this ratio increases in future, the cyclical nature of Indian agriculture may have lesser impact on rural incomes and consumption than before.



Second, the share of expenditure on food items has been going down over time, while that of non-food is rising. In 1993-94, food accounted for 65 per cent of average rural per capita annual expenditure which was reduced to 62 per cent in 1999-2000. This drop of 3 percentage points is not because of any fall in real expenditure on food. Indeed, real outlay on food items increased by over 3 per cent, i.e. from Rs.5663 per capita in 1993-94 to Rs.5861 in 1999-2000.

Third, a significant shift away from 'necessary foods' like cereals, cereal substitutes and pulses has been noticed in favour of 'luxury foods' such as milk, vegetables, fruits, eggs, meat and fish. In Haryana, Punjab and Kerala, 85 per cent of the rural population spends more on milk, vegetables and the like than on cereals.

Fourth, as far as non-food consumption is concerned, there has been a significant increase in the real per capita expenditure on education. In 1993-94, the average per capita expenditure on education in rural India was Rs.128, or 1.5 per cent of total expenditure. By 2001-02, it was Rs.245 or 2.5 per cent of total spending, measured in constant prices. For the top 5 per cent of rural households, the increase in real expenditure of education has been quite spectacular — from Rs.575 in 1993-94 to Rs.1158 per person per year. There has also been a growing trend in the use of certain household amenities. In 1993-94, less than 2 per cent of the rural populace used LPG for cooking; this rose to 5.4 per cent in 1999-00; and then to 7.9 per cent in 2001-02. TV penetration, too, has been quite substantial. According to the 2001 Census, almost 19 per cent of rural households owned TVs, with Punjab leading the pack at above 60 per cent, followed by HP at over 50 per cent.

Fifth, in 2001, over 30 per cent of rural households had at least one bank account.

There have been phenomenal change in consumption and savings behaviour in rural India over the last decade. However the availability of social service sector is not in a good shape. For instance, only 31 per cent of rural households can claim to have drinking water facilities within their homesteads; and less than 44 per cent have an electricity connection. This proves the fact that there is lot of scope to enhance service sector. The services like business services, education, financial services, health & social work, information technology (IT) & telecoms, professional services, real estate, retail & wholesale, Transport, storage & distribution etc. have tremendous scope in the rural areas.

Both Agricultural Growth and Employment in the Rural Areas is Declining

The share of agriculture and related activities in GDP has fallen steeply from 59 percent in 1951 to one-third of GDP before reforms and to only 22 percent at present. It is also a matter of concern that there has been a substantial decrease in growth of agriculture and allied sector in GDP and employment. India's GDP performance from 1981/82-1990/91 was 5.6 per cent per annum, whereas the growth rate of agriculture was 3.5 per cent. It averaged even higher at 6.4 per cent during 1992/3-2005/6, but the average agricultural growth was lowered to 3.0 per cent.

Table-IV: Growth of GDP and Major Sectors (% per year)

Year	1951/52-1980/81	1981/82-1990/91	1992/93-1996/97	1997/98-2001/02	2002/03-2005/06	1992/93-2005/06	1981/82-2005/06
Agri.& Allied	2.5	3.5	4.7	2.0	1.9	3.0	3.0
Industry*	5.3	7.1	7.6	4.4	8.0	6.6	6.5
Services	4.5	6.7	7.6	8.2	8.9	8.2	7.4
GDP	3.6	5.6	6.7	5.5	7.0	6.4	5.9
<i>GDP/capita</i>	<i>1.4</i>	<i>3.4</i>	<i>4.6</i>	<i>3.6</i>	<i>5.3</i>	<i>4.4</i>	<i>3.8</i>

Note: Industry includes Construction.

Source: Calculated from the data from CSO Tables of different years.

The decelerating rate of output growth in agricultural sector has resulted into rising unemployment. New economic reforms have done little to agricultural sector. Agricultural policies adopted after the reforms confused the farmers and they are unable to take production decision according to market. As a result production and productivity in agriculture is decreasing and employment based on this primary activity of the economy has been falling continuously.

The observed impact of GDP growth on the growth rate of employment is measured by employment elasticity. It can be calculated by dividing the observed growth rate of employment during any past period by the observed growth rate of GDP during the same past period. Thus if GDP grew by 1 percent per year and employment by 0.5 percent, we can say that for every one percent rate of growth of GDP, employment grew by one half of one percent.

Based on Indian data, employment elasticities with respect to GDP differ greatly from one sector to another (Table-V). The perusal of the Table shows that during the decade 1980-90, one percent increase in GDP increased employment by 0.52 per cent in agriculture, but in the subsequent years the employment elasticity with respect to GDP has substantially gone down. This is not only with respect to agriculture alone but also with the other sectors of the economy where the growth of GDP did not match with the growth in employment.

**Table-V: Employment Elasticity Trends by Economic Sectors in India**

Sectors	Employment Elasticity with respect to GDP		
	1980/90	1990/2000	2000/04
Agriculture	0.52	0.01	0.003
Industry	0.49	0.29	0.05
Services	0.60	0.42	0.10
All Sectors	0.42	0.15	0.02

Source: <http://www.saarc-sec.org/data/pubs/rpp2005/pdfs/Chapter6.pdf>

The key fact about agriculture in India is, however, that while 58 percent of the population relies on agriculture for their livelihoods, their farm sectors generate much smaller proportions of GDP. Moreover the gap between agriculture's share in GDP and its share in employment is getting wider. The result is that GDP per worker in agriculture is only a fraction of GDP per worker in the non-farm sector, and these labour productivity disparities have increased over time. Generally suggested means like the provision of irrigation, fertilizer and high yielding variety seeds, and the introduction of high value crops, fruits and vegetables and even land reforms may do a little help to increase in productive employment in the rural areas. There is need to develop opportunities for earning supplementary income as well as to create alternative employment by developing rural non-farm sector. The growth lead by the service sector is not sustainable till agriculture and the manufacturing sectors are strengthened.

The growing level of employment in the service sector is well in line with the robust performance of the service sector in GDP. As such the growing significance of the service sector is a direct indicator of the changing profile of the Indian economy. The service sector includes the following range of activities, construction, trade, transport, and financial & business services. This trend has to continue and by 2020 our employment pattern should aim at 44 per cent in agriculture, 21 per cent in manufacturing and 35 per cent in services sectors (Kalam, 2005). Therefore, there is dire need to do some thing for the rural areas so that their economic activity should be stimulated. It requires a paradigm shift in the rural economic activities so that there can be possibility of creating vast numbers of appropriate jobs. But the main driver of growth in the economy since 1991 has been service sector, which is never likely to become a mass employer of low-skilled labour. How to resolve the two? It is desired that services-led growth *could* lead to broader-based development, and consequently to job creation on the necessary scale.

A proper planning in transforming rural India's image from economic non-entity to emerging market hinterland will boost the economic activity in India on the whole. It has been observed that the banks and bankers are trained for investment in the urban areas only, rural areas are catered by them because there are mandatory provisions for them. But if the banks specialize to cater to the needs of rural areas then the non-farm activities can be expanded and farm sector will also be diversified accordingly. In order to achieve consistent growth rate of more than 8 percent in GDP in India, the agriculture sector has to grow by at least 4 percent. Non-farm sector should have to support to agriculture. The rural financial sector should be revitalized and revamped. The Task Force on Rural Credit for the Tenth Plan has projected institutional credit flow to agriculture and allied activities at Rs.7,36,570 crore for 2002-2007, which is more than treble (320 per cent) the credit flow (Rs.2,29,853 crore) during the Ninth Plan (1997-2002).

Banking Sector

The presence of the banking sector in rural areas is very less. According to a report 70 percent of the Indian villagers have no bank account. Most of their saving is in terms of gold and they get loans from moneylenders who charge a hooping interest rate. Even after 38 years of nationalization of banks in 1969, the main thrust of Indian banking is on urban areas and mostly serving to the corporate sector. Most of the private banks like Citibank and HSBC skim the top and dip into the middle, serving as investment bankers to corporations, lenders to a mushrooming "consumer class" and money managers for the fabulously rich. But these private banks have not directed their business in the rural areas so far.

Current Trends in Rural Banking and Credit

Current trends (the 2001 Census figures) brought out an alarming picture about the usage of banking services among Indian households in urban and rural areas despite the wide banking network in the country. There is low banking usage among Indian households in general (35.5 per cent) and rural households in particular (30.1 per cent). The banking profile (as on 31-3-2003) reflects a low Credit/Deposit (CD) ratio of 42 per cent and 35 per cent at rural and semi-urban centres respectively compared with 69.5 per cent of urban centers (inclusive of metro centers) and 59.3 per cent at national level (Table-VI).

**Table-VI: Banking Profile at Metro/Urban/Semi-Urban/Rural (As On 31/3/2006)**

Particulars	No. of Bank Branches	Deposits (Rupees Crores)	Credit (Rupees Crores.)	Credit/Deposit Ratio(Percent)
All India	70776	2091174	1513842	72
Metro Centres	11998(17)	1132087(54)	990541(65)	87
Urban Centres	12697(18)	430813(21)	245777(16)	57
Semi-Urban	15471(22)	302213(15)	151446(10)	50
Rural Centres	30610(43)	226061(10)	126078(8)	56

Source: RBI Quarterly Handout, 2006

In a developing country like India, the availability of credit is a major input for most of the economic activities. From the table of CD ratios, it will be noted that CD ratio in metro and urban India is very high, when compared to rural/semi-urban centres. This indicates that the rural/semi-urban branches are being used for mobilization of savings, but not for deployment of credit. Low CD ratios also indicate that banks are not playing major role in credit expansion in rural sector. These trends broadly indicate that despite the widespread banking network in place, there is a continued migration of rural/semi-urban savings to urban/metro centers, thereby causing a rural-urban banking divide. The reason urban India is reflecting enhanced economic activity in the post-reforms is the availability and expansion of credit for housing and consumption purposes.

An equally important concern that needs attention is the flow of institutional credit to agriculture. The growth of commercial banks' lending to agriculture and allied activities witnessed a substantial decline in the 1999-2000 as compared to 1993-94 (Table-VII). In the same period money lenders credit went up from 27.6 per cent to 31.7 percent. It is clear from these statistics that the financial reforms have substantially decreased the institutional credit to agriculturist.

Table-VII: Debt Profile of Rural Households (per cent)

Sources of Debt	1993-94	1999-2000
Government	8.3	5.4
Co-Op Societies	7.9	13.1
Employees	11.4	6.9
Money Lenders	27.6	31.7
Shopkeepers	7.3	7.1
Relatives & Friends	12.4	15.1
Other	6.2	3.5
Banks	18.9	17.2

Source: Ministry of Labour Enquiry Report

Challenges for Rural Credit in the Post Reforms Period

The agriculture sector to a large extent was excluded from general economic reforms initiated in 1991. However, the reforms introduced in industry, finance, banking and other sectors over the last decade have had considerable impact on the agricultural sector. In the meantime, the agriculture sector is emerging as part of the new economic order arising out of globalization and implementation of the Agreement on Agriculture (AoA) under the World Trade Organisation (WTO). To withstand the global competition, the agriculture sector must have enhanced productivity, qualitative improvements in the products and cost effectiveness. In this context, productivity augmentation in agriculture and other allied sectors, expansion of rural credit, poverty eradication, infrastructure and development and export competitiveness of agricultural products have assumed high priority in the nation's development agenda.

The Rural Non-Farm Sector (RNFS) has to emerge as a key area of focus for utilizing the products of agriculture as raw material, creating employment and to enable migration from over-stretched farm sector. The future strategy of rural financial institutions would have to include strengthening the credit delivery system for increasing RNFS employment. Development of entrepreneurs' skills, enhanced credit flow to women and other weaker sections, supporting tiny, cottage and village industries, and coverage of wide variety of service sector activities would require larger and wider role of rural financial institutions in RNFS sector (Mahajan, 2002).

What is to be done?

There is need to viewing the problems of rural credit and rural banking in a wider context. If the rural areas are to play a leading role as economic hub for the future development of the country, the banking sector must be revamped and some more players should enter in the same to promote rural areas of tomorrow. They have to make the rules and strategies of disbursing and collecting the loan installments and interest rates according to the economic earning of the rural people.

It has been observed from the above study that there is immense potential for the growth of service sector in general and banking sector in rural areas in particular. There is need to provide credit for the various needs, both investment and consumer needs, to rural consumers so that the dependency on moneylenders and informal sources of credit should be decreased. The regulatory norms of banking/enabling support systems need to be adequately redesigned to be more rural-centric and flexible so as to ensure the viability of rural financial institutions for an effective rural credit delivery system. All rural financial institutions need special dispensation suited to their local potential and challenges.



A Case Study of Success of ICICI Bank in Rural Sector

ICICI Bank is the second largest bank after State Bank of India. It is just like the other commercial banks. Recently it has focused on rural banking in a big way and has adopted different models for delivering its products. It adopts different strategies for the different rural segments. The segments are assigned on the basis of socio-economic class. The rural people are classified from R1 to R4, where R1 and R2 represent rich farmers; R3 and R4 represent the poor, landless laborers. The most intriguing thing of the bank is that unlike other banks the bank has not adopted the same strategy as is used to follow in urban sector for serving the customers. Mainly, three broad models are adopted by ICICI in catering to the needs of rural sector, which are given below:

Model 1: Franchisees / Partners

For serving people of categories R1 and R2, ICICI bank uses a franchise model of operation. A person from the same locality is chosen as a partner for ICICI who would function as the manager of the franchise; and has a computer with internet access provided to him by ICICI. He is given basic training in operating the computer and feeding transactions into it. Being a local resident, this person would know to whom he can lend money and to whom he cannot. Also, for all amounts lent, he puts in 5 per cent and has a share of 5 per cent in the bank's losses and gains. In this model the franchisee has enough financial incentive to push products and follow up on the repayment rates as he is confronted with the possibility of upside gains as well as downside losses.

Model 2: Mobile Kiosks

For R3 category of people, ICICI is experimenting with mobile kiosks/handheld devices that serve like ATM machines. This is similar to the various mobile banking initiative tried out in the African nations by banks over there. Money can be deposited or withdrawn when the mobile devices are brought around. All transactions are recorded in the device and uploaded through the R1 kiosk at the end of the day. This model is based upon new information technology. Since this section of people is mostly illiterate, therefore, they may not be comfortable with passwords, etc. while using smart cards with these devices.

Model 3: Partnership with Micro-Finance Institutions

For R4 category people, ICICI has partnered with micro-finance institutions like Basix and SKS microfinance and other NGOs. It lends money to NGOs and over 100 micro-finance groups who in turn lend to the villagers. With NGOs like Drishtee, it funds the kiosks that Drishtee sets up and sells its financial products through these kiosks. (De, 2006)

The large national banks and smaller regional financial institutions (RRBs, credit societies etc.,) have been made to setup branches in the rural areas as a means of widening coverage of credit, but they have not been able to deliver comprehensive financial services in an effective manner. Mostly, infrastructural hurdles are cited as the prime reason for the non-viability of this mode of ensuring 'ubiquity'.

ICICI is doing its business very successfully. Along with loans to rural people, it is selling its different products to them also. Marking its eight year of operations, ICICI Prudential Life Insurance announced its successful foray into rural India by December, 2007. ICICI Prudential Life launched the Rural Business Channel and Rural Operations in February 2007 and has garnered over Rs.100 crores business, since then. The bank's rural portfolio also grew by about 43 per cent on a year-on-year basis.

ICICI Bank has 945 branches in all, of which 169 are in rural areas. "We cannot still cover the six lakh villages in the country," Kamath, CEO and MD of ICICI bank, said. Interestingly, the bank has introduced weather insurance in the rural areas which insures the protection to the farmers' crop despite the vagrant weather. The bank is present in 28 districts and 25 per cent of the rural population has been covered under this scheme.

ICICI Bank has kept aside a fund of Rs.500 billion for its capital expenditure plan which would mainly used for corporate finance. On the retail front the bank witnessed a retail portfolio growth of 39 per cent in FY 2007.

By 2001, ICICI was making forays into microfinance in rural India. In the Self Help Groups (SHG) program, credit and savings services were provided to the poor directly through the rural branch network of the bank. ICICI created a network of 8,000 SHGs, each with twenty women, to serve as the vehicle for creating successful, micro financed businesses. The program grew substantially, reaching around 2,781 villages by September 2004. In March 2004, the cumulative disbursements to SHGs stood at Rs.39 billion.

Most of the bankers do not venture into rural market because it is expensive to reach rural customer and once reached, the rural poor are often too poor to afford bank products. Second, rural customers, largely farmers, have often been too vulnerable to the whims of weather and misfortune to repay loans with reliability. ICICI has tried to meet these challenges by a paradigm shift in the banking system. In fact conventional rural banking was branch based, manpower intensive, channel driven and with single product focus. ICICI developed a strategy to shift focus from branch to entrepreneurs, from manpower to technology, from channels to customers and from single products to a multiple product offerings.

Mor (2005), Executive Director of ICICI Bank and head of the rural banking, said it was trying to preconceive banking products as any other consumer item. For example, shampoo sales only took off in rural India when companies realized that the poor would buy it if it was brought to their nearby village store, packaged in small, affordable sachets one could buy day by day, rather than shelling out for a whole bottle. The traditional image of microfinance is one of a charitable activity conducted mostly by NGOs (non-profit organizations) and separate from the mainstream financial system. But Mor's initiative has proved that microfinance is a commercially viable system. Traditionally, microfinance intermediary (MFI) borrows from banks and on-lends to



clients. Under this model, MFIs are unable to provide risk capital in large quantities, which limits the advances from banks. In addition, the risk is being entirely borne by the MFI, which limits its risk-taking.

The success mantra of the ICICI bank rural division is to provide various products in rural areas at cheaper price i.e. cutting down the cost. This has been done by cheap, customized, made-in-India software which reduces back-office costs to levels that can justify such tiny transactions. Now, to cut costs even lower, the bank is betting on the evaporation of the branch itself. By 2006, in a mere five years, ICICI went from serving fewer than 25,000 rural clients with less than Rs. 230 mn of assets a few years ago, to over 2.5mn clients and about Rs.16bn of assets at the end of 2006. They had also managed to sell over one million insurance policies in rural India. "Our aim is to ensure that no customer will be more than 3-4 km away from an ICICI point of presence," Mor said. ICICI Bank is also developing specialised products to help farmers cut their losses. These include financing against commodities, index based products, health insurance at a micro level and weather insurance (Mor, 2005).

Another interesting innovation in the pipeline is the launch of Grameen Capital India (GCI) to provide capital market solutions to MFIs and provision of equity buy back loans to assist venture capitalists. GCI is collaboration between Grameen Foundation of USA, ICICI Bank and Citibank in India, to develop a domestic and global capital market for MFI issued paper, including straight bonds, Microfinance Asset Backed Securities (MFABS) and equity. This case study clearly shows that if the banks are ready to make their policies according to the rural people they can be viable and successful.

Conclusions

Recent Indian growth has been service led growth. The growth of agricultural and industrial sector has stagnated to around 20 percent. The question arises whether the growth of service sector would be sustainable in the wake of stagnation in the real sectors of the economy. If the service sector helps in the growth of both primary and secondary sector, this will certainly increase the overall growth of Indian economy.

There has been a tremendous scope for the service sector to play a role in the development of rural sector. The rural sector is under transformation. The income of rural India has grown. There is a definite shift from middle to upper middle class and from lower to middle class segments in this area. The extent of the rural market has grown. However, the penetration of consumer goods and services in rural areas is still low. There are a lot of opportunities available for service sector in rural India. Increase in means with the rural people will increase the demand for more education, financial, insurance services, health, telecom services etc.

Both the development of agricultural and non-farm sector activities in the rural areas require modern banking facilities. The conventional banking system is tailored according to the needs of the customers of urban areas. Therefore, rural credit has been decreasing with the advent of new economic reforms. Most of the public sector banks could not offer products for rural people and the private sector banks have not explored the banking services in the rural areas. They followed the same strategy to sell their loans as they are following for their urban customers.

The case study of ICICI bank exploring the rural areas shows that the success of the bank in rural areas is due to innovative methods adopted by its management. ICICI bank has intruded in the rural areas by designing the products mostly suited for the rural areas and get encouraged by it. They have proved that there is immense potential for the growth of banking sector in rural areas. There is need to provide credit for the various needs, investment, consumption, insurance etc., to rural consumers so that the dependency on moneylenders and informal sources of credit should be decreased. The implication of the case study is that the other commercial banks should also take cue from the ICICI bank. They should not pursue in the rural areas the same policies which they are adopting in the urban areas. They must adequately redesign their policies according to rural-centric and flexible so as to ensure the viability of rural financial institutions for an effective rural credit delivery system. This way the financial sector services will be expanded in the rural areas and these neglected areas will become the part of the main stream. There is need to give intention towards this for inclusive growth.

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STRATEGIC HUMAN RESOURCE MANAGEMENT

Tanuja Agarwala
Oxford University Press
PP 801, 2007, Rs. 375/-

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In the present millennium, organizations are increasingly making efforts to develop sustainable competitive advantage which will distinguish them from other competitor organizations and help them to survive and prosper. Emphasis on Research and Development, Technology, Knowledge Management, Organizational Learning, Mergers and Acquisitions has increased to altogether new heights. Amidst this scenario, the book under review, "*Strategic Human Resource Management*" possibly provided an insight into the most important agenda of the present millennium - *the strategic management of human resources*. Turning human resources into sustainable competitive advantage is the central theme of this book.

Though authors like Prof. Udai Pareek and Prof. T.V. Rao have persuasively advocated human resources to be considered as human assets, it is Dr. Tanuja Agarwala who made us rethink the way human resources relate with the strategic objectives of the organization. Strongly advocating the investment in human resources to turn them into a sustainable competitive advantage, Dr. Agarwala denounced the sole interest in organizational profitability ratios to measure success of human resource management and expressed her faith in the way in which human resource strategies facilitate the achievement of business strategies. Spread over 801 pages, "*Strategic Human Resource Management*" is a collection of 12 chapters.

In the first chapter, Dr. Agarwala brought out the significance of considering human resources as 'investment' and advocated the strategic fit between the business strategy and human resource strategy. While discussing the theoretical perspectives of Strategic Human Resource Management, the author appreciated the contributions made by Indian authors like Prof. Rao and Prof. Pareek.

The basic requirement of considering human resources as a source of sustainable competitive advantage stood in Chapter 2 wherein Dr. Agarwala mentioned the significance of global business trends and their implications for human resource management. Globalization, Mergers & Acquisitions, Downsizing, Technological Advancements, Outsourcing, Flexible Work Arrangements, Workforce Composition, Women in Workforce etc. have opened a magnum of challenges facing Human Resource Management in the knowledge economy. The Human Resource managers are thus finding it difficult to attract, retain, and develop a committed, quality workforce which is the cornerstone for the achievement of organizational objectives. After discussing the high level of uncertainty in the environment, Dr. Agarwala faced the readers to justifying her point that Human Resource Management is the centre of business strategy today.

Dr. Agarwala appreciated the importance of human resource evaluation in Chapter 3. While discussing the different approaches to human resource evaluation, she elaborated upon Balanced Scorecard, HR Scorecard, Benchmarking and Business Excellence Model amongst the contemporary approaches. The examples on the use of Balanced Scorecard by companies like AT&T, Motorola, Sears, and General Electric are of particular interest.

In the contemporary business environment where the talent becomes a source of competitive advantage, acquiring human resources becomes a strategic function. This has been aptly described by Dr. Agarwala in Chapter 4 and 5. The strategic importance of human resource planning and job analysis has been discussed which ultimately help in acquiring quality workforce. Giving an overview of the methods of recruitment and selection, she has beautifully described the new approaches and alternatives to recruitment and selection giving relevant examples from the industry.

Chapter 6 threw light on the role of training and development of human resources in organizations for attaining a competitive advantage in an increasingly dynamic business environment. In addition to traditional methods, the author provided an insight into new developments in training and development like computer based training, computer assisted instruction, computer managed instruction, distance training or video conferencing, E-training and competency-based approach to management development.

The next Chapter on Performance Management and Development Systems is a good depiction of the steps which constitute an effective Performance Management Systems. With an emerging trend of organizational restructuring around teams, the author has also not fallen short of explaining the experimentation with a variety of approaches like team-based appraisals, assessment centres, 360 degree appraisals and competency based appraisals.

Chapter 8 explained the role of compensation and rewards management in attracting and retaining employees. It discussed the various individual, group and team incentives offered by organizations to reward employees. The author has put emphasis on structuring the benefits using flexible benefits or a cafeteria approach, giving choice to individuals in choosing the benefits.

In Chapter 9 and 10 the author admitted that employee loyalty today extends more to the individual's 'career' rather than to the 'organization' making it necessary for the organization to plan and give career developmental opportunities to the employees so as to retain them. The author aptly described the guidelines for the design and implementation of an effective career management system.

The importance of workplace mentoring relationships for the achievement of organizational objectives has also been underlined.

The author, in Chapter 11, examined the emergence of work-life issues strategic to the smooth integration of the employee in



the organization. A chapter on International Human resource Management has also been covered by the book discussing the importance of managing the human resources in an international business

In addition to an exhaustive conceptual framework of Strategic Human resource Management, the book is well supported by case studies of firms such as Coca-Cola, Cisco, Eastman Kodak, and McDonald's.

The book is a good source of analytical and critical thinking of the strategic role of human resource management. The human resource professionals, management teachers and students shall find it very useful and revealing.



MACRO ECONOMIC REFORMS, GROWTH & STABILITY

B.B. Bhattacharya and Sabyaschi Kar
Oxford University Press

PP 263, 2007, Rs.595/-

Reviewed by
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The performance of Indian economy in the last three decades has brought it to the forefront of discussions on development economics. The book under review, "Macro Economic Reforms, Growth, and Stability" is an attempt to explore and analyze the performance of the Indian economy in the post-independence period and provide some future predictions on the basis of the past performance. This volume is being published as part of the Institute of Economic Growth (IEG) series on 'Studies in Economic and Social Development', being the outcome of the research work undertaken by the authors at the Institute of Economic Growth (IEG). The book has used macro econometric model known as IEG-DPC model ((Delhi school of Economics and Institute of Economic Growth model) for the estimations and analysis of the study. This book has a simple and meticulous "forward" by Kanchan Chopra, Director (IEG). In her own words she states that "the book has a stated objective of analyzing the past and throwing light on the future of the Indian economy" using a macro economic perspective.

Put on 263 pages the book comprises of 7 different chapters with the structure been divided into three separate but related parts. The first part which includes chapter 2 and chapter 3 is descriptive in nature and provided a systematic analysis of the macro economic trends and inter linkages in the Indian economy. The second part includes chapters 4 and 5 which discussed the various aspects of DPC-IEG macro model. While the third part including chapter 6 and 7 throws light on the future performance of the Indian economy with the help of the DPC-IEG model (Delhi school of Economics and Institute of Economic Growth model).

The book starts with the overview of the entire study in chapter 1 with its brief introduction, followed by chapter 2 which is the first step in the building up of a macro model involving the apprehension of the various facets of the economy. It tried to scan the trends and changes in the economy after post independence period. In accordance to it, it provided an analytical account of the economy by focusing more on the last three decades. This chapter is further divided into two parts. The first part brought out the detailed overview of the changing economic paradigms that has an effect not only on the policy makers' decision making process but also on the performance of the economy in the post independent India.

The second part of chapter 2 enforces the trend and pattern of the various macro economic variables. Besides the authors have also identified the important trend breaks that have taken place in the post independent period. In order to bring out more accurate simulations results, these breaks were incorporated into macro econometric model. Chapter 3 is a systematic chronological review and development of different macro economic models built in general and India in particular. The literature described the contribution of renowned economists like Quesnay, Walras, Kalecki and Keynesian revolution in the area of macro econometric modeling. The book highlighted that in general the model built up in 1980s and 1990s were more precise and proper abstractions of the economy than those build up in 1960s and 1970s. With a greater level of dis-aggregation, according to the authors these models have tried to incorporate inter-sectoral linkages, thereby provided an appropriate treatment to policy issues. Next section of the chapter describes the methodological steps incorporated in the construction of models used by different economists.

Based on the eclectic approach chapter 4 provided a detailed description of the macro econometric model that is used in the study. It explained the different identities and behavioral equations and development of the model over the years. The authors further explained the classification of the model by the bifurcating it into four blocks i.e., the production, fiscal, monetary and external blocks, thereby covered all the important dimensions of the economy. On the basis of this classification, results were estimated and the authors herein revealed various important aspects of Indian economy which are the basis of the corresponding chapters. Chapter 5 dealt with the two important issues: transmission mechanism and validation of the model. Regarding the mechanism of the model the chapter gives a description how different macro economic variables are determined in the model and the effect of various policies on these variables. The final part of the chapter in a precise manner explained the validation of the model by using standard tests. The inter linkages of various sectors of the economy and the resultant policy implications has also been offered in the chapter.

Chapter 6 studied the brunt of the important policies and other exogenous shocks on the economy during 1980s and 1990s. According to the study 1980s was a period of high growth rate; due to large monetized borrowing through public investment and government consumption expenditure it ended up with huge fiscal imbalance. Authors of the book further pointed out that lower fertilizer subsidy could have brought down the fiscal deficit during 1980s but at the cost of agriculture sector and overall growth rate. Further the book explained the post reform performance of Indian economy by emphasizing that 1990s was a decade of the economic crisis followed by high growth rates of Indian economy, followed by a slowdown during the second half and final imbalance during the end of the decade. According to the study, the impact of reforms on overall growth was not that significant as it was expected under market friendly environment. However, overall it has been quit successful in controlling and moderating the inflation rate, fiscal and external deficits.

Final chapter of the book very intensely provides some modifications to the original model for more authentic results by incorporating changes in the theoretical structure of the model as well as changes in the database by making it more aggregative and smaller in size. On the basis of this model the chapter than shifts its focus to the future prospects of the Indian economy by



unfolding the degree of resilience of the economy to the internal and external shocks and also forecasted the growth rate of Indian economy in the absence of such shocks. According to the authors analysis the greatest challenge that Indian economy will face lies from domestic and external sector shocks like droughts, oil prices shocks, capital outflow and particularly rainfall shocks, the areas where the policy makers have become resilient. With the use of a modified smaller model, the chapter chalked out the performance of the economy by referring to shocks from rising oil prices, rate of growth of world imports and capital outflow. It examined that in the long run; there can be no instability that can accrue to Indian economy due to domestic and external sectors though impacts can be quite vibrant in the short run. As fiscal extravagance may cause instability in the fiscal position and oil shocks can give rise to instability in external sector. Rainfall shocks can have overall negative impact on the entire sector because of inter-sectoral linkages.

The last part of the chapter gave a vivid picture of some forecasts for the 10th plan as well as 11th plan period provided there are no shocks. According to authors' projection, 8 per cent growth rate targeted in the 10th plan by the policy makers was unachievable under the present conditions, as it is significantly higher than the 6.98 per cent forecasted by their study for that period. The study pointed out that the reason for this less growth rate is partially due to the fact that targeted investment rate were very high and unattainable during the 10th planning period. Further authors suggested that for the economy to attain higher growth trajectory it is utmost significant that attempts should be made to boost higher growth rate in agriculture and industrial sector as well, along with tertiary sector. For this authors claimed that public investment especially in sectors like infrastructure and increase in the productivity of agriculture and industrial sector has to be focused. Regarding the 11th plan projections, the authors are quite hopeful about sustained growth rate with low inflation and fiscal deficit. The only cause of worry according to the book is the high oil prices in the long run which can have an overall negative impact on external sector.

The book has very flamboyantly tried to explain the structure and growth of Indian economy. There is a lot in this study for the policy makers to reinforce ahead the different policies for sustained economic growth in India and also for the researchers and students to learn about the changing structure of the Indian economy and future performance of various macro economic variables.



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