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An Empirical Analysis of Market and Industry Factors in Stock Returns of Pakistan Banking Industry

Babar Zaheer Butt*, Kashif Ur Rehman** and Ashfaq Ahmad***

Banks in Pakistan are the major stakeholders of the financial sector of the country, and their operational and stock market performance is considered to be the real reflector of financial and economic conditions. The purpose of this study is to examine the relationship of stock returns of Pakistan banking industry to selected market and industry variables by applying multi-factor model. The model consists of four market and industry variables, which would affect stock returns of banking firms. This paper attempts to discover which, if any, of the market and industry variables are of use in explaining the variability of banking stock returns. The 15 banks selected for this analysis were on the basis of data availability, profitability and performance on the Karachi Stock Exchange (KSE) 100 index. The stock prices data for the selected banks and market and industrial variables were obtained for the period July 1998 - June 2006. Multi-factor regression models were used to carry out the data analysis. This paper concludes that the return on the KSE 100 index is the only independent variable significant at 0.05 level, while the other macroeconomic as well as industry variables are insignificantly related to the stock returns of banking industry but they do increase the explanatory power of the model.

INTRODUCTION

Only efficient banks with competent management, a reasonably large branch network and consumer focus should excel in the future banking industry scene. For a little over a decade now, the Pakistani banking sector has been undergoing a profound transformation, and if the existing scenario is any indication, the next 10 years are likely to be just as exciting. Burgeoning

non-performing loan portfolios, antiquated infrastructure and poor customer service had created a dire need, during recent years, to reform the nationalized commercial banks. Thus, in order to resolve these problems the government initiated a flurry of activity on the privatization front, whereby it off-loaded its interests in a number of banks. Privatization of nationalized banks, as well as the establishment of separate

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private banks, is likely to continue to give the sector a more shareholder based, and hence more efficient orientation. The decision by the government to increase private ownership in the banking sector was a necessity, not a luxury, since inefficiencies and wasteful expenditure plagued the nationalized commercial banks. Recognizing the need to reform the situation, the government started to privatize the nationalized banks in 1991, and allowed the establishment of separate privately owned banks. As can be expected, this process has already led to a marked increase in competition and hence efficiency in the sector over the years.

All these facts emphasize on the importance of banking industry of Pakistan, and hence it becomes a very lucrative investment for investors. Investing in stocks has become very popular trend in Pakistan in recent years. People opt to invest in stocks so that they get return on them. The return on stocks is dependent on a number of factors, and the exact number of factors is not yet known. Two theories are very important and common in explaining the relationship between industry and market factors and stock returns of some company: one is called Capital Asset Pricing Model (CAPM) and the other is known as Arbitrage Pricing Theory (APT) (Bishop, 2004).

There has been a long history in the empirical capital market research literature to analyze and explain the factors that determine stock returns.

In addition to the traditional equilibrium based model Capital Asset Pricing Model, a number of multi-factor asset pricing models have been developed, e.g., arbitrage-based model, Arbitrage Pricing Theory. These models are based on the assumption that the stock returns are generated by a limited number of economic variables or factors (Opfer and Bessler, 2004).

The APT assumes that returns on securities are generated by a number of industry-wide and market-wide factors. According to Multi-factor model the stock returns are dependent upon many factors. These factors include market return and other various factors, which are grouped into industry-wide factors. The industry-wide factors may be different for different firms. The total number of these industry-wide factors is not yet known. The commonly used industry factors are Interest Rate, Consumer Price Index, Risk Free Rate of Return, Announcements, Surprises and many unexpected events about the firms. Therefore, this paper attempts to develop a relationship between industry and market factors and stock returns of some major companies of Pakistan Banking Industry.

RATIONALE OF THE STUDY

In Pakistan very little published research is found concerning the testing of multi-factor model on specific industries. This paper attempts to develop a multi-index model for the banking industry of Pakistan. The model consists of four

predetermined market and industry variables, which are likely to affect stock returns of banking firms. The independent variables are Return of Karachi Stock Exchange (KSE) 100 index, Consumer Price Index (CPI), Risk Free Rate of Return (RFR) and Weighted Average Spread (SP). The model is tested on 15 major participants in banking industry to check out their explanatory power in explaining the variability of the stock returns of selected firms. Bae and Duvall (1996) and Rehman and Saeedullah (2005) conducted similar type of studies in aerospace and cement industry respectively.

This paper finds out which, if any, of the market and industry variables are of use in explaining the stock returns variability of banking industry. It further explores if the inclusion of extra variables is worth the effort and expense of including them, or is a single index model using only a market index adequate to explain variability of stock returns of banking industry, and also to check out if the model is significant for all the firms or not.

LITERATURE REVIEW

A significant amount of literature now exists that examines the relationship between stock market returns and range of macro economic and financial variables over a number of different stock markets and time periods. The return on stocks is highly sensitive to both fundamentals and expectations. Studies have shown that as a result of financial deregulation, the stock market becomes more receptive to

domestic and external factors. The external factors influencing the stock return would be stock prices in global economy, the interest rate and the exchange rate. The early survey on the behavior of stock return was done by Fama (1970). It is evident from literature that the relationship between stock prices and returns in particular countries and economic variables has received great attention over recent years. The level of return achieved or expected from an investment will depend on a variety of factors. The key factors are internal characteristics and external forces. The internal factors can be the type of investment vehicle, quality of management, type of financing, etc., whereas those of external factors could include war, price controls, political events, inflation and others.

Multi-factor asset pricing models are in general based on the assumption that stock returns are influenced directly or indirectly by a number of different economic factors. Chen *et al.* (1986) applied an APT model to test the significance of various factors in explaining security returns. They used the monthly data for the period 1953-83; the results specify that the following factors are significant in explaining the variability of a security return: spread between long and short interest rates, expected and unexpected inflation, industrial production, and the spread between returns on high- and low-grade bonds. Chen (1991) improved the framework for analyzing stock returns and macroeconomic factors like lagged

production growth rate, the default risk premium, the term premium, the short-term interest rates, and the market dividend-price ratio by using the data for the period 1954-86. He argued that these variables are important indicators of current economic growth, which is in turn negatively correlated with the market excess return.

Flannery and James (1984) investigated the impact of interest rate changes for a sample of 67 banks in the United States that are engaged in positive maturity transformation, i.e. short-term deposits are transformed into long-term loans. They find empirical evidence that there exists a significant relationship between the sensitivity of the stock returns to interest rate changes and the asset-liability (maturity) structure of the bank. Pari and Chen (1984) conducted a study on 2090 firms for the period 1975-80 using Arbitrage Pricing Theory Model and their findings suggested that price volatility of energy, interest rate risk and market index have an influence over stock returns. Kwan (1991) developed and tested a random coefficient two-index model for commercial bank stock returns, which controls for the time-varying interest rate sensitivity caused by a bank's changing maturity profile. Bae and Duvall (1996) applied a multi-factor CAPM by using selected economic and industry variables, which provided additional power in explaining the variability of US Aerospace stock returns over a single factor model using the market index alone. Several other studies

also confirm that factors other than the market do explain the variability of stock returns that is multi-factor model is a better tool in explaining the variability of stock returns.

Isimbabi and Tucker (1997) analyzed the market perception of the risk of the banking industry over the period 1969-89 (by using monthly data for the variables) through analysis of the relative influences of market, economic, industry, and bank-specific factors in Bank Holding Company stock returns. Their multifactor model is an extension of the Stone (1974) two-factor model which includes economy-wide and banking industry-specific default risk variables in addition to the Stone model's market and interest rate factors. Oertmann *et al.* (2000) investigated the impact of domestic and international interest rates on European banks and insurance companies. The idea of a higher interest sensitivity of bank stock returns compared to industrial firms is empirically supported by Bessler and Booth (1994) who compare US and German banks and by Bessler and Murtagh (2003) who analyze banks and non-banks for various countries. Simpson and Evans (2003) investigated the relationships between Australian banking stock returns and key economic variables of monetary policy in short and long-term interest rates and exchange rates. They use the monthly data for each of the stock returns, exchange rates and interest rates for the period January 1994-February 2002. The study finds no evidence that Australia's bank stock market returns form a cointegrating relationship with

short and long-term interest rates and exchange rates over the period of study and thus conclusions may not be drawn relating to long-term rational expectations in the Australian banking market.

All the above cited studies show that factors, other than market return, which are industrial factors, are important in predicting the stock return volatility. Among the important factors in predicting the stock returns other than the market factors are company's size, bond beta, dividend yield, price volatility of energy, interest rate risk, inflation and industrial production index. It could be argued that banks are special financial intermediaries whose operations are unique in financial markets and impact strongly on an economy. The simplistic notion that the economic health of a developing country (such as Pakistan) is vitally dependent on the financial health of its banking system is the principal motivation for this study. A review of the literature reveals that there has been no well-known study of the strength and direction of relationships between Pakistani banking stock returns and key macroeconomic variables.

THEORETICAL FRAMEWORK

Now it is quite evident that Capital Asset Pricing Model cannot explain the returns of investment opportunities and we need certain other factors to explain the variation in returns. Multi-factor models have increased the understanding of variation in returns by considering various industry and market related factors (Coggi and Manescu, 2004). King (1966) argued that stock prices for firms in the

same industry demonstrate a common movement that goes beyond the market effect. This study used monthly closing prices for 63 firms in six industries during the period June 1927-December 1960, it concluded that while 50% of the stock prices movement could be explained by movement in the market index, 20% of the residual variance was accounted for by industry affiliation. Meyers (1973) and Livingston (1977) in similar studies by adding additional firms into their analysis confirmed King's findings. Pari and Chen (1984) conducted a study on 2,090 firms for the period 1975-80 using Arbitrage Pricing Theory Model and their findings suggested that price volatility of energy, interest rate risk and market index have an influence over stock returns.

Bae and Duvall (1996) applied a multi-factor model by using selected economic and industry variables that offered further strength in explaining the variability of US Aerospace stock returns over a single factor model using the market index alone. A study showed the impact of five market and industry variables (Market Return, Consumer Price Index, Industrial Production Index, Risk Free Rate and Cement Exports) on stock returns of seven cement firms in Pakistan. This study showed that only market return had significant impact on variability of stock returns (Rehman and Saeedullah, 2005).

HYPOTHESES

On the basis of the research theory, the following hypotheses are developed:

H_0 : Market return accounts for variation in stock returns.

H_1 : Industrial and other macroeconomic factors do not account for variation in stock returns.

In this way, the hypotheses for market return and industrial as well as other macroeconomic factors have been separated.

METHODOLOGY

DATA

This research is primarily based on secondary data. The banking industry firms selected for this study are the top performers at KSE 100 index. These firms are Askari Commercial Bank, The Bank of Punjab, Bank Al-Habib, Faysal Bank, KASB Bank, MCB Bank, Meezan Bank, Metropolitan Bank, My Bank, National Bank of Pakistan, PICIC Commercial Bank, Prime Commercial Bank, Saudi Pak Commercial Bank, Soneri Bank and Union Bank.

The data for each of the 15 firms' closing monthly stock prices and the KSE 100 index was obtained from the websites of KSE and Business Recorder's website for the period July 1998-June 2006. Pakistan Banking Industry comprises of private banks and privatized banks (formerly nationalized). The data for most of the banking firms were not available before July 1998 because most of the banks either established or privatized and subsequently enlisted at KSE after that date. The data for analysis were taken for the period of 96 months i.e., July

1998-June 2006 (for 9 banking firms) and 54 months i.e., January 2002-June 2006 (for 6 banking firms). The inclusion of data before July 1998 would not have been feasible as, the whole research was limited to maximum of 96 months. The data for Consumer Price Index (CPI) were obtained from Federal Bureau of Statistics; whereas data for RFR and weighted average spread were obtained from the website of State Bank of Pakistan and various editions of Economic Survey of Pakistan. All the data on stock prices, market return, consumer price index, risk free rate and spread are monthly. Faff *et al.* (2005) used discrete monthly returns that run from January 1978 to December 1998. According to study the choice of the monthly sampling interval, over a long historical period is intended to capture long-term movements in volatility and to avoid the effects of settlement and clearing delays which are known to significantly affect returns over shorter sampling intervals. Moreover, most of the above-cited studies used the monthly data as well.

PROCEDURE

After getting monthly closing stock prices for KSE 100 index and 15 selected firms of banking industry, monthly returns were calculated using continuously compounded return formula. The returns were calculated as the logarithmic difference between the two consecutive prices in a series yielding continuously compounded returns. Its equation is

$$\ln (P_t / P_{t-1}) \quad \dots(1)$$

Whereas; P_t = current closing prices

P_{t-1} = previous closing prices

Ln = Natural log

Monthly returns were calculated by taking log difference between two consecutive month prices using Microsoft Excel. The industry return is also calculated as an equally weighted average of the returns of the 15 firms. The model, which is used, consists of monthly observation of four independent variables, starting from July 1998 to June 2006. The independent variables selected are descriptive of the market and economic conditions of the economy. The independent variables are described in some details below along with the Multi Index Model to be tested.

$$K_{it} = b_0 + b_1 KSE_t + b_2 CPI_t + b_3 RFR_t + b_4 SP_t + e_i \quad \dots(2)$$

The dependent variable K_{it} represents the monthly stock returns of the firm i , for month t . The b_i measures the sensitivity of banking stock returns to each independent variable. There are four independent variables, which are to be tested. Three of them are macroeconomic variables, which are Market Return (KSE), Consumer Price Index and Risk Free Rate, and the other one is industry specific, which is, weighted Average Spread.

The KSE variable measures the relative change in KSE 100 index, which is used as a measure of market return. The regression coefficient b_1 measures the variation in banking stock due to market movement. The CPI variable is a measure

of inflation. The data for CPE is obtained from the Federal Bureau of Statistics. Increase in the CPI means high rate of inflation, the regression coefficient b_2 measures the variation in banking stock due to change in the CPI.

The RFR measures the relative changes in risk free rate of return as depicted by six-month Treasury bill yield. The regression coefficient b_3 measures the variation in banking stock due to change in Treasury bill yield. The variable unique to banking industry used, representing industry condition, is spread representing monthly difference between weighted average lending and deposit rate. This variable is expected to be positively related to banking stock returns because higher value of weighted average spread means high profitability of banking firms.

After creating a multi index model, multiple regression technique was used to determine which of the independent variables have a significant relationship with dependent variable, i.e., stock return. Regression analyses were carried out 15 times by using stock returns of each of the fifteen banks as dependent variable. Moreover multi-index model was also tested by taking industry return as dependent variable.

RESULTS AND DISCUSSION

The results from the time series cross-sectional regression analysis show that the inclusion of all four independent variables produces significant models (except for Meezan Bank and Saudi Pak Bank where it is insignificant at 0.05 confidence

level). The value of R square ranges from a high of 0.598 for MCB Bank Limited to a low of 0.144 for Metropolitan Bank Limited (Tables 1 and 2). The F -values for all companies show that the models are significant at the 0.05 level ($p < 0.05$). When the independent variables are examined on an individual basis, the only variable significant at the 0.05 level in all fifteen models is the return on KSE 100 index. In fact no other variable is significant in any of the models. The average regression coefficient of KSE in all 15 models, which represents the market beta in the single factor model, is 0.9196, ranging from 0.434 for Metropolitan Bank to 1.619 for Bank of Punjab Limited. Hence, the stock returns of banking companies are slightly less sensitive than the average stock to changes in the market return.

The CPI is not significant in any model. It is positively related to the stock returns in most of the models. It is however negatively related in some of the models as well. The reason of the positive relationship between CPI (inflation) and stock return may be that banking companies mainly involve in financial operations, and as a result of inflation bank returns increase. Moreover the stock prices in KSE follow a random walk and KSE is not an efficient stock market. That is the reason why the impact of the independent variables on stock returns is insignificant (Naqvi, 2004).

The regression coefficient of risk free rate was negative in most of the models. The reason may be that increase in yield

of treasury bills, encourage investors to invest in Treasury bills instead of stock market securities. However, the relationship is insignificant in all the models. The lack of significance of risk free rate of return in all the models might again be explained by the types of operations in which banking companies are involved. Moreover, investors here are not rationale and investment in KSE is basically done on the basis of technical analysis without any fundamental analysis (Ross *et al.*, 2002).

The estimated coefficient for banking industry specific variable spread which represents difference between weighted average lending and deposit rates is positively related in almost every model as expected except for Bank of Punjab, My Bank and National Bank where it is negatively related. The reason of positive relationship may be that increase in spread leads towards increase in banking firms earning and as a result banking stock prices increase. The relationship of weighted average spread is insignificant in all the models. The random walks of KSE might be the factor due to which relationship between weighted average spread and banking industry stock returns is insignificant (Rehman and Saeedullah, 2005).

Table 3, shows the results of regression analysis for the industry stock returns as a dependent variable. The results are revealing that model is significant ($p < 0.05$). The value of R Square is 0.626 and F -Value is 38.038 show that model is significant at 0.05 level. Like all other

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Table 1: Multiple Regression Coefficients, Standard Errors in Parenthesis, t-Values in Brackets, p-Values and F-Statistics in Italics

Dependent Variable	Constant	KSE	RFR	CPI	Spread	R-Square	F-Statistic
Stock Returns of Askari Bank	1.58E-02	0.893	-6.66E-03	-2.11E-04	7.59E-03	0.461	19.471
	(0.176)	(0.107)	(0.005)	(0.001)	(0.012)		
	[0.090]	[8.370]	[-1.344]	[-0.176]	[0.642]		
	0.928	0	0.182	0.861	0.523		0
Stock Returns of Bank of Punjab	0.372	1.619	-1.21E-02	-2.49E-03	-3.06E-02	0.439	17.829
	(0.320)	(0.195)	(0.009)	(0.002)	(0.022)		
	[1.163]	[8.320]	[1.331]	[-1.138]	[-1.420]		
	0.248	0	0.186	0.258	0.159		0
Stock Returns of Bank Al Habib	-0.253	0.460	-6.13E-03	1.731E-03	1.633E-02	0.196	5.547
	(0.177)	(0.108)	(0.005)	(0.001)	(0.012)		
	[-1.430]	[4.273]	[-1.226]	[1.430]	[1.371]		
	0.156	0	0.223	0.156	0.174		0
Stock Returns of Faysal Bank	-2.95E-02	0.911	-8.69E-04	2.668E-04	5.548E-04	0.522	24.880
	(0.153)	(0.093)	(0.004)	(0.001)	(0.010)		
	[-0.193]	[9.800]	[-0.201]	[0.255]	[0.054]		
	0.848	0	0.841	0.799	0.957		0
Stock Returns of MCB Bank	-0.250	1.199	4.791E-03	1.896E-03	8.82E-04	0.598	33.826
	(0.172)	(0.104)	(0.005)	(0.001)	(0.012)		
	[-1.455]	[11.486]	[0.988]	[1.614]	[0.076]		
	0.149	0	0.326	0.110	0.939		0
Stock Returns of Metropolitan Bank	-5.34E-02	0.434	-2.24E-03	5.135E-04	2.036E-03	0.144	3.833
	(0.193)	(0.117)	(0.005)	(0.001)	(0.013)		
	[-0.277]	[3.703]	[-0.411]	[0.389]	[0.157]		
	0.783	0	0.682	0.698	0.876		0.006
Stock Returns of Prime Bank	-0.376	0.959	-1.03E-02	2.463E-03	2.59E-02	0.428	17.043
	(0.204)	(0.124)	(0.006)	(0.001)	(0.014)		
	[-1.841]	[7.723]	[-1.790]	[1.763]	[1.882]		
	0.069	0	0.077	0.081	0.063		0
Stock Returns of Soneri Bank	-0.130	0.773	-5.41E-03	7.475E-04	1.181E-02	0.384	14.209
	(0.175)	(0.106)	(0.005)	(0.001)	(0.012)		
	[-0.740]	[7.258]	[-1.093]	[1.625]	[1.002]		
	0.461	0	0.277	0.534	0.319		0
Stock Returns of Union Bank	-0.170	0.846	-5.38E-03	1.42E-03	8.68E-03	0.315	10.443
	(0.228)	(0.138)	(0.006)	(0.002)	(0.015)		
	[-0.745]	[6.112]	[-0.837]	[0.911]	[0.566]		
	0.458	0	0.405	0.365	0.573		0

Note: The results are based on the 96 monthly observations for the period July 1998-June 2006: KSE-monthly return in KSE 100 index, CPI-monthly changes in Consumer Price Index, Spread-monthly difference between lending and deposit rates, RFR-monthly changes in 6-month Treasury bill.

Dependent Variable	Constant	KSE	RFR	CPI	Spread	R-Square	F-Statistic
Stock Returns of KASB Bank	-0.729 (0.470)	0.820 (0.173)	-2.28E-02 (0.016)	5.034E-03 (0.004)	4.643E-02 (0.024)	0.372	7.266
	[-1.522]	[4.748]	[-1.429]	[1.385]	[1.935]		
	0.127	0	0.159	0.172	0.059		0
Stock Returns of Meezan Bank	-0.526 (0.506)	0.515 (0.186)	-1.33E-02 (0.017)	4.022E-03 (0.004)	2.257E-02 (0.026)	0.147	2.112
	[-1.039]	[2.765]	[-0.775]	[1.027]	[0.873]		
	0.304	0.008	0.442	0.309	0.387		0.093
Stock Returns of My Bank	0.263 (0.615)	0.955 (0.226)	7.594E-03 (0.021)	-2.11E-03 (0.005)	-1.03E-02 (0.031)	0.284	4.856
	[0.428]	[4.225]	[0.364]	[-0.444]	[-0.329]		
	0.670	0	0.718	0.659	0.744		0.002
Stock Returns of National Bank	0.340 (0.442)	1.330 (0.163)	1.593E-02 (0.015)	-2.31E-03 (0.003)	-2.73E-02 (0.023)	0.588	17.488
	[0.768]	[8.178]	[1.060]	[-0.676]	[-1.211]		
	0.446	0	0.294	0.502	0.232		0
Stock Returns of PICIC Bank	0.127 (0.674)	1.318 (0.248)	-4.15E-03 (0.023)	-1.40E-03 (0.005)	5.422E-03 (0.034)	0.407	8.402
	[0.188]	[5.320]	[-0.181]	[-0.268]	[0.158]		
	0.852	0	0.857	0.790	0.875		0
Stock Returns of Saudi Pak Bank	-1.077 (0.822)	0.762 (0.302)	-3.98E-02 (0.028)	8.030E-03 (0.006)	6.002E-02 (0.042)	0.155	2.240
	[-1.309]	[2.519]	[-1.426]	[1.263]	[1.429]		
	0.197	0.015	0.160	0.213	0.159		0.078

Note: The results are based on the 54 monthly observations for the period January 2002-June 2006: KSE-monthly return in KSE 100 index, CPI-monthly changes in Consumer Price Index, Spread-monthly difference between lending and deposit rates, RFR-monthly changes in 6 month Treasury bill.

Dependent Variable	Constant	KSE	RFR	CPI	Spread	R-Square	F-Statistic
Industry Stock Returns	-12.310 (12.130)	0.889 (0.074)	-0.312 (0.342)	0.080 (0.083)	0.790 (0.816)	0.626	38.038
	[-1.015]	[12.074]	[-0.912]	[0.962]	[0.968]		
	0.313	0	0.364	0.339	0.336		0

banking firms KSE is the only independent variable significant to industry stock returns ($p < 0.05$). Spread, the industry related variable has positive relationship with industry stock returns but is insignificant like the individual

firms stock returns whereas RFR and CPI are also insignificant in the model.

These results are showing that KSE is the only independent variable, which has a positive and significant relationship with stock returns of banking industry. Spread is also having a positive relationship but is not significant one. The other variables have shown positive and negative relationships but insignificant in all of the models. The overall results demonstrate that almost all multi-index models are significant at 0.05 level and provide substantial contribution in explaining the variation in stock returns over single index model.

RESULT OF HYPOTHESES

On the basis of the above results and discussion, it is clear that for market return we accept H_0 (H_0 : Market return accounts for variation in stock returns) as $p < 0.05$, in all the fifteen models and conclude that market return does account for variation in stock return; whereas for industrial and other macroeconomic factors, we accept H_1 , because the $p > 0.05$ for variables CPI, RFR, and Spread in all the 15 models and conclude that industrial as well as other macroeconomic factors do not account for variation in stock return.

H_1 : Industrial and other macroeconomic factors do not account for variation in stock returns.

CONCLUSION AND RECOMMENDATIONS

In this study multi-index model was developed for Pakistani banking industry and tested through multiple regression

technique by using stock returns of these companies as dependent variable and four macroeconomic and industry related factors as independent variables. On the basis of the analysis it is concluded that stock returns of Pakistan banking industry can be explained using single factor model. But multi-factor model adds additional explanatory power in describing the variation in stock returns of these companies. KSE 100 index is the only independent variable significant at .05 level in all the 15 models. The CPI and RFR have shown mix behavior as in some models they are positively related and in some models they are negatively related but remain insignificant in all of the models to the stock returns. The weighted average spread has shown a positive response in almost all the models in explaining the stock return but still insignificant. The lack of significant relationship of independent variables other than KSE can be attributed to the fact that KSE follows random walk and investment in KSE does not take place on the basis of fundamental factors. It is also evident from results that almost all multi-factor models are significant at 0.05 level and add significant development in explaining the variation in stock returns over single index model.

Although the model has determined empirically that it captures some important effects at KSE, an emerging market, the model described here can in future be enhanced in several ways. This may

involve: Use of data of certain economic indicators, which are still not available. This will be made possible with the further development of the stock market that has already started. It is also hoped that other data will be made available by organizations—the Federal Bureau of Statistics, the State Bank of Pakistan, etc. Such data may include monthly returns of GDP, unemployment rate, lending and deposit volumes, discount rate, etc. Although non-priced factors do not contribute to expected return, they

help explain volatility, and they provide managers with a tool to evaluate the diversification of their portfolios. This may entail going beyond the traditional multi-factor approach of including macroeconomic factors. This will involve using factors such as: Market-based financial measures such as P/E ratio and Price to Book Value ratios, measures of the legal environment and measures of the corporate governance.

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Mergers in Indian Banking: An Analysis[†]

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This paper analyzes some of the critical issues of consolidation in Indian banking with special emphasis on the views of two important stakeholders viz., shareholders and managers. First, we review the trends in consolidation, in global and Indian banking. Then to ascertain the shareholders' views, we conduct an event study analysis of bank stock returns which reveals that in the case of forced mergers, neither the bidder nor the target banks' shareholders have benefited. However, in the case of voluntary mergers, the bidder banks' shareholders have gained more than those of the target banks. In spite of absence of any gains to shareholders of bidder banks, a survey of bank managers strongly favors mergers and identifies the critical issues in a successful merger as the valuation of loan portfolio, integration of IT platforms, and issues of human resource management. Finally, we support the view of the need for large banks by arguing that imminent challenges to banks such as those posed by full convertibility, Basel-II environment, financial inclusion, and need for large investment banks are the primary factors for driving further consolidation in the banking sector in India and other Asian economies.

INTRODUCTION

Globally, mergers and acquisitions have become a major way of corporate restructuring and the financial services industry has also experienced merger waves leading to the emergence of very large banks and financial institutions. The key driving force for merger activity is severe competition among firms of the same industry, which focuses on the economies of scale, cost efficiency, and

profitability. The other factor behind bank mergers is the “too big to fail” principle followed by the authorities. In some countries like Germany, weak banks were forcefully merged to avoid the problem of financial distress arising out of bad loans and erosion of capital funds. Several academic studies (see for example Berger *et al.* (1999) for an excellent literature review) examine merger related gains in banking and these studies have adopted

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one of the two following competing approaches. The first approach relates to evaluation of the long-term performance resulting from mergers by analyzing the accounting information such as return on assets, operating costs and efficiency ratios. A merger is expected to generate improved performance if, the change in accounting-based performance is superior to the changes in the performance of comparable banks that were not involved in merger activity. An alternative approach is to analyze the merger gains in stock price performance of the bidder and the target firms around the announcement event. Here, a merger is assumed to create value if the combined value of the bidder and target banks increases on the announcement of the merger and the consequent stock prices reflect potential net present value of acquiring banks.

Our objective here is to present a panoramic view of merger trends in India, to ascertain the perceptions of two important stakeholders viz., shareholders and managers and to discuss dilemmas and other issues on this contemporary topic of Indian banking. We believe that the currently available merger cases do not form a sufficient data set to analyze the performance of mergers, based on corporate finance theory because almost all the mergers are through regulatory interventions and market driven mergers are very few. In this paper, the perception of shareholders is ascertained through an event study analysis that documents the impact of bank mergers on the market value of equity of both the bidder and

target banks. The perception of bank managers is ascertained through a questionnaire-based survey that brings out several critical issues on bank mergers, with insights and directions for the future. Finally, we present arguments on why Indian banks should go for mergers. These arguments are also applicable to other Asian countries which have bank consolidation on their agenda. To the best of our knowledge, this paper is perhaps the first attempt at analyzing a plethora of issues on bank mergers in one place, thus providing useful inputs for researchers as well as policy makers.

This paper is organized as follows. The next section presents a brief review of empirical studies on bank mergers. Section II, presents some cross country experience on bank consolidation and also discusses consolidation trends in Indian banking. Adopting standard event study methodology, the impact of both forced and voluntary mergers on shareholder's wealth is analyzed in Section IV. Section V, analyzes some critical issues in mergers based on the perception of banks by reviewing results from a questionnaire based survey. In Section VI, we present arguments in favor of large banks and the need for banking consolidation in India and other Asian economies. Finally, Section VII concludes the paper.

IMPACT OF MERGERS: REVIEW OF LITERATURE

The two important issues examined by several academic studies relating to bank mergers are: first, the impact of mergers on operating performance and efficiency

of banks and second, analysis of the impact of mergers on market value of equity of both bidder and target banks. Berger *et al.* (1999) provides an excellent literature review on both these issues. Hence in what follows, we restrict the discussion to reviewing some of the important studies.

The first issue identified above is the study of post merger accounting profits, operating expenses, and efficiency ratios relative to the pre-merger performance of the banks. Here, the merger is assumed to improve performance in terms of profitability by reducing costs or by increasing revenues. Cornett and Tehranian (1992) and Spindt and Tarhan (1992) provided evidence for increase in post-merger operating performance. However, the studies of Berger and Humphrey (1992); Piloff (1996); and Berger (1997) do not find any evidence in post-merger operating performance. Berger and Humphrey (1994) reported that most studies that examined pre-merger and post-merger financial ratios found no impact on the operating cost and profit ratios. The reasons for the mixed evidence are: the lag between completion of merger process and realization of benefits of mergers, selection of sample and the methods adopted in financing the mergers. Further, financial ratios may be misleading indicators of performance because they do not control the product mix or input prices. On the other hand, they may also confuse scale and scope efficiency gains with what is known as X-efficiency gains. Recent studies have explicitly employed frontier

X-efficiency methods to determine the X-efficiency benefits of bank mergers. Most of the US based studies have concluded that there is considerable potential for cost efficiency benefits from bank mergers (since there exists substantial X-inefficiency in the industry), "but the data show that on an average, such benefits were not realized by the US mergers of the 1980s" (Berger and Humphrey, 1994).

Some studies have also examined the potential benefits and scale economies of the mergers. Landerman (2000), explores the potential diversification benefits which will be gained from banks merging with non-banking financial service firms. Simulated mergers between US banks and non-bank financial service firms show that diversification of banks into insurance business and securities brokerage are optimal for reducing the probability of bankruptcy for bank holding companies. Wheelock and Wilson (2004) find that expected merger activity in US banking, is positively related to management rating, bank size, competitive position and geographical location of banks, and negatively related to market concentration. Substantial gains from mergers are expected to come from cost savings, owing to economies of scale and scope. In a survey of US studies, Berger and Humphrey (1994) concluded that the consensus view of the recent scale economy literature is that, the average cost curve has a relatively flat U-shape with only small banks having the potential for scale efficiency gains, where the measured economies are relatively small. Studies on scope economies found no

evidence of these economies. Based on the literature, Berger and Humphrey (1994) conclude that, “synergies in joint products in banking are rather small”.

The second issue identified above is, the analysis of merger gains in terms of stock price performance of the bidder and target banks on announcement of the merger. A merger is expected to create value if, the combined value of the bidder and target banks increases on the announcement of the merger. Pilloff and Santomero (1997), conducted a survey of the empirical evidence and reported that most studies have failed to find a positive relationship between merger activity and gains either in performance or stockholder wealth. However, studies by Neely (1987); Trifts and Scanlon (1987); Hannan and Wolkan (1989); Baradwaj *et al.* (1990); Hawawini and Swary (1990); and Cornett and Tehranian (1992) report a positive reaction in the stock prices of target banks, and a negative reaction in the stock prices of bidding banks to merger announcements. A recent study on mergers of Malaysian banks shows that, forced mergers have destroyed the wealth of the acquired banks (Chong *et al.*, 2006).

Again, the reasons for mixed evidences are many. A merger announcement also combines information on financing of the merger. If the merger is financed by equity offerings it may be interpreted as overvaluation of issuer. Hence, the negative announcement returns to the bidding firm could be partly attributable to negative signaling unrelated to the

value created by the merger (Houston *et al.*, 2001). Returns to bidder firms’ shareholders are significantly greater in bank mergers financed with cash, than in mergers financed with stock (Houston and Ryngaert, 1997). The other shortcoming of event study analysis of abnormal returns is that if a consolidation wave is going on, mergers are largely anticipated by shareholders and stock market analysts. Potential candidates for mergers are highlighted by the financial press and analysts. In such cases, event study analysis of abnormal returns may not capture positive gains associated with mergers.

In total, the international evidence does not provide strong evidence on merger benefits in the banking industry. However, it may be useful to note that these findings from the academic literature usually conflict with consultant studies which typically forecast considerable cost savings from mergers. Berger and Humphrey (1994), suggest why most academic studies do not find cost gains from mergers whereas consultants tend to advocate mergers. This is because of the following reasons:

- Consultants focus on potential cost savings which do not always materialize, whereas economists study actual cost savings;
- Consultants tend to highlight specific operations of the banks where there may be merger benefits but ignore those where there are scale diseconomies;

whereas economists study overall costs;

- Consultants prescribe potential cost saving practices which are not necessarily implemented, whereas economists study data on banks which implement as well as those who do not implement the cost saving practices;
- Consultants often refer to the successful cases, but ignore the unsuccessful ones, whereas economist study all banks; and
- Consultants portray merger benefits as large whereas they may be small in relation to the total costs of the consolidated entity. On the other hand, economists employ standard measures from academic literature that do not suffer from this limitation.

The academic studies motivate the examination of two important issues, relating to mergers in Indian banking. First, do mergers in Indian banking improve operational performance and efficiency of banks? However in India, guided by the central bank, most of the weak banks are being merged with healthy banks in order to avoid financial distress, and to protect the interests of depositors. Hence, the motivation behind the mergers may not be to increase the operating efficiency of banks but to prevent financial distress of weak banks. Hence, we do not examine the long-term performance and efficiency gains from bank mergers. The other issue emerging

from the academic literature is the analysis of abnormal returns of bidder and target banks upon merger announcement by examining the stock price data. We develop testable form of hypotheses for bank mergers in the Indian context in the following manner: In the case of forced mergers since, target firms are given an inducement to accept an acquisition, they are expected to earn abnormal returns during the announcement, regardless of the motivation of the acquisition. Hence, the expected impact of forced mergers is that the abnormal returns of the target banks should be positive. This also supports the safety net motive. Forced mergers are expected to create value for target banks. In the case of voluntary mergers, merger motives are market power, scale economies and cost efficiency. Thus, merger announcements are expected to yield abnormal returns to both target and bidder banks, as shareholders of both the banks are perceiving benefits out of the merger. Next, we conduct a questionnaire survey to ascertain the views of bank managers. Finally, we present arguments as to why big banks are needed for Indian and other emerging economies. Before that, in the next section we present some consolidation trends in banking.

CONSOLIDATION TRENDS: CROSS COUNTRY EXPERIENCE

The banking systems of many emerging economies are fragmented in terms of the number and size of the institutions, ownership patterns, competitiveness, use of modern technology, and other structural features. Most of the Asian banks are family owned whereas in Latin

America and Central Europe, banks were historically owned by the government. Some commercial banks in emerging economies are at the cutting edge of technology and financial innovation, but many others are struggling with management of credit and liquidity risks. Banking crises in many countries have weakened the financial systems. In this situation, the natural alternative which emerged was to improve the structure and efficiency of the banking industry through consolidation and mergers, among other financial sector reforms.

The motive for consolidation in Central Europe is market driven whereas in many Latin American countries, the government has taken up several initiatives to restructure inefficient banking systems. Consolidation has become a vital exercise in Korea and south-east Asian countries due to serious banking crises. In all these countries, different models have been adopted for consolidation. Several research studies have critically analyzed various issues in each of the consolidation cases, which serves as a useful lesson for the banks and policymakers who are pursuing the agenda of consolidation. Some of the important studies in this context are: The European Savings Bank Group Report on European Banking Consolidation (2004), impact of mergers on bank lending relationship in Belgium (Degryse *et al.*, 2004) and Italy (Sapienza, 2002), Polish banking sector (Havrylchuk, 2004), emerging market economies (Bank of International Settlements, 2001), Hungary's experience with privatization

and consolidation (Abel and Sikeos, 2004), emerging markets (Gelos and Roldos, 2004), Japan (Brook *et al.*, 2000; and Tadesse, 2006), and European countries (Boot, 1999).

An ILO study reports that as a consequence of the recent merger wave in the US, the number of banking organizations has decreased from 12,333 to 7,122 during the period 1980 to 1997 (ILO, 2001). In Europe, between 1980 and 1995, the number of banking establishments fell, significantly in Denmark (by 57%) and France (by 43%). The European mergers have so far been mostly domestic, and directed at creating domestic behemoths. However, subsequent to the formation of a single financial market under the European Union (EU), consolidation across the EU area has gained momentum and cross border mergers have taken place. The study quotes Jacques Attali, the former President of the European Bank for Reconstruction and Development, "in 20 years, there will be no more than four or five global firms in each sector. Alongside, there will be millions of small temporary enterprises subcontracted by the large ones". Further, David Komansky, CEO of Merrill Lynch, is cited to have contended that only six to eight global banks will soon be competing on the world's financial markets, with regional entities, notably in Europe and Asia, existing side by side with these big international players.

INDIAN EXPERIENCE

Improvement of operational and distribution efficiency of commercial

banks has always been an issue for discussion in the Indian policy milieu and the Government of India in consultation with Reserve Bank of India (RBI) have, over the years, appointed several committees to suggest structural changes towards this objective. Some important committees among these are the Banking Commissions, 1972 (Chairman: RG Saraiya) and 1976 (Chairman: Manubhai Shah), and the Committee for the Functioning of Public Sector Banks, 1978 (Chairman: James S Raj). All these committees have emphasized on the restructuring of the Indian banking system with an aim to improve the credit delivery, and also recommended in favor of having three to four large banks at the all India level and the remaining at regional level. However, the thrust on consolidation has emerged with the Narasimhan committee (1991) emphasizing on convergence and consolidation, to make the size of Indian commercial banks comparable with those of the globally active banks. Further, the second Narasimhan Committee (1998) had also suggested mergers among strong banks, both in the public and private sectors and even with financial institutions and Non-Banking Finance Companies (NBFCs). In what follows, we review some recent trends of consolidation in Indian banking.

Restructuring of Weak Banks: The Government of India has adopted the route of mergers among others, with a view to restructure the banking system. Many small and weak banks have been merged with other banks, mainly to protect the interests of depositors. These

may be classified as forced mergers. When a specific bank shows serious symptoms of sickness such as huge NPAs, erosion in net worth or substantial decline in capital adequacy ratio, RBI imposes moratorium under Section 45(1) of Banking Regulation Act, 1949, on the activities of the sick bank, for a specific period. In this moratorium period RBI identifies a strong bank and asks that bank to prepare a scheme of merger. In the merger scheme, normally the acquiring bank takes up all the assets and liabilities of the weak bank and ensures payment to all depositors, in case they wish to withdraw their claims. Almost all the pre-reform period mergers fall in this category. In the post-reform period, out of 21 mergers which have taken place so far, 13 are forced mergers (Table 1). The main thrust of these forced mergers has been the protection of the depositors' interest in the weak bank.

Table 1: Bank Mergers in India

Period	Number of Mergers
Pre-Nationalization of Banks (1961-1968)	46
Nationalization Period (1969-1992)	13
Post-Reform Period (1993-2006)	21
• Forced Mergers	13
• Voluntary Mergers	5
• Convergence of Financial Institutions in to Banks	2
• Other Regulatory Compulsions	1
Total Number of Mergers	80
<i>Source: Compiled from various publications of RBI.</i>	

Voluntary Mergers: There have been a few mergers in Indian banking while keeping expansion, diversification, and overall growth as the primary objectives. The first of its kind in the post 1993 period was the acquisition of Times Bank by HDFC bank, subsequently followed by Bank of Madura's acquisition by ICICI Bank. The latest merger of this type is the proposed merger of Lord Krishna Bank with Centurion Bank of Punjab. Of course, in almost all these cases the target banks suffer from the problem of low profitability, high NPAs and lack of alternate avenues to increase capital adequacy. Hence, the only available option was merger. Though there was no direct regulatory intervention, the motive behind these mergers may not necessarily be scale economies and market power. A recent trend is cross border acquisitions by the Indian banks. For example, with a motive to gain an entry in Russia, ICICI Bank has acquired a bank in Russia with a single branch. Similarly, the State Bank of India (SBI) has acquired 51% shareholding in a Mauritian bank, viz., Indian Ocean International Bank Ltd. (IOIBL), which will be integrated with SBI's international business as a subsidiary.

Universal Banking Model and Integration of Financial Services:

Over the period, several Developmental Financial Institutions (DFIs) have become a part of the Indian financial system. These were established with the objective of improving allocation efficiency of resources to the various segments of the economy. However, due

to the flexibility provided to the banks by the RBI in credit delivery, banks have widened their loan portfolio to project finance, long-term loans and other specialized sectoral financing. This made the presence of DFIs redundant. The Working Group appointed by the RBI (RBI, 1999) has recommended universal banking model, by exploring the possibility of gainful mergers between different sets of financial entities like banks and financial institutions, based on commercial considerations. Accordingly in the private sector, in 2002, ICICI merged with its subsidiary bank, ICICI Bank Limited, and the erstwhile Industrial Development Bank of India has been reincorporated as a public sector commercial bank and has acquired the private sector IDBI Bank in 2004. To provide integrated financial services, and to improve efficiency and gain competitive positioning, some public sector banks have acquired their own subsidiaries. The examples in this category are Andhra Bank's acquisition of its housing finance subsidiary, i.e., Andhra Bank Housing Finance Ltd., and Bank of India (BOI)'s takeover of BOI Finance Ltd. and BOI Asset Management Company Ltd. Similar acquisitions took place in private sector as well.

Alignment of Operations of Foreign Banks with Global Trends:

A few foreign banks operating in India have been restructuring themselves when their parent banks abroad have undergone restructuring process. Examples in this category are formation of Standard Chartered Grindlays Bank as a result of

acquisition of ANZ Grindlays bank by Standard Chartered Bank. Similarly, due to merger between two Japanese banks viz., Sakura Bank and Sumitomo Bank Ltd. Indian operations of Sakura Bank have been merged with Sumitomo Bank in 2001. The second phase of WTO commitments commencing from April 2009 warrants that, *inter alia*, foreign banks may be permitted to enter into merger and acquisition transactions with any private sector bank in India, subject to the overall investment limit of 74% (RBI, 2005). This may lead to further consolidation in the banking sector.

Merger of Cooperatives, RRBs and UCBs: The other small banks present in the Indian banking system are co-operative banks, Regional Rural Banks (RRBs)¹ and Urban Cooperative Banks (UCBs). These meet the credit requirements of agriculture, small traders and other rural economic activities. Almost all these institutions are crippled with lot of inefficiencies, bad loans and poor recovery of loans. These became barriers for further credit delivery and financial intermediation. The Jagdish Capoor committee recommended, *inter alia*, voluntary amalgamation or mergers of cooperatives based on economies of scale, particularly in areas where they are unviable and are not in a position to ensure uninterrupted credit flow to agriculture (RBI, 2000). Accordingly, in September 2005, 28 RRBs were consolidated into 9 new RRBs. Similarly, the High Powered Committee on Urban

Cooperative Banks (UCBs) (1999) recommended that the sick UCBs should be liquidated in a time bound manner because continued functioning of a large number of financially weak banks is detrimental to both the growth of UCBs as well as to the interests of the depositors.

Continuing with this trend, more banking mergers are likely to take place in the future. In this regard, the RBI has taken several new initiatives for bank restructuring, including the issue of a comprehensive set of guidelines in May 2005.

MERGERS: SHAREHOLDER'S PERCEPTION

As mentioned before, Indian banking sector has witnessed two types of mergers—forced and voluntary mergers. In the first type i.e., forced mergers initiated by the RBI, the main objective is to protect the interest of the depositors of the weak bank. When a bank has shown symptoms of sickness such as huge NPAs, and substantial erosion of net worth, RBI has intervened and merged the weak bank with a strong bank (Table 2). Thus, our hypothesis is that in case of forced mergers, target bank shareholders would gain abnormal returns on announcement of the merger. The second type of mergers is voluntary mergers, with the motivation of market dynamics such as increasing size, diversification of portfolio, and exposure to new geographical markets. In all these cases the acquirer banks have gained the

¹ RRBs were established in 1975 to widen banking services to rural sector and to intensify finance to agriculture.

MERGERS IN INDIAN BANKING:
AN ANALYSIS

Table 2: Bank Mergers in the Post-Reform Period			
Merger Year	Target Bank	Acquirer (or Bidders)	Motive
1993	New Bank of India	Punjab National Bank	Restructuring of weak bank-forced merger
1994	Bank of Karad Ltd.	Bank of India	Restructuring of weak bank-forced merger
1995	Kashinath Seth Bank	State Bank of India	Restructuring of weak bank- forced merger
1996	Punjab Coop. Bank Ltd.	Oriental Bank of Commerce	Restructuring of weak bank-forced merger
1997	Bari Doab Bank Ltd.	Oriental Bank of Commerce	Restructuring of weak bank-forced merger
1999	Bareilly Corp. Bank Ltd.	Bank of Baroda	Restructuring of weak bank-forced merger
1999	Sikkim Bank Ltd.	Union Bank of India	Restructuring of weak bank-forced merger
2000	Times Bank Ltd.	HDFC Bank Ltd.	Voluntary merger
2001	Bank of Madura	ICICI Bank	Voluntary merger
2002	ICICI Ltd.	ICICI Bank	Universal banking objective, merger of financial institution with bank
2002	Benaras State Bank Ltd.	Bank of Baroda	Restructuring of weak bank-forced merger
2003	Nedungadi Bank Ltd.	Punjab National Bank	Restructuring of weak bank-forced merger
2004	IDBI Bank Ltd.	Industrial Development Bank of India	Universal banking objective, merger of bank with another bank (erstwhile FI)
2004	South Gujarat Local Area Bank	Bank of Baroda	Restructuring of weak bank-forced merger
2004	Global Trust Bank Ltd.	Oriental Bank of Commerce	Restructuring of weak bank-forced merger
2005	Centurion Bank	Bank of Punjab	Voluntary merger
2006	Ganesh Bank of Kurandwad	Federal Bank	Restructuring of weak bank-forced merger
2006	United Western Bank	Industrial Development Bank of India	Restructuring of weak bank-forced merger
2006	Lord Krishna Bank	Centurion Bank of Punjab	Expansion of size-voluntary merger
2006	Sangli Bank	ICICI Bank	Voluntary merger
2007	Bharat Overseas Bank	Indian Overseas Bank	Regulatory Intervention

advantage of branch network and customer clientele of the acquired banks. As these mergers are voluntary in nature, both bidder and target banks must have perceived benefit out of the mergers. There are 21 cases of bank mergers during the period 1993 to 2006. Out of this, 5 mergers are voluntary mergers. These are merger/amalgamation of one private sector bank with another. Another two cases are the convergence of financial institutions into a commercial bank. The objective here is to form a universal bank model, which offers a wide range of financial services. We also categorize these two mergers under forced mergers category for the purpose of event study analysis. In the case of forced mergers, almost all the target banks here are small private sector banks suffering from problems of capital adequacy, high NPA, and low profitability. Over all, we have selected six cases of forced mergers for the purpose of event study analysis. In the remaining cases the target banks are unlisted banks and the size of the target banks is substantially lower than that of the bidder banks. Hence, these cases carry less merit for further analysis of mergers from the shareholder's point of view.

EVENT STUDY ANALYSIS

Numerous academic studies are available on merger announcements and their impact on market valuation of equity or shareholder's wealth but there is hardly any documented evidence for Indian banks. In this study we have analyzed the wealth effects of almost all banking

mergers during the period 1999-2006. Only those cases could not be analyzed, where the target banks and the bidder banks were unlisted, and hence the stock price data was also not available. The event study methodology used in our analysis is quite straight forward and conventional (Mackinlay, 1997). To ensure that any information leakage is being captured, the identified merger period includes four days before and after the event. The reason for considering such a window is that the objective is to evaluate the impact of the merger on shareholders' wealth, around the day of the official announcement. A similar window period has been adopted by Chong *et al.* (2006). Daily-adjusted closing prices of stocks and the market index (Sensex) are obtained from Center for Monitoring Indian Economy (CMIE) Prowess.

Abnormal returns, that indicate the additional impact on stock returns due to an event, over and above normal market movements, are computed as follows:

$$AR_{it} = R_{it} - [\alpha_i + \beta R_{mt}] \quad \dots(1),$$

where, R_{it} is the daily return on firm 'i' on day 't' and R_{mt} is the return on the benchmark index, α and β are OLS regression parameters that are estimated using the market model, over the previous period of 150 days. The abnormal returns are computed for both the bidder and target banks and the significance of abnormal returns is tested by calculating

the Standard Error (SE) and t -values as follows:

$$SE = \frac{\sum_{i=1}^n (R_{it} - \alpha + \beta R_{mt})^2}{n-2}$$

and $t = \frac{AR_{it}}{\sqrt{SE}}$

ANALYSIS OF RESULTS

In case of forced mergers the shareholders of target banks have not gained any significant abnormal returns on announcement of merger (Table 3). In the case of Nedungadi Bank, the shareholders have gained significantly on the second day of merger announcement but thereafter no abnormal returns were found. Interestingly GTB shareholders have deeply discounted the merger. As the GTB episode was a serious crisis of bank failure, the merger has given confidence to depositors but the merger announcement does not appear to have provided relief to the shareholders. United Bank shareholders have marginally gained on announcement of merger with IDBI bank but the abnormal returns are not statistically significant. Thus, we reject our hypothesis that target bank shareholders welcome mergers and perceive mergers as enhancement of safety net. As expected, the shareholders of the bidder banks have lost their market value of equity (Table 4). The case of acquisition of ICICI Limited by ICICI bank, has been signaled as emergence of a large size private bank. Moreover, the expectations of the shareholders of the

ICICI Bank have gone up with significant increase in abnormal returns. Similarly, the acquisition of United Western Bank by IDBI has given the positive signal with abnormal gains to the bidder bank. However, the gains were statistically significant only on the third and fourth day, following the merger announcement. In all other cases, the bidder banks have lost on merger with the weak banks. Especially in the case of the acquisition of Global Trust Bank (GTB) by the Oriental Bank of Commerce, the shareholder's wealth of bidder bank has declined from 8.34% to 16.77%, in the window period following the merger announcement. Thus in all the forced mergers, neither the bidder banks nor the target banks have gained on announcement of the merger. Further, the shareholders of the bidder banks have lost their wealth, as the merger announcement is perceived as a negative signal. We argue that the merger of weak banks with strong banks is essential for the restructuring of the banking system and is a desirable step in consolidation of the financial sector. However, in almost all the forced mergers the target banks are identified for merger, almost at the collapse of the bank. The acquirer bank at the instruction of RBI is left with no option but to accept the merger proposal. Instead, we suggest that RBI should activate the Prompt Corrective Action system (PCA) and should identify the weak banks on the basis of certain symptoms. This will help the bidder banks to choose target banks based on strategic issues, which may benefit all the parties.

In the case of voluntary mergers, the gains of target banks are higher than bidder banks (Tables 3 and 4). Both target and bidder bank shareholders benefited on announcement of the mergers. Thus, the stock markets welcomed the merger, which lead to enhanced growth prospects for the merged entity and thus the shareholders of both banks benefited out of it. In the case of an acquisition of Times Bank by HDFC bank, both the bank shareholders have viewed it as a positive signal. At the time of the merger, Times Bank was suffering with low profitability and high NPAs but the acquisition by

HDFC bank has given relief to both shareholders and depositors of the bank. Similarly, HDFC bank has gained out of retail portfolio of the Times Bank and has subsequently emerged as the largest private sector bank in India in 1999. In the case of an acquisition of Bank of Madura (BOM) by ICICI bank, BOM gained the opportunity of providing various services like treasury management solutions, and cash management services to all of its customers. ICICI Bank increased its size by acquiring BOM, and reached the position of a large size bank among the private sector banks, way back

Table 3: Abnormal Returns of Target Banks

	-4	-3	-2	-1	0	1	2	3	4
Voluntary Mergers									
Times Bank	-1.41%	1.16%	0.89%	-3.43%	21.09%	-1.18%	-1.42%	9.14%	-0.11%
	-0.44	0.36	0.28	-1.07	6.59	-0.37	-0.44	2.86	-0.03
Bank of Madura	7.97%	7.79%	7.74%	7.76%	7.91%	7.88%	7.90%	8.02%	8.05%
	1.98	1.93	1.92	1.92	1.96	1.95	1.96	1.99	1.99
Bank of Punjab	-0.67%	7.01%	0%	-0.40%	-8.85%	0%	-1.39%	0.15%	1.50%
	-0.18	1.87	0	-0.11	-2.36	0.00	-0.37	0.04	0.40
Forced Mergers									
ICICI Limited	-0.54%	5.78%	8.74%	4.95%	-9.20%	2.26%	-3.09%	1.47%	-0.98%
	-0.18	1.87	2.83	1.60	-2.98	0.73	-1.00	0.48	-0.32
Nedugundi Bank	-4.83%	-11.04%	0.88%	0.49%	-1.09%	3.43%	14.79%	-22.67%	-22.56%
	-1.24	-2.82	0.22	0.13	-0.28	0.88	3.78	-5.79	-5.77
IDBI Bank	1.54%	-3.37%	-1.08%	-5.08%	0.07%	0.75%	1.58%	-2.25%	-0.44%
	0.52	-1.13	-0.36	-1.70	0.02	0.25	0.53	-0.76	-0.15
Global Trust Bank	-3.19%	1.91%	-0.64%	-23.07%	-112.79%	-32.26%	-1.35%	1.95%	12.05%
	-0.67	0.40	-0.13	-4.81	-23.51	-6.72	-0.28	0.41	2.51
United Western Bank	3.11%	0.82%	-1.00%	0.08%	2.69%	0.46%	-0.05%	0.39%	0.14%
	0.72	0.19	-0.23	0.02	0.63	0.11	-0.01	0.09	0.03
Note: This table depicts the abnormal returns of target banks during the window period (-4,4) and line below the abnormal returns indicates t-values corresponding to abnormal returns, t-value greater than 1.96 is significant at 5% level and greater than 2.58 is significant at 1% level.									

MERGERS IN INDIAN BANKING:
AN ANALYSIS

Table 4 : Abnormal Returns of Bidder Banks									
	-4	-3	-2	-1	0	1	2	3	4
Voluntary Mergers									
HDFC Bank	0.02%	3.14%	-4.21%	-1.08%	8.34%	8.89%	7.97%	5.33%	6.17%
	0.01	1.23	-1.65	-0.42	3.27	3.49	3.13	2.09	2.42
ICICI Bank Acquired	-0.02%	3.22%	0.84%	11.40%	-3.28%	-3.08%	-0.95%	-0.49%	1.60%
Bank of Madura	0	0.83	0.22	2.93	-0.84	-0.79	-0.24	-0.13	0.41
Centurion Bank	-0.85%	-0.26%	0.84%	0.92%	-6.48%	-2.24%	1.67%	-0.15%	1.06%
	-0.27	-0.08	0.27	0.29	-2.06	-0.71	0.53	-0.05	0.34
Forced Mergers									
ICICI Bank Acquired	2.15%	6.37%	6.45%	3.54%	8.45%	0.13%	-4.98%	1.50%	1.19%
ICICI	0.57	1.70	1.72	0.94	2.25	0.03	-1.33	0.40	0.32
Oriental Bank of	0.50%	-0.59%	-1.63%	-0.16%	-6.46%	-1.88%	-2.23%	-2.95%	-1.38%
Commerce	0.18	-0.21	-0.58	-0.06	-2.30	-0.67	-0.79	-1.05	-0.49
Federal Bank	-1.03%	3.44%	-1.80%	0.36%	-0.30%	-0.61%	-0.88%	-0.32%	2.37%
	-0.48	1.59	-0.83	0.17	-0.14	-0.28	-0.41	-0.15	1.10
PNB	0.38%	-0.55%	-1.33%	-2.05%	-0.17%	0.08%	-2.25%	-0.90%	-1.59%
	0.18	-0.25	-0.61	-0.94	-0.08	0.04	-1.04	-0.41	-0.73
IDBI Acquired IDBI	2.22%	4.98%	-1.68%	-3.62%	-3.69%	-1.72%	0.38%	1.42%	-2.69%
Bank	0.40	0.89	-0.30	-0.64	-0.66	-0.31	0.07	0.25	-0.48
IDBI Acquired United	2.60%	-1.17%	5.90%	3.84%	-2.95%	0.09%	2.16%	8.56%	4.26%
Western Bank	1.03	-0.46	2.33	1.51	-1.16	0.03	0.85	3.38	1.68
<p>Note: This table depicts the abnormal returns of bidder banks during the window period (-4,4) and line below the abnormal returns indicates <i>t</i>-values corresponding to abnormal returns, <i>t</i>-value greater than 1.96 is significant at 5% level and greater than 2.58 is significant at 1% level.</p>									

in 1999. The analysis shows that upon the announcement of this merger, there was a significant rise in abnormal returns leading to increase in value for the shareholders of BOM, but the shareholders of ICICI bank did not achieve any gains. This is not surprising because shareholders of a troubled bank stand to gain from a merger with a strong bank, whereas the same may not happen from the perspective of the strong

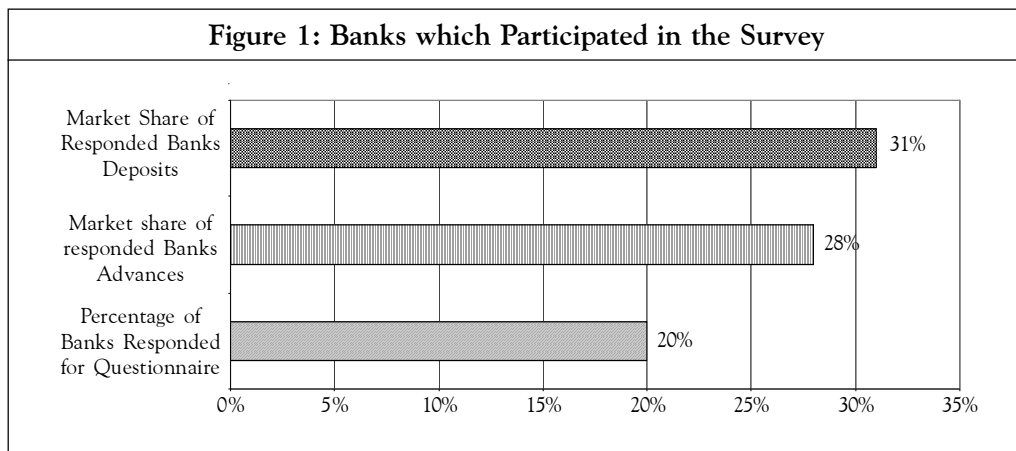
acquiring bank. In the case of an amalgamation of Bank of Punjab with Centurion Bank, it was an inevitable restructuring for both the banks, as both intended to grow but experienced dismal performance. Both the banks came forward to build a growth-oriented bank on the basis of each other's strengths. Centurion Bank had activity in the western part of India whereas Bank of Punjab had activity in the northern part

of the country. The deposits of the combined entities have shown a growth of 20%, its advances – 41.7%, and ROA – 0.89%². However, the event study analysis of stock returns revealed that neither of the banks’ shareholders considered the merger as a positive event and the announcement led to deterioration in shareholders’ wealth. It appears that the shareholders of both banks would have preferred a merger with a stronger bank, and thus the news of amalgamation with another troubled bank may not have been welcomed by the stock markets.

In total, results from the event study analysis suggest that the shareholders of neither the target bank nor bidder bank, have perceived any potential gains on announcement of the mergers. Thus, shareholders who are an important stakeholder of a banking firm have not considered mergers as a signal of improving health, scale economies and market power of banks.

**MERGERS:
MANAGER’S PERCEPTION**

To ascertain the views and perceptions of Indian banks on mergers and acquisitions, we conducted a questionnaire-based survey. The questionnaire was sent to all the public and private sector banks (excluding foreign banks and RRBs), which were in operation as on December 31, 2005, and out of 56 banks 28 are public sector banks while the remaining are private sector banks. Eleven banks have responded promptly to the questionnaire and the overall response rate is 20%. The respondent banks are representing 28% of advances and 31% of deposits of Indian commercial banks (i.e., excluding foreign banks and RRBs). Although, one third of the public sector banks responded to the questionnaire, the response rate from the private sector banks was only 7%. Respondent banks hold 31% of bank deposits of India (Figure 1). Merger being a strategic decision, any type of information relating



² The Annual Report 2005-06 of the Bank

to mergers may have a serious implication on the valuation and other decisions of banks. This may be the explanation for the poor response rate from the private sector banks. The questionnaire was addressed to the Chairman and Managing Director of the banks but the response was received from the senior executive of Corporate Planning departments of the respective banks. We summarize here the main findings from the survey.

Merger Agenda of Indian Banks: Out of the respondent banks, 55% are in favor of bank mergers, and among the public sector banks, 44% reported that they are in favor of mergers. We further identified five possible types of mergers, the first three of which are: merger of two public sector banks, merger of public and private sector banks, and merger between two private sector banks. The remaining two types were to ascertain the intentions of commercial banks in providing integrated financial solutions. Thus, these types are, merging a commercial bank with an NBFC and merging a commercial bank with any other financial services company. Out of the respondent banks, 70% have assigned

highest priority for merger of two public sector banks, which demonstrates the banking sector's view on the need for consolidation of public sector banks. On the other hand, 40% of banks have favored merger among private sector banks and merger between public and private sector banks, as the second most preferred type of merger. Respondent banks have assigned low importance for merger between banks and NBFCs or financial services entities. Thus, low rankings were assigned by majority of respondents for these types of mergers. Here, it may be noted that many public sector banks have already consolidated their financial services by merging their own subsidiaries with parent banks³.

Our survey raised several questions on important issues at the pre and post-merger stage (see Table 5, Figures 2 and 3). These are summarized as follows:

Valuation of Target Bank's Loan Portfolio: More than 70% of the respondent banks stated that a valuation of loan portfolio of the target bank, is the main factor to be considered at the time of merger. In credit portfolio management, the exposure and accounting norms

	Ranking Order				
	1	2	3	4	5
Organizational Culture	20	20	10	50	0
Managing Human Resources	50	40	10	0	0
Customer Relationship	0	30	10	40	20
Integration of Branches and IT Network	20	0	70	0	0

³ For instance, Bank of Baroda and Andhra Bank have absorbed their housing and credit card subsidiaries. Punjab National Bank has absorbed its capital market services subsidiary.

Figure 2: Important Pre-Merger Issues

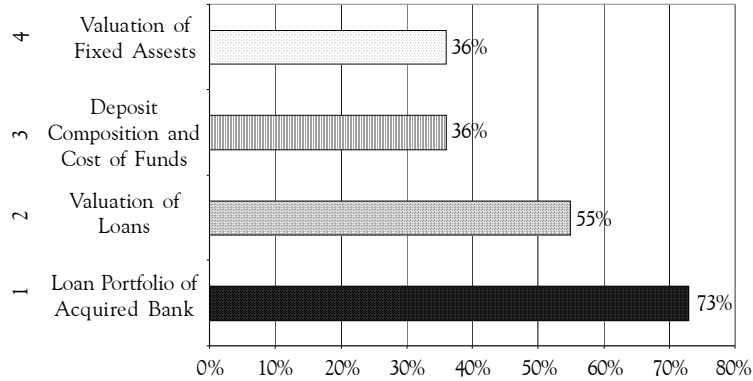
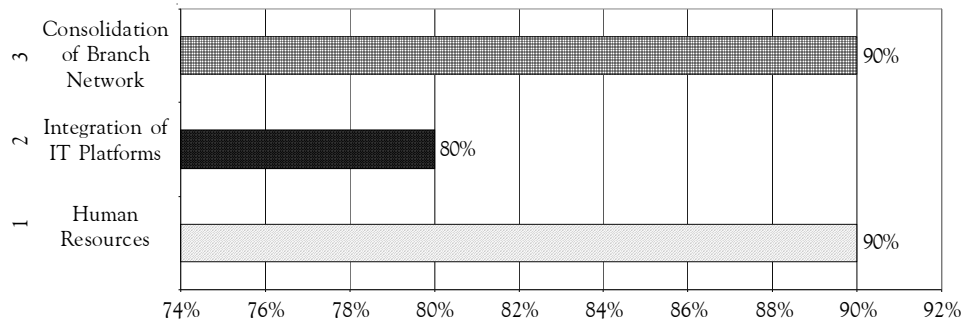


Figure 3: Important Post-Merger Issues



suggested by the RBI are the same for all banks, which helps in finding out the book value of loans. However, Indian banks have been adopting divergent practices in rating the borrowers, pricing the loans and in the maintenance of collateral securities. Hence, detailed audit of loan portfolio on the basis of rating, cash flows generated, and collaterals is essential to get an opinion on the value of target bank's loan

portfolio. Similarly, to find out the intrinsic value of loans, by estimating the cash flows of loan portfolio is difficult, as most of the loans are pegged to PLR, and cash flow estimation on a floating rate loan is subject to several assumptions. The other difficulty is the selection of an appropriate discount rate. Ideally a discount rate is the risk free rate plus credit risk premium for a specific rating category for a given maturity. Risk free rates are available from

market prices of the government securities but there is no standard data on credit risk premiums of loans of various rating categories. Banks may use external credit ratings and corresponding credit spreads announced by FIMMDA⁴. However, mapping of external ratings with internal credit ratings is a very complicated task. In India, some loans such as educational loans, loans to exporters and loans to under privileged groups are still priced at regulator determined rates and so, the social cost of this subsidy is to be estimated while valuing the loan portfolio.

Valuation of Intangible Assets: Valuation of assets of the target bank is a critical factor for the success of consolidation. A bank's tangible assets are mainly loans and investments, apart from other fixed assets like buildings, ATMs and IT infrastructure. A commercial bank holds a lot of intangible assets—core deposit base clientele, safety vault contracts, proprietary computer software, knowledgeable human resources, brands and good will. Deciding the inherent strength of the target bank on the basis of intangible assets is equally important for successful consolidation.

Determination of Value of Equity: Valuation of the target bank's assets and liabilities, and determination of its equity value is an essential aspect of a merger process. Standard textbooks on valuation (e.g., Damodaran, 1994) discuss three approaches for valuation of any firm, viz., dividend discount model, cash-flow to

equity model, and excess return model. However, banking firms are different from other manufacturing firms, mainly on three grounds: banks are highly leveraged institutions where more than 90% of resources are borrowed funds or debt, capital budgeting or investment decisions in banks are a routine function and vary with high frequency, and banks are highly regulated institutions where regulatory instructions have implications on asset creation and other main operations of a bank. Interest rate volatility, regulatory capital adequacy ratios and regulatory restrictions on dividend payout ratios have strong influence on the projection of growth rate of earnings and in turn on the valuation of equity of a bank.

Another standard methodology followed in the valuation of equity is the usage of P-E ratio. Price-Earning ratio is the relationship between price per share and earnings per share. P-E ratio is a function of expected growth rate in earnings, payout ratio and cost of equity. However, variables like provisions for bad loans, which differ from bank to bank due to differences in credit risk, will have impact on profits and P-E ratios. Since banks are dealing with a variety of financial services, the asset portfolios differ from one bank to the other. For example, while one bank may be focusing more on retail lending, another may be exposed to corporate lending. The risk-return characteristics of portfolios of these two banks are different and it is difficult

⁴ FIMMDA is a self-regulatory organization announces yield curve and credit spreads across various ratings and maturities.

to compare earnings and price-multiples of these two banks. Ideally, banks have to consider business wise P-E ratio and multiply it with the earnings of each portfolio to arrive at the value of equity. However, availability of data on business portfolio wise P-E ratio is difficult as far as Indian market is concerned.

Human Resource Issues: Out of the respondent banks, 90% of banks have rated that human resource function is the most complicated organizational issue in mergers. Human Resource (HR) management issues like reward strategy, service conditions, employee relations, compensation and benefit plans, pension provisions, law suits and trade union actions are critical to the viability for the deal and merger plan. Training and development initiatives can play an important role during the period of announcement, closure, and the post amalgamation stage. Organizations have to create such open spaces, where employees have the opportunity to discuss their personal concerns and work out as to how they might need to adjust. Change management sessions also help employees in understanding how individuals and organizations typically react to change. People become committed to a merger when they believe it is built on a sound strategy and offers personal benefits in terms of financial incentives and corners opportunities. It should meet their emotional needs as well. It is always advisable to attend to the decisions of human resource very quickly, that is, within 100 days of merger announcement in order to avoid uncertainty, which

would lead to employee morale erosion and the exit of key talent. All the HR issues such as selection, retention and promotion opportunities need to be effectively communicated to the staff, while emphasizing on the degree of transparency and fairness in order to establish credibility. In the cases of voluntary mergers like 'Times Bank' and 'Bank of Madura', the acquired banks have guaranteed employment to all the employees and minimized the scope for conflicts.

Cultural Issues: Another critical issue in pre and post merger period is culture. Culture is central to the institutional environment in which people have to work. Cultural friction is a difficult condition to analyze because it is 'Poly-Symptomatic', revealing itself in diverse problems such as poor productivity, wrangles among the top team, high turnover rates, delays in integration, and an overall failure to realize the synergies of the deal (Devine, 2003). Cultural issues are crucial in any merger or acquisition that depends on collaboration for its success, and which they increasingly do in any economy. Both parties have to commit for cultural audit as a component of due diligence process. This can help both businesses understand each other's cultures and gain a sense of the cultural traits that they hope to preserve before or after the merger. Cultural Integration is an essential prerequisite for a successful merger, where two banks aim to take the 'Best of Both' and create a new culture (Devine, 2003).

Integration of Information Technology: Modern commercial banking is highly dependent on Information Technology (IT). IT is not a process driven necessity alone but a key strategic issue. According to McKinsey and as quoted in Walter (2004), 30% to 50% of all bank merger synergies depend directly on IT in India. Around 65% of branches are fully automated and only 12% of branches are offering core banking solutions (RBI, 2005). Divergent IT platforms and software systems have proven to be important constraints in consolidation. IT people tend to take proprietary interest in their systems created over the years, and tend to be emotionally as well intellectually attached to their past achievements. Often conflicts may arise about superiority of one IT infrastructure over the other. Successful IT integration is essential to generate a wide range of positive outcomes that support the underlying merger rationale. The main issues are alignment of existing IT configuration to support the business strategy of the combined entity, and robustness of IT systems to digest a new transformation process. The other issues are making the systems user-friendly, reliable and free from operational risk.

Customer Retention: Though customers are important stakeholders of a bank, they are always out of the discussions on merger issues. Customers should be communicated properly about the merger and customers of the acquired bank should be attended to more carefully. This

is also important in the context of relationship lending of the acquired bank, especially in the case of Small and Medium Enterprises (SMEs). The empirical evidence shows that firms borrowing from target banks are likely to lose their lending relationships on the event of merger (Degryse *et al.*, 2004).

Perceived Benefits of Mergers: Theoretically, mergers provide multiple advantages to banks in addition to some identified benefits for customers. The size and nature of markets in which the banks operate are the prime determinants of the benefits of mergers. Divergent views emerged on merger benefits perceived by Indian banks (Table 6). 45% of banks have assigned top priority to the belief that mergers will bring reduction in operating costs and 27% indicated an improvement in shareholder wealth as the most important benefit. Research studies on mergers conducted in other countries also documented little evidence on improvement in shareholder's wealth through mergers.

The second most perceived benefit of merger is access to new markets. This is more evident from voluntary mergers such as merger between Centurion Bank and New Bank of Punjab. Significant number of banks have assigned modest ranking to benefits like reduction in cost of funds, diversification of loan portfolio and expansion of the range of services available to the public. Majority of the banks have assigned lowest priority to the fact that mergers may bring improvement in employee incentives and extension of career opportunities.

Perceived Benefits	Ranking Order								Total
	1	2	3	4	5	6	7	8	
Minimization of Operating Costs	5	1	1	2	1	0	1	0	11
Access to New Markets	2	6	1	2	0	0	0	0	11
Access to Better Sites for Branch Offices	0	1	1	2	0	2	3	2	11
Reduction in Cost of Funds	0	0	3	2	2	3	0	1	11
Diversification of Loan Portfolio	0	1	2	1	5	1	1	0	11
An Expansion in the Range of Services made Available to the Public	1		3	1	3	2	1	0	11
Improvement in Shareholders' Wealth	3	2		1		3	1	1	11
Better pay, Incentives and Wider Career Opportunities for Employees	0	0	0	0	0	0	4	7	11

This pessimism regarding benefits to employees, once again highlights the importance of managing human resources during mergers as discussed before.

WHY BANKS IN INDIA AND OTHER ASIAN COUNTRIES SHOULD GO FOR MERGERS?

Mergers are driven by a complex set of motives and no single reason may offer full explanation. Following Brealey and Myers (2000), the reasons for mergers may be categorized into those that enhance shareholder value—'sensible reasons' and those that do not—'dubious reasons'. Shareholder value may be enhanced through expansion of operations leading to increased market share and cost savings through economies of scale or by cross selling of products and utilizing complementary resources, i.e., economies of scope or synergy. The substantial portion of extant empirical literature, both on scale economies and shareholder's wealth is not in favor of mergers. However, in the

context of India and for other Asian economies large size banks are desirable to meet several current and forthcoming challenges of the economy. We discuss some of these here.

High Competitive Pressure: With the entry of new private and foreign banks in Indian banking, the domestic banks have been facing the pressure of competition. The evidence of competitive pressure is well supported with the declining trend of the Herfindahl Index. The value of the Index has reduced from 7.00 to 6.30 over the last 10-year period (Table 7). Reduction in the Index suggests that Indian banks have been encountering high competitive pressure and this may hamper their profitability and operational efficiency. This is one reason why consolidation could be an imperative for Indian banks.

Capital Account Convertibility: In the state of full convertibility of rupee, flow of short-term capital funds increases, and hence, a strong domestic financial system

Year	Deposits	Credit
1992	8.10	10.40
1993	7.60	10.10
1994	7.40	8.60
1995	7.00	7.90
1996	6.90	7.80
1997	6.70	7.30
1998	6.60	7.40
1999	7.10	7.20
2000	6.90	6.90
2001	7.30	6.70
2002	7.10	6.00
2003	6.90	6.00
2004	6.30	5.80
<i>Source: Mohan, 2005.</i>		

resilient enough to cope with inflows and outflows is needed. Huge inflow of funds may lead to funding of high risk projects and in the absence of effective risk management and credit monitoring, banks' asset portfolios would become risky and lead to excessive risk-taking. Only those banks with a larger scale of operations may have the capacity to absorb eventualities that are likely to arise out of excessive risk taking. Moreover, foreign banks may enjoy greater competitive advantage in borrowing more short-term funds from off-shore markets. This may give greater disadvantage to domestic banks. Excessive borrowing by domestic banks from off-shore markets will expose these banks to additional risks of price volatility and maturity mismatches. Only stronger banks would be in a position to mitigate these risks and weak banks may

be left out of the benefits of inflows. A possible long-term solution is involvement of large and strong banks through consolidation.

Capital Adequacy Norms: As per the prudential capital adequacy norms every asset in the balance sheet is funded by both deposits and capital funds. Hence, higher capital adequacy ratio of a bank indicates its potential for growth, financial solvency, and ensures confidence for depositors. Capital deficient banks are constrained from growing unless they augment the capital resources thus, the available alternative is to go for a merger with a bank of stronger capital base. In the case of forced mergers (e.g., the cases of Global Trust Bank and United Western Bank) the capital funds of the merged banks had been substantially eroded before the merger. Several old private sector and a few public sector banks have been showing the symptom of deficiency in capital funds and these could be the right candidates for mergers.

Common Asian Currency: There has been resurgence in the debate over the formation of an Asian Monetary Fund and the adoption of an Asian Currency Unit, similar to Euro in the European Monetary Union (Reddy, 2005). The emergence of a common currency leads to elimination of geographical fragmentation associated with the existence of separate national currencies. A common Asian currency would create a single market for financial services and eliminate exchange rate risk within the Asian zone. In the state of single currency zone, markets may grow

in size. Size produces a competitive advantage for the banking industry and hence, investment banks will have the advantage of access to opportunities from those growing markets. Large size banks would be needed to exploit potential advantages from expansion and consolidation of Asian markets.

Basel II and Relative Advantage: The agenda before banks across the globe is implementation of Basel II norms for estimation of capital requirements. The new Basel Accord emphasizes on adoption of Internal Ratings Based (IRB) approach for estimation of capital requirements against the current practice of standardized approach. Banks that follow IRB approach to estimate their capital requirements get the benefit of risk sensitive capital requirements, which may be lower than capital requirements estimated by the standardized approach. Large banks, which have robust risk management systems, may prefer to go for IRB approach considering its benefits, and the other banks may settle with standardized approach. In such a scenario, banks, which are enjoying the benefit of having excess capital, may acquire the smaller banks. Thus to achieve the benefit of low capital requirements, small size banks would be required to consolidate themselves to become large. In line with this, RBI (2001) observed that, the new Basel Accord, when implemented, is expected to have far-reaching implications such as further consolidation through mergers and acquisitions.

Financial Inclusion: Financial inclusion implies bringing the low income and disadvantaged groups under the coverage of banking by providing them access to banking services at affordable cost. According to Leeladhar (2005), as banking services are in the nature of public good, public policy should aim towards providing banking and payment services to the entire population without discrimination. Keeping vast sections of the population outside the ambit of banking services construes financial exclusion whose consequences vary depending on the nature and extent of services denied. In India, the branches of commercial banks have shown significant increase in the last thirty years, however, the ratio of deposit accounts to the total adult population was only 59% (Leeladhar, 2005). In fact, there is a wide variation across states within India. For instance, this ratio is as high as 89% for Kerala while it is quite low at 33% for Bihar. This is even lower in the Northeastern states like Nagaland and Manipur, where the ratio was only 21% and 27% respectively. As indicated by these ratios, the coverage of Indian financial services is quite low as compared with the developed world. The objective of financial inclusion can be achieved if banks are directed to focus on unexplored markets instead of competing only in the existing markets. Consolidation may facilitate geographical diversification and penetration towards new markets.

One of the arguments cited against consolidation is that it may result in rationalization of branch network and

retrenchment of staff. However, rationalization may lead to closure of branches in over banked centers and opening of new branches in under banked centers where staff can be repositioned. Dymski (2005) notes that mergers lead to the creation of big banks, which are usually expected to create standardized, mass-market financial products. The merging banks would also try to extend their marketing reach and enhance their customer-base. However, one must take note of the pitfalls. Not all new customers may be treated in the same way even by the big banks. Indeed, Dymski (1999) showed that one consequence of the merger wave in US banking has been that loan approvals for racial minorities and low-income applicants have fallen and the extent of this decline is more severe for large banks. This led Dymski to offer the following policy prescriptions; that mergers should be approved conditional upon the less disadvantaged population being unaffected by the process, and that approvals should be linked to specific plans offered by acquirers to mitigate the extent of financial exclusion. Thus if the regulatory policies are framed judiciously, consolidation may be able to address the broader objective of financial inclusion that is most severe in a developing country such as India.

Penetration to SME Sector Lending:

The common criticism against consolidation is that consolidation will have an adverse effect on the supply of credit to small businesses, particularly those which depend on bank credit.

However, it is perceived that the transaction costs and risks associated with financing of these sectors are very high for small banks to manage such high-risk loan portfolio. Large and consolidated banks can mitigate the costs better and penetrate through lending into these sectors.

Shift Towards Investment Banking Activity:

India and other emerging markets are targeting a double-digit macroeconomic growth in the coming years and this may boost capital market activity. Many companies will depend on domestic and off-shore capital markets, both for their short-term and long-term fund requirements. This may increase the role of investment banking against the current trend of retail and commercial banking. Investment banking activity is based on huge investment of fixed cost (or sunk cost), whereas retail banking is associated with competition based on variable costs. Gual (1999), using concepts introduced by Sutton (1991), distinguishes between competition based on variable costs and competition based on sunk costs. In terms of the variable costs model, financial institutions compete in areas such as price and service. In this case, a bigger volume of activity results in an increase in variable costs. On the contrary, the model based on sunk costs assumes that banks compete with fixed investments and sunk costs in order to penetrate a market. If competition is based on variable costs, the scale of banks is not decisive for their efficiency once, a certain minimum scale has been reached.

However, under the model based on sunk costs, scale can become decisive. Hence, to explore investment-banking activity (i.e., based on sunk costs), large size banks would be required.

Monetary Policy Transmission: The credit view of monetary policy assures that there are imperfections in financial markets, which increase the price of bank loans and lower the availability of bank credit (Bernanke and Gertler, 1995; and Taylor, 2000). The credit view considers two channels through which monetary policy affects the real economy. First is the 'balance sheet channel', which works through the balance sheets of potential borrowers. A monetary policy tightening by increasing the interest rate deteriorates the net worth position and credit worthiness of the private sector, prompting banks to raise the price of bank loans. The second is the 'bank-lending channel' that focuses on the asset side of the balance sheet of banks, especially on the supply of bank credit. Monetary tightening by draining the liquidity position of banks forces some banks to diminish their supply of credit. Empirical research (see Kishan and Opiela, 2000; and Pandit *et al.*, 2006) shows that large size banks are more capable than others to offset shocks arising out of monetary policy induced decrease in deposits or increase in cost of funds, because they can fund borrowings (other than deposits) more easily. These findings highlight the need for forming large banks through consolidation.

CONCLUSION

This paper attempted to provide an analysis of ongoing merger trends in Indian banking from the view point of two important stakeholders of a banking firm—stock holders and managers. The trend of consolidation in Indian banking industry has so far been limited mainly to restructuring of weak banks and harmonization of banks and financial institutions. Voluntary mergers demonstrating market dynamics are very few. We strongly support the view that the Indian financial system requires very large banks to absorb various risks emanating from operating in domestic and global environments. We argue that the challenges of free convertibility, Basel-II environment, widening of financial services activity, and need for large investment banks are the prime drivers of future consolidation. More voluntary mergers are possible, provided the benefits of mergers are derived by all the stakeholders of the banks. Currently the forced mergers may be protecting the interests of depositors but shareholders of both bidder and target banks are not, necessarily perceived as beneficiaries of the merger. The event study analysis results, show that both bidder and target banks' market value of equity has been reduced on the immediate announcement of mergers. In the case of voluntary mergers, the results are mixed. Our survey shows that bank managements are strongly in favor mergers. However, they opine that there are several critical issues, which are to be handled carefully to make a merger successful. These are valuation of target

bank loan portfolio, valuation of equity, integration of IT platforms, and issues of human resource management. Banks are optimistic about realizing the merger gains such as exploration of new markets and reduction in operating expenses.

Based on these results, on the policy side, we suggest that RBI should activate the Prompt Corrective Mechanism that helps in identifying the sick banks and advance the timing of the merger to avoid total collapse of the bank. This will also help the bidder banks to formulate appropriate strategies, which may mitigate the dilution in market value of equity consequent upon merger. To ensure the availability of financial services to all segments of the population, RBI should approve voluntary mergers, conditional upon the disadvantaged segments being unaffected by the process, and approval should be linked to specific plans offered by the acquirers to mitigate the extent of financial exclusion. The ongoing consolidation trends in Indian banking raise some important questions. Is it fair and desirable on the part of RBI to merge the weak banks with well performing banks, which destroys the wealth of bidder banks? Being a majority shareholder, the Government of India appears to be ignoring the interest of minority shareholders. This is a serious concern of corporate governance. In the case of two forced mergers, viz., GTB with OBC, and Bharat Overseas Bank with Indian Overseas Bank,

the share prices of these two acquired banks have not shown any significant increase even after a substantial time gap from the merger.

In the post-reform period almost all the public sector banks have improved their performance in terms of profitability, low NPAs and raised fresh equity from the capital markets at a good premium. Forced mergers may be detrimental to the further growth of these banks. Dilution of government ownership may be a prerequisite to improve operational freedom and to devise performance linked incentives for public sector employees, which are essential to tackle the post-merger problems arising out of forced mergers. Another issue, which is completely ignored, is the impact of consolidation on customers, especially small borrowers who are dependent on the banking channel. The other consolidation model, which is simultaneously in progress, is operational consolidation among banks. The largest public sector bank, State Bank of India is being operationally integrated with its subsidiaries in providing various banking services. Above all, we firmly believe that certain corporate governance issues are to be solved on a priority basis before implementation of merger agenda.

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Technology Innovations in Emerging Markets: An Analysis with Special Reference to Indian Economy

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Emerging Markets (EMs) are very volatile and risky but there are enormous opportunities for business. Yet, most of the emerging markets are not up-to-date with technology in order to tap potential business opportunities. This paper, tries to understand technology innovations from the EMs point of view, with special focus on India. R&D investments, availability of Technology Institutes, and number of working patents owned by the country are taken as proxy measures for technology innovations. It has been shown how, country specific factors such as market structure, patent laws, and fiscal incentive system as well as firm specific factors such as organizational structure and culture, influence technology innovation to a large extent. Also, a few propositions have been developed relating to technology innovations and the factors which influence them. Finally, a framework has been provided for building a successful technology portfolio.

INTRODUCTION

Technology is embodied in every 'value activity' within a firm. Value activities include not only core technologies encompassed within a firm's products and production processes, but also those in support activities, for instance procurement, office technology, transportation or design (Porter, 1985). Technological change can affect competition through its impact on any of these activities, the collection of which Porter calls the 'value chain' (Porter, 1985). Yet, most of the emerging markets are not up to date with technology in order to exploit untapped potential of business opportunities. Hence, this paper tries to

explain the emerging markets first, followed by technology innovations and finally shows how technological strategies give competitive advantage in emerging markets.

EMERGING MARKETS

Arnold and Quelch (1998) have classified countries into three categories based on their economic conditions. First is the absolute level of economic development usually indicated by the average GDP per capita, or the relative balance of agrarian and industrial/commercial activity. If the economic development is low, then these countries are known as 'Less Developed Countries' (LDCs) or 'Third World

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Countries'. Second, is the relative pace of economic development, usually indicated by the GDP growth rate. Third, is the system of market governance and in particular, the extent and stability of a free market system. If the country is in the process of economic liberalization from a command economy, it is sometimes defined as a 'Transitional Economy'.

Antoine W van Agtmael, an employee of the World Bank's International Finance Corporation, is credited with coining the term "Emerging Markets" in 1981. Broadly defined, an EMs is a country making an effort to change and improve its economy, with the goal of raising its performance to that of the world's more advanced nations. EMs however, are not necessarily small or poor. India, China, and Bangladesh, for example, are considered as EMs, as all these countries have gone to considerable lengths to make their economies strong, more open to international investors, and more competitive in global markets (emdirectory, 2005).¹ The US Department of Commerce, lists 18 big EMs: China, Hong Kong, Taiwan (the Chinese Economic Area), Indonesia, Malaysia, the Philippines, Singapore, Thailand, Brunei (ASEAN), Vietnam, India, South Korea, Argentina, Mexico, Brazil, Poland, Turkey, and South Africa. *The Economist* adds Chile, Venezuela, Greece, Israel, Portugal, the Czech Republic, Hungary, and Russia (Cavusgil, 1997). Based on economic and political criteria, Hoskisson *et al.* (2000) have identified 64 emerging economies out of

which 51 are rapidly growing developing countries and 13 are in transition from centrally planned economies often called 'Transition Economies' (Wright *et al.*, 2005).

Even though every EM is a unique one, the most common characteristics of EMs could be summarized in the following way (Miller, 1998):

- Physical characteristics, which includes inadequate commercial infrastructure as well as inadequacy of all other aspects of physical infrastructure (communication, transport, power generation);
- Socio-political characteristics, which includes political instability, inadequate legal framework, weak social discipline, and reduced technological levels, besides (unique) cultural characteristics;
- Economic characteristics, which includes limited personal income, centrally controlled currencies with an influential role of government in economic life, and in managing the process of transition to market economy.

Every economy would ideally provide a range of institutions in order to facilitate the functioning of markets, which include product markets, labor markets, and financial markets. However, the emerging countries fall short in a number of ways when compared to the advanced

¹ Emerging Markets Directory, <http://www.emdirectory.com/definition.html> last accessed on 15th April, 2005

countries. There are three main sources of market failure, which are: information problems, misguided regulations, and inefficient judicial systems (Khanna and Palepu, 1997). In advanced economies, companies can rely on a variety of outside institutions which minimize these sources of market failure. For example, if one considers labor market, the information on availability of labors, the rules to lay them off, and its judicial repercussions are available from various other sources in advanced economies. Emerging markets, on the other hand, have very few institutions which are necessary to encourage commerce.

The most important plus point in these EMs are the huge size of middle class population, whose income levels are growing fast. With high disposable income in their hand, this middle class population in EMs is going to provide business opportunities in the near future. That is why, even with so much of unpredictability inherent in emerging countries, many multinational companies are heading for these countries. Emerging economies are assuming an increasingly prominent position in the world economy. In the year 2005, emerging and developing economies not only received significant amounts of Foreign Direct Investment (FDI) inflows but also accounted for 38% of the world's FDI outflows, which grew from \$59 bn in 1982 to \$916 bn (at current prices) in 2005 (UNCTAD, 2006).² However, India has

very small share of FDI which stood at \$6.6 bn compared to China's \$72 bn in the year 2005. FDI outflows from developing and transition economies reached \$133 bn in 2005, representing about 17% of world's outward flows. India's share of FDI outflows stands at \$1.4 bn compared to \$11 bn of China. China has performed best among all the developing economies. This change has come, primarily because these economies comprise countries with a rapid pace of development and government policies that favor economic liberalization. Having gone through EMs let us now understand technology innovation.

TECHNOLOGY INNOVATION

Technology: The terminology related to technology is widely spread throughout a vast amount of academic literature, and there are many different definitions used. The basic definition of the term normally refers to the application of scientific knowledge and skills needed in order to set up, operate, improve and expand a firm's productive facilities (Lall, 1987). Technology comes in very different forms, and it is difficult to provide a general definition which would satisfactorily encompass all types of technology. Technology can, take the form of 'intellectual property' or intangibles (e.g., a software program, or a design), be embodied in a product (e.g., physical artifacts such as a prototype, or an instrument, like a chip designed to perform certain operations), or take the form of technical services. Technology

² UNCTAD (United Nations Conference on Trade and Development) World Investment Report, http://www.unctad.org/en/docs/wir2006overview_en.pdf, last accessed on October 24, 2006.

may be treated as an imprecise term for useful knowledge rooted in engineering and scientific disciplines, and also drawing from practical experience from production (Arora *et al*, 2002).

Technological products do not stand alone. They depend on the existence of other products and other technologies. They exist in mini-ecologies. For example, the internet's World Wide Web operates within a grouping of businesses which include browsers, on-line news, E-mail, network retailing, and financial services. This network effect with higher upfront cost and customer groove in subjects high technologies to increasing returns. This means, with increase in use, the return increases proportionately which is opposite to normally applicable theory of diminishing returns, propounded by Alfred Marshall (Arthur, 1996). Some technologies such as those involving computing, information, communications, automation and micro-electronics-based competencies can be termed 'meta-technologies', as they have the power to transform any sector of the economy in which they are applied (Loveridge and Pitt, 1990).

Innovation: Innovation does not occur when a new idea is generated, rather when that new idea is successfully commercialized (Damanpour, 1987). Technological innovation is only one part of the larger process of technological change, which encompasses invention, innovation, and diffusion (Vicki, 1999). Inventions are new technical ideas or devices. Innovation is the commercial or

practical use of an invention. Diffusion is the adoption of innovations by others i.e., subsequent production and consumption of the invention through the economy (Hall, 1986). From a firm-level perspective, research on absorptive capacity emphasizes on a firm's capabilities to manage knowledge towards commercial ends (Cohen and Levinthal, 1990). As firms develop their absorptive capacity, they improve their abilities to acquire, assimilate, transform and exploit knowledge, resulting in innovative technologies, processes and products. Such knowledge and the associated learning processes are likely to require complex social channels of support if they are to be fully utilized. Many of these channels are established around the spread of the new products and processes. It often involves progressive modification and adaptation to suit the needs of specialized requirements of various submarkets, and introduction of other complementary inputs which make an original invention more useful (Rosenberg, 1982). This diffusion process can be more important than the actual innovation itself.

Technology Innovations: Integrating past studies on technological innovation (Utterback and Abernathy, 1975; Henderson and Clarke, 1990; Anderson and Tushman, 1990), Carayannis (2003) has produced a common framework distinguishing four generic types of technological innovations: incremental, generational, radical and architectural. Incremental innovations improves the

existing functional capabilities of a technology by means of small improvements; generational or next-generation technology innovations are incremental innovations which create new functional capabilities; radical innovations introduces completely new concepts which have no link with past principles; architectural innovations just rearrange the product architecture by changing the linking of various product components. The same innovation can be termed differently for different players in a value chain. Let us take an example of change in the keyboard system from DVORAK (the older keyboard layout named after August Dvorak) to QWERTY (new layout based on the order of alphabets). Customers who are used to DVORAK system, will think that the latter type of keyboard is a radical innovation. For a keyboard manufacturer, the new system is only an architectural innovation. For a raw material supplier, the new version is an incremental innovation and for the PC supplier, QWERTY system is a next-generational innovation (Carayannis, 2003).

One could also classify technology innovations in terms of product or process innovations. Product innovation would include the introduction of a product/service that is entirely new, or involves major modifications over earlier products, whereas process innovation involves improvement of the overall processes in producing and delivering the product/service. Competitive Research and Development (R&D) strives for new generation products to occur in all

industries. However, product innovations are far too few in number and too infrequent for firms, to only depend on them for generating and sustaining their competitive advantage (Abernathy, 1978). Firms will have to invest in process improvements and therefore, have to continuously innovate in process innovations over time. These process innovations can be generally grouped according to four functions—introducing new process capabilities, organizing the process, integrating an existing process, and improving the overall process as a system (Abernathy, 1978).

Technology Innovations (TI) in India: Ever since India got freedom, there has been tremendous efforts from Department of Science and Technology (DST) and Council for Scientific and Industrial Research (CSIR) to promote indigenous technology development. Indian Institutes of Technologies (IITs) are set up to educate students to build a technological bent of mind for their future and also engage the faculties of these institutes in conducting research for the development of new technologies. Various research laboratories have been established to carry out basic research in one area or other. With about 400 state-run laboratories, 230 universities and 1,300 research and development units in the industry, India has a huge scientific base, but much of the expenditure has been done by the government, which has resulted in poor profitability and complaints of red tape.

Research and Development (R&D): India's R&D spending is 0.77% of GDP. Corresponding figure for US is 2.7%, for Japan 3% and for China it is 1.3% in the year 2005.³ However, the Government of India (GOI) is aiming to double R&D to GNP ratio by two percent by 2007 (rediff.com, 2003.⁴ Yet, investment in R&D is not always a cheap option for technology innovations. Before investing in R&D, convincing answers must be given to such questions as (Twiss, 1986): (a) can the company's survival and profitability be achieved more economically by licensing another organization's technology, than by initiating an internal R&D project?; and (b) will investment in R&D to develop newer products and processes yield a greater return than investment in manufacturing or marketing?

Why do firms demonstrate a lower propensity to outsource R&D? According to Narula (2001, p. 367), "The reason for its relative lack of popularity has to do with the nature of the innovation process". The innovation process being highly uncertain, there are considerable costs involved in negotiating and enforcing contracts. Next, the large tacit component of innovation means that through external sourcing, firms are only able to get codified results, and not the accumulated, person-embodied skills. Also, the partially public good nature of technology means that there is considerable opportunity for technological

leakage and/or opportunistic behavior by collaborators. Finally, as the appropriateness of innovation varies widely, both by country and by industry, it further increases the possibility of loss of key assets. In other words, the uncertainty of the process, the high costs of transaction and risk of losing strategic assets crucial to the survival of the firm, inhibit non-internal activity (Narula, 2001). Nevertheless, there are many limitations in internal R&D as well. Firms are path-dependent, and hence, find it costly to break away from the existing routines towards radically new or different concepts (Rosenberg, 1994). There are additional costs involved in switching trajectories, which may impede organizational change and exacerbate the level of uncertainty, and therefore economic risk (Narula, 2001). Looking at both positive and negative aspects of in-house R&D vis-à-vis technology outsourcing, another strategy called mid-entry strategy may be followed in the EMs, which is described below.

Mid-entry Strategy: The technology presently used in the EMs are most often transferred from the developed world, and for an organization in an EM to adjust to a new system and way of operating, a considerable amount of time and effort is needed (Amsden, 1989). As discussed in the above section, the transfer of technology to another context often requires extensive adaptations because of the sticky nature of innovation which is

³ <http://infoproc.blogspot.com/2006/03/china-research-and-development.html>, last accessed on October 24, 2006.

⁴ <http://www.rediff.com/money/2003/jan/03spending.htm> last accessed on March 27, 2005.

firm specific. Also, technologies that have a higher tacit component and which cannot be transferred can restrict optimum exploitation of the imported technology (George and Prabhu, 2003). Further, such imported technologies are accessible to other fellow competitors and therefore do not give the buyer any competitive advantage (Krishnan and Prabhu, 1999). The costs of the adoption of technology sometimes are almost equal to those required to develop the technology from scratch. Obviously, this can substantially reduce the efficiency of the transfer of already developed technologies (Arora *et al*, 2002). One solution for this problem is to follow mid-entry strategy. In this strategy, the R&D projects are taken by the developing countries in the mid-stage of technical development which are further developed into full fledged innovation. In-house R&D based technology, being proprietary, is not easily imitated by other firms, and may provide the firm with a first-mover advantage. Moreover, being indigenous, such technology is inherently adapted to local conditions with simultaneous learning and development of tacit knowledge within the firm (Gambardella, 1992). This facilitates the assimilation and application of technology in an easy way, compared to imported technology. The technology developed in this way, being firm specific, create faster competitive advantage. Based on these above description, our first proposition is as follows:

Proposition 1: In emerging market, mid-entry strategy is the best way for expediting technology innovations.

Fiscal Incentives: Emerging economies have promoted technology development through a variety of policy instruments, the most common being subsidies and tax credits. In India, government has announced, from time to time, fiscal incentives and support measures to encourage R&D in industry and increased utilization of locally available R&D options for industrial development. Fiscal Incentives and support measures presently available include (India in Business, 2005)⁵:

- Income-tax relief on R&D expenditure;
- Weighted tax deduction for sponsored research and on in-house R&D expenditure;
- Customs duty exemption on capital equipment, spares, accessories and consumables imported for R&D by approved Institutions/Scientific and Industrial Research Organizations (SIROs);
- Excise duty waiver on indigenous items purchased by approved institutions/SIROs for R&D;
- Ten year tax holiday for commercial R&D companies;
- Excise duty waiver for 3 years on goods produced, based on indigenously developed technologies and duly

⁵ Incentives for R&D. <http://www.indiainbusiness.nic.in/technology-exchange/inc-r&d.htm> last accessed on May 8, 2005.

patented in any two of the following countries: India, European Union (one country), USA and Japan;

- Accelerated depreciation allowance on plant and machinery setup based on indigenous technology;
- Customs duty exemption on imports for R&D projects supported by government.

The income tax system in India allows for concessional treatment of expenditure on scientific R&D (Section 35).⁶ These take the form of deductions for both revenue and capital expenditure (other than land) on scientific research in the year in which these are incurred. While the treatment for the revenue expenditure is no different from any other expenditure, the treatment for capital expenditure tantamounts to 100% depreciation. Further, Section 35(2AB)(1) also allows weighted deduction of 150% of the expenditure (other than land and building) on in-house research by companies engaged in the business of biotechnology, drugs and pharmaceuticals, electronic equipments, computers, telecommunication equipments, chemicals and any other article notified by the Central Board of Direct Taxes (CBDT) (Taxmann, 2002).⁷ In order to take advantage of tax incentives, most of the firms in India are showing some expenditure/investment under R&D head. Hence,

our next proposition can be written as:

Proposition 2: In emerging markets, investment in R&D is mostly done to get fiscal incentives than to produce any technological innovations.

Institutes of Technology : With economic liberalization and globalization, the advanced economies treat emerging economies as their would-be competitors. Instead of just exporting technology, many multinational companies are setting up their full-fledged plants and research labs to do business in these emerging markets. As technology imports from the advanced economies is becoming difficult, firms in emerging economies that lack internal technology development resources are exploring indigenous technology development facilities and interfirm networks for new and cheaper technologies (Hausler *et al.*, 1994). Institutes of Technology can play an important role for the firms towards this effort (Rosenberg, 1994). These large institutes have the back up of costly analytical instruments, which are neither affordable and nor technically viable for most of the firms in the emerging markets. They have the expertise and

⁶ Annexure to the Directors' Report Section 217(1)(e) of the Companies Act, 1956 to read with Companies (Disclosure of Particulars in the Report of the Board of Directors) Rules, 1988.

⁷ Taxmann (2002), Guide to Kelkar Committee's final report on direct taxes.

resources to shorten the R&D cycle time. Their specialized equipment, instrumentation for basic work, and specialized knowledge can cut development time (George and Prabhu, 2003). In India, these institutes include national laboratories, universities and other institutions of technology like IITs, Indian Institution of Science (IISc), Bangalore laboratories set up by industry associations, and research foundations like CSIR that conduct industrial research. R&D labs in nationally important and sensitive fields like space, defense and atomic energy are fully supported by the government and are directly controlled by it. These labs transfer some of the technologies that they develop as by-products to the industry through various modes (Brown *et al.*, 1991) and these industries then commercialize them. Hence, the third proposition is as follows:

Proposition 3a: More number of institutes of technology facilitates faster technology innovation in emerging markets.

Patent Systems and Number of Patents: Patent system affects the technology innovations in any country. Commenting on inherent dilemma in technology trading, Arrow (1962) has recommended

strong patent system. According to Arrow (1962), once information or an idea is disclosed to a potential buyer, it is possible for that buyer to use the information without paying for it. Anticipating this, a potential seller would be reluctant to disclose the idea, thereby denying potential buyers the opportunity to evaluate the merchandize. Of course, without being able to evaluate the idea, buyers would be unwilling to pay the price asked by the seller. The net result is that such transactions may not take place at all. This problem can be reduced if there can be proper patents for technologies, which protects property rights for sellers so that the seller can disclose information.

The number of patents granted in a country is an indicator of the technological strength of the country. Among developing countries filling PCT (Patent Cooperation Treaty) International applications, India has moved to number 3rd in 2003 from 5th in 2000. In year 2000, the total number of international patents filed was 190 but the same has increased to 763 in 2003. Republic of Korea is the leader among developing countries with 2,953 patents followed by China with 1,288 patents filed in year 2003. Among the developed countries, USA is the leader with 40,984 patents filed in year 2003 (IPR Bulletin, 2004).⁸ However, it should be noted that actual growth depends upon the working of the patents. Working of a patent means

⁸ IPR Bulletin, Vol. 10, Nos. 10-12, October-December 2004.

the commercial exploitation of the invention that is embodied in the patent. Thus, till the time a patented invention is not commercially worked, the patent does not contribute to the economy of a country (Patent Center, 2005).⁹ Similar to the previous proposition, our next proposition follows:

Proposition 3b: More number of working of patents, facilitates faster technological innovations in emerging markets.

Market Structure: Market structure plays an important role in innovation. There are proponents for both monopoly market and perfect competition. Schumpeter (1942) rejects the idea of a market with perfect competition as an 'imaginary golden age'. Schumpeter argues that even if it could exist, it would be inimical to economic progress. It is because, under perfectly competitive conditions the individual technology producer is unable to influence prices and thereby create the possibility of surplus profits, the appropriability of which provides the basic incentive to engage in further technological innovation. Advocates of a competitive market solution have responded by, emphasizing the role of a patent system in efficiently disclosing information on new products and processes and providing appropriate incentives to encourage innovation. Moreover, in monopolistic industries, firms might become complacent and therefore might not innovate.

Market Pull and Technology Push:

Technological progress leading to innovation is the consequence of two interacting developments (Scherer, 1982) – market pull, which is caused by the need of customers, and technology pushes, caused by firms to exploit their R&D developments. Successful innovations represent a successful blending of both sides. Need-based innovations are the result of a need that originates in the customer sphere, whilst potential-oriented innovations originate in the sphere of technology. In the 1950s, the innovation process was modeled as technology push. New technologies were driving the products that were created. During the 1960s and 70s, innovation was considered to occur due to market pull. Changes in the preferences, habits and requirements of the customer were the impetus behind new products. From the late 70s to the early 80s, products were developed which identified a combination of technology push and market pull, with continual feedback to product developers (Weiss, 2004).

Organization Structure and Culture:

The effect of organizational structure in facilitating innovation has been studied by researchers in organization behavior (Khandwalla, 1992). It is believed that hierarchies and bureaucracy do not promote innovation, due to their slow decision-making processes and weak incentive systems. On the other hand, organizations with more empowerment and autonomy that are typically structured

⁹ Patent facilitating centre, Commercial working of patents in India, <http://www.tifac.org.in/do/pfc/stud/comm.htm> last accessed on May 18, 2005.

around multi-disciplinary teams and project teams are known to foster innovation (Mishra and Srinivasan, 2005, p. 63). Similarly organizational culture plays a vital role in motivating employees to be more innovative. If the spirit of innovation is imbibed in the culture and top managers display them often then other down the line will be guided by that. There seems to be an emerging consensus that the following set of norms assist the development and commercialization of new products and processes. With respect to development, these include: the autonomy to try and fail; the right of employees to challenge the *status quo*; open communication to customers, external sources of technology, and within the firm itself. With respect to commercialization or implementation, teamwork, flexibility, trust and hard work are considered to be critically important (Teece, 1996, p. 206). Ghosal *et al.* (2000) propose top managers in any organization must shift to purpose-process-people (3P) from strategy-structure-system (3S) for faster and radical innovations.

Proposition 4a: Technology innovations depend on market structure, and markets pull at market level.

Proposition 4b: Technology innovations depend on technology push, organizational structure, and organizational culture at firm level.

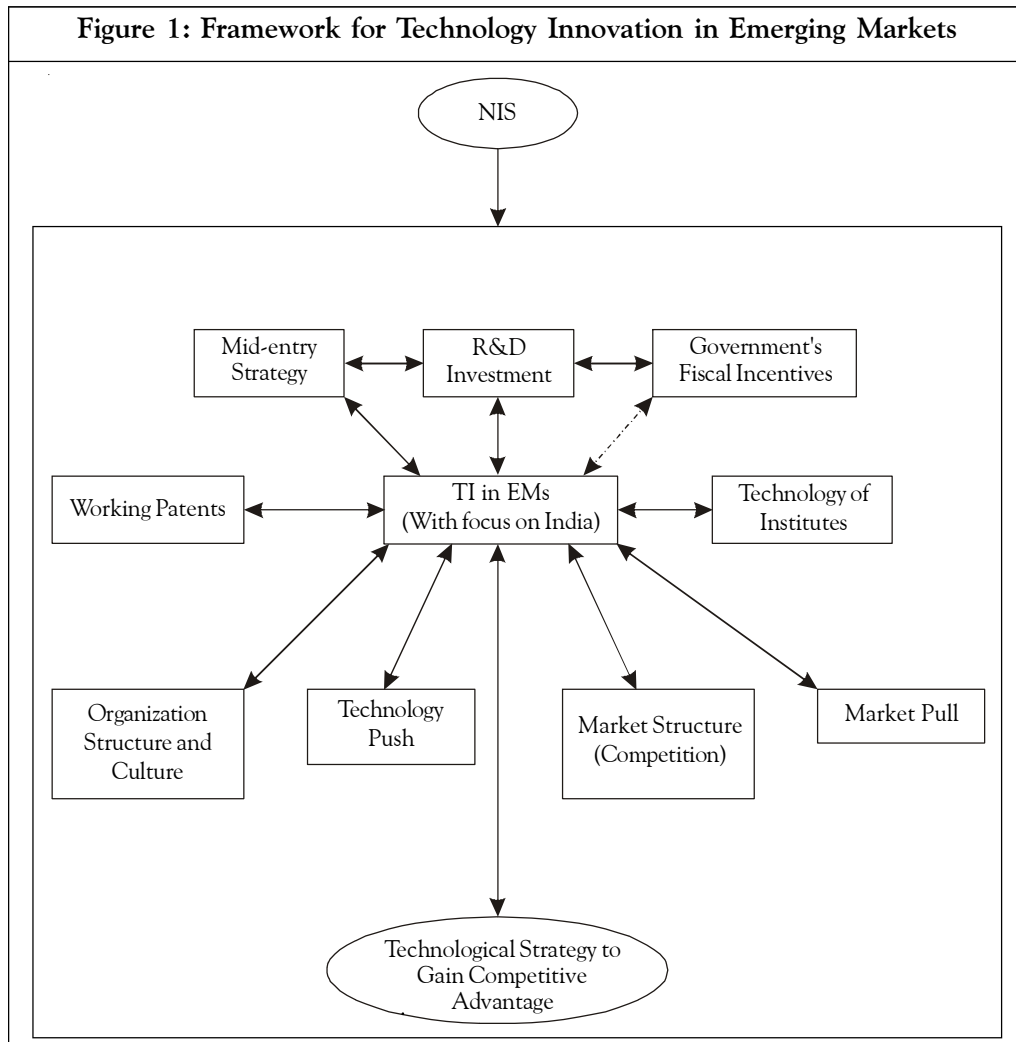
FRAMEWORK FOR TECHNOLOGY INNOVATION IN EMERGING MARKETS

The broad framework discussed so far in this paper is depicted in Figure 1.

As described earlier, R&D investment, Institutes of Technology, and number of patents owned by the country have been taken as proxy measures for technological innovations. Fiscal incentives, which definitely affect R&D investment, may influence technological innovations which is shown by dotted lines. Other firm specific factors and industry specific factors are also inserted in the framework, which influence technological innovations. It has also been shown that firm-specific technological strategy can be formed to gain competitive advantage (the detail description is given in ensuing section). All these elements shown in the framework put together form National Innovation System (NIS).

National Innovation System: When one thinks of innovation in EMs, the first question that comes to one's mind is about the status of NIS in these countries. Metcalf (1995) refers to NIS as, "a system of interconnected institutions to create, store and transfer the knowledge, skills and artifacts which define new technologies". Most countries have set up organizations which either undertake basic and applied research themselves, or fund universities, institutes, and scientists to undertake innovative research. The role of the government in providing access to public sources of funding and support for such research institutions is significant. How institutions interact with one another is central to the functioning of the NIS (Nelson, 1993). Thus, for instance, NIS cannot be

Figure 1: Framework for Technology Innovation in Emerging Markets



expected to thrive where the culture of institutional and organizational fragmentation prevails, as is the case in many less-developed countries. NIS has an important role in different types of industry evolution in different countries (Chesbrough and Morris, 2001). The NIS literature suggests that firms operating within the context of a well-developed NIS are likely to be more innovative than firms operating in a fragmented

institutional and market setting (Malairaja and Zawdie, 2004). NIS in emerging markets is not very developed and mostly a fragmented one.

TECHNOLOGICAL STRATEGY TO GAIN COMPETITIVE ADVANTAGE

EMs are very volatile and risky, because of economic crises, changes in government policies, wars, famines and

other such phenomena. Yet, with these risks, comes growth, and growth means enormous opportunity for business. Technology, as a strategic variable can change the competitive 'rules of the game' by having an impact on all the forces which drives competition and can create competitive advantage. Technology can be employed successfully to implement a firm's chosen strategy, whether it is cost leadership, differentiation or focus. In the development of its technological strategy, a firm must make decisions in the areas of selection of technology and embodiment, technology sources, competitive timing, level of R&D, and competence levels (Maidique and Frevola, 1988). Porter (1985) has pointed three important factors which need to be remembered while choosing any technology strategy, namely: what technologies to develop, whether to seek technological leadership in those technologies, and the role of technology licensing. Choices in each area must be based on how technological strategy can best enhance a firm's sustainable competitive advantage and gain competitive advantage in terms of cost leadership and differentiation. Similarly, to become a leader or follower of technology, there are advantages as well as disadvantages. A leader in technology can pre-empt the market by gaining customer base for whom switching cost to other technologies will be very high. However, at the same time a leader in

technology has to face uncertainty in customers' demand as well as technology failure. With the evolution of industry, the advantages of being a leader/follower of technology may shift altogether. Hence, firms must judiciously choose the appropriate technological strategy and gain maximum advantages in the EMs.

DISCUSSION

One can observe that in EMs, governments are giving many fiscal incentives for R&D investment. However, unfortunately, most of the firms use those incentives to gain just tax advantages rather than using them for any technological innovation. It is partly because in EMs, market still does not value R&D investment as the right way of investment. Many so-called marketing companies are having very high market capitalization and price/earning ratio compared to their R&D intensive counterparts. The time has come, to change one's mindset and concentrate on technological innovation. With economic liberalization and globalization, the advanced economies are likely to be wary of sharing technology with emerging economies which could soon become their competitors. Unless, one has one's in-house capability, one will definitely lag advanced economies in technology front and thus lose many competitive advantages. For this to happen, the entire NIS needs to be strengthened including all the factors which have been described in the framework.

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Sustainability of the Indian Railways Turnaround: A Stage Theory Perspective

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Turnarounds are like exciting thrillers, which describe dramatic recovery of declining organizations. Since such recoveries have great relevance for the economic development, particularly of developing countries facing resource scarcity, researchers with increasing interest have enriched the turnaround literature, especially in the last four decades. Research has highlighted many facets of turnaround. These include turnaround actions, strategies, types, elements, stages, etc. Though the research largely covers the private sector entities, it does not ignore the public sector either. The paper examines a large complex departmental commercial organization of the Government of India and it's much talked about turnaround in the theoretical perspective of stage theory. The paper not only fills up the gaps of research in public sector but also uses the established stage theory model to answer the question of sustainability of the Indian Railways turnaround. The analysis goes back to the theoretical propositions, which are by and large supported by the analysis of the turnaround of the Indian Railways.

INTRODUCTION AND NEED FOR THE RESEARCH

Research on turnaround management, like most of the studies in management, has its origin in the United States, focusing mainly on the practices of the private sector. Given the motivations and the nature of turnaround action, it is not surprising that the early initiatives happened in the private sector. Unlike in the public sector, the financial

loss for the stakeholders in the private sector, in case of enterprise sickness, is direct and immediate. Similarly, while most public organizations have a chance to survive on budget support, at least in the short term, there is hardly any such chance for the private sector organizations. Hence it is natural that the need for turnaround action is felt more urgently in the private sector than in the public sector. Besides, the motivations of

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the stakeholders in the private sector are such that they are inclined to taking quick actions. Naturally, research has followed corporate actions, and hence turnaround research tended to focus on the private sector, particularly those in the western world, where management practices as well as research are in a relatively more advanced stage than in developing countries.

Industrial sickness, however, is not a problem that is to be dealt with only by the private sector. In fact, sickness is equally or more rampant in the public sector. While there is indeed a tendency in the public sector to postpone turnaround actions because of the stakeholder apathy or budgetary support, such apathetic wait cannot go on forever. The downtrend has to be reversed, or else the enterprise will have to meet its inevitable death. The realization of the need for turnaround action in the public sector has been hastened by the new economic ideology of market orientation and the consequent reduction or elimination of budgetary support for the public sector. It is, therefore, obvious that industrial sickness is a serious problem, whether it occurs in the private or the public sector in a developed or a developing country. Cost effective turnaround actions are the need of the hour especially in developing countries where resources are scarce. It is against this background that we propose to study the much talked-about turnaround of the departmental venture of the Government of India – the Indian Railways.

The turnaround of the Indian Railways is of special interest to researchers, as it

defies in many ways the conventional notions on the difficulties of achieving turnaround in large organizations especially in the public sector operating in developing countries. The Indian railways combine all these difficulties in their complexity, size and structure. It is a very large organization with employee strength of more than 14,00,000; it operates in a developing country and serves mostly the low-income customer segment; it is more susceptible to political and bureaucratic interference than even the public sector corporations, as it is a departmental undertaking of the Government of India. Turnaround of such an organization is often perceived as next to impossible! For this reason alone the turnaround of the Indian Railways deserves the special attention not only of researchers but also of practitioners and policy makers. The objectives of the study are as follows:

- To analyze Indian Railways turnaround in a relevant theoretical perspective
- To make reasonable assessment as to the sustainability of the turnaround of the Indian Railways
- Validating the propositions made available by the prior research

The paper has been structured as follows:

- Definitions of turnaround situation and the turnaround
- The theoretical perspectives and propositions
- Turnaround of the Indian Railways

- Analysis of the Indian Railways Turnaround of one year or two (Bidani and Mitra, 1983).
- Conclusion

TURNAROUND: DEFINITIONAL ISSUES

For a proper understanding of the turnaround as accomplished in any organization, there has to be a precise definition of what is meant by industrial sickness as well as turnaround. Depending on the definition of sickness, which is also called the turnaround situation, there could be differences of views about the extent of accomplishment or even the existence of turnaround. In other words, there has to be some way of determining some of the definitions given by well-known institutions and researchers. They are as follows:

A unit may be considered sick if it has incurred cash loss for one year and in the judgment of the bank Reserve Bank of India (RBI), it is likely to continue to incur cash loss for the current year as well as the following year and a unit has an imbalance in its financial structure, such as cash ratio of less than 1:1 and varying debt equity ratio (RBI, 1978).

Some lending institutions identified sickness on the following criteria:

- Continuous default in making four consecutive half yearly installment of interest of principal of institutional loans;
- Continuous cash loss for a period of two years or continued erosion in the net worth by 50% or more; and
- Mounting arrears on account of the statutory or other liability for a period

The most stringent definition is given in the Sick Industrial Companies (Special Provisions) Act of 1985, which defined a sick unit as “an industrial company (being a company registered for not less than seven years) which has at the end of any financial year accumulated losses equal to or exceeding its entire net worth and also suffers cash loss in such financial year and the financial year immediately preceding such financial year” (Government of India, 1985).

All these definitions emphasize sickness in terms of financial health, which is in the state of extreme deterioration. The criteria do not give enough advance warning for the corrective action(s) to be taken. Besides cash loss criterion does not make any attempt to ascertain and evaluate the normal profitability of a representative or a comparable unit in the industry. Khandwalla's (1989) definition takes care of these deficiencies. Sickness has defined as the loss of the organization's capacity for normal growth and profitability. This definition provides a measure of loss of capacity in terms of return on sales and return on capital employed which can be compared with any other representative unit in the industry.

Earlier research studies defined turnover as efficient and effective use of retrenchment strategies to arrest the decline in financial performance. Retrenchment strategies aimed at deliberate reduction in costs, products, product lines, assets and overhead

(Pearce and Robbins, 1993). These definitions had a very restrictive view of the term turnaround. It becomes more evident as we examine some other definitions in the following paragraphs. Further, the retrenchment strategies may not be sustainable in the long run as these may encounter resistance.

Chowdhury (2002) has defined turnaround as: “[Turnaround] occurs when a firm perseveres through an existence-threatening performance decline; ends the threat with a combination of strategies, systems, skills and capabilities, and achieves sustainable performance recovery” (p. 250). Chowdhury’s (2002) definition has four key attributes. Firstly, stimuli for the turnaround actions stems from a protracted performance decline that the firm has been experiencing. Second, turnaround constitutes a series of activities involving exogenous and endogenous contexts. Third, the activities are undertaken and executed decisively and purposively. Fourth, the combination of first three attributes typically spans a period of years (p. 250). Chowdhury’s definition is distinct as it stresses sickness as an integral part of the process of turnaround and extends to combination of strategies, etc. But the assumption in the definition regarding protracted performance decline to be of the level threatening the existence of the organization may not be applicable in all the cases. Thus, the definition may not describe the cases of turnaround comprehensively.

We now turn to the definition of Khandwalla (1989) where turnaround is

defined as regaining organization’s capacity for normal growth and profitability. The financial ratios of return on sales and return on capital employed can be used to measure the capacity regained. It is noteworthy that the loss in the capacity may be caused by a combination of the factors, which may be external as well as internal, financial as well as nonfinancial. The loss of the capacity of the organization for sustained growth and regaining of it may show up through financial as well as other non-financial indicators such as strategic management practices, human resource management practices, organizational culture and so on (Manimala, 1991). As the definition is not confined to cash loss but relates the turnaround to the regaining of the capacity for normal growth and profitability, which can be measured, we consider this to be more appropriate definition in the context of Indian Railways.

THE PERSPECTIVES

As stated in *Rigveda*, ‘*Ekam sada vipra bahudha vadanti*’ meaning thereby, “one phenomenon or truth is described by the scholars in many different ways” (*Rigveda*, 1-164-46), researchers have approached the phenomenon of turnaround from various perspectives, and different scholars have classified them differently. For example, Khandwalla (2001) has classified the studies of turnaround into five categories based on the issues being addressed by them viz., turnaround elements, turnaround process/models, turnaround strategies,

turnaround types, and turnaround performance. Boyne (2006) has categorized most of these studies, including Schendel and Patton's study of 36 matched pairs of US firms, under 'turnaround strategies', which Khandwalla has categorized under 'turnaround performance'.

For the purpose of our analysis all these studies may be categorized into two broad groups as studies of turnaround actions and turnaround processes. A large number of strategic moves and turnaround actions were identified in the studies done by Hambrick and Schecter (1983), Khandwalla (1981 and 1989) and Schendel *et al.* (1976). Similarly in the study by Hofer (1980), a distinction is made between operational and strategic actions. While Robbins and Pearce (1992) contrasted efficiency-recovery strategies with entrepreneurial-growth strategies, Boyne (2006) has categorized effective strategies into three, namely, retrenchment, repositioning and reorganization. The latter study was done with reference to the turnaround accomplished by public service organizations, and therefore is of special interest for the present analysis. However, in terms of a systematic analysis the major actions involved in the turnaround process, Khandwalla (1981) provides the most comprehensive listing, which is reproduced here:

- Mobilization of the rank-and-file by getting them involved in the organization's goals and activities.
 - Quick pay-off projects for some immediate relief.
 - Reprieve from serious external pressures, especially those relating to industrial relations, finance, key inputs, stakeholders, etc.
 - Mobilization of external resources and utilization of environmental opportunities.
 - Strengthening of mechanisms to influence the environment, such as marketing and public relations.
 - Selective changes in the product-mix, concentrating on high pay-off products.
 - Selective strengthening of management functions and systems, especially the financial control system.
 - Motivating managers through participation, autonomy, challenging tasks, accountability, example setting, etc.
 - Coordinations through regular review meetings and face-to-face interaction.
 - Performance control through goal-setting and fixing of responsibility, often creating profit and cost centers.
- In other group of studies, which approached turnaround as a process and attempted developing process models, the prominent ones are by Bibeault (1982), Manimala (1991) and Chowdhury (2002). The five stages of turnaround identified
- A dynamic change-agent with a strong sense of mission, preferably from outside the organization.
 - Credibility building through some outstanding performance and/or through 'quick-pay-off' strategies.

by Bibeault (1982) are change at the top, evaluation, emergency, stabilization and reposturing. Manimala (1991) identified four stages viz., arresting sickness, reorienting, institutionalization and growth. Chowdhury (2002) classified turnaround processes into four stages namely, decline, response initiation, transition and outcome. While the processes and stages identified by Bibeault (1982) and Manimala (1991) are focused on a set of actions within each stage, Chowdhury's stages are primarily developmental. At a higher level of analysis, it becomes obvious that the distinction between type theories and stage theories vanishes. The types of actions are not implemented at one go, but a sequence, which is suggestive of a process. Similarly, since certain types of actions characterize the stages, one cannot appreciate the significance of a particular stage independent of the actions needed for supporting it. From the list of actions provided in Khandwalla (1981), we could see how these actions are linked into a process. In order to illustrate how the stages are linked to specific types of actions, we provide a brief description of the stage theories proposed by Bibeault (1982) and Manimala (1991).

Bibeault's first stage of turnaround starts when there is realization by the top management that something needs to be done and the existing management may not be able to do it. A new leader, who is likely to be the outsider, may have greater credibility and can be more objective and ruthless, if required. The evaluation stage

consists of identifying and prioritizing short-term and long-term severe and marginal problems, which may arise in the course of the turnaround process. In the initial period the target may be to solve 80% of the relatively solvable problems rather get bogged down with the 20% of hard problems. Effective communication and consensus building are likely to be the principal means of carrying out the 'evaluation' in an acceptable manner.

The next stage is the stage of emergency where strict cash controls are imposed by postponement of long-term expenditure, downsizing and borrowing. Profitability will take priority over cash flow. Focus will shift to improving operations with core business getting greater attention and management systems, especially control systems, getting renovated. Finally, in the 'reposturing' stage the organization makes an exit from unprofitable futureless businesses and enters into high potential profitable businesses. This may mean acquisition and diversification. The emphasis is laid on growth and development rather than retrenchment, and a stronger financial evaluation system is put in place. When the organization starts generating profits, builds its position in the market place with the right strategic moves and motivates its staff, Bibeault says, the organization has completed the turnaround cycle.

Manimala draws his insights from 28 Western and Indian cases and identified four stages in the process of turnaround, which are arresting the sickness, reorienting, institutionalization and growth. These stages are only

conceptually separate stages and may not be chronologically distinct. In sickness arresting stage the focus of action is on cutting costs, reducing inventory and assets, launching quick-pay-off projects and getting reprieve from external pressures. In order to accomplish these effectively, the management will have to take all the stakeholders including the employees into confidence. Some of the employees, communication and discussion sessions, control mechanisms, right sizing of the human resources, etc., have implications for culture-building, which we shall be discussing as part of the third stage. This is an example of how the stages might have chronological overlaps.

The reorienting stage has wide variety of refocusing actions such as redefining the business, change in corporate identity, greater market orientation, greater quality orientation, organizational restructuring, capital and debt restructuring, changes in managerial cadre, training and retraining, use of incentives, improvement in information dissemination and public relations and so on. Here too one could observe that many of these actions have the potential of changing the prevalent culture in the organization. However, when we say culture building is the core of the institutionalization stage, we are referring to the deliberate efforts in institutionalizing a specific culture and value systems for the entire organization. This is done through human resource development, reorganization of roles, functions, procedures as well as

coordination and communication systems. More importantly, there is a constant and deliberate effort in reinforcing a commonly accepted value system through periodic meetings, discussions, seminars, training programs, slogans, rituals, celebrations and community exercises.

The fourth and final stage focuses on the further growth of the business, involving introduction of new products, entry into new markets including international markets, diversification, strengthening and refocusing of Research and Development (R&D) as well as acquisition and mergers. It should be noted that unlike other stage theories, Manimala's (1991) model goes beyond the immediate requirements of arresting sickness and improving the financial performance to address the issues relating to its sustainability, which can be ensured, on the one hand, by identifying viable and compatible lines of businesses and, on the other hand, building an appropriate culture and value system that could support businesses as well as the people.

Table 1 presents the stages and the set of actions associated with each stage, as identified by the analysis of cases by Manimala (1991).

Khandwalla (2001) observed that it is much more difficult to achieve turnarounds in organizations which are big in size (p. 233), or operating in the service sector (p. 272). Further, public sector organizations prefer 'humane' rather than 'harsh' turnaround, which involve staff reduction and retrenchment.

SUSTAINABILITY OF THE INDIAN RAILWAYS TURNAROUND:
A STAGE THEORY PERSPECTIVE

Table 1: A Model of Turnaround Stages and Strategies		
S.No.	Stages	Strategies
1	Arresting Sickness	<ul style="list-style-type: none"> • Credibility building by the turnaround agent • Mobilization of the organization • Reprieve from external pressures • Cost cutting/cost controls • Staff reduction, especially in non-productive areas • Quick-pay-off projects and actions • Asset reduction • Inventory reduction
2	Reorienting	<ul style="list-style-type: none"> • Redefining the business • Changes in corporate identity/image Rationalization of product-mix to eliminate loss-making ones and to focus on core business • Modernization of plant and machinery • Shift from production orientation to market orientation • Tie-ups with reputed companies for marketing • Focus on quality and customer service • Debt/capital restructuring • Organizational restructuring • Changes in the managerial cadre • Financial incentives for managers/staff • Training/retraining of employees • Information dissemination • Public relations and liaison
3	Institutionalization and Culture Building	<ul style="list-style-type: none"> • Culture building through continued training, seminars, focused programs, slogans, rituals, etc. • Introduction of new structures, systems and procedures including communication and coordination mechanisms
4	Growth and Diversification	<ul style="list-style-type: none"> • Introduction of new products • Entry into new markets, especially international markets • Related and unrelated diversification • Focusing and strengthening R&D • Mergers and acquisitions
<i>Source: Manimala (1991).</i>		

Boyne (2006) agrees with Khandwalla (2001) in his proposition that public sector organizations prefer reorganization strategies to the retrenchment or repositioning strategies. While Chowdhury (2002) considers that turnaround must be sustainable, Manimala (1991) propounds that 'culture' and 'growth' are key to such sustainability.

TURNAROUND OF THE INDIAN RAILWAYS (IR)

Railways is a rising industry not just in India but also in many parts of the world. Railways went out of business in the West from the 1960s to 1990s due to its inability to respond to competition from road and air traffic systems. Since railways are large entities serving vast and expansive areas it is often believed that they are unable to adapt to changes in the environment. For decades the only news about rail systems was about their decline. This decline has been halted and reversed in many parts of the world. Railways are resurging based on new ideas (e.g., high speed trains), environmental friendliness, new customer oriented services and new attitudes all over the world.

Indian Railways (IR) is the largest railway network in the world operating under a single management. It is often called the 'lifeline of India'. Indian Railways is the largest employer in the world, directly employing about 1.4 million people. It is also providing indirect employment to over seven million people. One survey in the early-2000s revealed that one in every 10 Indians depended on Indian Railways for his/her

livelihood, directly or indirectly (Expert Group on Indian Railways, 2001). Fifteen million people across the country travel by Indian Railways everyday on average. IR operates as a department under the Government of India. It is the only department, which presents its budget separately from the annual budget, presented by the Ministry of Finance.

In the late 1990s IR found itself in a grave situation. A number of studies pointed towards the poor performance indicated by the declining revenues and shrinking market share as well as the declining capacity of the IR for financing its expansion and growth. Excerpts from two studies – Kundu (1995) and Expert Group on IR (2001) reproduced below, are apt to illustrate the inevitable plight of Indian Railways during the late 1990s.

"...it is unlikely that Railways would resort to any major reduction in staff strength, given the strength of their labor unions. The possibility of increasing the fares is very limited due to extreme sensitivity of the issue and the political repercussions. As far as freight traffic is concerned, it contributes a much smaller proportion to the total traffic revenue than say before 20 years. It is important that the increase in earnings from commodity movement should come not necessarily through increase in rates but through growth in traffic. The rates for several commodities are already quite high and with any

further increase in these, Railways run the risk of losing the traffic to road transport... Bringing out all these changes would require an innovative and enterprising management policy. In view of all these, IR maintaining a high growth in traffic revenue, generating a large part of the investible resources internally and, thereby, saving IR from the debt trap, without hampering the growth in different sectors of the economy, would be difficult and challenging task” (Kundu, 1995).

A similar forecast was made by the Expert Group on IR:

“Indian Railways is today on the verge of a financial crisis. To put it bluntly, the Business As Usual Low Growth will rapidly drive IR to fatal bankruptcy, and in 16 years Government of India will be saddled with an additional financial liability of over Rs. 61,000 cr (\$15.06 bn). On a pure operating level, IR is in a terminal debt trap” (Expert Group on IR, 2001, p. 43).

The Expert Group on IR has also recommended a set of changes to be implemented in IR. Two important ones among them were : (a) IR’s manpower of 1.5 million should be downsized by 25% over the next five years; and (b) second class fares should be increased by 8%-10% every year over the next eight years.

CAUSES FOR DECLINE IN PERFORMANCE

There were external as well as internal causes for the declining performance of

the Indian Railways. Due to opening of the Indian economy following the economic liberalization, there was increasing pressure for reducing cost and improving quality. The budgetary support from the Central Government was dwindling and its financial situation did not allow higher budgetary support to the Ministry of Railways. Besides the competition from road and air was increasing.

Among the internal factors, the major ones were operational inefficiency, lack of market focus, politically driven pricing policy, lack of competitiveness, denominator based cost reduction policy, low employee productivity, uncoordinated investment decisions, investment in unremunerative projects, social obligations, and the like.

DIAGNOSIS AND RECOMMENDATIONS

The continuous decline in performance seized the attention of the top leadership and the need for diagnosing the sickness was felt. This resulted into the constitution of Expert Group on Indian Railways, also known as Rakesh Mohan Committee, which delivered its report in the year 2001. This Committee among other things also recommended certain operational strategies to be adopted by Indian Railways, which are reproduced below:

“A railway traffic strategy aiming to boost current prevailing growth rates under freight and passenger would be built around the following:

- Increased average goods train speeds: Reduction in speed differentials between freight and passenger trains will be the best and most economical strategy for expanding the freight haulage capacity of the system.
- High speed, modern passenger services.
- Commodity-specific freight strategies.
- Introduction of new technology: Experts estimate that a gap of nearly 20 years now separates the technology in use in Indian Railways and that of advanced systems. Inadequate attention has been paid to R&D and technology investments in IR. Being one of the largest rail systems in the world, IR must have access to R&D facilities that can be counted among the best in the world.
- Harnessing Information Technology for freight operations.
- Increase in capacity through advanced signaling and communication systems: Owing to the characteristics of freight and passenger movement in India, most of the potential traffic that will contribute to a high growth rate will move on the major trunk routes. Route-wise studies need to be undertaken and investment programs drawn up on the basis of full analysis of costs and expected benefits.

Introduction of private management for commercial operations of specialized services is an option that also needs serious consideration” (Expert Group on IR, 2001, p. 31).

Some of the initiatives taken by Indian Railways 2001 onwards are mentioned in Appendix 1.

OUTCOME

Various steps have been taken since 2001. Consequent to these actions, the performance of Indian Railways started showing an upward trend, as can be seen from the tables of growth in physical performance (measured in terms of growth in freight and passenger traffic, Table 2) and the financial performance (measured in terms of operating ratio, net revenue as a percentage of capital at charge (Figure 1) and capital fund (Figure 2)).

The Railway Budget presented in the Parliament in February 2007 announced a cash surplus of Rs. 20,000 cr (\$5 bn). This includes adding back the noncash expenditure on depreciation. Dividend to Government was paid at the rate of 7% leaving no liability for unpaid dividends for the previous years. The financial performance was all the more commendable, as the fares were not increased despite hike in the cost of diesel and other input costs; rather there was decline in passenger fares and in the freight charges for select commodities, which give a message that the increased revenues are the result of operational efficiency and productivity and not due to price rise. Operating ratio was at an all time low at 78.7%. There was spectacular growth in total revenues and modest decrease in the number of staff, as can be seen from Tables 3 and 4. These figures are often treated as unequivocal and of financial performance signs of IR’s turnaround.

SUSTAINABILITY OF THE INDIAN RAILWAYS TURNAROUND:
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Table 2: Physical Performance (Growth in Freight and Passenger Traffic)

Year/ March	Freight (NTKM in billion)	Freight (% Growth)	Passenger(PKMs in billion)	Passenger (% Growth)	GDP Growth Rate at Factor Cost (%) (1999-2000 prices)
1998	284.25	0	380.53	0	0
1999	281.51	-0.96	404.60	6.33	0
2000	305.20	8.42	431.39	6.62	0
2001	311.00	1.90	458.50	6.28	4.40
2002	323.00	3.86	473.50	3.27	5.80
2003	353.19	9.35	516.00	8.98	3.80
2004	381.24	7.94	542.00	5.04	8.50
2005	407.40	6.86	576.00	6.27	7.50
2006	439.60	7.90	617.00	7.12	8.40
2007	476.77	8.46	700.00	13.45	9.30

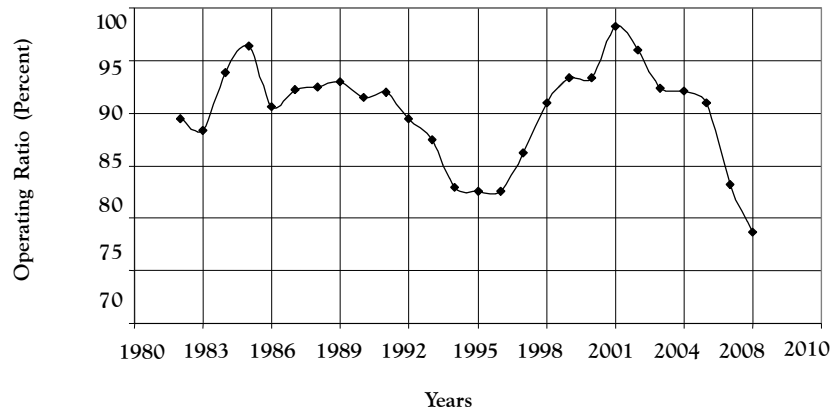
Note: This table indicates the physical performance in terms of Freight (Net Ton Kilometers) and Passengers (Passenger kilometers). It also shows the performance of the economy measured in terms of percentage growth of Gross Domestic Product at factor cost in 1999-2000 prices.

* *Capital at charge* is the capital received from Central Government through budgetary support, for the capital investment.

** *Capital fund* is created from the internally generated resources, for the capital investment.

*Source: (1) Ministry of Railways, Annual Reports (1998-2006, Railway Budget 2007); and
(2) Reserve Bank of India, website www.rbi.org*

Figure 1: Operating Ratio* (Percentage)



Note: * Operating ratio is the ratio of working expenses (including depreciation and pension) to the gross earnings/revenue.

Source: Ministry of Railways, Annual Reports (1998-2006).

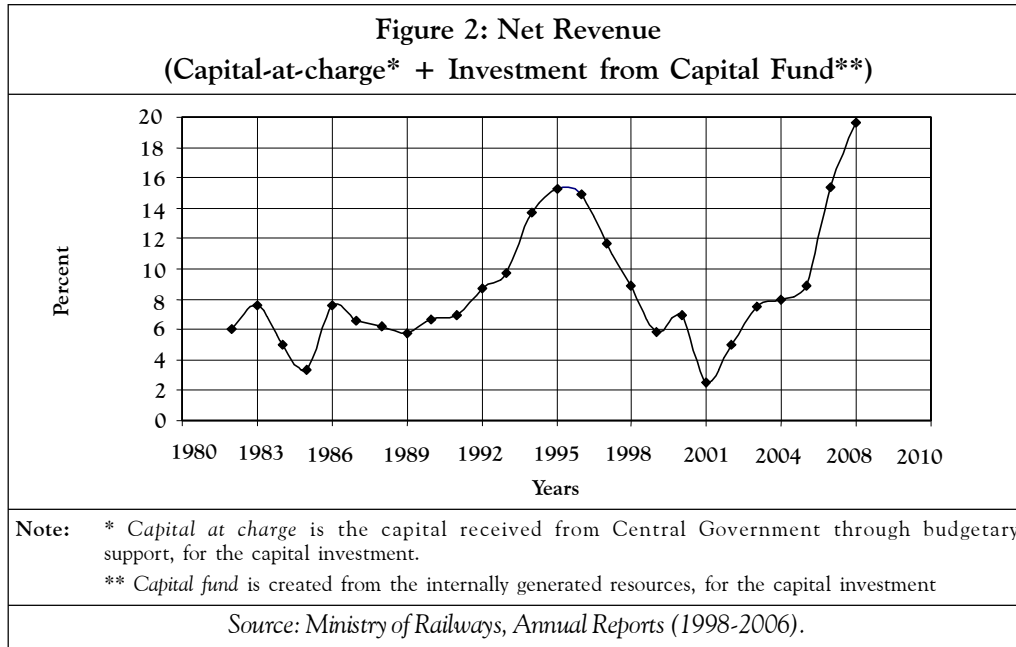


Table 3: Total Revenue (in INR and US Dollars)

YEAR (Year ending March)	Rs. (10 mn)	Billion (US Dollar)
2001	36,001	9.00
2002	39,358	9.83
2003	41,856	10.46
2004	43,961	10.99
2005	47,320	11.83
2006	54,491	13.62
2007	63,220	15.86

Table 4: Number of Staff (in 000)

2001	1,545
2002	1,511
2003	1,472
2004	1,442
2005	1,424
2006	1,412
2007	NA

ANALYSIS OF INDIAN RAILWAYS TURNAROUND

Turnaround involves many processes and interplay of several levels of human-organizational interface. We will make an attempt to analyze some key strategies and the forces or factors which made these effective in the context of huge, complex, but monolithic organization of a developing country.

One of the key drivers of the IR turnaround phenomenon is the enhancement of the carrying capacity of the freight cars (wagons). Change in loadability of truck appears to be a simplistic decision and is doable subject to the enhancement falling within the limits laid down by law. But in case of freight cars, it had to go through several steps involving concurrence, reconciliation, clearances and sanctions from departments and agencies within

and outside the organization before it could be formally initiated and implemented. The idea, which was mooted by the General Manger of one of the constituent Railway (Zonal Railway) after the observation made by the Minister of Railways, took about a year and half to get implemented. It was clarified by this railway that higher loading was an ongoing practice for some other types of wagons (e.g., BOY, BOBS). The process involved convincing various departments within the organization, (transportation, mechanical, civil and finance), and addressing the concerns of safety by reconciliation meetings with safety regulator (Commissioner of Railway Safety) operating within the control of another Ministry (Ministry of Civil Aviation). The regulator took a very restricted view of the move to introduce increased loadability in existing stock as equivalent to the introduction of new stock, which required a series of approvals. Though this view was dropped later, the requirement of revised speed certificates was made essential. These certificates were to be issued by the Research, Designs and Standards Organization (RDSO) operating within the Ministry of Railways. The trial runs provided the data for discussion and inputs from heavy haul experts, study by CAN RAIL and discussions during workshop helped in building the consensus through participation and communication. There was no resistance to this from organized unions, as reported by the official handling industrial relations at the ministry level even though the

unions maintained the view that overloading is not desirable in the long run. The increased productivity is an incentive for the labor, as they receive higher bonus, which is linked to productivity.

The above strategy ensured carrying of more load per train, which was supported by a strategy for doing it more frequently by reducing wagon turnaround, which is the number of days between two successive loadings. The set of actions involved in reducing the wagon turnaround were: better loading/unloading facilities at the terminals, introduction of round-the-clock working at major terminals, extended hours of working of goods shed/sidings from 06:00 hrs to 22:00 hrs, mechanized loading and unloading, reduction in detention time at the terminals, and de-bottlenecking infrastructural constraints. 'The investment decisions were made on the loading, coordinated with the need to enhance the capacity on busy traffic routes. In an interview with the Ministry of Railways it was mentioned that such decisions were taken at the Railway Board level even when there were no proposal received from the zonal railways. This was a significant departure from the practice in the past when the proposals were required to originate from the Zonal Railways. The constraints were identified and investments needed to de-bottleneck them were provided proactively by the top management, as there was visible alignment between the end (capacity augmentation) and means

(quick-pay-off, short gestation de-bottlenecking projects).

Changes in the working hours was not resisted by the employees because of the opportunity to earn night allowance, as was reported by the Railway Ministry official. He further clarified that the unions showed the maturity to support the moves for enhancing productivity.

Several marketing initiatives such as offering discounts for the empty wagons, exploring the levy of higher charges for the door-to-door traffic in comparison to station-to-station traffic (i.e., segmentation of markets), etc., were result of better understanding of the basics of economics—elasticity of demand, the economies of scale and cost behavior (marginal cost being lower than average cost). One can notice the role of entrepreneurship in the strategy implemented for the capacity enhancement. General Manager of South Eastern Zonal Railway saw an opportunity, quickly evaluated the opportunity and attempted to leverage the available resources to create value by meeting the excess demand which was reflected in the piling indents for the freight cars.

The idea was worth many million dollars. It got the support of the top management and finally got implemented. There may be such ideas generated at the lower level, but may not reach the decision making level, as the lower levels may not have the confidence and will to put them up to the higher/top level.

We will see similar process in cases of some innovative idea which generated at a level lower than zonal railway – the divisional level which is basic managerial level supervising and monitoring and facilitating the operating performance of the stations falling within its jurisdictions.

The initiatives taken to improve the passenger services included quantitative (new trains, extended runs of existing trains, additional unreserved coaches, etc.) and qualitative measures (cleanliness, lighting, better signage, information availability through call centres, SMS, advance availability of unreserved tickets, e-ticketing, timely grievance redressal, etc.) and introduction of new products. Customers' expectations were met by not increasing the fares. In fact, they were delighted by the cut in fares in some categories. This carried the message that the turnaround would not hurt the masses. The introduction of new products such as the new air-conditioned trains (*Garib Rath* – Chariot of the poor) with fares lower by 25% than similar services in other trains is based on achieving cost advantage through optimization of the layout of coaches and composition of passenger trains.

An innovative idea of one divisional officer was not only appreciated at the next level (Zonal office) but was approved at the top level (Railway Board) and was implemented within a record time of four months after following all the procedures. A long distance train was named after a corporate brand name. PepsiCo. was

granted the right to run three summer trains from Bangalore under the name 'Kurkure Express' with branding by PepsiCo for its lines of snacks of that name.

Subsequently this scheme was formalized by the issue of a policy circular from the top management (i.e., Railway Board). The idea of brand trains has shown potential of earning additional revenue through ads and has inspired other initiatives like printing ads on the back of passenger tickets, extension of the concept to regular long distance trains, etc. Encouragement to new ideas and ready acceptance from higher level provide a new dimension to the culture of the organization.

Restoration of facilities after disruptions and exceptionally good operating capability in adverse and crisis situations (such as floods, cyclones and even bomb blasts by terrorists) speak volumes about the depth of talent and commitment of the manpower of IR. When bombs ripped apart seven trains between 6:28 and 6:35 pm on July 11, 2006, the entire city of Mumbai was in chaos, as suburban train services are the main transport artery of the metropolitan city. The damaged coaches were cut, debris were removed, (for this the Ministers approval was obtained at 3:00 am), overhead wires were repaired and the running of trains was restored at 6:00 am next morning. The terrorists couldn't stop the life in Mumbai from going on. What could have taken days in clearing that endless mass of steel was done by IR men in 12 hrs

(*Times of India*, Mumbai, January 7, 2007). A similar situation was there when a Super Cyclone in the eastern part of the country (coasts of Orissa) took place, and the only communication network which could give information about cyclone to the capital was the Railways network as the cellular and landline network had collapsed. The well-established and mature systems of the organization with a committed workforce provide a great opportunity to leverage the resources, for the thoughtful and well-meaning leadership.

Concern is raised in several quarters that a large number of innovations arising from the lower levels and implemented in a hurry could lead to safety problems. In any case there is a general impression especially in the Western media that IR does not care for the safety of its operations. Empirical data on accidents from different countries do not support this. The number of accidents measured in terms of accident per million train kilometers for the year 2004-05 was 1.8 for EU 25, whereas the corresponding figure for India was 0.29. The figures for the year 2003 for Japan, Germany, France, Italy and India were 0.63, 0.82, 0.87, 0.65 and 0.44 respectively. (*Sources*: East Japan Railway Annual Report, 2002, 2003, www.engineersaustralia.org.au, www.eoo.eurustat.ec, www.europa.ev, www.unce.org/trans/doc/2003. Accidents have not been defined in same manner by different sources). Perhaps it may be too soon to evaluate the safety records, as there could be a time lag between the changes and their impact on

safety. It may, however, be noted that before implementing major changes, IR has been undertaking the mandatory safety and testing procedures.

Changes do require support and commitment throughout the organization at all levels. Financial and other incentives may also be required. Higher productivity bonus is direct and is a uniformly given monetary incentive for all the workers below a cut-off level. This may not be a motivator as there is no direct and visible linkage with the individual performance. The other motivating factors as per the Ministry of Railway official are the appreciation by the Railway Minister of all the railway men during the budget speech in the Parliament and other public forums, and the liberal awards given away by the Minister from time to time. The gesture shown by the Minister in increasing the contribution to staff welfare fund by seven times has been instrumental in winning the goodwill of the unions, which are among the oldest and most organized ones in India. The Minister's advocacy to the Ministry of Finance for getting the higher bonus equivalent to 65 days' pay for the previous year has also helped in winning the loyalty of the workforce and the unions.

For the officers who are not the beneficiaries of increased bonus or other financial rewards, the incentive is provided in the form of nomination to world class training institutions abroad once in 10 years and nomination for training to the best institutions in India

every five years. Laptops have been made available to all officers of middle level and above and vehicles have been provided to all senior officers (Joint Secretary and above) in the field.

Private companies have been allowed to own and operate freight trains. Wagon design will also be done by private manufacturers. Private capital will be brought in through various projects such as construction of new, dedicated freight corridor, redevelopment of stations, development of logistic park, manufacturing of rolling stock, etc. Growth of IR is proposed to be financed through the higher internal generation, incremental Budgetary support from the Central Government, and hyper growth with the participation of the private capital.

Catering has been outsourced to a subsidiary corporation, separately created for this purpose. Losses have been contained in passenger and catering services. All these measures suggest that the emphasis is on cost cutting, spinning off the non-core activities and focusing on the core business of IR. Many of the initiatives taken to improve the quality of service and to improve operational efficiency have application of IT at the core of these initiatives. IR has started computerized passenger reservation in the 1980s and it is a great success story of a major IT application to reach the masses in the country. This has had a long-term impact on the way of working of people as well as the culture of the organization. Though it is generally believed that the

former Minister of Railways, Mr Madhav Rao Sindhia is the initiator of computerization in IR, the earliest initiatives in this regard were actually taken much before by another Minister, Mr Madhu Dantvate. Irrespective of who introduced computerization in IR, it now has a tradition of working in an IT environment for more than two decades. However, if one were to consider the history of electronic data processing in IR, it dates back to the year 1963-64 when IBM Unit Record Equipments were installed in on all the zonal railways.

TURNAROUND STRATEGIES OF IR: A CLASSIFIED ANALYSIS

In order to better understand the directions of IR turnaround a classified analysis of IR's turnaround strategies will be useful. Accordingly we discuss them under a few categories identified as important by prior literature.

Operational and Financial Strategies

Cost control through intensive utilization of assets and enhancement of the capacity was an important strategy of IR turnaround. Intensive utilization has been achieved by reduction in the wagon turnaround from seven to five days and capacity enhancement has been achieved through increase in the axle load from 20.3 to 22.9 ton. The approach has been volume-centric as marginal cost is substantially lower than the average cost of rail transportation.

Cost cutting through retrenchment, most commonly adopted in the West particularly in the US, has not found favor

with IR. However, a reduction in manpower has been achieved from 1.65 million in 1991 to 1.41 million in 2006 through not filling the vacancies arising out of retirements, resignation, etc.), which amounted to about 2% per year. Use of IT in Freight Operating Information System has also helped in reducing costs.

Product Market Strategies

Focusing on the core business of earning through freight revenue, market segmentation based on the elasticity of demand (Higher charges for 'door-to-door service', 'tatkal' reservations (reservation five days before the date of journey), dynamic pricing (differential off-season fares), product differentiation based on the need to provide better and comfortable service at lower prices, 3 tier air-conditioned trains (*Garib Rath*) and the Jan Shatabdi Expresses are examples of the market sensitivity of IR. Other examples of customer friendly actions of IR are: the online reservation system, e-ticketing and the use of ATMs, post offices, etc., to reach the customers, improvement in cleanliness, lighting and signage, information availability through call centers, mobile phones etc., increasing use of IT for the passenger reservation and special services like SOFT to incentivize the frequent travelers.

Human Resource Strategies

Unions' cooperation was earned by not following the recommendation of Rakesh Mohan Committee for staff reduction by retrenchment. However, reduction in staff was achieved by not filling up the

vacancies created by retirement and resignation of the employees. The increase in Productivity-Linked Bonus (PLB) acted as incentive to the work force, the expectation for the current year is higher than the last year's bonus equivalent to 65 days pay which was considered too high by the Ministry of Finance (PLB for the current year has since been announced. It is equivalent to 70 days pay). There was an increasing emphasis on the quality of officers' training and the need to expose them to international environments. The training abroad once in 10 years to every officer acts as a great incentive. A major achievement of IR in its relationship with the unions is the gaining of their support for the Public Private Partnerships for the future expansion program.

Growth Strategies

Leveraging on the opportunity made available by the boom in the economy, private investment is mobilized through wagon investment scheme, making IR resources available for other investments. In financing the massive expansion plan, a large chunk is expected to be financed through Public Private Partnerships (PPP) (Rs. 70,000 cr out of Rs. 2,50,000 cr, equivalent to \$17.5 bn out of \$62.5 bn) over the five-year period of 2007-12. These include capacity enhancement through construction of Dedicated Freight Corridor. Increasing use of IT for freight operations, marketing initiatives and customer orientation have also helped in

accelerating revenue growth.

IS TURNAROUND SUSTAINABLE?

According to Gupta and Sathye (2007), it is difficult to be convinced about the sustainability of the financial turnaround of Indian Railways, as the impact of the technical and financial changes ebb away in due course and the cyclical trends put off the gains from macroeconomic growth. However, a perspective of turnaround as a process, developing through various stages, may help us differentiate between sustainable and non-sustainable turnaround. This is basically by observing whether the processes that ensure sustainability are in place or not. Manimala's (1991) analysis of 28 cases of turnaround suggests that the financial/operational turnaround is only the early stage of the turnaround process. Turnaround may begin with improvements in the financial/operational performance, but it should not end there. Manimala has identified four stages in a complete turnaround, and sustainability is determined on the basis of the stage the organization has reached. It is, therefore, useful to classify the strategies (set of actions) adopted by IR into stages and then attempt a theoretically convincing answer to the question of sustainability.

Credibility building and mobilization of the organization for the turnaround through a participative process of decision-making, soliciting support for the plan from various stakeholders including labor unions, cost cutting through asset

utilization and capacity creation, (reduced wagon turnaround and higher axle load), quick pay-off projects and similar other actions fall within the first stage of arresting sickness. Financial turnaround becomes visible when the organizations attain the first stage (arresting the sickness). However, as we have mentioned above, Manimala (1991) has pointed out that the stages need not be chronological, and that some actions in stage 1 (such as the participatory process, mobilizing the unions' support, etc.) would have implications for the culture building phase and thus lay the foundations for stage 3.

It is also obvious that IR has transcended stage 1 and gone into the reorientation stage, as evidenced by its actions such as spinning off non-core activities—catering, creating greater market orientation, focusing on freight revenue, greater use of incentives, information dissemination and better public relations, etc. capital and debt restructuring, organizational restructuring (Rakesh Mohan Committee has suggested Corporatization), changes in the managerial cadre, etc., although are part of this stage, have not been adopted by IR.

The institutionalization stage involves the IR initiatives for culture building through human resource development, particularly through training, introduction of communication, coordination mechanisms, etc. The Expert Group on Indian Railways (Rakesh Mohan Committee) had identified participation

and communication as one of the key features of any change program in Indian Railways. The Committee observed, "the wealth of IR lies in the hearts and heads of its people. We have been impressed by the loyalty and devotion to the organization of IR personnel at all levels. This value must not be lost and must be capitalized in the change process. Our experience in conducting an international workshop at Vadodara Staff College was a positive one. We found the Railways personnel to be receptive to change but they do have to be convinced. The Expert Group, therefore, recommends a widespread consultation process at all levels including labor" (p. 74).

This dimension of culture is visible in the consultative process that preceded the introduction of heavy axle loading and also in discussions with unions for this change as well as the expansion through Public Private Initiatives. We have also observed the great sense of devotion and sincerity of railway staff, when they restored the suburban services in Mumbai after the blast by terrorists in July 2006. The initiatives of the GM of Southeastern Railway and the Divisional Officer of the Bangalore Division, whose ideas were not only well received but became the policy letters for implementation for whole of IR are indicative of a new culture, where participation and communication, and receptivity become an integral part of management style and ethos.

The other significant observable change in the culture is seen in the way

IR has introduced market orientation and customer focus. The approach is more business like rather than bureaucratic and is a strong pointer that commercialization has gone deep into the thinking behavior of the management. It has substantially met the expectation of the Expert Group, who observed, “one of the key recommendations of the Expert Group is to commercialize IR. One of the major challenges of the modernization of IR is to shift the culture and mindset from that of a government bureaucracy into a market savvy, customer-oriented, profit driven business” (p. 74).

Finally, the movement into the growth stage is indicated by the introduction of new products such as *Garib Rath*, initiatives to mobilize resources through PPP for future expansion, ambitious expansion program for the next five years and harnessing information technology for performance improvement. Diversification, discovery of new markets and mergers and acquisitions also fall in this stage, as observed by Manimala (1991).

The Expert Group on IR had identified four key areas where IR can maximize the gains through IT. These areas are freight revenue enhancement, passenger revenue enhancement, operational cost reduction and investment optimization. In freight revenue enhancement, the Freight Operation Information System (FOIS) containing Rake and Terminal management modules has already been implemented. The Expert Group had recommended that FOIS should be implemented completely in all locations

and to ensure that FOIS information is fully accessible to all key customers and helps them improve their inventory and production management, leading to higher customer satisfaction and revenue. Regarding the use of IT for passenger revenue enhancement, the Expert Group recommended extending Passenger Reservation System (PRS) to unreserved accommodation, integrating passenger information with other internal systems and setting up reservation facilities close to customers.

For operational cost reduction, the direction given was introduction of wagon, crew, parcel and inland traffic management systems and to integrate these systems. It was suggested to integrate the internally developed Long-Range Decision Support System (LRDSS) with the investment decision-making process as well as the planning of IR. Significant improvements have been made in all these directions except perhaps in the use of IT for investment optimization. The strategies and various sets of actions which have been described in the earlier portion of this article notable among them are the use of FOIS for crew and wagon management, popularizing the use of the internet and other IT based sources for reservation and access to information, reaching customers through post offices, ATMs, mobile phones, encouraging frequent travelers through schemes like SOFT, etc., have contributed significantly to customer satisfaction and revenue growth.

These initiatives per se may be important, but what is more pertinent is the culture, which supports the growth of the organization by harnessing the potential of latest technology. This dimension, as part of the culture of IR has far reaching growth implications for the future of IR. Besides, the optimism and hope brought in by the turnaround, not only within the organization and the country but also outside the country, is likely to make the task of funding the future of IR expansion easier.

“Under Mr. Yadav, the Railways have boosted profitability by lengthening and speeding up the trains, rather than taking the more obvious steps of raising ticket prices or freight fees. The improvements have, according to Railways, impenetrable accounts, pushed the system’s return above its cost of capital. As a result, investments should be far easier to finance” (Robert Wright, *Financial Times*, May 2007).

In order to sustain the turnaround, it is essential that the organization exhibits a set of actions to confirm that it has attained the stage of institutionalization and growth. In our assessment, IR has reached these stages as seen in the preceding paragraphs and on this evidence; it can thus be concluded based on the stage theory that IR turnaround is sustainable.

One may argue that IR is a distinct organization which is not comparable with the 28 Western and Indian cases studied by Manimala (1991). Essentially there is no difference between IR and the

28 companies studied by Manimala (1991). Even though there are structural and operational differences, we maintain our conclusion that IR turnaround is sustainable even in the situations of slowing down of economy, change of leadership and in the event of partial going back of axle load increase on safety or any other consideration. Let us take them one by one in reverse order.

The operational changes brought out by the turnaround are likely to stay. The organizational culture of the IR shows that operational changes made in the past by a former chairman, Mr. M S Gujral in the early 1980s are continuing till date, though the decision to introduce bulk train movement, doing away with marshalling and preventive maintenance en route was considered risky and had its own share of resistance. In an interview several years after his initiating these changes Mr. Gujral told one of the authors that there are few people in government who bring change, and there are fewer people who interfere with these changes once introduced.

Further, we don’t consider that it is the only method by which capacity can be enhanced. It is possible to improve the carrying capacity by designing lightweight wagons which will substantially improve the net to tare ratio (i.e., ratio of goods carried to gross weight of wagon including that of goods). Similar results can be obtained by exploring improvements in dimensions on the line of Railways of Europe and the US, where dimensions of freight cars are bigger than that of IR despite narrower gauge. Enhancing

carrying capacity and intensive utilization is the direction and is not constrained or confined to one or few ideas. This direction will shape the future growth of IR. For example, the axle load contemplated for the Dedicated Freight Corridor is 30, comparing well with international practice.

Change of leadership affects turnaround adversely only when the culture of institutionalization is non-existent, which, in our assessment, is not the case with IR. It is noteworthy here that whatever credit is legitimate, must be given to the leadership. Bringing change in a government-run commercial complex organization of 1.41 million people is not an easy task. Though accelerated improvement in financial performance is more pronounced in the last two years, the improvement in operating ratio began in the year 2002 after having the worst ever operating ratio in the year 2001. But the genesis of turnaround may date back to the time that a serious need was felt for the diagnosis of the disease and a committee was constituted to submit the diagnosis and the prescription. As the will and determination to improve IR performance is evident in both the leaderships, in the past and the present, future leadership is likely to continue with these measures.

Economic growth has been a great enabler, facilitator and mover of the turnaround; it is unlikely that the economy will slow down as per the recent estimates of International Monetary Fund (IMF) and Organization for Economic Cooperation and Development

(OECD). With greater and deeper understanding of market and basics of economics, appropriate strategies are expected to be developed and implemented in such a situation. IR appears to be better equipped than before to face the adverse situations. Further, unlike the advanced countries, IR has a large and growing segment of passenger and freight traffic which is unlikely to go to air or road.

The lesson that working the assets hard, harder and hardest is the most effective route to productivity enhancement (which perhaps has genesis in Peter Drucker's statement of 1970s)* is too valuable and important to be forgotten by an organization which has an elephant-like memory. IR celebrated its 150th anniversary with Appu (baby elephant mascot) carrying the green light. That Appu is dancing and we hope it will continue to do so (We presume that with newly found optimism and confidence, IR will be able to mobilize resources required to finance the future growth as contemplated in Eleventh Five Year Plan).

** Working on the productivity of capital is the easiest and usually the quickest way to improve the profitability of the business, and the one with the greatest impact”.*

Peter F Drucker (1977), *People and Performance*.

CONCLUSION

Turnaround is too big a phenomenon to be described, understood and/or analyzed in terms of financial performance.

Improvement in financial performance, if not accompanied with improvement in orientation, culture, human resource development and growth, is likely to be temporary and organizations may slip back to a greater decline. Turnarounds have to take the organization to the stage of reorientation, institutionalization and growth to ensure that the turnaround is sustainable i.e., capacity regained is permanent and not temporary (Manimala, 1991). Analysis of the turnaround of IR shows that it is not confined to the stage of arresting sickness, but has traveled, though not completely, to other stages of reorienting, institutionalization and growth.

One more aspect which strengthens the conclusion of the IR being in higher than initial stage of financial turnaround, is the alignment of the strategies with the diagnosis of sickness (operational inefficiency, lack of market orientation, lack of focus on core, and lack of resources for growth). It is a striking coincidence that many of the strategies suggested by Rakesh Mohan Committee (p. 31) have largely been adopted, though certain set of actions suggested by the Committee such as reduction in manpower, hike in freight and fares, and corporatization have been shelved. 'Humane' turnaround has been preferred over the 'harsh' turnaround. Reorientation stage has also been witnessed with culture stage confirming Manimala's (1991) proposition that these stages are indistinct and unchronological. However, the theoretical model may be a matter of great deal of interesting empirical research. Replicability

of the turnaround of Indian Railways may be another area for future research.

Khandwalla's (2001) analysis had identified 12 elements of turnaround; almost all the elements of turnaround are visible in case of IR's turnaround. The theoretical proposition that turnaround is much more difficult in public sector organizations, big organizations and service organizations make the turnaround of IR uniquely distinct and remarkable (Khandwalla, 2001).

Chowdhury's (2002) proposition is also upheld as the threat of extinction has been successfully averted by IR by following effective strategies and the improvement brought out by these strategies appears sustainable. It also upholds the finding of Boyne (2006), that reorganization is preferred over retrenchment and repositioning and it is most effective strategy of turnaround in the context of the public sector organizations.

Indian Railways turnaround challenges a widely held untested belief that private sector is synonym of efficiency and public sector by its very nature cannot be efficient and productive. Research study of Khandwalla (2001) supports our conclusion that these beliefs are unfounded when put to empirical tests.

The distinct contribution of this paper is two-fold. Firstly, it provides practicing turnaround managers a model to help them making strategic decisions. Preoccupation or over-occupation with strategic resulting into financial recovery

may be fatal. Adequate emphasis on institutionalizing and growth strategies is called for to sustain the performance recovery. Secondly, it applies the stage theory model to analyze the turnaround of the Indian Railways turnaround and

provides an answer to a difficult question, whether the turnaround is sustainable. Thus, this paper should enrich the practitioners and theoreticians understanding the phenomenon of the turnaround of the Indian Railways.

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1. IR, in the year 2005, changed its accounting policy for the lease charges. The lease charges have been broken into two parts – capital and revenue. While, revenue has been charged to working expenses, capital portion is separately provided for in the capital budget. This has resulted in the reduction of working expenses and the operating ratio. The operating ratios if adjusted for this changing, would be approximately 3% higher in the years 2005, 2006 and 2007. Even with this adjustment, the operating ratios of 2007 remains one of the lowest operating ratio (81.7%) in nearly 50 years. This change in accounting policy was disclosed in the budget documents.
2. There is a concern regarding the safety of operations due to enhancement in the loading capacity of wagons. This has been surfacing in the discussions within Indian Railways, with safety adviser regulator Chief Commissioner of Railway Safety (CCRS) and in Audit Reports. The Comptroller and Auditor General of India (CAG, 2007) observed as under:
 - “Railways have permitted the running of trains loaded with enhanced quantity without complying with the conditions laid down for protecting track and rolling stock. Even after permitting loading of wagons with enhanced quantity, the trend of overloading continued. Increased incidence of rail fractures, weld fractures and defects in wagon and locomotives was seen”.
- The Report insists that the required safety measure should be in place and overloading beyond the enhanced limits should be checked. Railway Board has maintained that there has been a paradigm shift in the approach of IR from being probabilistic to deterministic.
3. Chief Commissioner of Railway Safety (CCRS), though not statutorily designated as safety regulator, operates under Ministry of Civil Aviation and acts as advisor and regulator on safety matters.
4. Conversion of Rupees in to US Dollars has been done at one US Dollar equal to INR 40.
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APPENDIX 1

Initiatives taken by Indian Railways 2001 onwards

- Consequent upon the recommendation of the Railway Safety Review Committee (1998) also known as Khanna Committee, non-lapsable fund of Rs. 17,000 cr (\$4.25 bn) was created in 2001. This fund was named as Special Railway Safety Fund and aimed at replacement and renewal of vital safety equipments.
- Restructuring of zonal and divisional organization was completed in the year 2003, which also marks completion of 150 years of existence on April 15th. Indian Railways have 16 (earlier 9) zones and 67 (earlier 59) divisions with effect from April 1, 2003.
- Regular double-stacked container service (on BLCA/BLCB flat wagons) began on the Pipavav-Jaipur route during March 2006.
- First private container train, owned by Boxtrans Logistics, started from Cossipore to Loni April 2007.
- Maersk Line launched dedicated block train operation between Bangalore and Chennai in collaboration with the Container Corporation of India, connecting to the freight ship service from the US east coast to Chennai.
- Private container train by APL (formerly American President Lines) started from Loni to Jawaharlal Nehru Port, Mumbai.
- Enhancement of carrying capacity of wagons to increase throughput: Carrying capacity of goods trains has been raised from 3,200 ton to 4,000 ton. This was achieved due to introduction of the 22.9 ton axle load freight trains, as compared to the previous 20 ton axle load trains. Loading capacity was enhanced to the extent of 16%.
- Targeting 50% reduction in unit costs over a period of five years because of axle load increase.
- Reduction in turnaround time of wagons (seven to five days) with additional loading of four to eight ton per wagon which has resulted in the loading capacity increase significantly.
- Long-term initiatives—such as construction of Dedicated Freight Corridors to provide additional capacity for fast movement of freight traffic.
- Creation of rail linked container depots and integrated logistics parks, for non-bulk freight business.
- Use of data from Freight Operation Information System to make freight discount policies like empty flow direction discount schemes.
- Simplification of rules in key areas like free acceptance of indents for the supply of wagons, single window booking system and faxing of invoices to the destination.
- First long-distance train named after a corporate brand launched. South West Railway granted PepsiCo the right to run three summer trains (Bangalore-Nagarkole, Bangalore- Chennai, and Bangalore-Hubli) under the name 'Kurkure Express' with branding by PepsiCo for its lines of snacks of that name.
- Compressed Natural Gas (CNG) based Diesel Electrical Multiple units have been developed to reduce running cost.
- Speed of passenger train enhanced to 150 kmph on Delhi-Agra section in February 2006.
- Productivity Linked Bonus (PLB), equivalent to 65 days pay was declared by Ministry of Railways in 2006. This was further enhanced to 70 days in the year 2007.
- Scheme of training for officers at reputed institutes abroad, every 10 years and reputed institutes in the country, every five years was announced.
- Wheel Impact Load Dictator (WILD) has been developed to provide audio-visual signal to the train operating staff in the event of passing a wheel having higher impact load due to wheel defects.

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APPENDIX 1

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Initiatives taken by Indian Railways 2001 onwards
<ul style="list-style-type: none"> • Reduction of the AC first class fares, AC second class fares, and second class fares. • The Scheme of Frequent Travelers (SOFT) has been launched, which is applicable to 1 AC, 2 AC and AC Chair Car classes. A frequent traveler will get a complimentary train trip after certain numbers of reward points are accumulated. • Fully air-conditioned Garib Rath (Chariot of the Poor) trains having fares about 25% lower than the present AC 3 Tier fares to run on the Delhi-Patna, Delhi-Mumbai, Delhi-Chennai and Saharsa-Amritsar sectors. • Scheme for upgradation of confirmed passengers in a lower class to vacant seats in a higher class without any extra charge with effect from January 26, 2006. • The suburban trains in Mumbai were attacked by the terrorists' bomb blasts on July 11, 2006. The restoration was done within 12 hours of blasts. • To popularize booking through the Internet, the delivery of tickets has been extended to more than 181 cities: Payment options have been liberalized by introducing the facility of direct Debit through the Internet and Prepaid Cash Cards in addition to Credit Cards. • Integrated Train Enquiry System has been launched for ascertaining Train Running Status, PNR Status and availability of accommodation through "Interactive Voice Recording System".
<p><i>Source: Case Studies: Kothari, Mehta, Sharma (2007); www.indianrailways.gov.in, Annual Reports 2004, 2005, 2006), and interviews with Ministry of Railway Officers.</i></p>

APPENDIX 2

Strategies Adopted by IR
<p>It is not about big-ticket reforms but a refreshingly new approach to business model of railways. Earlier it was thought that IR is 'in the business of railways' and hence, a natural monopoly. The new perspective is that it is 'in the business of transportation operating in a fiercely competitive market place'. The only way to revive and regenerate the competitiveness of railways in the market place is by offering superior and compelling value to the customers. Hence, tariff focused and denominator centric strategy has been discarded in favor of numerator focused, unit cost based, customer centric and market driven strategy.</p> <p>Given the fact that marginal cost of operations is substantially lower than the average cost of operations of railways, the strategy is to "play on volumes, reduce unit cost, reduce tariff, improve market share and margins and earn record profits". In view of the sensitivity of cost to train kilometers rather than passenger kilometers or ton kilometers, the focus is 'to improve yield per train as against the earlier obsession with tariff – yield per passenger or ton. Tariff policy formulated on the basis of 'affordability' principle has been creatively modified based on deep insight into the political economy of railways</p>

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APPENDIX 2

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Strategies Adopted by IR

and a sharp understanding of the transportation business – price elasticity of demand and its sensitivity to non-price factors. While, politically sensitive second class passenger segment is still charged based on the ‘affordability’ principle; freight, air-conditioned segment of passenger business and parcel tariff policies are now completely market driven. Uniform tariff policy has been replaced by dynamic and differential pricing. While, freight rates for finished products where railways competitive position is weak on account of being ‘station-to-station’ transporters have been reduced, those for commodities in which railways are ‘door-to-door’ transporters have been increased. Similarly, while customers are offered hefty discount during lean season and for loading in the empty flow direction, surcharge is being levied during peak season and for loading on congested routes. Several commercial and operating initiatives compliment the tariff rationalization. Innovative cargo aggregation products, mini rakes and two point rakes are being offered to woo extra traffic.

Resource leveraging, synergy and optimization are the key drivers of the demand and supply side management. Lalu Prasad’s witty one liner aptly sums up the strategy ‘*instead of sweating the customers harder, milk the cow fully*’. By following twin strategy of reducing the turnaround time of wagons from seven to five days and by increasing load per wagon by six to eight ton, railways earned additional surplus of over Rs. 12,000 cr (\$13 bn). Similarly, by increasing the length, seating capacity, occupancy and speed of passenger trains, passenger losses have been brought down by nearly Rs. 1,000 cr (\$60.25 bn) despite reduction in passenger fares. Initiatives like decision to run popular trains with 22-24 coaches, free upgrades for waitlisted passengers of lower class to vacant seats of higher class, provision of *tatkal* tickets for passengers traveling in emergency, e-ticketing, increasing the number of seats in a coach by layout optimization have benefited the railways and customers alike. Low cost, short gestation, rapid pay back and high return projects have been taken up to reduce network bottlenecks, improve utilization of rolling stock, reduce transit time and optimize throughput. To bring about maximum synergy, investment decisions have been supported by pricing, operating and commercial decisions. Forging formidable alliances is strengthening IR’s value proposition. For example, IR has aligned with the competition by allowing private shipping lines and road lines to run container trains. Similarly, by leasing out catering and parcel services railways have succeeded in reducing catering and parcel losses by more than a thousand crore.

Does Team Size Matter?

A Study of the Impact of Team Size on the Transactive Memory System and Performance of IT Sector Teams

Monika Sharma* and Anjali Ghosh**

Recent studies have shown the effect of transactive memory system on team performance. However, much is not known about the role of team context on Transactive Memory System (TMS) and its relationship with team performance. The objective of this study was to investigate the impact of team size on TMS and team performance and their interrelationships. A sample of 60 teams of various sizes was selected randomly from Information and Technology (IT) companies located in four different cities of India. Data on TMS were collected from team members whereas team leaders gave ratings on team performance. Results of this study have shown significant effect of team size on TMS and team performance. TMS scores were found highest in small and medium size teams. Total team performance was also found high in small size teams. In comparison to small and large teams, TMS in medium size teams showed higher positive correlation with different dimensions of team performance. Homogeneity of correlation test revealed a significant difference in these correlation values due to team size. Overall results showed that small and medium size teams performed better than large size teams and TMS had greater impact on team performance in small and medium size teams. The implications of this study for real life settings have also been discussed.

INTRODUCTION

Work teams are the engines of today's organizations. Advancements in technology, high competition, organizational growth, and dynamic market trends have all imposed great demands on the organization to deliver better. This has laid a great emphasis on

better utilization of human resources. The focus has shifted from individual efficiency to team efficiency and organizations are now depending more and more on teams to deliver the demands of current markets (Lawler *et al.*, 1995; Waterson *et al.*, 1997; Nandini, 2000; and Kozlowski and Bell, 2003). This shift from

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individual to team based work has increased the interest of managers and researchers in methods of maximizing performance by efficiently using already available intellectual or knowledge resources within teams. The focus on optimal utilization of available knowledge and intellectual resources has generated a wide array of research in the field of shared cognition.

This interest in teamwork has also led to a great deal of research on team effectiveness. Studies regarding team effectiveness of work teams have mostly used team performance as an indicator of team effectiveness. These studies have used various measures of team performance varying from task specific team performance to overall performance. Most of the literature on team effectiveness in the past few years has emphasized on concepts of share cognition, e.g., team mental models, team schemas, Transactive Memory System (TMS) and collective mind, etc., and their impact on the functioning of teams. Empirical studies on team performance and shared cognition of real-life work teams are scarce and the studies available have used dissimilar indicators of performance. Indicators of team performance in relation to shared cognition have been limited to the scope of the particular study (Austin, 2003). Earlier indicators of team performance studied in relation with transactive memory are speed to market, error and accuracy, firm performance, problem solving, etc. We could not find any study dealing with the relationship of shared

cognition with overall team performance indicators in real life work teams. In this study an attempt has been made to study the effect of shared cognition, i.e., Transactive Memory System (TMS) on overall team performance as well as on the indicators of team performance. The indicators of team performance in the present study are based on Hackman's (1987) model of team effectiveness.

This study defines team as two or more members working interdependently towards accomplishment of a common goal or task (Katzenbach and Smith, 1993). The present study has focused on teams from companies falling in the Information and Technology (IT) sector. The IT sector provides root services (like networking, software installation, system integration, Operating System (OS) development) and specialist systems to manage an organization's critical and/or noncritical enterprise processes and applications. Work teams from this sector were selected because of the wide application of work distribution through teams in this sector. This industry being knowledge intensive makes teamwork here more challenging. The IT sector teams are mostly project-based and work interdependently. These project-based teams are usually created for a particular task and are dissolved after the task is completed. These teams have time bound goals and the development of good communication system between team members becomes essential so that work is carried out smoothly (Katz, 2004). Further the interdependent nature of

task, requirement of multiple skills, judgment and experience also indicate the important role of information sharing and shared cognition for effectiveness of these teams (Smith, 2001).

Prior research on group and teams have discussed in great detail about the appropriate size of teams or groups (Hare, 1952; Slater, 1958; and Shaw, 1960). Available literature reveals the possible effects of team size on different functions of teams, e.g., motivation to work, trust, communication, performance, satisfaction, group norms, etc., (Thomas and Fink, 1963; and Katzenbach and Smith, 1993). However, much research is not available about the effect of team size on shared cognition and team performance in IT sector and also in other work settings. The present study focuses on team size, TMS and team performance in IT teams. In the following sections, review of literature is given which forms the basis for the development of hypotheses and the theoretical framework of the study.

TRANSACTIONAL MEMORY SYSTEM

Founders of shared knowledge or cognition suggest that people in continuing relationships tend to share their resources with one another, which makes performing tasks easier and faster. Transactional Memory System (TMS), the core construct of the present study, comes under the area of shared knowledge. TMS was first conceived by Wegner (1987) and he explained TMS as a concept of social cognition which refers

to the idea that “people in continuing close relationships tend to develop a shared system for encoding, storing and retrieving information from different substantive domains” (p. 186). TMS is usually defined as a set of individual memory systems in combination with the communication that takes place between individuals (Wegner *et al.*, 1991).

The theory of transactional memory as described by Wegner (1987) suggests that in close relationships and groups, other individuals in the group can work as the external memory aid in a manner similar to the use of diaries, books, notes, etc., to store information. However, transactional memory is more than the diaries and documents, etc., as in the case of transactional memory, information flows in both directions and individuals start taking responsibility for the information coming to them and make it available whenever required. TMS is a team level attribute, which develops over a period of time and cannot be attributed to any single individual or between individuals (Wegner, 1987). In the early stages of team, the transactional memory of the individuals is based on stereotypes but as time passes, members begin to know who knows what and build their own memory accordingly. In transactional memory the encoding, storage and retrieval of information depends on already assigned labels regarding the availability of information and expertise of the individuals. Transactional memory and TMS are sometimes differentiated on the basis

that transactive memory exists in the minds of individuals whereas TMS exists in the team or group as a function of individual transactive memories. Research shows that TMS will work better in teams where the task is interdependent in nature and where there are more opportunities to interact with other team members. (Wegner, 1987; Moreland, 1999; Espinosa *et al.*, 2002; and Akgun *et al.*, 2005, 2006) proposed the potential effect of TMS in different settings like teacher-student, close relationships, organizational settings, etc.

Studies have also indicated the possible negative effect of TMS and shared cognitions on team effectiveness. Wegner (1987) indicated that transactive memory is of no use once the team is dissolved. Rouse *et al.* (1992) mentioned that presence of strong shared cognition might lead to erroneous behavior if inadequate and inappropriate expectations exist in the team. TMS based on incomplete and wrong information may also lead to poor efficiency. Wegner also mentioned the possible negative effects of team collective labels and perception of the whole team on the retrieval, encoding and storage of information in the team. Most of the negative effects of TMS as discussed above are caused by inadequate development of TMS in the early developmental stages of TMS in the team. However, these can be corrected by giving attention to existing stereotypes, sharing of information, members' ability and expectations of team members, etc.

TRANSACTIVE MEMORY SYSTEM AND TEAM SIZE

The theory of TMS explains that TMS will be better if the team members know each other well, have opportunities to interact with other team members, task clarity among members, responsibility sharing, and diversity, etc. (Wegner, 1987; and Wittenbaum *et al.*, 1998). The earlier literature on team size has indicated that as the team size increases, handling of information becomes less clear and remembering the information about other members becomes difficult (Thomas and Fink, 1963; and Bradner *et al.*, 2003). Wittenbaum *et al.* (1998) have suggested that team size can influence Transactive memory by affecting the communication within the team. Bradner *et al.* (2003) studies also found that participation, awareness and knowledge about other members was better in small teams. Rentsch and Klimoski (2001) found the negative relation of team size with collective schema agreement. However, they have not specified which team size would lead to better team schemas.

Based on the available literature, the following hypothesis is proposed:

Hypothesis 1: TMS will be better in small teams.

TRANSACTIVE MEMORY SYSTEM AND TEAM PERFORMANCE

A wide array of literature is available regarding the effect of shared cognition like team mental models, collective memory and TMS, etc., on team effectiveness

(Hollingshead, 1998; Mohammed *et al.*, 2000; and Lambert and Shaw, 2002). Lin *et al.* (2005) found the positive effect of TMS on problem solving and performance in peer-to-peer situations in laboratory settings. Akgun *et al.* (2005 and 2006) found the effect of TMS on final output of new product development teams. Results of Faraj and Sproull (2000) study found the positive relationship of knowledge sharing with team efficiency that was measured through speed and cost of the task. Studies dealing with IT teams have also shown the effect of shared cognition on different functions of the team (e.g., Espinosa *et al.*, 2002; and Connor *et al.*, 2004). However, most of the studies have been done either in laboratory setup or on student groups and the indicators of performance used in these studies are different from one another. Thus a lack of knowledge prevails regarding the effect of TMS on team performance in real life work teams. Based on this discussion it is evident that TMS will affect team performance. However, the effect of TMS on real-life work teams is not well understood. In this study it is hypothesized that:

Hypothesis 2: TMS will affect overall team performance and share positive relationship with different dimensions of team performance.

TMS may have a positive correlation with overall team performance as well as with its individual dimensions.

TEAM SIZE AND TEAM PERFORMANCE

Previous literature on team size has produced mixed results. Some studies

avored small size teams (Markham *et al.*, 1982; and Gooding and Wagner, 1985) whereas other studies related large size teams with team effectiveness (Yetton and Bottger, 1982; and Magjuka and Baldwin, 1991). Kozlowski and Bell (2003) have indicated the potential benefits of large sized teams in terms of time, money and expertise, etc., in complex and uncertain environments. However, no empirical data are available to support the benefits of large size teams. The literature on team size and team performance suggests that team size should be in proportion to work assigned to the team (Gladstein, 1984). Literature has indicated that in small size teams, members feel intimate but are not open to criticize others (Hackman and Vidmar, 1970). Similarly the dissatisfaction among team members was found to increase as the size of the group increased (Hare, 1952; and Slater, 1958). Jackson (1996) and Poulton (1995) also found that the small teams (ranging from 2 to 4) lacked the diversity of viewpoint and were not good for creative tasks whereas in large teams the interaction, participation etc. were not effective. Marsden and Mathiyalakan (1999) did not find any effect of team size on quality of decision or decision satisfaction in meeting teams. However, their study revealed impact of group size on time taken for solving the problem as well as on participation.

EFFECT OF TEAM SIZE ON TMS AND TEAM PERFORMANCE

Though there is considerable literature on the effect of team size on various types

of tasks of the team, which determine team performance, we could not come across any finding covering the effect of Team size on Team performance and considering the relationship of Team performance and TMS. The earlier discussions in this study have indicated the effect of Team size on TMS and the relationship of TMS with Team Performance. Based on this we have made the following hypothesis:

Hypothesis 3: Team size will affect the relationship of TMS with team performance.

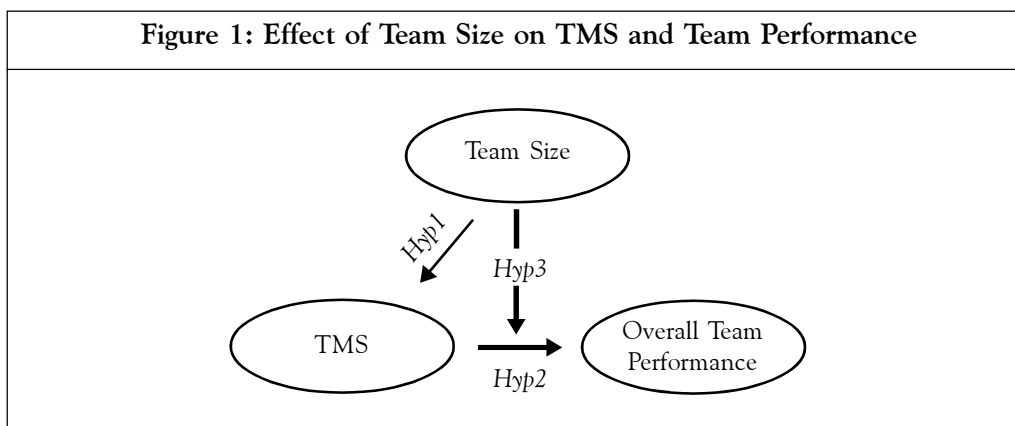
The proposed hypotheses in the present study have been depicted through the following schematic figure (Figure 1). This figure constitutes the theoretical framework on which the present study is based.

METHOD

SAMPLE

The data for this study were collected from teams working in IT companies in India. The software and hardware service

providing companies in the IT sector were selected as the targeted population of this study. Software and hardware service providing sector was selected because of its high demand and rapid growth in India, wide application of work teams, accessibility for data collection, relevance of selected variables in this sector and more or less similar kind of task across different companies. For simplicity and removing biases, the country was divided into four zones namely, Eastern zone, Western zone, Northern zone and Southern zone. One city from each zone was selected randomly and from each city 15 teams were chosen by lottery method from a number of companies for this study. The criterion for selecting the teams was that the members should be working interdependently and the team should be technical. Only those teams were selected which had a minimum of 4 members (1 team leader and 3 team members) and maximum of 15 members (1 team leader and 14 team members). Data collection was carried out one by one for each city. The sample size for the



present study was 60 teams comprising 351 participants. Out of these 351 participants, 60 were team leaders and the rest were team members. Subsequently, 5 teams were dropped from the data because of incomplete information. The final data for the study included data from only such teams wherein all the team members had responded on the measure of TMS. The final data of 55 such teams were divided into three groups based on their group size:

- a. Small teams were those who had team members ranging from 3 to 4.
- b. Teams with 5 to 7 team members were called medium size team.
- c. Teams with 8 to 14 members were large size teams.

Average age of the team members was 26.6 years. Total data comprised of 30% females and 70% males. Preliminary analysis of the sample found that all the team leaders in the selected sample were male. As in this study the data were collected randomly these results indicate the poor female-male ratio in IT teams. This is an interesting finding about the present composition of IT teams in India and requires future studies to explore the cause of poor male-female ratio and the absence of female team leaders in IT sector.

MEASUREMENT TOOLS

Following measurement tools were used in this study:

i. Transactive Memory System Scale

Transactive memory system was assessed by a scale developed by Kyle Lewis (2003).

In this scale transactive memory is described as the memory that is influenced by the memory system of another person. This scale measures specialization, credibility, and coordination behaviors that reflect the cooperative memory characteristics of TMS. Akgun *et al.*, (2005) have defined these three dimensions of TMS as follows:

- Specialization is the differentiated structure of member knowledge, which indicates the knowledge of team members regarding the area of specialization of other members in the team.
- Credibility refers to members' beliefs about the accuracy and reliability of other members' knowledge, and
- Coordination means effective and organized knowledge processing.

There were 5 items in each of the subscale. A respondent needs 5 to 10 minutes time to complete the scale. Team members rated this scale on a 5-point scale. All the items used disagree-agree format in which 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly agree, except three items for which the scoring was reversed. Item total correlations of each subscale were reported to be above 0.40. Alpha reliabilities of the specialization, credibility and coordination were found to be high for both member-level (0.88, 0.94, 0.90) and team-level data (0.86, 0.88 and 0.91). Convergent and discriminant validity of this scale have also been established by Lewis (2003).

ii. Team Performance

Ratings for the team as a whole was taken from the immediate team leader on a 5-point scale consisting ten dimensions. The dimensions are quantity of work, quality of work, task accomplishment, interpersonal skills, integrity, initiative, planning and allocation, commitment to work, innovation and creativity, and overall team performance (Appendix).

Apart from this a demographic schedule was prepared to collect data on different demographic variables like age, gender, tenure in the company, etc. Team size was measured through a question on which team leader gave information about the actual size of the team.

PROCEDURE

The HR department or the project manager was approached through email, telephonically as well as in person and basic information was collected to know whether they fulfilled the criteria. Companies with team based work environment and having a minimum of two technical work teams and a maximum of 15 teams were selected for the final sample. This ensured homogeneity in the

profile of the companies selected. These companies were approached and once the company showed their interest to participate, the research objective and method were explained to them in detail. Every team constituted two levels: team leader and team members. The responses were collected at these two levels. Team members had given their responses on TMS and demographic schedules whereas team leaders gave information about team size and team performance. Team leaders were the immediate leaders of their team. In the early stages of data collection efforts were made to collect performance ratings from both the immediate team leader and the team manager. However, later the data were collected only from the immediate team leaders because of the unavailability of the designation of 'team manager' in all the selected companies.

RESULTS

Means and standard deviations of TMS were calculated for different types of teams. To know the effect of team size on TMS, one way ANOVA (Analysis of Variance) was calculated and the results are displayed in Table 1.

	Small Size Team		Medium Size Team		Large Size Team		F-Values
	Mean	S.D.	Mean	S.D.	Mean	S.D.	
TM1	18.03	3.02	18.51	1.03	16.34	0.48	8.62** (1,275)
TM2	19.46	3.45	19.43	0.80	18.67	0.83	3.17* (1,275)
TM3	18.92	4.14	18.06	0.60	18.25	0.70	2.60 (1,275)
TMS Total	56.42	2.01	56.00	0.47	52.92	0.59	7.52**(1,275)

Note: * Significant at 0.05, ** Significant at 0.01 level.
 TM1– Specialization, TM2 – Credibility, TM3 – Coordination, TMS – Total score on Transactive Memory System.

Mean values show that scores of TMS were high for small and medium size teams. The variability among the team members is also less in medium size teams. *F*-values indicated a significant effect of team size on the dimensions—specialization and credibility of TMS as well as on TMS as a whole. This supports our hypothesis that team size will have an effect on TMS. Post-hoc comparisons showed that small and medium size teams differed significantly from large size teams on their scores of specialization (difference between small and large team = 1.70*; and difference between medium and large team = 2.18*) and total TMS teams (difference between small and large team = 3.50*; and difference between medium and large team = 3.08*). This clearly indicates that teams with size lesser than 8 may have better TMS. Results also indicate the differential effect of team size on different sub-dimensions of TMS.

A 3x2 factorial design ANOVA was used to know the effect of team size and TMS on team performance and its dimensions. Respondents were divided into two groups by using the median values. Team members whose scores on TMS fell above median were referred as the high TMS group and the rest were considered as the low TMS group. Team performance scores were expanded along the team members to avoid taking average scores. Table 2 displays the main and interaction effects of team size and TMS on team performance and its dimensions.

Results indicate the significant effect of team size and TMS on different dimensions of team performance. Mean scores suggested that individuals from the high TMS group performed better than the low TMS group. The significant effect of TMS on team performance supports the second hypothesis. Team performance was found highest in small size teams. Analyses was done separately for all the dimensions of team performance and it showed that team size also had significant effect on most of the dimensions of team performance. Interaction effect of TMS and team size was also noticed on many dimensions of team performance, for example, there were significant interaction effect of team size and all the dimensions of TMS on commitment to work and innovation and creativity. Significant effect of specialization was observed only on task accomplishment whereas; credibility and coordination dimension of TMS had significant effect on most of the dimensions of team performance. This again indicates that different dimensions of TMS had different effect on the dimensions of team performance.

To explore the relationship between team performance and TMS, Pearson product moment correlation coefficients were calculated for the total data as well as for different team size categories separately. Tables 3 and 4 display the correlation coefficients calculated for total data and for different sized teams.

Results of correlation analysis indicated that correlation of team

DOES TEAM SIZE MATTER? A STUDY OF THE IMPACT OF TEAM SIZE ON THE TRANSACTIVE MEMORY SYSTEM AND PERFORMANCE OF IT SECTOR TEAMS

Table 2: Effect of TMS and Team Size on Team Performance			
Team Performance Dimensions	Source of Variation	df	F
Quantity of Work	Team Size	2,275	4.81***
	TM2	1,275	3.65*
Quality of Work	Team Size	2,275	2.35*
Task Accomplishment	Team Size	2,275	16.92***
	TM1	1,275	4.45**
	TM2	1,275	15.16***
	Interaction of Team size x TM2	2,275	5.39***
	TM3	1,275	3.49*
Interpersonal Skills	Team Size	2,275	8.49***
	TM2	1,275	11.71***
	TM3	1,275	4.39**
Integrity	Interaction of Team Size x TM1	2,275	4.13**
	TM3	1,275	5.54**
	TMS	1,275	5.38**
Initiative	Team Size	2,275	17.99***
	TM3	1,275	3.34*
	TMS	1,275	3.27*
Planning and Allocation	Team Size	2,275	4.20**
	Interaction of Team Size x TM1	2,275	3.30**
	TM3	1,275	5.41**
	Interaction of Team Size x TM3	2,275	2.41*
	Interaction of Team Size x TMS	2,275	3.14**
Commitment to Work	Team Size	2,275	20.36***
	Interaction of Team Size x TM1	2,275	6.43***
	Interaction of Team Size x TM2	2,275	4.64***
	Interaction of Team Size x TM3	2,275	8.50***
	Interaction of Team Size x TMS	2,275	8.72***
Innovation and Creativity	Team Size	2,275	11.21***
	Interaction of Team Size x TM1	2,275	2.64*
	TM2	1,275	10.30***
	Interaction of Team Size x TM2	2,275	6.48***
	TM3	1,275	5.61**
	Interaction of Team Size x TM3	2,275	7.03***
	TMS	1,275	2.75*
	Interaction of Team Size x TMS	2,275	3.87**
Overall Performance	TM2	1,275	4.10**
	TM3	1,275	6.25**

Note: * Significant at 0.10 , ** Significant at 0.05, *** Significant at 0.01 level.
 TM1– Specialization, TM2 – Credibility, TM3 – Coordination, TMS – Total score on Transactive Memory System.

	TM1	TM2	TM3	TMS TOTAL
Quantity of Work	-0.09	0.08	0.09	0.02
Quality of Work	-0.05	-0.02	0.09	-0.03
Task Accomplishment	-0.03	0.17**	0.08	0.05
Interpersonal Skills	-0.08	0.10	0.07	-0.02
Integrity	0.06	0.12	0.12*	0.12*
Initiative	0.05	0.10	0.13*	0.12*
Planning and Allocation	0.01	0.07	0.11	0.12
Commitment to Work	-0.04	0.10	0.11	0.03
Innovation and Creativity	0.11	0.19**	0.18**	0.18**
Overall Team Performance	-0.03	0.08	0.14*	0.03
Total Team Performance	-0.01	0.16**	0.17**	0.10

Note: * Significant at 0.05, ** Significant at 0.01 level.
 TM1 – Specialization, TM2 – Credibility, TM3 – Coordination, TMS – Total score on Transactive Memory System.

performance with TMS varied with team size. High positive correlation of team performance and its dimensions with TMS was observed in data for medium size teams, whereas the correlation values were negative or very small in large size teams. Relationship of dimensions of team performance varied for the sub-dimensions of TMS as well as across team sizes. For the complete data set specialization shared a minimal relationship with team performance dimensions. Credibility and coordination were significantly positively correlated with most of the dimensions of team performance. These results further provided the support to our second hypothesis.

The homogeneity of correlation test (Rao, 1973; and Srivastava and Khatri, 1979) was used to investigate whether team size had any effect on correlation between TMS and team performance.

In calculating the homogeneity of correlation test the following three steps were followed:

Step 1:

$$r_i \Rightarrow z_i$$

(r_i = correlation coefficient values,
 z_i = conversion of r_i scores in Z-scores)

Step 2:

$$z_i = \sum z_i(n_i - 3) / \sum(n_i - 3)$$

(n_i = number of people)

Step 3:

$$\chi^2 = \sum(n_i - 3) * / (z_i - \bar{z}_i)^2$$

Homogeneity of correlation test was used to find the difference in correlation coefficients across different team size categories. Results of homogeneity of correlation test for different dimensions of team performance as well as for total team performance are displayed in Table 5.

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Table 4: Correlation of Team Performance with Transactive Memory System Across Several Team Sizes												
	Small Size Teams				Medium Size Teams				Large Size Teams			
	TM1	TM2	TM3	TMS	TM1	TM2	TM3	TMS	TM1	TM2	TM3	TMS
Quantity of Work	-0.27**	-0.05	0.03	-0.15	-0.04	0.16	0.10	0.08	-0.10	0.01	0.08	-0.04
Quality of Work	-0.06	-0.05	0.10	-0.05	0.12	0.25*	0.22	0.14	-0.04	-0.15	0	-0.06
Task Accomplishment	-0.09	0.05	0.03	-0.02	-0.07	0.31**	0.15	0.09	-0.19	0.02	0.11	-0.08
Interpersonal Skills	-0.06	0.16	0.12	0.04	-0.03	0.13	0.07	-0.01	0.01	0.15	0.11	0.13
Integrity	-0.09	0.09	0.05	-0.03	0.16	0.06	0.26*	0.21	0.20	0.31**	0.22*	0.30**
Initiative	0.06	0.05	0.10	0.11	0.03	0.09	0.09	0.09	-0.08	0.06	0.07	0.04
Planning and Allocation	0.02	0.14	0.18	0.13	0.11	-0.01	0.15	0.18	-0.13	0.01	-0.12	-0.06
Commitment to Work	-0.23*	-0.04	-0.03	-0.16	0.22	0.34**	0.39**	0.32**	-0.14	-0.08	-0.14	-0.16
Innovation and Creativity	0.08	0.13	0.22*	0.21*	0.16	0.27*	0.34**	0.27*	-0.15	-0.01	-0.20	-0.14
Overall Team Performance	0.04	0.10	0.29**	0.13	0.03	0.12	0.01	-0.03	-0.10	0.05	0.08	0

Note: * Significant at 0.05, ** Significant at 0.01 level.
 TM1– Specialization, TM2 – Credibility, TM3 – Coordination, TMS total – Total score on Transactive Memory System.

	TM1	TM2	TM3	TMS
Quantity of Work	2.83	1.81	0.27	2.27
Quality of Work	7.49**	6.54**	2.14	1.81
Task Accomplishment	1.12	6.37**	0.86	1.15
Interpersonal Skills	4.90*	4.07	0.48	0.71
Integrity	18.46***	7.60*	5.21*	5.72*
Initiative	8.56**	0.51	0.25	0.26
Planning and Allocation	8.76**	1.55	4.84*	2.48
Commitment to Work	10.53***	8.64*	12.70***	11.74***
Innovation and Creativity	13.59***	5.76	14.41***	7.87*
Overall Team Performance	7.48**	1.31	6.64**	1.42
Total Team Performance	4.20	3.48	3.35	1.80

Note: Degree of freedom = 2,
 * Significant at 0.10, ** Significant at 0.05, *** Significant at 0.01 level.
 TM1 – Specialization, TM2 – Credibility, TM3 – Coordination, TMS – Total score on Transactive Memory System.

Results of homogeneity of correlation tests showed significant difference in correlation coefficients across teams. This indicates that team size had an effect on the relationship of TMS with most of the dimensions of team performance and it supported our third hypothesis. This finding reveals that relationship between team performance changes if there are changes in the composition of team size.

DISCUSSION

Results of the present study showed that TMS was high in small and medium size teams as compared to large size teams. These results gave support to the literature that people in small teams have more scope to interact and know about each other which further leads to the development of stronger TMS (Wittenbaum *et al.*, 1998; and Rentsch and Klimoski, 2001). Post-hoc analysis

revealed that TMS scores were more or less similar for small and medium size teams but differed significantly from large size teams. The reason behind the low scores of TMS in large size teams may be due to the fact that as there are too many people in a team, members do not get chance to know all the members and they may also tend to develop sub-groups within the team. Of the three dimensions of TMS, large size teams had very low score on dimension of specialization in comparison to small and medium size teams. Specialization refers to the transactive memory of team members regarding the expertise and specialized knowledge of other team members. Large size teams provide less scope of working closely with all the team members and thus the team members do not have much chance to know about the area of specialization of team members.

Previous studies have shown the effect of team size on team performance. Present study indicates that team performance is better in small size team in comparison to large size team. These results get support from those researches, which have suggested the possible benefits of small teams on team performance (Hare, 1952; and Slater, 1958). The results of this study on effect of team performance strengthens the findings of earlier studies that team performance will be better in small size teams in comparison to large teams (e.g., Goodman *et al.*, 1986). Findings of the study indicated that not all the dimensions of TMS had significant effect on different aspects of team performance. It was evident from the analysis that specialization did not have much impact on most of the dimensions of team performance. Small impact of specialization may be because that specialization is important for team performance only when the teams require diverse skills and members depend on other members specialization to complete the task. However in present study the teams were from software companies of IT sector and in these teams, members have more or less similar specializations and their work also do not require different specializations even if it is available in the team so this explains the lesser effect of specialization on team performance.

Previous research has provided some direct and indirect evidence that TMS affects team performance (Moreland *et al.*, 1998; Austin, 2003; and Lewis, 2003, etc.). The present study showed the positive correlation of transactive memory

with overall team performance. However, this relationship was not always positive for different dimensions of team performance. Present study expands our understanding about the affects of TMS on team performance in several ways. Most of the literature available on TMS and performance has focused on laboratory or student teams and much is not known about TMS in real life work settings. Results in this study are based on the real life teams and offer a broader scope of application. Sometimes almost no or minimal negative relationship of performance dimensions with TMS was indicated. The low correlation in the study between TMS and team performance can be also because of the subjective nature of team performance rating scale. The results indicated varied relationship of team performance with TMS in different team size categories. Specialization shared a significant negative correlation with some dimensions of team performance in small team as well as larger teams but not in medium size teams. This may be explained with the help of prior analogy that some other factors like task characteristics, measurement tool, etc., are affecting the relation of specialization with team performance and could be examined in future research.

The correlations of TMS with team performance across different sizes were analyzed. Results showed that relations between dimensions of team performance and TMS were stronger and positive in

medium size teams than in small and large teams. This finding may indicate that medium size teams would be able to make the best of TMS in terms of team performance. Present study expands our understanding that small size teams may have high team performance and TMS but it was medium size teams that had the stronger relationships between these variables. Weak relationship of TMS and team performance in small size teams in spite of strong TMS may be because of the effect of high work load, less diversity, etc., in small size teams on the relationship of TMS and team performance. Homogeneity of correlation tests provided further evidences on the impact of team size on the relationship of TMS and team performance. The important finding is that TMS and team performance are found stronger in small size teams but medium size teams will be having high performance because of TMS. Medium size teams do not have limitation of small and large size teams, e.g., over crowdedness, high workload, sub-groups etc. and provide better environment and it is these factors which may be leading to high performance when the teams have better TMS.

From applications point of view the study suggests that efforts should be made to keep team size small or medium as far as possible. Application of smaller teams will lead to optimization of cost while maintaining the same or better level of team performance in IT sector. Wherever the team size cannot be reduced because of unavoidable reasons like amount of work, specialization in different areas, etc.,

extra attention should be paid in order to maintain a high level of TMS through various ways, e.g., team training, task clarity, etc. Results of this study indicate that there is high positive correlation of TMS with team performance in medium size teams in comparison to large size teams and even small size teams. These results can be applied for setting the team size when the specific team task requires high coordination and knowledge sharing among team members. The study also suggests that for knowing the indepth nature of the relation of TMS with team performance, it is necessary to study all the dimensions of team performance separately.

As no research is without limitation, this research also has certain limitations. First and foremost limitation of this study is that the data collected for this study represent only one sector, i.e., IT. Another limitation of this study is that this study has not delved into factors like task characteristics, tenure of team etc., that may have significant effect on team performance and its relation with TMS. Furthermore, the team performance ratings in present study were taken through team leaders and no other objective indicator of team performance was taken into consideration. Future research may try to incorporate the variables like task characteristics, team tenure etc., that may be helpful to decide the optimum size of team from different sectors and will also explain the importance of TMS according to job characteristics and requirements.

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APPENDIX 1

Team Performance Rating Scale					
Please rate your team on a five-point scale (described below) on the following dimensions:					
<ol style="list-style-type: none"> 1. Below the requirement and expectations 2. Not up to the mark of satisfaction 3. Average 4. Good 5. Excellent and consistently exceeds requirement 					
Dimensions	Five Point Scale				
	1	2	3	4	5
1. Quantity of Work					
2. Quality of Work					
3. Task Accomplishment (accomplishment of task within targeted time limit)					
4. Interpersonal Skills					
5. Integrity					
6. Initiative					
7. Planning and Allocation (ability of the team to manage available resources and utilize them best when needed)					
8. Commitment to Work (overall commitment to the work among team members)					
9. Innovation and Creativity (new ideas, suggestions and creative ways to do the tasks)					
10. Overall Team Performance					

Karma-Yoga: Construct Validation Using Value Systems and Emotional Intelligence

Zubin R Mulla* and Venkat R Krishnan**

The construct of Karma-Yoga was validated using value systems and emotional intelligence in two studies. The first study based on a group of 60 executives found that the essence of Karma-Yoga is a sense of duty or obligation towards others, and that believing in the law of karma, existence of a soul, and salvation lead to Karma-Yoga. Individuals who rated high on Karma-Yoga preferred other oriented terminal values such as 'a world at peace' as compared to self-oriented terminal values such as 'mature love'. On the other hand, individuals who rated low on Karma-Yoga showed exactly the opposite preferences. High Karma-Yoga individuals rated moral values like being 'responsible' and being 'obedient' significantly higher than low Karma-Yoga individuals. The second study based on a group of 37 students found that Karma-Yoga was highly correlated with emotional intelligence.

INTRODUCTION

For an enduring and sustainable progress of societies, it is important that leaders identify and build on the core components of the cultural ethos and customize some of the cultural artifacts to suit modern times (Krishnan, 2003). The relationship between humankind and work has been elaborated in India through the *Bhagavad-Gita*. The *Gita*, which is part of the epic *Mahabharata*, explains the philosophy of right action or *Karma-Yoga* using the situation of Arjuna, a warrior on the

battlefield who finds himself helpless when he is called to action. The text of the *Gita* is a dialogue between Krishna and Arjuna where Krishna explains the meaning of life, the place of work within life, and the right way to work.

An earlier study (Mulla and Krishnan, 2006) identified two dimensions of *Karma-Yoga* viz., sense of duty or obligation towards others and an absence of desire for rewards. The dimensions of *Karma-Yoga* were then validated using two facets of the personality trait of

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conscientiousness, viz., dutifulness and striving for achievement, using hierarchical regression and a test for moderation. They found that belief in the Indian philosophy enhanced duty orientation, and absence of desire for rewards enhanced life satisfaction. There was moderate support for their hypothesis that dutifulness was more strongly related to *Karma-Yoga* when achievement striving was low than when it was high.

According to Rokeach (1968), human personality consists of three distinct domains. The behavioral domain which consists of observable behaviors, the affective domain which consists of feelings, emotions, and attitudes, and the cognitive domain which consists of the intellect, which reasons and evaluates. The *Karma-Yoga* construct has already been validated in the behavioral domain (Mulla and Krishnan, 2006). This paper attempts to further validate the *Karma-Yoga* construct in the cognitive and affective domains using Rokeach's universal values and emotional intelligence respectively. In addition to the two dimensions of *Karma-Yoga* identified by Mulla and Krishnan (2006), this study also explores an additional dimension of *Karma-Yoga* i.e., equanimity to pairs of opposites.

Before we explore the concept of *Karma-Yoga*, it is important for us to understand some of the fundamental beliefs of Indian philosophy, which form the foundation of *Karma-Yoga*.

FUNDAMENTAL BELIEFS OF INDIAN PHILOSOPHY

Despite the numerous schools of thought, three beliefs are fundamental to Indian philosophy (Dasgupta, 1991, p. 71). First, the belief in the *karma* theory i.e., all actions that are done have the power to ordain for their doer's joy or sorrow in the future, depending if the action is good or bad. Often, individuals may be required to take birth in another body to fully experience the joy or suffering that is due to them because of their past actions. The second belief is in the existence of a permanent entity, called *atma* or soul, which is our true unknown nature, pure and untouched by the impurities of our ordinary life. The third belief is about the doctrine of *mukti* or salvation. Since actions lead us through this endless cycle of birth and death, if we could be free of all such emotions or desires that lead us to action, then there would be no fuel (in the form of joys or sorrows to be experienced) to propel us into another birth and we would be free of this eternal cycle. Krishnan (2001) describes the four basic components of the Indian worldview as (i) an understanding of the real nature of this world (theory of Maya); (ii) preference to action over inaction; (iii) perceiving the potentially divine nature of oneself and others; and (iv) visualizing freedom as the supreme goal of human existence. The *Gita* builds on these beliefs and suggests a way out of the cycle of birth and death by selflessly performing one's duties depending on one's position in the society.

WHAT IS KARMA-YOGA?

The word *karma* comes from the Sanskrit root *kri*, which means *doing*, *affairs*, or

activity and includes all the actions that a person performs whether they are of the body, speech, or mind. The word *yoga* comes from the Sanskrit root *yuj*, which means, *to join*. However, in the *Mahabharata* it is used in three ways: as a special skill, device, intelligent method, or graceful way of performing actions (*Gita* chapter 2, verse 50); as equability of mind towards success or failure (*Gita* chapter 2, verse 48); and as the device for eliminating the natural tendency of *karma* to create bondage (*Gita* chapter 2, verse 50). Since the two later definitions of yoga speak of the relationship of *yoga* with action, the terms *yoga* and *Karma-Yoga* are used interchangeably at various instances in the *Gita* (Tilak, 1915/2000). For the purpose of our paper, we will use the word *yoga* to mean ‘device’ or ‘intelligent method’ and hence the term *Karma-Yoga* would be ‘a technique for intelligently performing actions’.

Since the ultimate goal of all beings is to free the soul from the cycle of birth and death, any method that enables release from this perpetual cycle is preferable to any other method that is likely to bind the human soul to the cycle. Hence, whether we define *Karma-Yoga* as, “a technique for intelligently performing actions” or “a technique for performing actions in a manner that the soul is not bound by the effects of the action” we means the same thing (Tilak, 1915/2000).

DIMENSIONS OF KARMA-YOGA

Mulla and Krishnan (2006) identified the dimensions of *Karma-Yoga* using a

contemporary version of the *Gita* (Gandhi, 1946/2001). Each verse was content-analyzed and classified into three categories viz., activities prescribed to reach the ideal state (69 verses); description of the ideal state of a person (145 verses); and outcomes on achieving the ideal state (76 verses). Since, *Karma-Yoga* is the path to reach the ideal liberated state through work, Mulla and Krishnan (2006) further analyzed the types of activities prescribed to reach the ideal state and found that five types of activities were described in the *Gita*: devotion to god or seeing god in all beings (22 verses); performing actions without attachment (16 verses); meditation or focusing on the soul (10 verses); being neutral to opposites, or keeping senses under control (10 verses); and doing one’s duty in society (8 verses). These five activities were then matched with the four equivalent paths to reach the ideal state viz., the path of meditation *Raja-Yoga*, the path of knowledge *Jnana-Yoga*, the path of devotion *Bhakti-Yoga*, the path of action *Karma-Yoga*. In this manner, Mulla and Krishnan (2006) categorized ‘devotion to god’ as the path of devotion and ‘meditation or focusing on the soul’ as the path of meditation or the path of knowledge. From this they deduced that karma yoga must be described by one or more of the remaining three items viz., performing action without attachment, doing one’s duty, and being neutral to opposites.

The essence of *Karma-Yoga* is given in the *Gita* (Radhakrishnan, 1948/1993) chapter 2, verse 47, which says, “To action

alone hast thou a right and never at all to its fruits; let not the fruits of action be thy motive; neither let there be in thee any attachment to inaction". This verse of the *Gita* is also mentioned by Tilak (1915/2000 p. 895), as giving the entire import of *Karma-Yoga* in a short and beautiful form. Later in the *Gita* (Radhakrishnan, 1948/1993, chapter 3, verses 12, 13, and 16), Arjuna is told that persons who survive on this earth and use its resources without working are living in sin, and hence man is obliged to work selflessly in order to fulfill his/her duty towards the world. Hence, based on the results of our content analysis and the interpretation of the verses of the *Gita*, we take *Karma-Yoga* to be made up of three dimensions: a sense of obligation or duty towards others, an absence of desire for rewards, and a sense of equanimity which enables one to be neutral to environmental influences.

SENSE OF OBLIGATION OR DUTY TOWARDS OTHERS

The body has a natural tendency to act; the *Gita* states that actions motivated by a desire bind the soul into the cycle of birth and death. Hence, the only way by which one can effectively function in society is by developing a sense of obligation or duty towards others. In this manner, all actions become a repayment of a debt and the actor is free of any motive for the actions.

The belief in the law of cause and effect makes us realize that we are placed in a particular situation because of unfulfilled past obligations on our part and one develops a sense of connectedness with all beings. When our belief in the

law of cause and effect is coupled with the belief in the doctrine of salvation, it makes us strive to live a moral life for the benefit of society. The sense of connectedness coupled with our striving to live a moral life for the benefit of society, creates a sense of duty or obligation towards others in us.

ABSENCE OF A DESIRE FOR REWARDS

When an individual is able to discriminate between what is eternal—*soul* and what is transient—*the body* and is able to increasingly identify with the soul, one's actions are more spontaneous and are not motivated by any material gratification. Besides, reduced identification with the body creates resilience towards physical pleasures and pain. As a result of this, there arises in the individual, an absence of desire for rewards.

In addition, since the outcomes of one's actions are dependant on an elaborate chain of cause and effect, all that is in the individual's control is performance of that action. Hence, one ceases to have a feeling of ownership towards one's actions and believes that the actions happen naturally and the bodily organs are just an instrument for their execution. This lack of ownership for actions coupled with the sense of obligation to others creates a complete disinterest in the mind of the seeker for any form of material or social rewards.

SENSE OF EQUANIMITY

According to the *Gita* chapter 2, verse 14, the senses interact with the

material objects of the world and because of these interactions, there is perception of happiness or pain in the mind of the person experiencing the sense objects. The perception of happiness or pain leads to desire, which is nothing but a wish to experience again or avoid something that has once been experienced by the senses. This leads to further interaction of the senses with material objects. Thus, even when the object of desire is enjoyed, our desires are not extinguished, instead, the desires grow like a fire on which oil has been poured (Tilak, 1915/2000).

One way out of this perpetual cycle of desire is the complete annihilation of all desires by the renunciation of all actions. Another method is to be able to control in one's mind the experience of pain and happiness, i.e., being neutral to the experiences of our senses (Tilak, 1915/2000).

According to the *Gita*, when one does what one has to do, with perfect mental control, after giving up the desire for the result, and with a frame of mind that is equal towards pain and happiness, there remains no fear or possibility of experiencing the unhappiness of actions. If one can perform actions with such a spirit, it will not become necessary to give up actions. Hence, the *Gita* recommends that we keep our organs under control and allow them to perform the various activities, not for a selfish purpose, but apathetically, without desire, and for the welfare of others (Tilak, 1915/2000).

For individuals, who believe in the eternal nature of the soul and the

inherent divinity of all beings, there develops a sense of equanimity or resilience towards all physical and mental disturbances.

BELIEFS IN INDIAN PHILOSOPHY AND THE DIMENSIONS OF KARMA-YOGA

The *Gita* (chapter 3, verse 3) explains that there are two paths, which lead to the goal of liberation and each is suited for a person of a particular temperament (Radhakrishnan, 1993, p. 132). The path of renunciation, meditation, and intellectual inquiry is prescribed for those persons whose natural tendency is to explore the inner life of the spirit while the path of action is for persons who are involved in the affairs of the world. For a person who does not renounce the world and is a part of the society, *Karma-Yoga* naturally evolves from the fundamental beliefs of the Indian worldview.

Firstly, when an individual believes that all beings are divine and that all beings are connected to each other through an elaborate chain of cause and effect, there develops in the person a sense of connectedness to all beings. According to the law of *karma*, every event that we experience and every individual with whom we come in contact is the outcome of some past action or relationship with that individual. Hence, the main purpose of the current interaction is the repayment of some past debt or obligation to that individual. As a result of understanding this essential interconnectedness of all beings,

one develops a sense of obligation or duty towards others.

Secondly, when an individual believes that the final goal of life is liberation from the cycle of birth and death and this liberation is possible only if one gives up hankering for the results of one's actions, there develops a tendency for performing selfless service. This selfless service i.e., actions performed without a desire for material rewards do not bind the soul to the cycle of birth and death and are conducive to attain the final goal of liberation.

Finally, when an individual is convinced that he or she is not the physical body but is in reality the eternal soul which cannot be affected by events in the external environment, there develops in the person an indifference to environmental constraints. As a result of this, the individual develops equanimity to opposites.

Hence, we hypothesized that for individuals who are part of society, the extent of their belief in the fundamental tenets of the Indian worldview will be positively related to their *Karma-Yoga* orientation (Hypothesis 1).

VALIDATION OF THE KARMA-YOGA CONSTRUCT

As mentioned earlier, human personality consists of three distinct domains. The behavioral domain consists of observable behaviors, the affective domain consists of feelings, emotions, and attitudes, and the cognitive domain consists of the

intellect, which reasons and evaluates. Our validation of the *Karma-Yoga* construct must address each of these three domains of human personality. Mulla and Krishnan (2006) studied the relationship of *Karma-Yoga* with self-reported personality factors, which are enduring patterns of behavior. This study builds on the earlier study by looking at the relationship of *Karma-Yoga* with the cognitive and the affective domain.

Values form part of the cognitive domain, which is the innermost core of the personality and which affects the other two aspects i.e., the affective, and the behavioral domains. Values are prescriptive or exhortatory beliefs, which advocate a certain course of action, or a certain state of existence as desirable or undesirable e.g., I believe it is desirable that children should obey their elders (Rokeach, 1968).

VALUE SYSTEM

Rokeach (1973) defined a value as an, "enduring belief that a specific mode of conduct or end-state of existence is personally or socially preferable to an opposite or converse mode of conduct or endstate of existence". A belief concerning a desirable mode of conduct was called an instrumental value and a belief concerning a desirable end-state of existence was called a terminal value. If a person values freedom as an end-state of existence, it means that he or she believes that freedom is preferable to slavery. Values can be looked upon as being hierarchical in nature, leading to the idea of a value system.

A set of rank-ordered values is called a value system. A person's value system is enduring and value systems affect how people feel about themselves and their work. Empirical studies have shown how value systems affect personal and organizational effectiveness (Meglino and Ravlin, 1998).

ROKEACH'S VALUE SURVEY

Rokeach's (1973) value survey is the most commonly used instrument for measuring value system. It has two lists of values arranged alphabetically—one consisting of 18 terminal values and the other consisting of 18 instrumental values. Each value is presented along with a brief definition in parenthesis and respondents are asked to arrange the values in each set in order of importance to and as guiding principles in their life, thereby recording their value systems. The value survey has been found to be both reliable and valid. All the values are socially desirable ones, but no significant relationship has been found between value rankings and the tendency to respond in a socially desirable manner.

KARMA-YOGA AND TERMINAL VALUES

Values are a standard for guiding actions and for developing attitudes towards objects and situations, for justifying one's own and others' actions and attitudes, for morally judging self and others, and for comparing self with others. Values are derived from underlying needs, yet they are different from needs. While needs are subconscious or unconscious motives,

values are in the cognitive domain and are accessible to the person. While needs may be antisocial or selfish and hence may not be openly admitted, these needs after being transformed into values based on institutional goals and demands, can be openly admitted, advocated, exhorted, and defended by oneself and others in a socially sanctioned language. Thus, values provide us with a standard to guide us in our efforts to satisfy our needs, and also maintain and enhance our self-esteem (Rokeach, 1978).

Rokeach (1973) considered terminal values to be of two kinds—those that are self-focused called personal values, and those that are others-focused called social values. Krishnan (2001) showed that transformational leaders gave higher importance to others-focused social values. Individuals who are high on *Karma-Yoga* see their lives and their work as a means of discharging their obligations to society. Such individuals are more likely to give more priority to social values such as 'a world at peace', 'a world of beauty', 'equality', 'national security', and 'social recognition'.

Hence, we hypothesize that individuals high on *Karma-Yoga* will give higher priority to social values (Hypothesis 2).

KARMA-YOGA AND INSTRUMENTAL VALUES

A concept similar to *Karma-Yoga* is deontic motivation i.e., motivation determined by a feeling of obligation. Schwartz (1983) explains the origin of

deontic motivation by using Freud's Oedipus complex. During childhood, the child who is attracted to the mother develops hostility towards the father and hence fears annihilation by the stronger personality of the father. As a defence against this, the child creates a superego in order to identify with the father. The individual thus creates a symbolic new self, which is known as the ego-ideal, and is superior to the physical organic self. Since, the organic self can never be totally substituted by the ego-ideal, it remains repressed. The presence of these two identities create an existential dilemma or a tension which we feel as obligation.

The superego contains three components: rejection of the organic self, critical self-consciousness, and the image of an impossible ideal self. When the attitude of an external powerful authority is internalized, the mind begins to reject spontaneous impulses. In order to avoid the criticism of the internalized powerful figure, the mind develops a sense of compulsion, which is present in the feeling of obligation. The image of the ideal self is the opposite of the organic self and it gives direction to work carried out under deontic motivation. Thus, the individual feels a sense of pride or moral worthiness in having lived upto the standards of the ego-ideal (Schwartz, 1983).

Like the terminal values, instrumental values are also of two kinds—those which when violated arouse pangs of conscience or feelings of guilt for wrongdoing called moral values, and those which when

violated lead to feelings of shame about personal inadequacy called competence or self-actualization values (Rokeach, 1973).

Individuals who are rated high on *Karma-Yoga* have a strong sense of obligation, which could have been developed as a result of the Oedipus complex experienced in their childhood. Such individuals have a strong superego and are more likely to emphasize moral values such as being 'courageous', 'forgiving', 'helpful', 'honest', 'loving', 'obedient', 'polite', 'responsible', and 'self-controlled'. The instrumental value 'broadminded' has been found to be the opposite to the value of 'self-controlled'. Hence, individuals high on *Karma-Yoga* are also likely to give lower priority to the value of being 'broad-mindedness'.

Hence, we hypothesize that those individuals who are high on *Karma-Yoga* will give higher priority to moral values such as being courageous, forgiving, helpful, honest, loving, obedient, polity, responsible, and self-controlled and lower priority to the moral value of being broadminded (Hypothesis 3).

EMOTIONAL INTELLIGENCE

Emotional intelligence is defined as the ability to recognize and regulate emotion in oneself and others (Spector, 2005). Emotional intelligence is a useful construct because of its use in understanding emotional labor and its ability to predict outcomes in the areas of leadership, and job performance (Daus and Ashkanasy, 2005).

Studies on emotional intelligence have followed one of the two predominant models viz., the ability approach that views emotional intelligence as a set of cognitive abilities and the mixed or dispositional approach that combines abilities and a broad range of personality traits (Caruso *et al.*, 2002; and Tett *et al.*, 2005). As an ability or skill, emotional intelligence is a capacity to engage in valued behavior, which entails a degree of mutability (e.g., through training), and calls for measurement in the context of correctness (i.e., right/wrong answers). As a disposition, emotional intelligence is a relatively stable inclination or tendency amenable to self-description. The ability model of emotional intelligence was developed by Mayer, Salovey and their associates, while the mixed model of emotional intelligence was popularized through the works of Goleman (1995 and 1998).

Mayer *et al.* (2004) describe the ability model as a four-branch model of emotional intelligence. According to this model, emotional intelligence is the ability to perceive emotions, to access and generate emotions to assist thought, to understand emotions and emotional knowledge, and to regulate emotions reflectively to promote emotional and intellectual growth. According to this model, emotional intelligence is conceived of as an ability that can be measured using objective, ability-based measures. The model does not focus on personality traits or dispositions per se, except as an outcome of having the underlying skills (Caruso *et al.*, 2002).

Sensing the need for a short, practical, and empirically valid measure of emotional intelligence, Wong and Law (2002) developed a 16-item scale based on the ability model of emotional intelligence proposed by Salovey and Mayer (1990). The scale, called the Wong and Law Emotional Intelligence Scale (WLEIS) was developed and validated using samples of managers, employees, and students in Hong Kong.

KARMA-YOGA AND EMOTIONAL INTELLIGENCE

Salovey and Mayer (1990) conceptualized emotional intelligence as a set of skills, which contribute to the accurate appraisal, and expression of emotion in oneself and in others, the effective regulation of emotion in self and others, and the use of feelings to motivate, plan, and achieve goals in one's life. A central characteristic of emotionally intelligent behavior is empathy, i.e., the ability to comprehend another's feelings and to reexperience them oneself. The set of mental processes using emotional intelligence which include: a) appraising and expressing emotions in the self and others; b) regulating emotion in the self and others; and c) using emotions in adaptive ways, form the foundation of empathetic helping behaviors (Salovey and Mayer, 1990).

Individuals who are rated high on *Karma-Yoga* feel a sense of connectedness with others. As a result of this feeling of oneness they are able to perceive the feelings and needs of people around them easily, and are likely to be more emotionally intelligent.

Hence, we hypothesize that individuals who are high on *Karma-Yoga* will also be high on emotional intelligence (Hypothesis 4).

STUDY 1

PARTICIPANTS

Sixty executives attending training programs at a business school, from ages 25 years to 54 years (Median = 36) across a number of organizations in India were studied. The sample included 53 male and seven female respondents. 18 were graduates, 36 were postgraduates, and 4 had Ph.Ds. (2 undisclosed).

MEASURES

The scales for belief in Indian philosophy and *Karma-Yoga* were first developed by Mulla and Krishnan (2006) and later updated for this study based on inputs from a panel of experts in Indian philosophy. The scale for beliefs in Indian philosophy contained seven items. Three of the items were pertaining to a belief in the law of *karma*, two of the items were pertaining to a belief in the *atma* or *soul*, one item was about *mukti* or liberation, and one item was about *maya* or the inexplicable nature of the world. The scale used for measuring beliefs in Indian philosophy has been included in Annexure 1.

The scale for *Karma-Yoga* was made up of the three dimensions of *Karma-Yoga* viz., sense of duty or obligation towards others (5-items), absence of desire for rewards (7-items), and a sense of equanimity towards opposites (13-items). The scale used for measuring the dimensions of *Karma-Yoga* has been included in Annexure 2.

The ranking of the terminal and the instrumental values was done by participants using the Rokeach Value Survey (Rokeach, 1973).

DATA ANALYSIS

The reliability of the scale for beliefs in Indian philosophy was found to be unsatisfactory (Cronbach alpha = 0.66). When the item pertaining to *maya* was dropped, the reliability was acceptable (Cronbach alpha = 0.72). All items for this scale loaded onto a single factor.

The reliability of the *Karma-Yoga*—sense of duty scale was found to be acceptable (Cronbach alpha = 0.69) after dropping one item (“I happily do whatever task is assigned to me, even if I do not enjoy it”). The reliability of the *Karma-Yoga*—absence of desire for rewards scale was found to be acceptable (Cronbach alpha = 0.68) after dropping three items (“I work in order to get some personal benefits”; “While working on an important task, I focus more on the process rather than the outcome”; and “I strive to be selfless in whatever activity I undertake”). Each of the two reduced scales i.e., *Karma-Yoga* – sense of duty and *Karma-Yoga* – absence of desire for rewards individually loaded on a single factor. Also when all the selected items of these two dimensions of *Karma-Yoga* were taken together, they loaded onto two clean factors with *Karma-Yoga*—sense of duty items in one factor and *Karma-Yoga*—absence of desire for rewards on another factor.

The third dimension of *Karma-Yoga* i.e., sense of equanimity was introduced for the first time in this study. The scale

showed a very low reliability (Cronbach alpha = 0.50) and an unclear factor structure.

RESULTS

The means, standard deviations, and zero order correlations are reported in Table 1. The *Karma-Yoga* dimension of sense of equanimity was not included in the correlation matrix because the reliability was too low for it, to be considered as a distinct variable. The *Karma-Yoga* dimension of absence of desire for rewards showed a negative correlation with the other dimension of *Karma-Yoga* viz., sense of duty. Hence, it was not included in the further analysis.

The results of the regression of beliefs in Indian philosophy on the *Karma-Yoga* dimension of sense of duty are reported

in Table 2. The results support Hypothesis 1 that beliefs in Indian philosophy lead to *Karma-Yoga*.

TESTING OF HYPOTHESIS 2 AND 3

The procedure for testing Hypothesis 2 was based on the procedure used by Krishnan (2001) for identifying the value systems of transformational leaders. The median score on *Karma-Yoga*—sense of duty was used to split the sample of respondents into two groups—low *Karma-Yoga* and high *Karma-Yoga*. The differences in value rankings between the two groups of respondents were analyzed in two different ways. The first approach adopted looked at each of the 36 values (18 terminal and 18 instrumental) separately. The Wilcoxon rank sum test was used to test a

Table 1: Means, Standard Deviations and Zero-Order Intercorrelations

Variable	M	SD	1	2	3
1. Belief in Indian Philosophy	3.47	0.72	(0.72)		
2. <i>Karma-Yoga</i> – Sense of Duty	3.98	0.63	0.43**	(0.69)	
3. <i>Karma-Yoga</i> – Absence of Desire for Reward	2.38	0.77	-0.21	-0.26*	(0.68)

Note: Coefficients alphas are in parenthesis along the diagonal. N = 60.
 * p < 0.05.
 ** p < 0.01.

Table 2: Results of Regression Analysis to Check the Effect of Belief in Indian Philosophy on *Karma-Yoga* – Sense of Duty

Predictor	b	SE b	95% CI		β	t	p
			Lower	Upper			
Constant	2.58	0.62	1.32	3.84	–	4.11	0
Beliefs in Indian Philosophy	0.44	0.11	0.22	0.66	0.50	4.05	0
Age	-0.01	0.01	-0.03	0.01	-0.12	-0.98	0.32
Sex (Male=1, Female=2)	0.20	0.24	-0.28	0.70	0.10	0.84	0.40

Note: N = 60.

statistically significant difference in value rankings given by low and high *Karma-Yoga* individuals. The second approach adopted was to arrive at two aggregate value systems (one terminal and one instrumental) for each of the two groups and then compare them across the two groups. The median rank assigned to each terminal value by the leaders in either group was calculated. The values were arranged in ascending order of median ranks to obtain the group's aggregate terminal value system (where two values had the same median rank, the mean was used to break the tie). The aggregate instrumental value systems of the two groups were also similarly obtained.

DIFFERENCES IN TERMINAL VALUES OF HIGH AND LOW KARMA-YOGA RESPONDENTS

In the case of terminal values, results of the Wilcoxon test indicated that the rankings given by low *Karma-Yoga* respondents (those who scored below the median score on *Karma-Yoga*) and high *Karma-Yoga* respondents (those who scored above the median score on *Karma-Yoga*) differed significantly in the case of two terminal values – 'mature love' ($Z = -1.83, p = 0.06$) and 'national security' ($Z = -2.03, p = 0.04$). High *Karma-Yoga* respondents assigned a significantly lower rank to 'mature love' as compared to low *Karma-Yoga* respondents. Also, high *Karma-Yoga* respondents assigned a significantly high rank to 'national security' as compared to low *Karma-Yoga* respondents. There was

no significant difference in individual value rankings in the case of the remaining 16 terminal values.

The aggregate terminal value systems of the two groups of respondents (low *Karma-Yoga* and high *Karma-Yoga* are given in Table 3. The largest difference (at least 2.5 in median and 5 in aggregate rank) in terminal value ranking between the two groups of leaders was found for 'mature love', 'a world at peace', and 'social recognition'. High *Karma-Yoga* respondents as a group gave 'mature love' the 15th rank (median = 12.5) while the group of low *Karma-Yoga* respondents gave the same value 10th rank (median = 9). Secondly, high *Karma-Yoga* respondents as a group gave 'a world at peace' the 10th rank (median = 10 while the group of low *Karma-Yoga* respondents gave the same value the 15th rank (median = 13). Finally, high *Karma-Yoga* respondents as a group gave 'social recognition' the 6th rank (median = 7) while the group of low *Karma-Yoga* respondents gave the same value the 11th rank (median = 9.5).

A comparison of the value systems instead of individual value rankings indicated that high *Karma-Yoga* respondents considered 'a world at peace' more important than 'mature love' while low *Karma-Yoga* respondents did just the reverse. Thus, hypothesis 2 is partially supported.

DIFFERENCES IN INSTRUMENTAL VALUES OF HIGH AND LOW KARMA-YOGA RESPONDENTS

In the case of instrumental values, results of the Wilcoxon test indicated that the

Table 3: Aggregate Terminal Value Systems of the Two Groups

Rank	Low <i>Karma-Yoga</i> (Median ^a)	High <i>Karma-Yoga</i> (Median ^a)
1.	A Comfortable Life (5)	Happiness (4.5)
2.	Self-Respect (5.5)	Family Security (5)
3.	An Exciting Life (5.5)	Self-Respect (6)
4.	Happiness (6)	A Sense of Accomplishment (7)
5.	Family Security (6.5)	A Comfortable Life (7)
6.	A Sense of Accomplishment (6.5)	Social Recognition (7)
7.	Freedom (8)	An Exciting Life (7.5)
8.	Inner Harmony (8.5)	Wisdom (8)
9.	True Friendship (9)	Freedom (9)
10.	Mature Love (9)	A World at Peace (10)
11.	Social Recognition (9.5)	Inner Harmony (11)
12.	Wisdom (10)	True Friendship (11)
13.	Equality (11)	National Security (11)
14.	Pleasure (12)	Equality (11.5)
15.	A World at Peace (13)	Mature love (12.5)
16.	National Security (13.5)	Pleasure (12.5)
17.	A World of Beauty (14)	A world of beauty (13)
18.	Salvation (15)	Salvation (15)

Note: ^a The median rank assigned to each value by respondents in the group is included in parenthesis next to the value.

rankings given by low *Karma-Yoga* respondents (those who scored below the median score on *Karma-Yoga*) and high *Karma-Yoga* respondents (those who scored above the median score on *Karma-Yoga*) differed significantly in the case of four instrumental values—being ‘broadminded’ ($Z = -1.90, p = 0.05$); ‘logical’ ($Z = -2.43, p = 0.01$); ‘obedient’ ($Z = -1.74, p = 0.08$); and ‘responsible’ ($Z = -2.13, p = 0.03$). High *Karma-Yoga* respondents assigned a significantly higher rank to being ‘logical’, ‘obedient’, and ‘responsible’ as compared to low *Karma-Yoga* respondents. On the other hand low *Karma-Yoga* respondents

assigned a significantly lower rank to being ‘broadminded’ as compared to high *Karma-Yoga* respondents. There was no significant difference in individual value rankings in the case of the remaining 14 instrumental values.

The aggregate instrumental value systems of the two groups of respondents are given in Table 4. The largest difference (at least 4 in median and 5 in aggregate rank) in instrumental value ranking between the two groups of leaders was found for being ‘responsible’, ‘logical’, and ‘obedient’. High *Karma-Yoga* respondents as a group gave ‘responsible’ the 1st rank (median = 3.5) while the

Table 4: Aggregate Instrumental Value Systems of the Two Groups

Rank	Low Karma Yoga (median ^a)	High Karma Yoga (median ^a)
1.	Honest (4)	Responsible (3.5)
2.	Ambitious (5)	Ambitious (4.5)
3.	Capable (6.5)	Honest (5)
4.	Courageous (7)	Capable (7)
5.	Broadminded (7.5)	Logical (8)
6.	Responsible (8)	Courageous (8)
7.	Intellectual (9)	Helpful (8.5)
8.	Clean (9.5)	Broadminded (9.5)
9.	Self-Controlled (10)	Self-Controlled (9.5)
10.	Loving (10)	Obedient (10)
11.	Independent (10.5)	Polite (11)
12.	Cheerful (10.5)	Clean (11)
13.	Imaginative (10.5)	Intellectual (11.5)
14.	Helpful (11)	Loving (12)
15.	Forgiving (12)	Cheerful (12)
16.	Logical (12)	Independent (12)
17.	Polite (12.5)	Forgiving (12.5)
18.	Obedient (14)	Imaginative (13.5)

Note: ^a The median rank assigned to each value by respondents in the group is included in parenthesis next to the value.

group of low *Karma-Yoga* respondents gave the same value 6th rank (median = 8). Secondly, high *Karma-Yoga* respondents as a group gave being 'logical' the 5th rank (median = 8) while the group of low *Karma-Yoga* respondents gave the same value 16th rank (median = 12). Finally, high *Karma-Yoga* respondents as a group gave being 'obedient' 10th rank (median = 10) while the group of low *Karma-Yoga* respondents gave the same value 18th rank (median = 14).

A comparison of the value systems indicated that high *Karma-Yoga* respondents considered being 'responsible' the most important instrumental value

while low *Karma-Yoga* respondents ranked the value of being 'responsible' at the 6th place lower in priority than being 'broadminded'.

STUDY 2

PARTICIPANTS

Thirty seven students attending a two year full time program in business management in India were studied. The sample included 36 male and one female respondent.

MEASURES

The Wong and Law Emotional Intelligence Scale (WLEIS) (Wong and

Law, 2002) was used to measure the four dimensions of emotional intelligence. Reliability of the facets of emotional intelligence viz., self-emotions appraisal, others' emotions appraisal, use of emotion, and regulation of emotion was found (Cronbach alphas for each of the facets were 0.70, 0.77, 0.69 and 0.64 respectively). Cronbach alpha for the overall scale of emotional intelligence was 0.81.

The reliability of *Karma-Yoga*—sense of duty scale was 0.70, while the reliabilities of the scales for *Karma-Yoga*—sense of equanimity and *Karma-Yoga* – absence of desire for rewards were 0.45 and 0.46 respectively. The reliabilities of the scales

for *Karma-Yoga* – sense of equanimity and *Karma-Yoga* – absence of desire for rewards did not substantially improve even after removing a number of items having low item-total correlations. Hence, in the further analysis, only the dimension of *Karma-Yoga* – sense of duty was used.

RESULTS

The means, standard deviations, and zero order correlations are reported in Table 5. The dimension of *Karma-Yoga*—sense of duty is highly correlated with all the four factors of emotional intelligence. Hence, Hypothesis 4 is supported.

Table 5: Means, Standard Deviations and Intercorrelations

Variable	M	SD	1	2	3	4	5	6
1. Karma Yoga- Sense of Duty	4.06	0.58	(0.70)					
2. Emotional Intelligence (EI)	3.95	0.41	0.73**	(0.81)				
3. EI- Self-Emotions Appraisal	3.93	0.51	0.52**	0.69**	(0.70)			
4. EI- Others' Emotions Appraisal	4.14	0.52	0.56**	0.67**	0.38**	(0.77)		
5. EI- Use of Emotion	4.10	0.57	0.48**	0.75**	0.44**	0.27	(0.69)	
6. EI- Regulation of Emotion	3.64	0.69	0.52**	0.75**	0.25	0.34*	0.42*	(0.64)

Note: Coefficients alphas are in parenthesis along the diagonal. N = 37.
 * p < 0.05.
 ** p < 0.01.

DISCUSSION

BELIEFS IN INDIAN PHILOSOPHY AND THE KARMA-YOGA CONSTRUCT

Mulla and Krishnan (2006) found a relationship between the beliefs in Indian philosophy and *Karma-Yoga* – sense of duty. There was no relationship between beliefs of Indian philosophy and *Karma-*

Yoga – absence of desire for rewards. The results of this study are identical with the earlier study. Compared to the earlier study, in this study, we introduced one more dimension of *Karma-Yoga* i.e., sense of equanimity. However, the factor did not show adequate reliability to be included in the subsequent analysis. Based on these findings, we may conclude that sense of duty or an obligation towards

others is the stable core of *Karma-Yoga*. The other two dimensions viz., absence of desire for rewards and sense of equanimity may either be outcomes of *Karma-Yoga*, which manifest over a period. For example, if A borrows money from B, then A feels a sense of obligation (duty-orientation). Later when A is making efforts to return the borrowed amount back to B, A will not be affected by any pain or pleasure that is encountered in the process of repayment (equanimity). Finally, when A has repaid B, then A will not expect to be praised or rewarded by B (indifference to rewards) since whatever was done by A was out of a sense of duty or obligation towards B. In other words, duty-orientation of *Karma-Yoga* will enhance indifference to rewards and equanimity after sometime.

TERMINAL VALUE SYSTEMS OF KARMA-YOGIS

Individuals who were rated high on *Karma-Yoga* showed a distinct terminal value system, which was characterized by a high emphasis on other oriented values like 'a world at peace' as compared to self-oriented values such as 'mature love'. In fact individuals rated low on *Karma-Yoga* showed exactly the opposite prioritization of these values. High *Karma-Yoga* individuals also gave a significantly stronger emphasis on the other oriented value of 'national security'. Thus, our hypothesis that individuals high on *Karma-Yoga* would give emphasis to other oriented values as compared to self-oriented values is partly supported.

INSTRUMENTAL VALUE SYSTEMS OF KARMA-YOGIS

Those individuals who scored high on *Karma-Yoga*, rated being 'responsible' as the most important instrumental value. Responsibility means being dependable and reliable. Individuals who are highly duty oriented are likely to be highly responsible and dependable. High *Karma-Yoga* individuals also rated the value of 'obedience' significantly higher than low *Karma-Yoga* individuals. Both these values are moral values and are likely to arouse feelings of guilt if they are violated. In contrast, low *Karma-Yoga* individuals rated being 'broadminded' significantly higher than high *Karma-Yoga* individuals. In fact for low *Karma-Yoga* individuals, it was more important to be 'broadminded' rather than to be 'responsible'. Another interesting observation in the aggregate value systems of the two groups is that for low *Karma-Yoga* individuals, 'forgiving' (rank = 15) is more important than being 'obedient' (rank = 18). On the other hand for high *Karma-Yoga* individuals, being 'obedient' (rank = 10) is more important than 'forgiving' (rank = 17). The core of *Karma-Yoga* is being duty oriented and being able to follow one's duty even though it may be personally uncomfortable. In the *Gita*, Krishna advises Arjuna to follow the guidelines of his duty even though it means putting his relatives to death.

KARMA-YOGA AND EMOTIONAL INTELLIGENCE

Individuals' scores on *Karma-Yoga* were highly correlated with emotional

intelligence. Thus, individuals who were high on *Karma-Yoga* were also highly emotionally intelligent. The basis of emotional intelligence is empathy and the basis of *Karma-Yoga* is a sense of obligation towards others driven by a sense of interconnectedness towards all beings. The high correlation between *Karma-Yoga* and emotional intelligence suggests a common basis for both these constructs.

LIMITATIONS

This paper has three main limitations. Firstly, the two studies are conducted on different samples. The first study explores the relationship between beliefs in Indian philosophy, *Karma-Yoga*, and values, whereas the second study explores the relationship between *Karma-Yoga* and emotional intelligence. The second study does not incorporate the variables of beliefs in Indian philosophy, and values. Hence, one is confined to a piecemeal analysis of the variables and are unable to comprehensively explore the relationship between all the variables. Also, since the second study was done on management students and not on working executives, its findings must be replicated on executives before the results can be generalized.

Secondly, all the variables are self-report and hence are subject to the biases and the limitations of self-report measures (Podsakoff and Organ, 1986). Social desirability has not been controlled for some of our findings, especially the very

high correlation between emotional intelligence and *Karma-Yoga* may be a result of common method variance. One of the remedies suggested for the common method bias is the use of independent sources for predictor and criterion variables (Podsakoff and Organ 1986; and Podsakoff *et al.*, 2003). Hence, further studies should include peer reports of emotional intelligence or actual helping behavior of respondents.

Finally, the samples in both the studies are small and the reliabilities of the two scales developed by us (i.e., beliefs in Indian philosophy and *Karma-Yoga*) are quite low; hence our findings are at best intermediate conclusions until further data on larger samples can be gathered.

CONCLUSION

The doctrine of *Karma-Yoga* forms the core of the Indian philosophy of work. Mulla and Krishnan (2006) investigated the relationship of *Karma-Yoga* with the facets of conscientiousness, a behavioral aspect of personality. This study continues the refinement of the *Karma-Yoga* construct by exploring its relationship with the cognitive and the affective aspects of personality. The cognitive aspects of personality are measured using terminal and instrumental values, while the affective aspects are measured using emotional intelligence. Our findings show that the essence of *Karma-Yoga* is a sense of duty or obligation towards others and that beliefs in Indian philosophy lead to *Karma-Yoga*.

We also found that *Karma-Yoga* was highly correlated with emotional intelligence. Individuals who are high on *Karma-Yoga* are likely to recognize their interconnectedness with other beings thereby developing a sense of empathy, which enables them to be emotionally intelligent.

The most significant finding of this study is the drastically different value systems of individuals who rate high on *Karma-Yoga* from those who rate low on *Karma-Yoga*. Individuals who rated high on *Karma-Yoga* preferred other oriented terminal values such as 'a world at peace' as compared to self-oriented terminal values such as 'mature love'. On the other hand, individuals who rated low on *Karma-Yoga* showed exactly the opposite preference. High *Karma-Yoga* individuals rated moral values like being 'responsible' and being 'obedient' significantly higher than low *Karma-Yoga* individuals.

By combining these findings one can arrive at the profile of a *Karma-Yogi*, i.e., an individual high on *Karma-Yoga*. The ideal *Karma-Yogi* is hence a person who believes in the law of *karma*, the existence of a *soul*, and the doctrine of salvation. The *Karma-Yogi* being highly empathetic, has a high sense of duty or obligation towards others, and strives towards other-oriented end values like 'a world at peace' or 'national security' even at the cost of personal desires. The *Karma-Yogi* is highly responsible, and obedient while executing his or her duties.

A better understanding of *Karma-Yoga* is useful to business in two ways. First, a person who is highly empathetic,

obedient, responsible, and duty oriented may fulfill a role in a service setting. Secondly, highly responsible individuals who strive towards other-oriented end values even at the cost of their own desires are ideal candidates for leadership. Selection criteria for such service oriented and leadership roles must be designed to identify responsible individuals who give high importance to 'other-oriented' values. The Rokeach (1973) value survey can be a handy instrument to identify such individuals early in their career. Also, training programs for service and leadership must attempt to develop qualities of emotional intelligence and increase the salience of 'other-oriented' values. Since values are part of the cognitive domain, unlike, needs or motives, they are easily accessible and can voluntarily be changed by an individual. The process of value confrontation is the most enduring and effective method of changing the values of individuals (Conroy, 1978; Sanders and Atwood, 1978; Sawa and Sawa, 1988; and Krishnan, 1997).

Karma-Yoga constitutes the Indian work ideal and can be harnessed by leaders to motivate their followers. Leaders who possess attributes of *Karma-Yoga* are likely to be role models for their subordinates and thus enhance their charismatic potential. Rather than adopt the conventional western models of motivation, which have an individualistic-hedonistic bias and are largely based on cognitive calculative processes, Indian managers can use more indigenous motivational models like *Karma-Yoga*.

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ANNEXURE 1

Scale for Beliefs in Indian Philosophy	
1.	If I do good deeds, I will get good results either in this life or in the next.*
2.	It is possible to grow spiritually by performing one's worldly duties selflessly.*
3.	Joys and sorrows experienced by me are a result of my actions in this life or earlier lives.*
4.	Irrespective of external tendencies, all beings are inherently divine.*
5.	While my body is subject to birth and death, my soul is eternal.*
6.	The ultimate goal of life is freedom from the cycle of birth and death.*
7.	This world is so complex that it is difficult for one to clearly predict the outcome of one's actions.
Note: * Items retained in the final scale after reliability analysis.	

ANNEXURE 2

Scale for Karma-Yoga	
Sense of Duty or Obligation Towards Others	
1.	I am aware of my obligations to society.*
2.	I hesitate to do what is expected of me (-).*
3.	I willingly perform all duties, which are expected of me.*
4.	I feel it is my duty to contribute to society.*
5.	I happily do whatever task is assigned to me, even if I do not enjoy it.
Absence of Desire for Rewards	
1.	While working, I keep thinking about success or failure (-).*
2.	I strive to be selfless in whatever activity I undertake.
3.	I expect to be rewarded for good work done (-).*
4.	I often dream of becoming very successful (-).*
5.	I am disappointed when the outcomes of my efforts do not yield the results I expected (-).*
6.	While working on an important task, I focus more on the process rather than the outcome.
7.	I work in order to get some personal benefits (-).
Equanimity to Opposites	
1.	I go through life events without getting too worked up.
2.	I can continue to work happily even in tough conditions.

(Contd...)

ANNEXURE 2

(...contd)

Scale for <i>Karma-Yoga</i>	
3.	If I make a mistake, I keep repenting for a while (-).
4.	Even major events at the workplace do not affect me as they do to others.
5.	I get easily distracted from my work (-).
6.	Compared to others, I get less depressed if I fail on a task.
7.	I feel strong when I am able to control my anger.
8.	Compared to others, I get less excited by my success.
9.	I can resist temptation.
10.	I have an inclination to get withdrawn from what is happening around me.
11.	I feel strong when I am able to have control over temptations.
12.	I believe that restraining one's needs is better than yielding to them.
13.	I am neutral to pleasure or pain in my life.
Note: * Items retained in the final scale after reliability analysis.	

Case Study

Bangalore One: A One Stop Shop for Government Services

Shahaida P*, Jayasimha K R** and Dr. R Nargundkar***

By setting up Bangalore One (B One), Government Of Karnataka (GOK) responded to the long standing demand of its citizens for a 'one stop shop' for dealing with various government departments and public utility services. However, seventeen months after the first B One centre was opened, B One found itself heavily dependent on a single service and being encircled by superior technology mediated service delivery options. With abysmally low number of transactions, break even seemed a distant dream. This case presents an all-inclusive account of the introduction, growth, implementation and challenges faced by B One. This case study is prepared as a basis for class discussion. It is not meant to illustrate, either the correct or the incorrect handling of a situation.

"One of the last things that I look forward to is dealing with a government agency"

– A citizen

"Thanks to B One, I pay all my utility bills in one go"

– B One customer

INTRODUCTION

There was a long felt need in India for providing various government and public utility services in an integrated manner. For a long time, citizens experienced lot of inconvenience as the number of touch points (manually operated counters) were limited, inefficient, geographically spread out, and operated for fixed hours. In fact, the bill payment services of public utilities functioned between 10.00 a.m. to 2.00

p.m. on working days. At times, consumers were put to great inconvenience as all payments were done only through cash. Apart from these, the perceived image of the employees of various government agencies and public utilities was, 'unfriendly and non-cooperative'. The concept of 'anywhere, anytime, service' did not exist as various departments and public utilities strictly adhered to their jurisdiction. For instance, public utilities grouped

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households into various sub divisions and the bills were required to be paid only in the designated sub division (area of jurisdiction) cash counter.

Given the above situation, there was a strong need for an easy to access, reliable, efficient, and a single window facility for completing various transactions involving government agencies and public utility service providers. Many policy makers believed that Information and Communication Technology (ICT) could possibly help them build an alternative mode of service delivery.

Among other things were, the introduction of e-seva¹ in its neighboring state of Andhra Pradesh, pressure to live up to the image of the silicon valley of India, success of other ICT initiatives in the state like Bhoomi (computerization of land records) , KaverECom (self service bill payment kiosk) etc. The statistics of e-seva transactions is depicted in Table 1. With the increasing demand for integrated service from its citizens, Government Of Karnataka (GOK) set up B One in April 2005.

Table 8: E-Seva Statistics

Year	No. of Transactions (in Millions)	Amount (in Millions)
2001	0.3	334
2002	4.5	10,050
2003	10.5	38,691
2004	29.5	43,233
2005	41.8	49,150
Total	86.6	141,458

Source: NISG, Hyderabad, 2005.

E-GOVERNANCE

There are many views about what constitutes an e-governance project. The department spearheading IT and biotechnology initiatives of GOK, defines e-governance as, ‘delivery of government services and information to the public using electronic means’².

“E-governance is the application of information and communication technologies

to transform the efficiency, effectiveness, transparency and accountability of informational and transactional exchanges within government, between government and government agencies of National, State, Municipal and Local levels, citizen and businesses, and to empower citizens through access and use of information”.

An e-governance consultant

¹ E-seva was an initiative of Andhra Pradesh State Government, which offered a wide range of Government to Citizen transactions at a single location. Started in December 1999, e-seva was functional in the twin cities of Hyderabad and Secunderabad.

² www.bangaloreIT.com

E-governance is not about translation of existing processes in computerized form but it is more of transformation of processes.

An e-governance consultant

An executive of National Institute for Smart Governance (NISG), Hyderabad, provides an interesting way of looking at e-governance projects by listing the potential benefits of the project:

1. Net financial benefit to the government agency = Operation cost reductions + Revenue increased – Cost of development of the application.
2. Net financial benefit to the citizen = Cost reduction (Less delivery charges) + Increased citizen revenue (due to efficiency) – Cost of deployment of new system.
3. Social benefit = Increased health, education, employment, social upliftment benefits.
4. Governance benefit = Increased transparency, accountability, efficiency and participation in government.

Typically e-governance initiatives involved three components: people, process, and technology. While many experts agreed that notwithstanding the importance of technology, the most critical element for the success of any e-governance project were people followed by process, and finally

technology, in practice most of the e-governance initiatives focused on technology – ignoring people and process at its own peril. A review of multiple views about what constitutes an e-governance project can be summed up as under:

- a. It uses Information and Communication Technology (ICT).
- b. Mobilizes government resources.
- c. Utilizes the internal information resources by the government employees with the help of citizens.
- d. Results in better services to citizens.³

BANGALORE ONE (B ONE)

B One was conceptualized as a 'one stop shop' for various G2C (Government to Citizen) and G2B (Government to Business) and B2C (Business to Citizen) interactions. B One was also envisaged as a citizen service centre that would function on a 24 X 7 basis round the year. B One also aimed at providing various services without any relation to the jurisdiction of a particular office of a particular department of agency. This resulted in 'anywhere anytime service'. By accepting payments in the form of cash, cheque, credit and debit

³ Panneerval, 2005. It was estimated that Bangalore city, which had a population of 6.8 million (as per the 2001 census) spread over an area of 225 sq. km. would eventually require about fifty B One centers. However, it was decided to start with a small number of centers and subsequently expand in a phased manner. Apart from Bangalore, GOK wanted to roll out B One centers in other larger cities and towns of Karnataka. Apart from scaling up the number of B One centers, GOK also had plans to add close to 200 different services to B One portfolio. The first B One centre was officially inaugurated on the second day of April 2005, by the then chief minister of Karnataka Sri. Dharam Singh.

BANGALORE ONE-A ONE STOP SHOP FOR GOVERNMENT SERVICES

card, B One aimed at providing greater convenience. The concept of B One was largely governed by the basic tenants of an e-governance project viz., people orientation, scalability and cost effectiveness.

By the end of September 2006, there were fourteen B One centers functioning in different parts of Bangalore city (refer accompanying map). Under one umbrella, B One made possible – payment of public

utility service bills like water (Bangalore Water Supplies and Sewerage Board, BWSSB), electricity (Bangalore Electricity Supplies Company, BESCOM) telephone (Bharat Sanchar Nigam, BSNL Ltd.). B One also provided information and various services of central, state and local bodies. By the end of September 2006, G2B services were relatively dormant. (Refer Table 2 and Table 3 for details).

Table 2: G2C Services

Sl. No.	Department/Utility	Services
1.	Bangalore Water Supplies & Sewerage Board (BWSSB)	Bill payment, grievance redressal, application for new connections, statement of bill of accounts.
2.	Bangalore Electricity Supply Company Ltd. (BESCOM)	Bill payment, grievance redressal, application for new connections, statement of bill of accounts.
3.	Bangalore Mahanagara Palika (BMP)	Property tax payment, issue of khata certificate and extracts, issue of copies of birth and death certificates and grievance redressal.
4.	Regional Transport Office (RTO)	Learner's license renewal, road tax payment, issue of B-extract for vehicles and payments against challan.
5.	Stamp and Registration	Providing market value assessment.
6.	Regional Passport Office	Sale of application forms and new passport application registration.
7.	Bangalore Traffic Police (BTP)	Fine for traffic rule violations.
8.	Bharat Sanchar Nigam Ltd.	Bill payment for Cellone (post paid bills) and land line connections.
9.	Bangalore Metropolitan Transport Service (BMTCL)	Issue of monthly passes.
10.	Department of Labor	Issue of forms and information.

Sl. No.	Department/Utility	Services
1	Tata Tele Services Ltd	Viewing and payment of bills
2	Western Union Money Transfer	Payment of money
3	Airtel	Payment of bills
4	Spice Telecom	Payment of bills
5	Reliance Infocomm	Payment of bills

BUSINESS MODEL

B One was a resultant of public-private partnership. The project involved multiple partners including GOK, a consortium of CMS Computers and Ram Informatics, and National Institute of Smart Governance, Hyderabad. Operationally, CMS Computers managed the B One centers, Ram Informatics provided the necessary IT infrastructure and software. UTI bank managed the payment gateway and other bill payment transactions. It was expected to set up an ATM in every B One centre.

GOK had invested about Rs. 4 cr in the project and the consortium of CMS Computers & Ram Informatics invested about Rs. 10 cr. The running cost of each B One centre was expected to be in the range of Rs. 18 to 20 lakhs per year.

All B One centers were housed in the rent-free space provided by GOK. The operator (CMS Computers) was paid Rs. 5 per transaction. B One project was based on the concept of Build-Own-Operate-Transfer (BOOT) model. As per the agreement, the consortium was required to run the B One centers for five years and at the end of the fifth year, the GOK had the choice of either operating the B One centers itself or call for a fresh tender to invite private players to run B One centers for another five years.

A centre manager was in charge of B One centre. The manager was assisted by 12 to 16 operators, one system administrator and one accountant. B One centers functioned in three shifts (Table 4). The details of the manpower are as under:

No. of Counters Functional	Shift No.	No. of Operators
183	1	183
183	2	183
14	3	14
Leave Reserve @ 15% on 380		57
	Grand Total	437

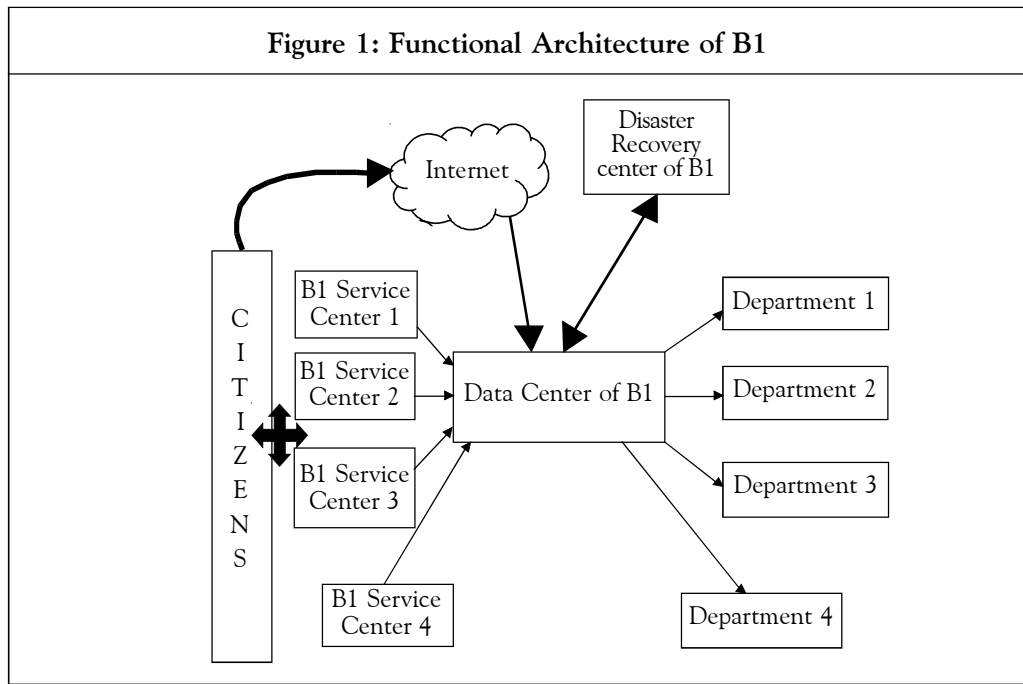
At the corporate level, B One had two senior executives who were responsible for growth and profitability. They also handled coordination with various governmental departments and agencies. The corporate office was located in MS building, the state secretariat. An additional expense of Rs. 20 lakhs per year was incurred by B One towards the salaries and other expenses of this office.

TECHNOLOGY MODEL

One of the biggest problems with bill payment and other government services previously was long queues and endless waiting. To address this issue, B One had Electronic Queue Management System

(EQMS) in place for optimal citizen queue management. The system captured waiting time and transaction time for each transaction, which in turn was used for monitoring the quality of the service as well.

All the B One centers had leased line connectivity with a dial up connection as back up. All the government departments, public utility service providers and private enterprises that were part of the B One network had similar connectivity. They were also required to make available all the relevant data at a centrally located data centre to be accessed by B One (Figure 1).



Features like inbuilt redundancy, load balancing, offline capability and disaster recovery ensured that B One functioned on a 24 X 7 basis. Inbuilt redundancy

ensured that in case of any problem with leased lines, the system functioned with the backup ISDN connection. Load balancing ensured that in case of

excessive load on one server, the system automatically transferred certain amount of load to other servers. Offline capability ensured smooth functioning of B One centers even in the worst case, when both the lines failed (leased line and ISDN) and disaster recovery facility ensured business continuity in case of B One system collapse. The server located in Khanija Bhavan, which served as a central repository of data, provided for data recovery in the event of a collapse. The official portal, www.bangaloreone.gov.in had 128-bit SSL encryption with Verisign certification to ensure secure transactions.

It was necessary for respective operators to digitally sign to maintain data integrity and non-repudiation of transactions.

SERVICE BLUEPRINT

The flow of traffic was coordinated by the receptionist. Typically, B One centers had 8-10 counters. Every counter was numbered. Depending on the traffic at a particular counter, the receptionist would direct the customer to a specific counter. At a single counter, customers could complete all the transactions. For all the bill payments, customers were provided a receipt (Table 5).

Table 5: Transaction Time		
Service	Expected Time	Services
BESCOM bill payment	2 minutes	
BWSSB bill payment	2 minutes	
BMP property tax payment	5 minutes	In case of wrong address, etc., one week
RTO Learner's license renewal	1 day	
Regional passport office – passport registration	30-45 days	However customer has to do the subsequent follow up
BMTC issue of monthly pass	3 -5 minutes	
BSNL, Cellone bill payment	3 -5 minutes	
Department of labor	1-2 days	

While B One accepted different modes of payment like credit card, cheque, DD and cash, the option of paying through credit card was not available for BWSSB and BESCOM bills. However, Cellone bills could be paid through credit cards. For low volume bills like learner's license renewal, only cash payment was accepted.

There were also instances of cheques being dishonored for various reasons. In

such instances, UTI bank would inform central B One office located in MS building, state secretariat and the customer. This not only duplicated efforts but also significantly added to the transaction time.

BRAND BUILDING

Rather, B One heavily relied on Public Relations (PR) to create awareness. As the then chief minister inaugurated the first B One centre, newspapers and

Kannada TV channels covered the event. Opening of the other B One centers was also covered by print and TV media. On its first anniversary, B One had advertised in leading Newspapers. B One also placed ads on BMTC buses and mobile display on auto rickshaws. It distributed fliers with the addresses of the 14 centers printed on one side and various services offered at B One on the other side. It also had a few signboards and direction boards in and around B One centers. B One advertisements were also aired on Radio City (FM 91). Since inception, B One had spent approximately Rs. 10 lakh on advertising and brand building initiatives.

However, in a survey carried out by the students of a leading B school, it was found that awareness of B One was significantly low. Even among users of B One service, awareness was limited only to bill payment services.

ISSUES AND CONCERNS

The original intent of B One was to emerge as a one stop shop for various G2C, G2B and B2C transactions. However, seventeen months after the first B One centre was officially flagged off, G2B and B2C accounted for less than 1% of the total number of transactions. The total number of transactions itself stood at an abysmal 3.12 lakhs at the end of August 2006. The project was miles behind the break even.

Originally, B One was perceived as an e-governance project that would bring various central, state and local government departments and agencies

under one roof. However, by the end of August 2006, with little over 90% of transactions coming from public utility bill payments, B One faced the risk of being narrowly perceived as yet another bill payment point.

A single public utility namely BESCOM accounted for a little over 65% of the total number transactions handled by B One. B One faced the biggest risk of being dependent on a single service. Even bigger worry was that BESCOM had quietly flagged off a 24 X 7 self-service bill payment kiosk called Any Time (Bill) Payment (Machine) (ATP). By the end of September 2006, five such kiosks were operational in the city. BESCOM had plans of installing twenty more ATP's in the near future. B One faced a credible threat of losing customers if BESCOM expanded its self-service kiosk network.

By the end of September 2006, B One was offering ten G2C and five B2C services. This was severely short of the 200 odd services that B One had originally planned. Many felt that 200 services was an ambitious target.

Surprisingly, the public utilities had a better grievance redressal mechanism than B One. For instance, in order to clear billing disputes and all other grievances of the general public, BWSSB had constituted Water Adalat (court) at sub-divisional level (Table 6). Each sub-division held one adalat every month. BWSSB officers conducting these adalats were empowered and had financial powers.

Designation	Previous Financial Powers	Enhanced Financial Powers
Asst. Exe. Engg. (AEE)	Upto Rs. 500/-	Upto Rs. 5,000/-
Exe. Engg. (EE)	Upto Rs. 1,000/-	Upto Rs. 10,000/-
Water Adalat Committee	N.A	Upto Rs. 25,000/-
Appeals Committee	More than Rs. 1000/-	More than Rs. 25,000/-

In the recent years, BMTC had aggressively expanded its reach. By the end of September 2006, BMTC had a network of over 48 agents in the city who issued BMTC monthly passes. This was in addition to twenty BMTC bus stations which had dedicated manual counters to issue monthly pass. By the end of September 2006, 5 out of 20 stations were completely computerized, and BMTC had plans of computerizing all the stations in the near future. With just fourteen centers, B One was dwarfed by this network.

In its latest budget, Indian Railways had announced that it would make its tickets available through the existing ATM networks of leading commercial banks. Apart from this, the new generation private banks like ICICI, HDFC, etc., were aggressively pursuing its customers to use their online bill payment facilities.

BESCOM had recently announced its intention to sell pre-paid electricity to its customers in the near future. This was significant, considering that BESCOM accounted for a significant portion of B One's current transactions, and with the introduction of pre-paid electricity,

the bill payment transaction was expected to come down significantly.

Table 7 provides an overview of the various parameters used by Skoch e-governance report card which assess various e-governance projects in India. B One would be assessed for the first time in the year 2006-07. Table 8 lists the top e-governance projects of year 2005. On its own, B One had not carried out any study to find out customer perception of its services.

FUTURE COURSE

On its part B One had aggressive expansion plans. It was gearing up to add 35 more B One centers in the city. It was in the process of adding new services like railway ticket booking, flight ticket booking, commercial tax payment, KSRTC ticket booking, cinema ticket booking, etc., to its portfolio of services.

B One had entered into an agreement with public utility service providers and other government departments that no new bill payment centers would be launched in a 5 km radius of any B One center. This they believed would result in an assured customer base for each operator and reduce inter-departmental rivalry.

BANGALORE ONE-A ONE STOP SHOP FOR GOVERNMENT SERVICES

Overall e-Governance Scores (on a scale of 1 to 10, for each parameter)		
Parameter	Score	
	2004	2005
Ease of Use	7.8	9.5
User-ship	8.3	8.7
Speed of Delivery	7.8	8.8
SLAs	8.3	8.3
Simplicity of Procedures	8.2	8.4
Time Savings Compared to Manual	8.7	9.6
Single Window Access to Many Services	5.3	4.5
Low Incidence of Errors	7.3	8.0
Speed of Rectification of Errors	4.6	6.4
Alignment with User Expectations	7.5	9.0
Affordable Cost of Service	9.5	9.1
Reduction in Corruption	8.1	8.6
Staff Behavior	6.5	8.3
Staff Competence	7.9	8.6

Top e-Governance Projects in India			
State	Project	Score	Rank
Punjab	Suwidha – Kapurthala	8.9	1
AP	Rural e-Seva – West Godavari	8.9	1
Sikkim	CIC – Temi	8.9	1
Assam	Rajiv Gandhi Computer Literacy Program	8.9	1
Center	IT in Judiciary – NIC	8.9	1
WB	Tele Medicine – Midnapore	8.8	2
WB	Gram Panchayat – Kanaipur	8.6	3
HP	Property Registration – Shimla Rural	8.2	4
Sikkim	Land Records – Namchi	8.1	5
Delhi	Transport – IP Estate	8.1	5
WB	Computer Literacy and Training Program	8.0	6
Punjab	Transport – Ropar	7.7	7
Center	Customs – NIC	7.6	8
WB	Land Records – Hoogli	7.6	8
HP	Land Records – Suni	7.6	8
Punjab	Property Registration – Sangrur	7.4	9

Source: Skoch e-governance report card, 2005.

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2. ICTD newsletter (2005), "One Stop Services to Citizen", <http://www.i4online.net/june05/ictd.asp>, accessed on June 12, 2006.
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ANNEXURE 1

Vision

"To provide to the citizens of Karnataka, all G2C (Government to Customer) and G2B(Government to Business) One-Stop services and information of departments and agencies of Central, State and Local Governments in an efficient, reliable, transparent and integrated manner on a sustained basis, with certainty, through easy access to a chain of computerized Integrated Citizen Service Centers (ICSC's) and through multiple delivery channels like Electronic Kiosks, mobile phones and the Internet".

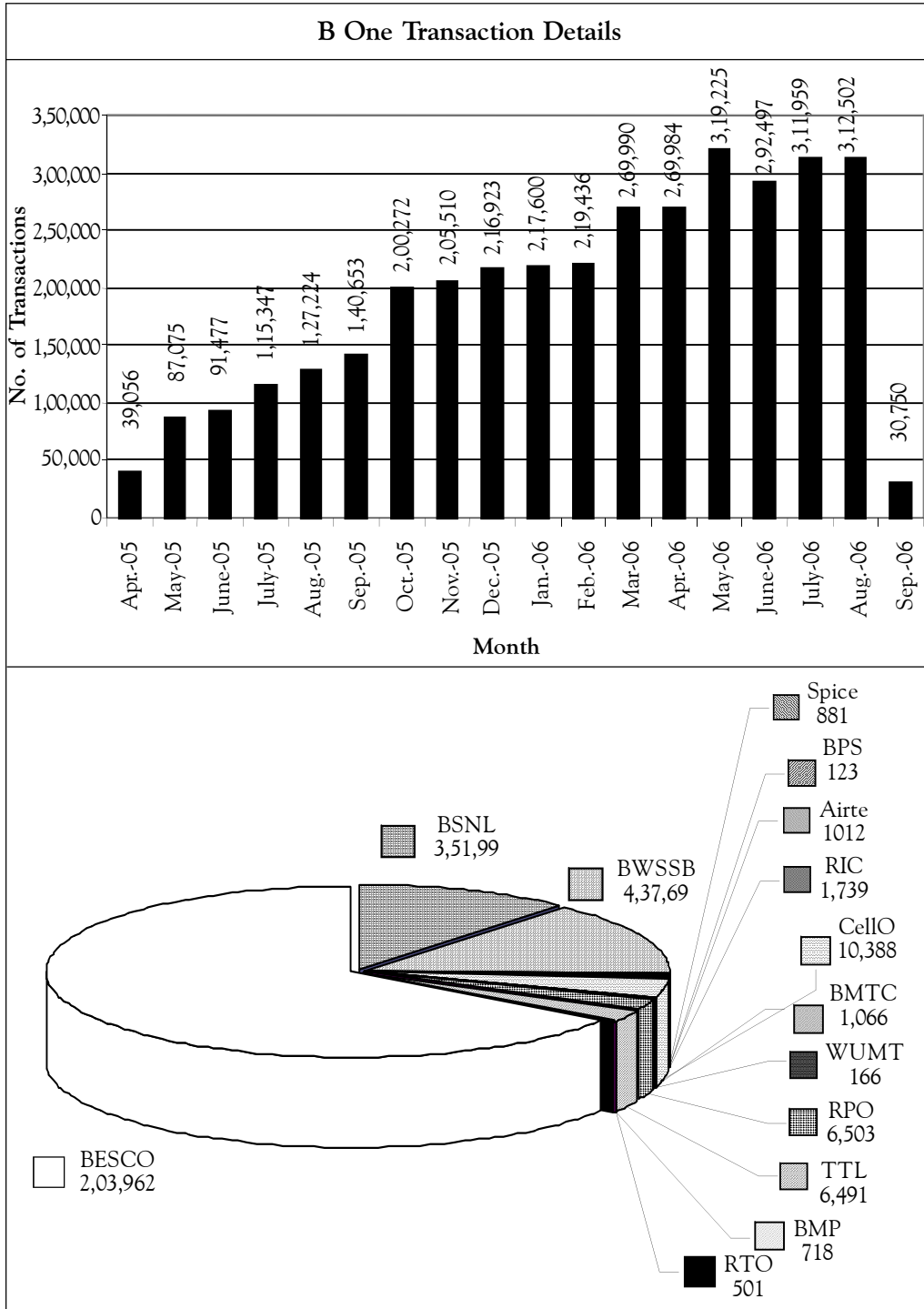
Mission

"To be the One Stop Shop for all C2G (Customer to Government) interactions".

Objectives

- a. To enhance the accountability, transparency and responsiveness towards citizen's needs.
- b. To provide cost-effective methods of service provision to various departments and agencies.
- c. To provide efficient and real-time MIS and EIS to various departments.
- d. To ensure speed and certainty of providing the services through enforcement of a Service Level Agreement with the selected Partner.
- e. To enable the government departments and agencies to focus on their core functions and responsibilities by freeing them from the routine operations like collection of revenues and accounting, issuing of certificates, etc., and thereby enhance the overall productivity of the administrative machinery.

ANNEXURE 2



ANNEXURE 3

Agency/Utility	Users	Transaction @ B One	Other Modes of Payment
BESCOM	39,82,318 (only domestic and AEH considered)	2,03,692	Manual cash counters Self service kiosk ECS Cheque drop boxes Bill consolidator
BWSSB		43,769	Manual cash counters Self service kiosk ECS Cheque drop boxes Bill consolidator
BSNL	9,64,000 (7,00,000 residential and 2,64,000 commercial lines)	35,199	Manual cash counters ECS Cheque drop boxes Bill consolidator
BMTC	On an average, 1.3 lakh monthly passes were purchased	1,066	20 BMTC bus stations out of which 5 were computerized. Network of agents
BMP	6.5 lakh properties	718	30 revenue offices and designated banks
<p>Note: By the end of September 2006, the customer base for Spice telecom was 3 lakhs, Airtel was 20 lakhs, Cellone was 3.4 lakhs in the city of Bangalore. There were 21 lakh registered vehicles out of which 15.42 lakh vehicles were two wheelers.</p>			

ANNEXURE 4

An Overview of Different Modes of Bill Payment

Users of various public utility services broadly users had the following options to pay their bills namely, through an online or offline bill consolidator, manual cash counter, Electronic Clearance System (ECS) or through self service kiosks like KaverECom or ATP.

Electronic Clearance System (ECS)

In ECS, the bill amount is deducted directly from the customers account from a designated bank branch. Typically, public utilities paid a processing fee of Rs. 1.50 to Reserve Bank of India (RBI). However, users were not charged anything extra for this value added service.

Online Payment

Users can also pay their utility bills online. Public utilities (for instance BWSSB) had tied up with billjunction.com, a portal for the purpose. The portal offered the above service in nine Indian Cities including Bangalore. In Bangalore city, through the portal, users could pay for 12 different services including telephone, electricity and water. Users of the service had an option to pay through internet (www.billjunction.com) or through the telephone via its Dial 'n' Pay service (Dial 1901-33-1901) or through SMS.

Once the user gave the bill payment instruction, billjunction sent it for processing to Reserve Bank of India (RBI). The bill payment instructions were processed via RBI's Electronic Clearing Service (ECS). The user's bank account was debited for an amount equal to the bill amount that the user instructs the portal to pay. The money was then remitted to the Service Provider to whom the bill amount was due.

The portal provided the flexibility of two payment options viz., Manual Pay and Auto Pay. With the Manual Pay facility, the user had to authorize each payment. With the Auto Pay option, the user authorized the portal to make bill payments on his/her behalf, without requiring him/her to approve each month/time. The user could set an amount limit, up to which the portal could automatically pay the bill.

Charges for payment of bills through Internet – (www.billjunction.com)

One time registration fee Rs. 50/-.

Charges for payment of bills through SMS as well as Internet – (www.billjunction.com)

One time registration fee Rs. 50/-.

(Contd...)

ANNEXURE 4

(...contd)

Packages	Amount (in Rs.)	You Can Pay	Validity (in Years)	Effective Cost per Bill (in Rs.)
Supreme	160	20 Bills	01	8.0
Gold	225	30	01	7.5
Platinum	325	60	01	5.4
Diamond	550	200	02	2.8

Packages	Amount (in Rs.)	You Can Pay	Validity (in Years)	Effective Cost per Bill (in Rs.)
SMS Supremo	160	12	01	13.33
SMS Gold	225	25	01	9.00
SMS Platinum	325	50	01	6.50
SMS Diamond	550	2	02	4.40

Source: www.billjunction.com

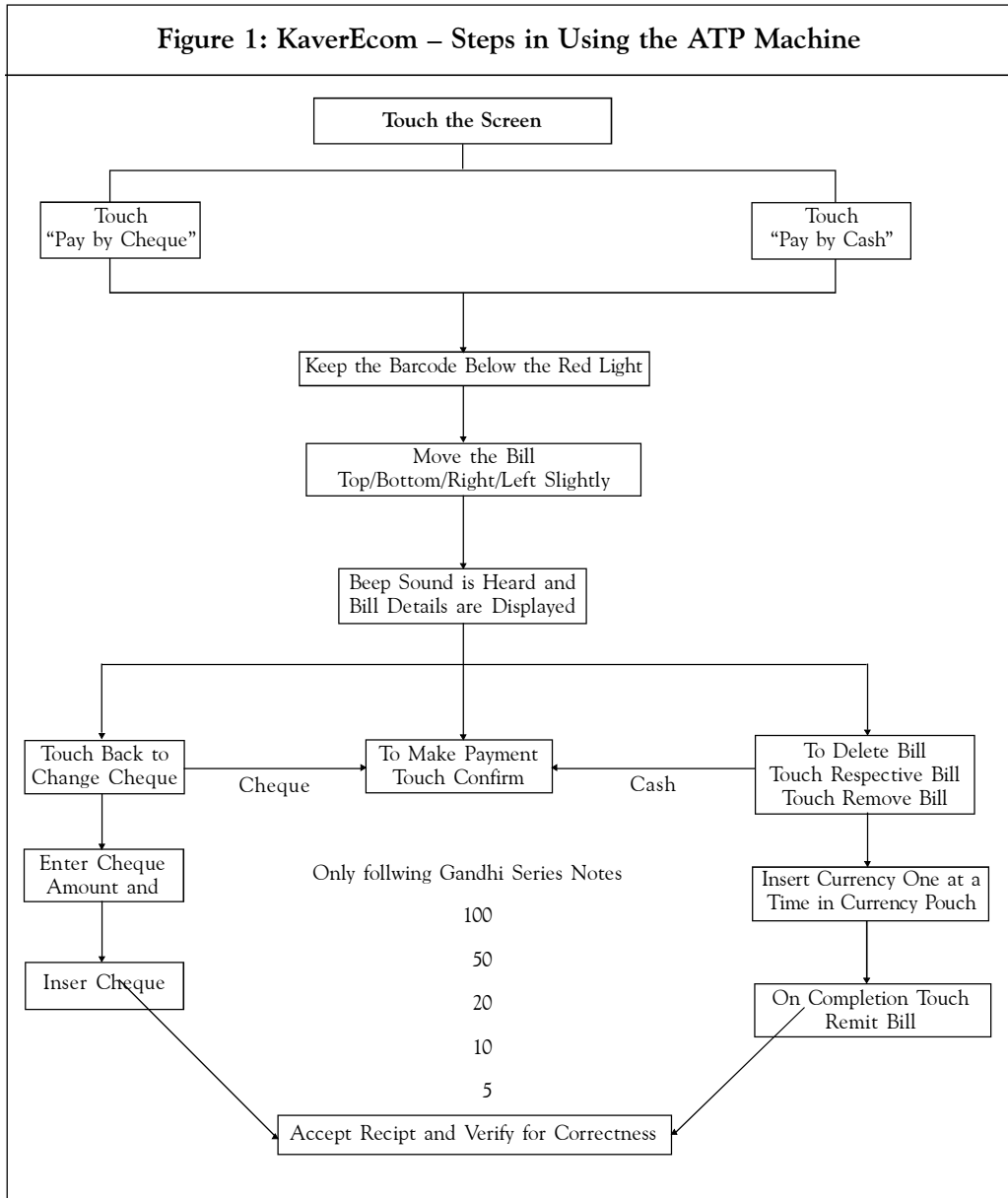
Self-Service Kiosk (KaverECom and ATP)

The kiosk was designed to collect payment from consumers by cash, cheque, or DD. It was unmanned and could be operated by the customers on a 24/7 basis. It accepted cash/cheque/DD/payorder, issued an acknowledgment on every payment made. It was a touch-screen and multimedia-based system. When the customer placed the voucher/bill in the designated slot under the barcode scanner, the kiosk would start automatically and give suitable prompts for guidance. The kiosk captured data from the voucher/bill and displayed parameters on the monitor. Customer needed to choose the mode of payment. Once the customer confirms the amount, the kiosk would give directions on cash/ cheque insertion. Parameters such as cheque number, etc., are read from the MICR fields and an acknowledgment is issued to the customer with the bill.

(Contd...)

ANNEXURE 4

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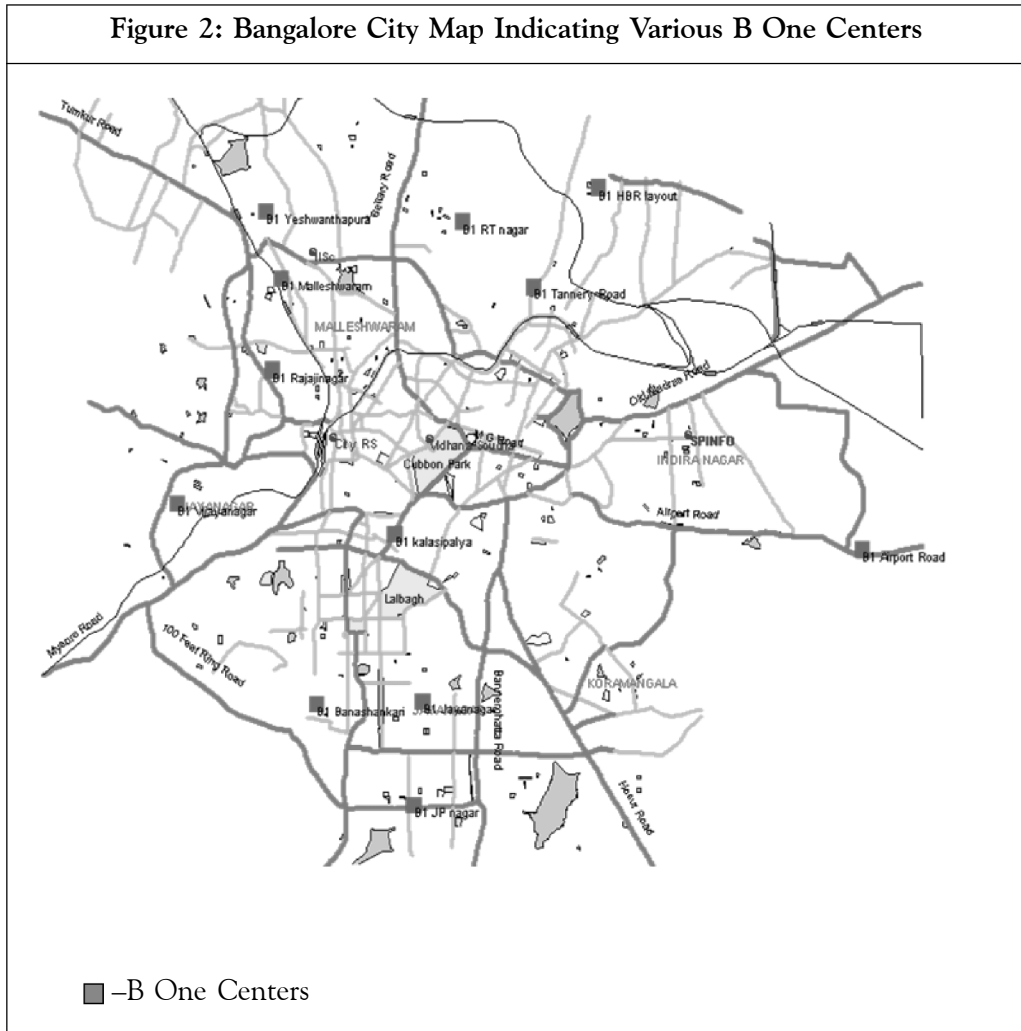


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ANNEXURE 4

(...contd)

Figure 2: Bangalore City Map Indicating Various B One Centers



Book Reviews

The Nature of Leadership: Reptiles, Mammals, and the Challenge of Becoming a Great Leader

By B Joseph White and Yaron Prywes

AMACOM/American Management Association, 2006, ISBN: 0-81440-894-X,
pages: 200, \$21.95

BECOMING A LEADER

Though history has given many instances of successful leaderships and ideal qualities of a leader, the understanding of how to become a leader has always remained incomprehensible and intangible. In the quest for an answer, as to what enables a person to lay successfully, the authors have put forth three essential conditions. First, it requires that high aspirations are set for the organization, followed by recruiting great people. These two conditions set the stage for the third condition to evolve, which brings in incredible energy and enthusiasm into everyday work-life.

LEADERS – AS ESSENTIAL COMBINATIONS OF REPTILES AND MAMMALS

The authors say that dichotomies are part of our lives and deeply influence our traditions and thoughts. The most common of the dichotomies which mankind has experienced are black vs. white, women are from Venus vs. men are from Mars, liberals vs. conservatives, hard

vs. soft, good vs. evil, us vs. them, and many more. As management literature has dichotomized employees in accordance to Theory X and Theory Y, the authors have dichotomized leaders into Reptilian and Mammalian leaders. While Reptilian leaders are more analytical with good economic and public sense, Mammalian leaders have good public sense and believe in nurturing, developing and empowering their people.

THE LEADERSHIP PYRAMID

Though the history of leadership development has stated many complex models, the authors have tried to put forth a simple model called the Leadership Pyramid, which consists of four components. They are the Foundation Requirements, Reptilian Requirements, Mammalian Requirements and Great Leader Requirements. The Foundation Requirements deal with the basic desire to be in-charge and lead others. Ability, strength and character are considered to be its prerequisites. Reptilian Leaders, often termed 'cold-blooded', represent the

Note: Readers are encouraged to send reviews especially of books which may not have been published in India to the Book Review Editor (arifwaqif@amdisa.org).

vital hard side of leadership because of the skills they possess. In contrast, Mammalian Leaders are 'warm-blooded' and represent the vital soft side of leadership. Once the leaders satisfy the requirements of the three lower levels of the pyramid, they transform into great leaders. They are considered to be leaders of the highest level, who are innovators, intelligent risk takers and change embracers, who possess a holistic 'helicopter' view of the situation in which they are in.

REPTILIAN LEADERS AND THEIR COMPETENCE

Ronald Reagan, a physically tough reptilian leader, made a courageous and good humored comeback from a failed assassination attempt. Such Reptilian Leaders are the need of the hour as they increase the chances of organizational survival, set high standards, ensure strong management and accountability and establish authority and credibility. Tough reptilian leaders do not hesitate to fire high-performing employees who violate the set standards and can also go to the extent of picking up pieces of paper in the hallways, as done by a Dean of Michigan, the University. Hence, they are like the most dominant creatures among animal groups, who survive challenges, challenge others, and finally emerge as leaders.

DIMENSIONS AND CAPABILITIES OF TOUGH LEADERS

A tough leader is one who is mentally, emotionally and managerially tough. Mentally tough leaders are passionate about achieving and winning. They see the actuality in situations and consider facts and people as friendly assets.

Their rationality makes them neither too optimistic nor pessimistic. On the other hand, emotionally tough leaders maintain their resoluteness and relentlessness without losing their sense of humanity. In contrast to the two other types, managerially tough leaders, with their great management of resources and employee performance, make economically sensible decisions backed with a plan and disciplined execution. Hence a tough leader, who is mentally, emotionally and managerially tough, strives to achieve mutually gaining situations under demanding conditions.

ACHIEVING MAMMALIAN EXCELLENCE – FROM NURTURING LEADERS TO CAPABLE MAMMALIAN LEADERS

The importance of Mammalian leaders can be captured from Kennedy's statement when he says that GNP measures everything except that which makes life worthwhile. Hence, an inference can be made that Reptilian leaders only enable the survival of their organizations, but Mammalian leaders enable the organizational members to thrive. Reptilians and Mammalians are two different facets which neither represent meanness or softness and sappiness. In fact, soft natured mammals are more nurturing in nature and hence are more caring and concerned with the growth and development of their people. They are, thus, propagators of Positive Organizational Scholarship (POS) who tend to create positive deviance, and nourish extraordinary performance and positive spirals of flourishing through their dual focus on nurture and performance.

GREAT LEADERS – THE SECRET BEHIND THEIR EVOLUTION

Great leaders are change achievers who achieve important and consequential changes through calculated intelligent risks. One such great leader is Abraham Lincoln who produced a truly consequential change by ending slavery and thereby giving millions of Americans freedom. Leaders like Abraham Lincoln can be found on a small and large scale basis in the modern era. Small scale leaders can be turnaround leaders who lay the success path for a school, manufacturing plant or a work group. Large scale leaders are like Nelson Mandela and Archbishop Desmond Tutu who both waged a thirty year war against apartheid to bring majority rule to South Africa. Jack Welch Steve Jobs and Herb Kelleher are also great leaders found amongst today's corporate circles.

CHALLENGING ONESELF TO BECOME A GREAT LEADER

Though it is seemingly audacious, one needs to challenge oneself towards becoming a great leader by setting high aspirations and hopes. The great leader transformation is always a journey and there is no finishing point to it. The journey with a mission to enhance leadership abilities can be embarked through job transitions, dealings in difficult situations, assumption of higher levels of responsibility, and by influencing people. Though at times a natural bias occurs towards one's inherent reptilian or mammalian characteristics, it can be overcome through vertical or spiral development. Vertical development aims for a higher level of competence by building upon one's natural strengths and

weaknesses, while spiral development is a more practical approach which is about 'learning to play to your weak side.'

CONCLUSION

The importance and significance of the value of leadership is becoming all the more true as corporates are now relying on intrapreneurship to develop leaders within their organizations. In the light of such an emphasis on leadership in the business circles, this book turns out to be a wealthy resource. It provides insight into the several aspects of the nature of leadership with good and relevant examples. It also provides an appreciable, rare dichotomy of leadership, i.e., Reptilian and Mammalian Leaders. Though we have seen many books, thoughts and ideas with regard to leadership in the past, this book can be called a masterpiece in terms of its presentation style and the flow of content, as it captures the interest of the readers till the very end. It is worth reading for management educators, researchers, consultants, succession planners and for all those, who are inclined to evolve and transform themselves into great leaders. It provides an insight into what makes an organization best in its efficiency and effectiveness, coupled with an understanding about how to prepare the leaders of an organization to remain competitive forever.

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The Set-Up-To-Fail Syndrome: How Good Managers Cause Great People to Fail

By Jean-Francois Manzoni and Jean-Louis Barsoux

Harvard Business School Press, Boston, 2002, ISBN: 0-87584-949-0,
pages: 280, \$26.95

Set-Up-To-Fail Syndrome: How Good Managers Cause Great People to Fail is a book, which describes how bosses maybe unwittingly pushing their perceived weaker performers towards poorer performance. Based on years of intensive research into subordinate-boss relationships, the book seeks to unravel the biases and misperceptions on both sides that fuel this degenerative process, and how people can overcome and prevent it from happening. The book opens the eyes of the reader to a very common but rarely recognized workplace phenomenon, with a view to helping people in authoritative positions to improve relationships and performance at work.

Following a great response to their article titled, "The Set-Up-To-Fail Syndrome: How Bosses Create Their Own Poor Performers", in the Harvard Business Review (March/April 1998), the authors were asked to follow it up with a book. Having done intensive research in the area for years, involving almost four hundred hours of interviews and observations with superior-subordinate dyads, and buoyed by the feedback obtained from several executive development programs, the authors have summarized their observations as a book. Intended for people holding positions of authority, the book

would be useful in analyzing and improving relationships at work.

Organized into ten chapters, the book broadly consists of three parts: What is the Set-Up-To Fail Syndrome and how it develops? Why something has to be done about it? And what can be done about it i.e., to prevent it from happening once it has already taken a grip?

The authors start the book by describing what the 'Set-Up-To-Fail Syndrome' is? It maybe described as the reverse of 'living-up to expectations', i.e., a process whereby capable employees, mistaken as weak performers, actually live down to the low expectations of the bosses. The authors call it a 'set-up' as it is based on false perceptions, and 'syndrome' because it reflects in a number of observable behaviors of the two parties. Drawing from the available research and existing theoretical perspectives like leader-member exchange theory, self efficacy theory, the Pygmalion effect, etc. the authors build on the concepts to define the syndrome. Summarizing the various studies, the authors say that bosses tend to behave in a more controlling way with perceived lower performers, reducing their self confidence and efficacy,

lowering the expectations from them and ultimately driving down their performance further.

Describing how the process sets in, the authors explain that, for instance, if a boss is worried about the subordinate's performance, he tries to rectify the situation by focusing more on the subordinate. So he puts in more time, asks for detailed reports and gives more specific instructions. The subordinate considers this as a lack of trust and confidence, which reduces his motivation and commitment and increases self-doubt. He/She starts withdrawing, which the boss see as the proof that the subordinate is a weak performer who doesn't heed the feedback, thus strengthening the initial diagnosis. The boss then further increases the pressure and supervision, further influencing the subordinate to fail. And this sets into motion a vicious cycle, which is self-fulfilling and self-reinforcing.

Having described the process, the authors then explain how the process takes root. According to them, it is a combination of labels, biases and misperceptions on the part of the bosses and the subordinates. So, similar behavior from the model performers and the underperformers are inferred differentially. Thus, when a model employee asks for feedback it reflects a learning orientation, while it is a sign of weakness or insecurity when it is an underperformer on the other side. The authors say, managers tend to categorize people and make errors in the process like confirmatory biases, attribution biases, anchoring, etc. While bosses may label, subordinates too contribute to the process by validating the label. Disgruntled group members tend to be hyper-vigilant, looking out for patterns

where none exist, and also spend more time discussing the leaders' differential behavior. Like in the bosses' case, the subordinate's interpretations of the boss's behavior may also be differential based on how he/she sees the boss. So, if it's a great boss who is giving feedback, it is because he/she is development oriented, while if it is the impossible boss it is because he/she is negative and mean spirited.

The discussion on what the Set-Up-To-Fail syndrome is and how it is set in motion takes up almost half of the book. In the sixth chapter, the authors discuss the various costs associated with the syndrome. While the process entails emotional and professional toll on the subordinates, it also places much strain on the boss in terms of the effort he/she puts in, and the dysfunctional relationship he/she has with his subordinate. Such a dynamic relationship also has a ripple effect, and has a negative impact on other employees and team performance. Quite often the 'stars' in the team maybe overloaded with the load of the weaker performers, leading to a potential burnout. Similarly, the HR team is also brought into the loop and has to spend time and effort in processes like grievance handling, arbitration, facilitation, counseling, etc.

Thus, the authors make the case that this, quite commonly present but ignored syndrome is a costly mistake, in times when leaders are making all efforts to improve relationships and get the best from their subordinates.

The other half of the book is devoted to guidelines on how to disentangle from the Set-Up-To-Fail syndrome and also suggestions for avoiding it in the first place. The authors argue that the mere recognition of the issue by the boss,

and a unilateral approach to solving what happens to be a joint problem wouldn't be helpful. The only possible solution for both the parties is to come together and talk out the issues, which however is a difficult proposition. While the subordinates are worried about coming across as whiners, or feel that a meeting may worsen things, the bosses feel anxious prior to the meeting and dread retaliation or a failed outcome from the meeting.

So, the next three chapters are devoted on what the bosses need to do to 'crack' the syndrome. The authors propose a six point intervention mechanism, which calls for a meeting to thrash out the contentious issues and arrive at an agreement, which they contend would help in improving the subordinate's performance and the quality of relationship between the subordinate and the boss.

The next chapter is based on the authors' observation of the 'Syndrome Busters', based on which they provide suggestions on how to prevent the syndrome. The authors suggest that the initial hundred days of the relationship should be spent in laying a good foundation. For this they suggest open communication, keeping a distinction between person and performance, resisting crude labeling of people, monitoring evaluations and actively searching for disconfirming evidence, early intervention, and getting the subordinate to jointly own the relationship.

In the final chapter, the authors explain that 'getting there' is a difficult process. Citing examples from the lives of a number of successful leaders, the authors explain that very few people are perfect, and most of them have had to work on

being effective leaders. For making the transition from the 'knowing' phase to the 'doing' phase, the bosses should enlist the help of others (internal feedback from superiors, peers, subordinates, or external help from mentors or coaches). Gradually they should try to work on their behavior by taking more time to listen and think, asking more questions, preparing for and reflecting on the interactions. Finally, the bosses should also be ready to accept any setback in the process.

While every manager faces the potential issue of improving the performance of his subordinates, very often the approach is incorrect, and so the efforts of the boss, instead of improving the performance, only make it worse. The *Set-Up-To-Fail Syndrome* is a well-researched book, providing real life examples and cases to highlight how the process sets into motion. Giving a simple dialogue between a boss and subordinate or even a husband and wife, the authors wonderfully explain how simple misunderstandings and perceptual differences can blow up and lead to irreconcilable differences. The book addresses the issue elaborately and also provides guidelines to managers on how to avoid it, making it a must-read for every leader. While a number of concepts and theories from the fields of organization behavior and psychology do come in, the authors take adequate care in succinctly explaining each concept so that the reader is not left in the lurch. Written in a lucid and easy to understand manner, the book makes for an interesting and informative read.

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Research Methods for Graduate Business and Social Science Students

John Adams, Hafiz T A Khan, Robert Raeside and David White

Response Books, A Division of Sage Publications, New Delhi, 2007, Pages: 270;
Price: Rs. 395; ISBN: 978-0-7619-3589

This book is a fair attempt in comprehensively covering separate chapters with various topics related to research methods, including research problem formulation, research design, data collection, data analysis, advanced statistical analysis and easy-to comprehend snippets on report-writing.

The book is divided into eight sections. Section 1 is a general introduction with only one chapter. The authors provide answers to questions such as what is research, why research is conducted, who does research and how research is conducted. Three major research types, such as, descriptive, explanatory and predictive, are indicated. It is highlighted that the type of research approach selected depends on the nature of the research problem at hand.

Section 2 with its single chapter focuses on the research methodology. The authors differentiate between research method and methodology. While the former is a way of conducting and implementing research, the latter is the science and philosophy behind all research. The authors opine that it is the research methodology component that

allows us to comprehend the process of knowledge creation. Apart from this, one can also find in this chapter different practices of conducting research: quantitative, qualitative, pure, applied, longitudinal, and empirical. Excellent piece of information on deriving logical conclusions based on inductive and deductive reasoning that is usually not focused heavily in other business research methods books is a plus point to the reader in understanding the nitty-gritty of evolving conclusions. A small description on research ethics decries the unethical practices of obfuscation (not highlighting the results that are important or those that the researcher does not like or hiding information by producing a verbose report full of technical jargon), and plagiarism (passing off someone else's work as one's own). It also provides the reader web-links of several professional bodies that have produced codes of conduct in research including that of Royal Statistical Society.

Section 3 contains two chapters. The chapter on Research Cycle outlines the systematic procedure in carrying out the research work and includes the usual paths such as formulating the research problem, generating hypothesis, collecting

data, analyzing the data, and monitoring the research model. Excellent considerations are provided in a separate chapter about the importance of different types of literature review, viz., evaluative review, exploratory review and instrumental review and its significance in tracing the various designs used in approaching the topic, identifying the experts on the topic, dissecting the theoretical perspectives, distilling the major limitations and controversies of the earlier studies on this topic, exploring the avenues for other potential research problem and, so on. This is one of the very few books on business research methods laying adequate emphasis on Literature Review. This will benefit the reader in terms of the importance and the modus operandi of reviewing the earlier studies on the research topic.

Section 4 on Research Design comprises five chapters and is devoted exclusively to areas pertaining to data collection. Chapter 5 on Sampling encompasses sampling techniques under probability and non-probability, sample-size determination, problems with random sample surveys which include non-response bias, sampling error, and sampling bias. Sample size determination is sufficiently covered. Though they are covered adequately, a separate discussion on Sampling Process including the various stages involved in selecting the ultimate sample elements will be useful to the reader. For unexplainable reasons, this chapter also focuses on classification of research designs (experimental, quasi-experimental and observational), and includes yet another discussion on scales of measurement (nominal, ordinal, interval and ratio). In my view, it would

have been more appropriate if the scales of measurement were discussed in a separate chapter. This chapter could have included the various scale construction techniques such as graphic rating scale, comparative rating scale, paired-comparison, constant sum, semantic scale, staple scale, Thurston equal-appearing scale and likert summated scale. This should be the necessary ingredients that are essentially required to complete the reading on the subject of research methods.

Chapter 6 describes various tools used in the primary data collection. These include observation, experimentation, surveys, diary methods and case studies. This chapter also covers a discussion on triangulation (nothing but collecting data through different means with the hope that there is convergence of truth) as an essential tool for establishing the accuracy of data and alternate explanations.

Chapter 7 puts forth the various sources of data collection which include government produced records, personnel records, financial histories and web-mining. Useful URLs are provided for gathering secondary data pertaining to several secondary sources. Chapter 8 begins with the caution that poor design and formulation of survey instrument merely leads to 'garbage in and garbage out', thereby severely impinging on the analysis and the subsequent interpretation of data collected in this way. A detailed evaluation of various modes of data collection, viz., telephone, web/email, mail, household panel, street interviewing along the dimensions such as cost, length of instrument, response rate and the relevant comments provide a cursory view to the reader to evaluate

the pros and cons of opting for a particular survey administration technique. Significance of conducting the pilot survey in ensuring that the questionnaire is clear to the respondents and can be completed in the way the researcher wishes is also found therein. The formats of asking questions that elicit the respondents to rank-order the response choices, attitude statements, semantic scales, and the ways to increase the response rates are given in this chapter. The authors stress that piloting the questions, making the questionnaire professionally appealing by using good quality paper and print impressions and contacting the respondents before the survey for requesting their cooperation, among others, will ensure a high response rate.

Chapter 9 provides general guidelines for effective interviewing – an in-depth interview, semi-structured interview, telephone interview and focus group interview. The potential biases and errors while conducting an interview such as misunderstanding the question or answer, interviewer bias, memory failure, social desirability bias, and sample selection are provided. The protective ways for avoiding these pitfalls are also presented.

Section 6 is on Analysis and incorporates four chapters, 10 through 13. Chapter 10 details the various methods of analyzing qualitative data. The authors portray that qualitative analysis aims at identifying oddities, constructing and testing a model and detecting patterns in the data. This chapter also provides the stages in the qualitative analysis that begin with data preparation, coding and indexing of data, charting, mapping and interpretation. Performing a Content

Analysis, a classical and still popular method of qualitative data analysis, is discussed in detail via a six-step procedure. Surely, in my opinion this will be an eye-opener to the reader, helping him/her appreciate the rudiments of conducting a content analysis. Chapter 11 provides descriptive data analysis, tools such as frequency distribution, percentage analysis, cross-tabulation, measures of deviations and construction of charts and tables. MS Excel is used for data analysis throughout this section for performing a *t*-test for comparing two groups, paired-*t*-test for comparing related groups, one-way ANOVA for comparing more than two groups, and chi-square analysis for ascertaining the association between two categorical variables. The necessary EXCEL screenshots for obtaining the results are exhibited. In the same way, Chapter 12 demonstrates the application of correlation and regression (including multiple regression) and details of procedures for testing the major assumptions of these tests are provided. There is a space for sophisticated multivariate data analytical tools, too, such as factor analysis and logistic regression, which are described in Chapter 13. The menu of commands for the performance of these tools through the statistical software SPSS are a welcome phenomenon in this chapter. The concepts of rotation and principal component analysis are detailed adequately.

The last chapter in the section narrates the issues on reliability and validity as the core criteria for evaluating the measurement of variables. I am really nonplussed to see this kept as a last chapter. Indeed, in my view the discussion

on reliability and validity should find place somewhere in Chapter 6. The widely used reliability coefficient Cronbach alpha has been omitted from the discussion on reliability in Chapter 14. Provision of this universally adopted reliability coefficient computation would benefit the research much. On the count of validity, the focus is on the threats to establishing the internal and external validity. Here also, I would have been glad if adequate coverage had been given, first of all, to the description of the concept of validity, and the major types of validity, viz., convergent, discriminant, nomological, predictive, concurrent validities. Nonetheless, the provision of references found at the end of this chapter would benefit the reader to look for more details on this important issue of research methods.

The last two chapters are contained in Section 8. Chapter 15 reiterates the selection of research topic and the issues involved in research supervision. Giving an illustration on Project Plan, the authors' emphasis is on the time frame in conducting research work. The last chapter includes points to be taken into account while drafting the research report. Good information is provided on aspects such as referencing, presenting the charts and figures, typing and binding.

The reviewer recommends this book as a text book for Research Methods course for undergraduate students who need to assimilate the rudiments of research methods. The writing style is lucid and reader-friendly. The authors are careful in avoiding the technical jargon as much as possible. The inclusion of factor analysis and logistic regression and an exclusive chapter on literature review is a unique feature of the book. The data for the demonstration of sophisticated tools like regression, factor analysis and logistic are available online in the prescribed website of the book. Chapter-wise references are provided at the end of each chapter to embark on additional reading. But for an advanced research methods course taught in a postgraduate program, the book will have to be armed with detailed discussions on scale construction techniques, illustrated approach to the questionnaire development, different forms of experimental designs such as pre-, quasi-, true- and complex experimental designs with adequate positive and negative aspects of setting up these designs. An exclusive discussion on the conduct of different forms of reliability and validity will immensely benefit the advanced level readers on this subject. Otherwise, the book under review will be a valuable introductory textbook to the students of research in business, social sciences and humanities.

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The leading business schools in the SAARC region initiated the Association of Management Development Institutions in South Asia (AMDISA) in 1988. This is the only Association which networks management development institutions across the seven South Asian Nations, through exchange of information, conducting regional conferences and providing a forum for academics and business leaders.

The Association interfaces business schools with leaders interested in management development; promotes professional development of management faculty; provides institution building assistance to business schools and corporate management development centers in the region. AMDISA organizes institution building workshops for Heads of institutions, faculty workshops on frontier areas of management and inter-institutional cooperative research on contemporary managerial issues in South Asia. It publishes a *Newsletter* three times a year and the *South Asian Journal of Management*, quarterly. AMDISA is recognized by SAARC, the Inter-Government Agency, as a professional association with consultative status having 151 members, of which 128 are Institutional Members, 8 Corporate Members and 15 Reciprocal Members. Membership is available to management development networks all over the world.

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