APOTHEOSIS

RESEARCH PAPERS

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DMSR

DEPARTMENT OF MANAGEMENT STUDIES & RESEARCH
Tirpude College of Social Work, 1 Balasaheb Tirpude Marg, Civil Lines, Nagpur

Dear Friend,

It is my singular pleasure to introduce the maiden issue of 'APOTHEOSIS' Tirpude's National Journal of Business Research, a publication that takes full advantage of scholarly work of academicians and industry professionals.

Excelling in the process of academic enhancement and knowledge disbursal is possible only through cultivating strong research culture. An academic institute can achieve its primary objective of value addition of updated, relevant knowledge to its students and the academic community by enabling high quality original research.

The aim of 'APOTHEOSIS' is to offer its readers the path breaking and remarkable contribution by academicians, research scholars and industry professionals and to promote interaction among researchers in the field of business management.

The current issue of APOTHEOSIS contains myriad research work viz., 'Growth Story of FDI: Doing Business India', 'Impact of Social Advertising on Customers', 'Factors Affecting Faculty Attrition and Relocating Design', 'Effective Management of Cross-cultural issues in Business: Need of the Moment', etc.

As Editor my task was made even more difficult by the extremely rare and original quality of research work submitted by contributors from across the nation. Nevertheless I have been able to select some of the finest works with the help of our reviewing team comprising of erudite scholars from academia and industry.

I appeal to all the brethren in management education as well as related areas to subscribe to our Journal and enable the dissemination of the knowledge contained therein to one and all.

I am sure that you will find the contents thought provoking and of immense use and relevance to all.

Thanking you in anticipation,

Dr. Sanjay Kavishwar
Editor

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Growth Story of FDI: "Doing Business In India"

Anuradha Tiwari* Dr. Jaskiran Arora**

"Reforms that cut red tape, clarify property rights, and streamline regulatory compliance can yield big payoffs for firms and workers," - Penelope Brook, Acting Vice President, Financial and Private Sector Development, World Bank

Abstract

India, with its relatively well developed financial sector, strong industrial base and critical mass of well educated workers appears to be well placed to reap the benefits of FDI. The paper looks at the trends and patterns in FDI flows in India since 2000. Further, India has been placed second by UNCTAD as a destination to attract FDI in the year 2010-2012. However, the World Bank's survey on "Doing Business in India" ranked India 134th amongst 183 country destination. The paper looks at various bottlenecks FDI investors face in choosing India as a destination for investment. Further, the paper proposes various recommendations for policy framework to make India a dream destination for FDIs.

Keywords: FDI, UNCTAD, DIPP, Gross Capital, DTAA, Economic Intelligence

1. INTRODUCTION

In the wake of an intense global competition for pulling Foreign Direct Investment (FDI) inflows into the country, economic policy makers in India have consolidated its FDI policy to provide a more transparent, predictable, simple and clear regulatory system. The efforts of Department of Industrial Policy and Promotion (DIPP)'s initiatives of the "India Brand Equity Foundation" to try and attract FDI Dollars and the other policy measures have surely been very effective in pulling the much sought after FDI into India, which is reflected by the exponential growth in the inflows from a mere USD 4,029 million in the financial year 2000-2001 to USD 37,763 million in the year 2009-2010 (as per the figures released by DIPP). Also, India has been ranked at the second place in the destination for attracting global foreign direct investments in 2010 and will continue to remain among the top five attractive destinations for international investors during 2010-12 period, according to United Nations Conference on Trade and Development (UNCTAD) in a report on world investment prospects titled, 'World Investment Prospects Survey 2009-2012.

However, the picture is not all that rosy. On the parameters of doing "Destination Business in India", it ranks 134th amongst the 188 countries (UNCTAD). So, if we are able to address at least some of the concerned issues, India can surely benefit more from the FDIs. In view of this, the paper's Section I makes an attempt to discuss various benefits that the FDIs bring into the economy of the host country. Section II takes a stock of the current state of FDI in India, focusing on totals inflows since the year 2000, country sources and the main sectors that have attracted FDI. The Section III looks at India against the global canvas as a destination for doing business and provides an insight into how destination India has changed over the years on global ranking. Section IV discusses why India has problems in attracting FDI beyond the obvious and major infrastructural constraints. Section V proposes the policy recommendations for the Indian policy makers in their concerted efforts to make India an attractive destination for FDI and finally Section VI concludes.

* Lecturer, Economics Department, G.D. Goenka World Institute, Sohna Gurgaon Road, Gurgaon
** Associate Professor, G.D. Goenka World Institute, Sohna Gurgaon Road, Gurgaon

2. SECTION - I Benefits of FDI flows into the country

FDI is an important factor in the globalization process as it accelerates growth of economies. It can have important positive effects on a host country's development effort. In addition to the direct capital financing it supplies, FDI can be a source of valuable technology and know-how while fostering linkages with local firms, which can help jumpstart an economy. FDI acts as a vehicle for technology flows and an important source of non-debt inflows for attaining competitive efficiency by creating a meaningful network of global interconnections. Teece (1977) stated that through FDI inflows the MNEs can supply these resources to local firms in equity joint ventures (intra-firm), in non-equity strategic alliances, or in arm's-length transactions through the external market. V.N. Balasubramanyam & Vidya Mahambre (2003) in their study of FDI in India concluded that FDI is a very good means for the transfer of technology and knowhow of the developing countries. The transfer mechanism through the market or intra-firm depends on transaction costs. Hymer (1960), Caves (1996), Dunning (1993) found that MNEs have both tangible and intangible resources or explicit and tacit knowledge in the form of technologies, managerial skill, international networks, capital, and brand names and goodwill . According to Cheng (1993), the growing importance of FDI leads to cross-border R & D activities.

The correlation between FDI and the Growth Story of India is very significant and high. The ratio of FDI Inflows to Gross Capital Formation for India improved to 9.6 per cent in the year 2009 as compared to 4.1 per cent during 1999-2000 ("KPMG's Corporate and Indirect Tax Survey": 2010). The Indian government realized the fact that foreign direct investment plays a very crucial role in boosting the country's economy by developing infrastructure, generating new jobs, transfer of technology and increasing productivity. Thus the government of India liberalized its economic policies in order to use foreign direct investment as a developmental tool. The figure.1 below relates FDI with economic growth of the country by exploring our economic resources and generating employment in the country as well as with importance of creating economic prosperity by increasing the disposable income.

3. SECTION - II Trends and patterns of FDI flows in India

This section studies the trends and nature of the sectoral composition of FDI in India from 2000 to 2011, which has changed dramatically during last two decades. The last 10 years have seen a marked increase in foreign capital flows to India. PL Beena et.al (2004) agree to the fact that India has come a long way since 1991 as regards to the quantum of FDI inflows is concerned. Table 1 highlights the recent growth in FDI inflows, through FIPB route into India, reporting a cumulative of USD 131,255 million since the year 2000. In last ten years this source increased by almost eight times. In year 2006 FDI Inflow increased drastically by 146% and ever since then there has been no looking back, as can also be witnessed in the figure 2 below:

Taking a country wise view of the FDI inflows (Table. 2) depicts that 83 per cent of the cumulative number is contributed by 9 countries and 17 per cent by rest of the world (as per the figures released by DIPP). The first rank goes to Mauritius in terms of highest inflow of foreign direct investment to India in comparison with all the other countries that make investments in India. This is due to the fact that special tax treatment is given to all those investments that come through Mauritius to India under the Double taxation Avoidance Agreement (DTAA). The total amount of FDI from Mauritius to India came to USD 53,877million between 2008 and 2011.

Sector wise analysis of FDI (Table. 3) is relevant for Indian economy because it provides avenues for future policies and regulatory framework. The table given below depicts that service sector

has attracted the maximum foreign investment in India i.e. 21 %, followed by computer software and hardware (8%), telecommunication (8%), housing and real estate (7%), construction activities and power (7%) Automobile and power industry (5%). However, with changing policies and continuing liberalisation measures to attract FDI and positive sentiments of investors due to relatively better performance of the economy in terms of macro-economic indicators, a reversal of trends can be noticed in today's time.

It is also reflective in the pie chart below that the maximun FDI comes into servies, followed by computers, telecommunications and then housing and construction activities.

4. SECTION III: INDIA ON A GLOBAL CANVAS ON "DOING BUSINESS"

Taking a stock of Global FDI flows in the year 2010-2012 (Figure.4), as per the survey forecast conducted by UNCTAD, the FDI flows in the years 2002 till 2009 and the projections for the years 2010 to 2012 can be reflected in the figure below, wherein the story ahead appears to be very optimistic.

However, what remains to be seen is the fact that what percent of these global inflows will India be able to attract?

First of all, looking at how presently India ranks as against the global canvas on the parameters of destination capable of attracting FDIs as a host nation, it has been found in the survey conducted by UNCTAD (2011), that India stands second in the competition next only to china, as per the number of times that the country was mentioned as a top priority for FDI by respondent TNC's in the survey conducted by UNCTAD (2011). (Rankings according to last year's survey are given in the parentheses before the name of each country. Countries without numbers were ranked outside the top 20 in the last year's survey.)

In the Economic Intelligence Unit's model of FDI determination, FDI inflows are dependent on a measure of the business environment, market size, real GDP growth, unit labour costs, distance from markets, the use of the English language and natural resource endowments. EIU's (2010) report forecasts that the share of emerging economies in the total global flows in the world is expected to decrease from the present level of 52.5% (in 2010) to 51% in 2012. Further, amongst the emerging economies the share of developing Asia is expected to decrease from 29.7% (2010) to 11.5% (2012). The situation appears to be critical for India because of the decreased available percentage to compete.

5. SECTION IV: BOTTLENECKS IN THE SYSTEM

Though in absolute terms the FDI inflows to India appear to be very encouraging but when looked at in comparative terms, India story tends to lose some of its shimmer. As per the latest from the UNCTAD, global FDI flows into India dropped to just around USD23.7 billion in 2010 as against USD34.6 billion in 2009, which reflects a drop by over 31 percent. Further, the severity of the situation increases when compared against the China figures wherein China received USD274.6 billion in 2010 as against USD233 billion in 2009, an almost 18 percent jump. According to Reserve Bank of India, the reasons for adverse trends in FDI flows in India are "procedural delays and environment sensitive policies". As depicted in the section above, the FDI flows are driven by sectors such as construction, mining and business services in India. Thus, manifestation of any procedural delays in land acquisition issues and availability of quality infrastructure can hurt the investor sentiments (RBI, 2011).

Now, let us take a look at the bottlenecks in making India as a favorable destination of doing business. As per the World Bank's "Ease of doing business" index, India stands far below in the ranking at 134th rank amongst the list of total of 183 countries. As per the World Bank's Doing Business (2011) report:-

"The ease of doing business index ranks economies from 1 to 183. For each economy the index is calculated as the ranking on the simple average of its percentile rankings on each of the 9 topics included in the index in Doing Business 2011: starting a business, dealing with construction permits, registering property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts and closing a business. The ranking on each topic is the simple average of the percentile rankings on its component indicators."

Yearly movements in rankings can provide some indication of changes in an economy's regulatory environment for firms, but they are always relative. An economy's ranking might change because of progress in its own economy or on relative terms developments in other economies.

Looking at how India stands against the suggested 9 topics, it was depressing to find India's ranking, especially on enforcing contracts (Ranked 182 amongst a list of 183 countries), dealing with construction permits (Ranked 177), procedural formalities in starting a business (Ranked 165) and paying taxes (Ranked 164).

Another issue that remains very significant in India being unable to attract FDIs is 'corruption'. Recent studies suggest that corruption negatively impacts FDI inflows and may act as a "tax" on foreign direct investment (Harrison, 2003). In 2010 India was ranked 87th out of 178th countries in Transparency International's Corruption Perceptions Index. This acted as another deterrent in attracting FDIs in India.

6. SECTION V POLICY RECOMMENDATIONS

As per the 'Doing business in India 2011' report,

some initiatives have already been taken, viz. Starting a Business (India eased business start-up by establishing an online VAT registration system and replacing the physical stamp previously required with an online version), Paying Taxes (India reduced the administrative burden of paying taxes by abolishing the fringe benefit tax and improving electronic payment), Closing a Business (Procedures under the 2002 Securitization Act have become more effective, easing the process and reducing the time required to close a business), Getting Credit (An electronic registry was introduced that covers the rights granted by companies. The registry can be searched by name of debtor and is linked geographically to cover the whole country. The private credit bureau has incorporated firms to its database and now provides credit information on corporate entities, Trading Across Borders (through introduction of an Electronic Data Interchange (EDI) system, customs declarations are now carried out through the internet. This system has also allowed the operation of a Risk Management System (RMS), an E-manifest system, and an E-payment system which facilitated the decrease in import time by 7 days).

However, much remains to be done. India will have to act proactively on its efforts to pull FDI into the country. Following are some of the recommendations that should be addressed expeditiously, in order to raise the share of India in the projected FDI flows. These have been put into the following five categories:

Procedural, Legal & Environmental Issues: Over and above the creation of a business-friendly environment, it may be important for a potential host country to actively undertake investment-promotion policies to fill in information gaps or correct perception gaps that may hinder FDI flows. As per the consolidated FDI policy document released by DIPP, under Ministry of commerce and Industry, the policies are very well framed and documented on who can enter, which sector, etc., but there is no documentation on the environmental issues. The clearance of the POSCO project in Orissa took so long to get a green signal from the ministry. Such instances

set a very wrong precedent for FDIs wanting to find their way into Greenfield projects in India. If all the prerequisites like the conditions on environmental issues are well laid, the prospective employers are well geared to handle them. So besides the documentation formalities, guidelines on such issues should be put on record instead of deciding upon them on case to case basis.

Political & Issues: "Political parties (Congress, BJP, CPI (M)) have changed their stance when in power and when in opposition (as well as public debate). They are driven by partisan considerations rather than an effort to assess the merit of the policies"(Singh, 2005). There needs to be more transparent systems in place. There needs to be greater coordination between the centre and states to ensure that the substantial foreign interest in investing in India gets translated into actual investment flows to the state.

Corruption Issues: Political and bureaucratic corruption in India are major concerns. A 2005 study conducted by Transparency International in India found that more than 15% of Indians had first-hand experience of paying bribes or influence peddling to successfully complete jobs in public office. With Lokpal Bill getting into shape, hopefully corruption factor will be curbed in India. However, it is imperative for the government to make sure that the Bill finds its way through for the obvious reasons.

Human Factor: India has a huge pool of working population. However, due to poor quality primary education and higher education, there is still an acute shortage of talent. This factor has negative repercussion on domestic and foreign business. FDI in Education Sector is less than 1%. Given the status of primary and higher education in the country, FDI in this sector must be encouraged. However, appropriate measures must be taken to ensure quality. The issues of commercialization of education, regional gap and structural gap have to be addressed on priority.

7. SECTION VI: CONCLUSION

India should continue to take steps to ensure an enabling business environment to improve India's attractiveness as an investment destination and a global manufacturing hub by boosting export competitiveness, generating employment and strengthening the skills base, enhancing technological capabilities (transfer, diffusion and generation of technology) and increasing financial resources for development.

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Figures & Tables

Figure.1 Link Model: FDI and Economic Growth
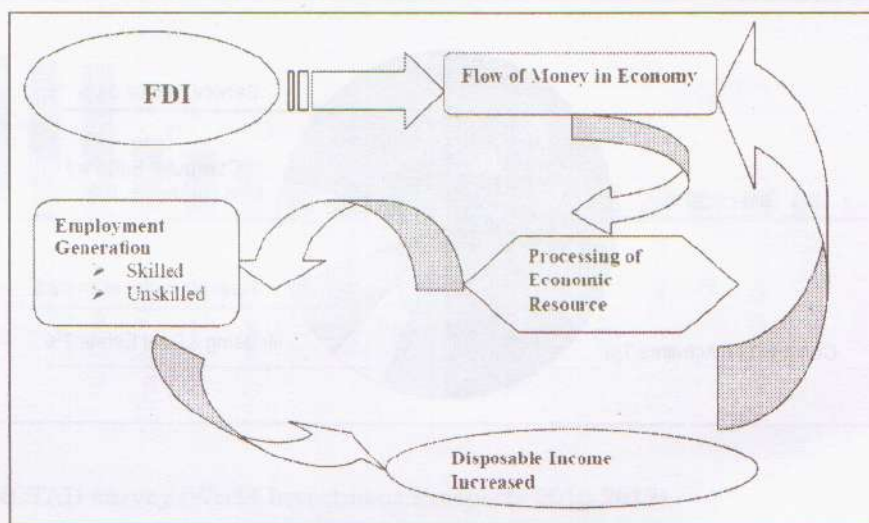
Figure 2 FDI inflow in India
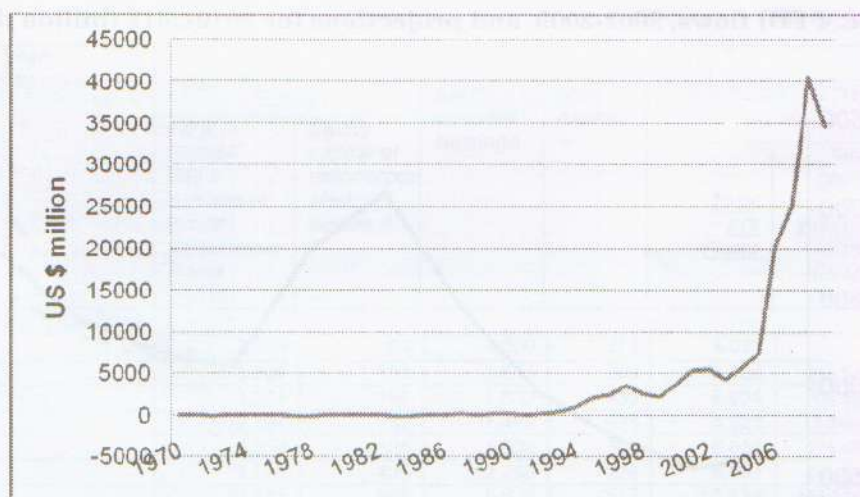
Net FDI stock in India has also improved significantly. It rose from USD 4,029 million in 2000-2001 to 25,949 million US $ by 2010-11.

Figure 3 : Pie chart of sectoral composition
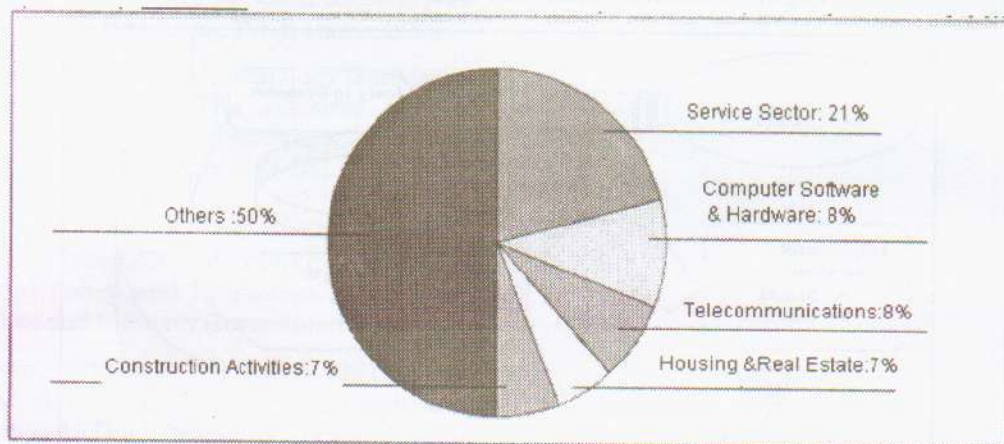
Figure. 4 FDI flows, 2002-2009, and projections for 2010-2012 (billion dollars)
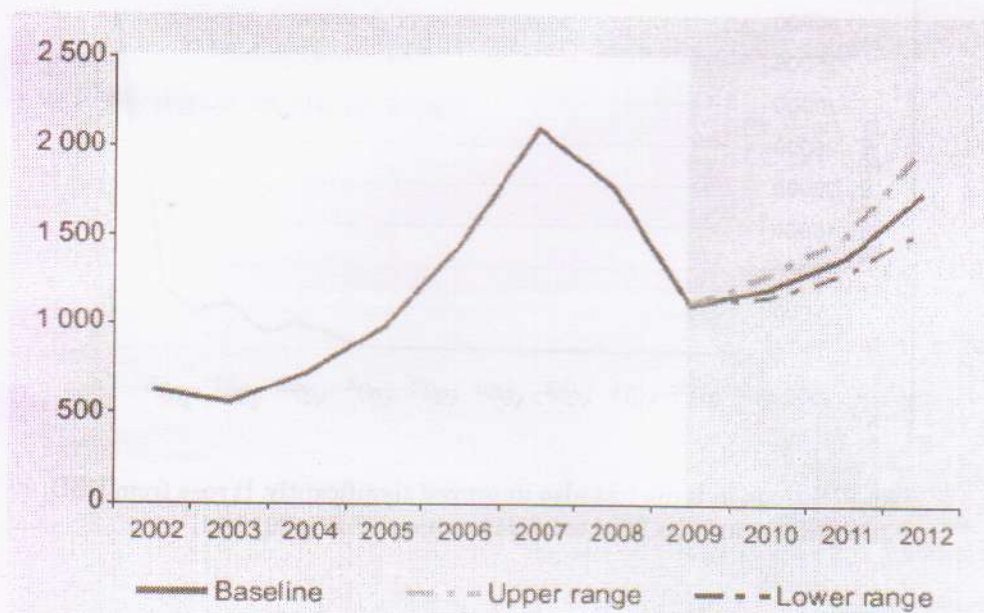
Figure. 5. Top priority host economies for FDI for the 2010-2012
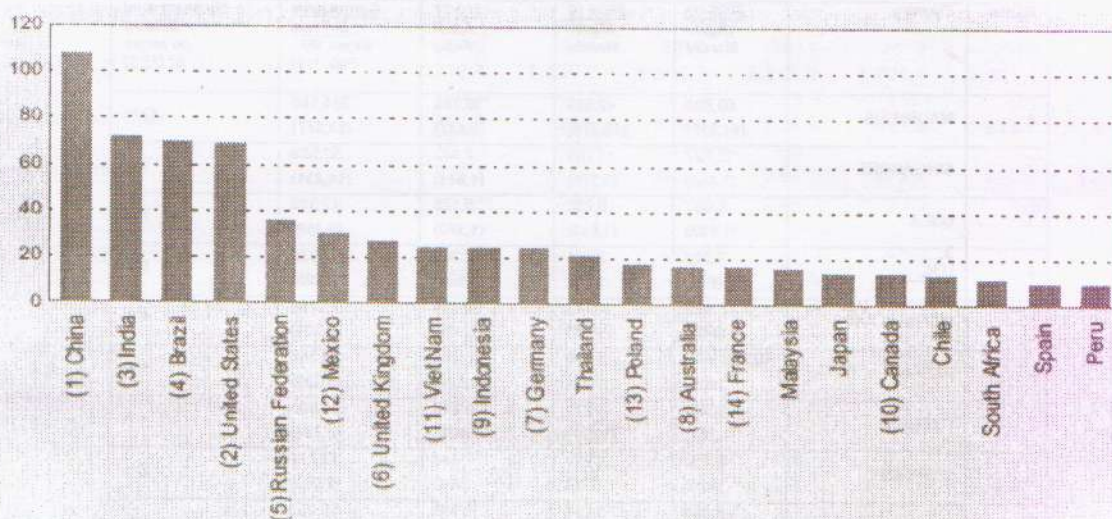
Source: UNCTAD survey (World Investment Prospects 2010-2012)

Table. 1 FDI inflows in India since 2000

(Amount US$ million)

S. No.	Financial Year (April-March)	FOREIGN DIRECT INVESTMENT (FDI)						Investment by FII's Foreign Institutional Investors Fund (net)
		Equity		Re-invested earnings +	Other capital +	FDI FLOWS INTO INDIA		
		FIPB Route/ RBI's Automatic Route/ Acquisition Route	Equity capital of unincorporated bodies #			Total FDI Flows	%age growth over previous year (in US$ terms)	
FINANCIAL YEARS 2000-2011								
1.	2000-01	2,339	61	1,350	279	4,029	-	1,847
2.	2001-02	3,904	191	1,645	390	6,130	(+) 52 %	1,505
3.	2002-03	2,574	190	1,833	438	5,035	(-) 18 %	377
4.	2003-04	2,197	32	1,460	633	4,322	(-) 14 %	10,918
5.	2004-05	3,250	528	1,904	369	6,051	(+) 40 %	8,686
6.	2005-06	5,540	435	2,760	226	8,961	(+) 48 %	9,926
7.	2006-07	15,585	896	5,828	517	22,826	(+) 146 %	3,225
8.	2007-08	24,573	2,291	7,679	292	34,835	(+) 53 %	20,328
9.	2008-09	27,329	702	9,030	777	37,838	(+) 09 %	(-) 15,017
10.	2009-10 (P) (+)(++)	25,609	1,540	8,669	1,945	37,763	(-) 0.2 %	29,048
11.	2010-11 (P) (+) (up to February 2011)	18,355	657	6,703	234	25,949	-	31,031
CUMULATIVE TOTAL (from April 2000 to February 2011)		131,255	7,523	48,861	6,100	193,739	-	101,874

Source: DIPP figures April 2011

Table. 2 Country wise FDI inflows

Amount Rupees in crores (US$ in million)

Ranks	Country	2008-09 (April-March)	2009-10 (April-March)	2010-11 (April-Feb.)	Cumulative Inflows (April '00 - Feb. '11)	%age to total Inflows (in terms of US $)
1.	MAURITIUS	50,899 (11,229)	49,633 (10,376)	30,280 (6,637)	241,186 (53,877)	42 %
2.	SINGAPORE	15,727 (3,454)	11,295 (2,379)	7,442 (1,641)	52,589 (11,831)	9 %
3.	U.S.A.	8,002 (1,802)	9,230 (1,943)	5,126 (1,120)	42,318 (9,398)	7 %
4.	U.K.	3,840 (864)	3,094 (657)	2,380 (521)	28,378 (6,405)	5 %
5.	NETHERLANDS	3,922 (883)	4,283 (899)	5,129 (1,131)	25,255 (5,618)	4 %
6.	JAPAN	1,889 (405)	5,670 (1,183)	6,890 (1,524)	23,785 (5,238)	4 %
7.	CYPRUS	5,983 (1,287)	7,728 (1,627)	3,817 (835)	21,595 (4,734)	4 %
8.	GERMANY	2,750 (629)	2,980 (626)	746 (164)	13,214 (2,963)	2 %
9	FRANCE	2,098 (467)	1,437 (303)	3,239 (710)	10,158 (2,240)	2 %
10.	U.A.E.	1,133 (257)	3,017 (629)	1,513 (328)	8,536 (1,877)	1 %
	TOTAL FDI INFLOWS *	123,025 (27,331)	123,120 (25,834)	83,687 (18,355)	575,889 (128,642)	-

Source: DIPP figures April 2011

Table.3 Sector Wise Analysis of FDI

Amount inRs. crores (US$ in million)

Ranks	Sector	2008-09 (April-March)	2009-10 (April-March)	2010-11 (April-Feb.)	Cumulative Inflows (April '00 - Feb. '11)	% age to total Inflows (In terms of US$)
1.	SERVICES SECTOR (financial & non-financial)	28,516 (6,138)	20,776 (4,353)	14,958 (3,274)	120,165 (26,873)	21 %
2.	COMPUTER SOFTWARE & HARDWARE	7,329 (1,677)	4,351 (919)	3,490 (766)	47,619 (10,705)	8 %
3.	TELECOMMUNICATIONS (radio paging, cellular mobile, basic telephone services)	11,727 (2,558)	12,338 (2,554)	6,398 (1,410)	47,108 (10,342)	8 %
4.	HOUSING & REAL ESTATE	12,621 (2,801)	13,586 (2,844)	5,070 (1,109)	43,112 (9,615)	7 %
5.	CONSTRUCTION ACTIVITIES (including roads & highways)	8,792 (2,028)	13,516 (2,862)	4,839 (1,072)	40,532 (9,125)	7 %
6.	AUTOMOBILE INDUSTRY	5,212 (1,152)	5,754 (1,208)	5,962 (1,320)	26,784 (5,917)	5 %
7.	POWER	4,382 (985)	6,908 (1,437)	5,639 (1,237)	26,642 (5,884)	5 %
8.	METALLURGICAL INDUSTRIES	4,157 (961)	1,935 (407)	4,783 (1,044)	18,223 (4,174)	3 %
9.	PETROLEUM & NATURAL GAS	1,931 (412)	1,328 (272)	2,571 (562)	13,684 (3,142)	2 %
10.	CHEMICALS (other than fertilizers)	3,427 (749)	1,707 (362)	1,746 (384)	13,014 (2,878)	2 %

Table 4. Global FDIs in US$ billion

FDI inflows US$ bn

	2008	2009	2010	2011	2012	2013	2014
World total	1,718.4	1,019.7	1,302.5	1,519.0	1,709.4	1,871.2	2,009.0
% change	-17.4	-40.7	27.7	16.6	12.5	9.5	7.4
Developed countries	894.3	488.1	619.9	734.8	837.8	931.7	995.7
% change	-33.2	-45.4	27.0	18.5	14.0	11.2	7.0
Emerging markets	824.1	531.6	682.6	784.2	871.7	939.4	1,012.3
% change	11.0	-35.5	28.4	14.9	11.1	7.8	7.8
of which:							
Sub-Saharan Africa	46.4	28.6	36.6	39.0	45.1	45.4	46.7
% change	22.7	-38.3	27.9	6.6	15.6	0.6	2.9
Middle East & North Africa	98.7	62.6	77.0	87.3	91.6	98.7	105.6
% change	25.2	-36.6	23.0	13.4	5.0	7.7	7.1
Developing Asia	331.2	246.4	319.6	372.0	414.8	457.6	496.7
% change	8.2	-25.6	29.7	16.4	11.5	10.3	8.5
Latin America & Caribbean	144.3	88.2	114.0	127.6	139.3	149.1	160.0
% change	12.0	-38.9	29.2	12.0	8.4	7.8	7.3
Eastern Europe	180.6	95.9	122.7	143.1	150.1	155.6	164.0
% change	9.5	-46.9	27.9	16.7	4.9	3.7	5.4
% share developed countries	52.0	47.9	47.6	48.4	49.0	49.8	49.6
% share emerging markets	48.0	52.1	52.4	51.6	51.0	50.2	50.4

Source: Economist Intelligence Unit's Report 2011

Table. 5 India ranking on "Ease of doing business index" (UNCTAD)

	Global Ranking	
Year	2010	2011
Ease of Doing Business	135	134
Starting a Business	*168*	*165*
Dealing with Construction Permits	*176*	*177*
Registering Property	*90*	*94*
Getting Credit	*30*	*32*
Protecting Investors	*41*	*44*
Paying Taxes	*168*	*164*
Trading Across Borders	*93*	*100*
Enforcing Contracts	*182*	*182*
Closing a Business	*137*	*134*

About Authors

Ms. Anuradha Tiwari, GDGWI (anuradha.tiwari@gdgoenka.ac.in)

Ms. Anuradha Tiwari graduated in Commerce, holds master's in Commerce with Specialization in Economics & Taxation from Jiwaji University, Gwalior. She also did her MBA in Advertising & Public Relations from International Institute of Professional Studies, DAVV Indore.

With over 8 yrs of teaching experience in India, prior to GDGWI she was associated with JK Business School (Gurgoan), Institute Of Professional Studies (Indore) and NIIT.

Dr. Jaskiran Arora (jaskiran.arora@gdgoenka.ac.in)

Presently working as Associate Professor, with G.D Goenka World Institute (Tie-up with Lancaster University, UK), Dr. Jaskiran Arora is Ph.D, MBA Finance and UGC-Net qualified faculty with an impeccable academic record of distinction throughout her higher education. She brings to her classes over 10 years of industry and teaching experience with reputed institutions. She has several papers and publications in the field of finance and education to her credit.

Price and Liquidity Effects of Stock Split: Empirical Evidence from Indian Stock Market

Jyoti Prakash Das*

Abstract

Stock splits are a relatively new phenomenon in Indian markets, especially since early 2005 with bull phase in Indian stock markets, with many companies' stock prices shooting far beyond the normal trading range. There are several theories that have been advanced to explain why companies split their stock. The most common ones are to achieve an optimal price range for liquidity, to achieve an optimal tick size and to signal managements' confidence in the future stock price. This paper examined the effect of stock splits at the Indian Stock Market with regards to share price and liquidity of share. This was achieved by studying ten companies that had undergone stock splits and made use of adjusted prices for sample stock for the event window of 61 days, consisting of 30 days before and 30 days after the stock split. Another objective of the study is to analyze the impact of stock splits on liquidity. To do so, the returns in the period prior to the announcement are compared with the returns after the execution of the split, in terms of mean returns and variance of returns. The results of the study indicate strong evidence for changes in the liquidity of the stock after the split. The event study methodology was employed in the determination of the effects of the split. Returns were calculated by use of the market model and t-tests were conducted to test the significance.

Keywords : Stock-split, prices, liquidity, mean returns, variance of returns.

I. INTRODUCTION

The effects of stock splits are puzzling. In theory a stock split is merely an accounting change, which leaves investors no better or worse off than they were before the split. Yet stock splits are relatively common occurrences. This implies that there must be some benefit, either real or perceived, that results from a firm splitting its stock. Survey evidence indicates that managers split their stock to get the stock's price into some optimal trading range. Managers believe this will attract small investors, which implies that managers believe that splitting their firm's stock has implications for the firm's ownership structure. Our goal in this paper is not to explain why managers decide to split their firm's stock, but rather to examine the linkage between splits, price, and liquidity.

1.1 General Background

Stock splits have been prevalent in many markets for some decades now. However, they have gained popularity in the Indian stock market only since 1999. Theoretically, stock splits are just cosmetic corporate events. When stocks are split, neither the amount of share capital nor reserves are affected; instead, there is a change in the par value of the shares. This increases the number of outstanding shares without increasing any claim on assets by the shareholders. Fama et al. (1969) defined a stock split as an exchange of shares in which at least five shares were distributed for every four formerly outstanding. This meant that stockholders got additional shares for every share previously held. Dhar and Chhaochharia (2008) found that splits occurred at any ratio; the most commonly used ones being 2:1, 3:2, 5:4, 4:3 etc. After a two for one (2:1) split, for instance, each shareholder had twice as many shares, but each represented a claim on only half as much of the corporation's assets and earnings. Investopedia Staff (2005) saw a stock split as a corporate action, which increased the number of a corporation's outstanding shares, achieved by dividing each share, which in turn diminished its price with the stock market capitalization remaining the same. Onyango

* Lecturer (Finance), Rourkela Institute of Technology, Kalunga, Rourkela

(1999) noted that stock splits and bonus issues occurred when the board of directors authorized a distribution of common shares to existing shareholders of the company. Distribution was done proportionately.

1.2. Literature Review

The purpose of the empirical study is to test whether stock split has any impact on the price and returns of a stock in the Indian capital market. In this approach, we have reviewed the works of various study conducted in the past on stock splits. This has helped us in getting various perspectives on this issue and has enabled us to undertake an in depth literature review. There have been studies conducted in the U.S. context. Although markets react differently to stock splits in U.S. (according to empirical findings), the methodology of these cases has helped us do a case study on Indian companies and develop an effective theory for our study in the Indian context.

There have been numerous researches on the effect of stock splits on different parameters of capital markets. One such research paper advocates considering three different market efficiencies (weak form, semi-strong form, and strong form) and that the investor can make an above- normal return by relying on public information impounded in a stock split announcement. This study agrees that according to the semi-strong form market efficiency, the stock split announcement do impact the company stock price. The literature on stock split behavior begins with the pioneering paper by Fama et. al. (1969), which examined the behavior of cumulative abnormal returns (CARs) surrounding the execution dates of stock splits. Subsequently, Bar-Yosef and Brown (1977) argued that the excess returns caused by stock splits were really due to a temporary increase in the systematic risk (beta coefficient) of the stock.

There are several hypotheses developed in the literature to explain stock split behavior. The simplest of these is the signaling hypothesis, which suggests that stock splits are used by managers to signal good performance and future growth of companies to the market (Brennan and Copeland, 1988). Another hypothesis is the trading range hypothesis (Copeland, 1979), which suggests that there is an optimal price range in which a stock should trade, so that when stock prices are too high, a split should be undertaken so that small investors can afford to buy the stock. A complementary hypothesis is the liquidity hypothesis (Dolly, 1933), which suggests that stock splits are undertaken to encourage liquidity, i.e. higher volume of trade, of the stock. Easley et al (2001) suggested that preference for a specific trading range may be due to higher liquidity in that price range. Taking a different point of view, the tax timing hypothesis (Lamoureux and Poon, 1987) suggests that the tax-option value of a stock and its trading volume will increase following a stock split. A more recent ("market-maker") theory (Harris (1996) and Angel (1997) suggests that stock splits may be used to position a stock's price so that the tick size is optimal vis-à-vis the trade-off between higher costs to investors and lower costs to liquidity suppliers such as market makers and limit-order providers; an increase in the number of liquidity suppliers will then be reflected by higher liquidity for the stock. In particular, stock splits lead to reduction in bid-ask spread and make market makers more active in promoting stock, leading to a positive stock market effect. Another hypothesis explaining stock split behavior is the neglected firms hypothesis, which argues that a stock spilt is a way by which firms that perceive themselves to be undervalued because of the negligence of the market participants try to catch the attention of the market; thus, little-known firms' shares trade at a discount, and stock splits can be used to draw attention to the company (Arbel and Swanson, 1987).

Though stock splits do not change the market capitalization of a company's stock, several studies have reported abnormal returns around the announcement date as well as the execution date and an increase in variance after the execution date. In fact, empirical evidence on the impact of stock splits on liquidity is mixed. For example, Copeland (1979) found that proportional bid-ask spreads increased, while Murray (1985) found that they stayed the same. With trading volume as a proxy for liquidity, several authors (Copeland (1979), Lamoureux and Poon (1987), and Conroy et al (1990)) found that there was a decrease in split-adjusted

volume following a stock split, while Murray (1985) reported no change in volume. Several studies which have used share price volatility as a measure of liquidity have found an increase following a stock split: (Ohlson and Penman (1985), Dravid (1987), Lamoureux and Poon (1987), Conroy et al (1990), Dubofsky (1991), Desai et al (1998) and Koski (1998)). The number of trades per day has been found to increase following stock splits: Muscarella and Vetsuypens (1996), Kryzanowski and Zhang (1996) and Desai et al (1998)). Moreover, Desai et al (1998) found that there was a significant decrease in the average number of shares per trade following a stock split, while Lakonishok and Lev (1987) found an increase in the number of shares traded as a percentage of the outstanding shares following stock splits.

The execution date effect of stock splits has been explained by market microstructure anomalies, for example by the bid-ask spread and by price discreteness. Blume and Stambaugh (1983) found that the bid-ask spread causes an upward bias in rates of return. Amihud and Mendelson (1987) and Kaul and Nimalendran (1990) found that return variances were also biased upward by the bid-ask spread. Dravid (1989) and Conroy et al. (1990) found that bid-ask spreads increase in percentage terms subsequent to splits and impose a liquidity cost on investors. Desai and Jain (1997) studied long-run common stock returns following stock splits and reverse splits and suggested that the market under-reacts to the information conveyed in the stock split and reverse split announcements.

Muscarella and Vetsuypens (1996) found improved liquidity after a stock split, with wealth gains to investors. Their findings support the model of Amihud and Mendelson (1986), which predicted a positive relation between equity value and liquidity. According to this model rational investors discount illiquid securities heavier than liquid ones due to the higher transaction costs and greater trading frictions they face.

Regarding return variance effects of stock splits Ohlson and Penman (1985) and Dravid (1987) found that stock return volatility increases after stock splits. Klein and Peterson (1988) also found evidence of increased volatility and market inefficiency in call option prices around

the announcement and ex-dates of large stock splits, in that call options do not reflect underlying stock price volatility increases until the ex-date. Desai et al. (1998) found a significant increase in volatility after stock splits even after controlling for microstructure biases. Koski (1998) found only some evidence that the bid-ask spread contributes to the volatility increase and that price discreteness (measurement effects) did not either generate the volatility increase.

Wulff (1999) investigated the market reaction to stock splits in the German stock exchange and found effects similar to those in US markets. He argued that there was little evidence for the signally hypothesis. He also found a significant increase in liquidity after the split, though cross-sectional tests did not lend any support to the hypothesis that price changes are positively related to liquidity changes. He suggests that the announcement effect to German stock splits is best explained by a neglected firm effect.

Niini (2001) found statistically significant abnormal announcement returns at the Helsinki and Stockholm stock exchanges and a statistically significant execution-date effect at the Stockholm Stock Exchange but not at the Helsinki Stock Exchange. He also found an ex-date volatility shift in about half of the splitting stocks on both markets, though this was not found to be statistically significant.

Michayluk and Kofman (2001) studied the effect of stock splits on liquidity for NASDAQ stocks. They found a decline in most liquidity measures following a stock split. Further, they found a greater decline in liquidity for large stock splits than for small stock splits, though this did not persist over a longer period of time after the stock split.

Dennis (2003) studied liquidity effects of stock splits for the Nasdaq-100 Index Tracking Stock. He found that the frequency, share volume, and dollar-volume of small trades were all increased after the split, indicating that the split improved liquidity for small trade sizes.

Joshipura (2008) studied the price and liquidity effects associated with stock split surrounding its announcement and execution dates in Indian stock exchanges. His results suggested that though there were some positive abnormal return associated surrounding announcement

and execution dates of the stock split, it reverses in just a few days after the event dates and ultimately generates significant negative abnormal return in slightly longer post-execution window. He also found that there was a significant improvement seen in liquidity surrounding announcement and execution dates of stock split.

The literature has investigated several interesting effects associated with stock splits. Most of the literature, however, is based on event study methodology, and the findings from the studies tend to be mixed and often contradictory. Also, very few studies considered the longer-term effects of stock-splits.

Stock splits are a relatively new phenomenon in Indian markets, especially since early 2005 with the bull phase in Indian stock markets, with many companies' stock prices shooting far beyond the normal trading range. The objective of the study is to analyze the overall impact of stock splits on returns. To do so, the returns in the period prior to the announcement are compared with the returns after the execution of the split, in terms of mean returns and variance of returns.

2. DATA AND METHODOLOGY

The study was carried on in two phases. In first phase the impact of stock split on share price and in second phase impact on liquidity which studied through returns from stock. The data used for the study was collected from twenty-four stock-splits for stocks listed on the National Stock Exchange (NSE), Mumbai, India which took place in the period Jan. 2006 - Aug. 2007. The sample stocks were all core NIFTY-50 stocks. To study the effect on price, the share prices of Ten Indian Companies were taken and use of daily adjusted prices for sample stock for the event window of 61 days, consisting of 30 days before and 30 days after the stock split was made. To study the effect on liquidity and abnormal returns due to the announcement and execution of the split, a fifteen-day window was taken prior to the announcement of the split and after the execution of the split.

3. ANALYSIS AND INTERPRETATION

3. a. Price Effects of Stock Split

Stock splits add no value but increase the number of shares in the ratio of the split. While the split may be for diverse reasons, companies that split their shares repeatedly tend to have certain common attributes. They are usually industry leaders, generating fantastic returns.

The best examples of stock splits are Infosys, Zee and Satyam (TMT giants). Those who invested pre split in these stocks have seen their wealth grow dramatically. Of course, the split was not the only reason but it definitely contributed to it. So while the act of splitting may not add value (in terms of say earnings per share), investors tend to believe that stock prices of fundamentally sound companies rise after a split. Stock splits generate an excitement in the market resulting in price appreciation in anticipation of the announcement.

Here, we discuss the examples of Indian companies that have gone for a stock split and the impact on stock prices post split.

Are you a gainer or loser after stock split is compared in **Table 1.**

Table 1 throws up a very interesting picture. Of the ten companies that we studied, eight posted gains in the one month prior to the split. One may argue that other factors could have driven interest in the stocks. But given the fact that these companies announced splits at different times, the view that a split leads to enhanced interest in the stock does hold some weight. The enhanced interest is partly speculative though. Of the ten stocks, six recorded moderate to significant losses in the month post the stock split. This was probably due to the fact that short-term investors were booking profits. (For a more accurate impact of a stock split on the share price, pre and post split, however, a more scientific study would be in order).

3. b. Liquidity Effects of Stock Split

The split ratios of the sample stock splits were found to vary widely, with 29.17% of the sample stocks having a split ratio in the range 2:1 - 3:1, 37.50% of the sample stocks having a split ratio of 5:1 and 33.33% of the sample stocks having a split ratio of 10:1. Preliminary analysis of the sample showed that there was high variability in the price and the trade volume of the sample stocks at the time of the split and that there was no significant difference in the price and the trade volume at the time of the split between stock splits with different split ratios.

Several proxies for liquidity have been discussed in the literature, including proportional bid-ask spreads and trading volume [Copeland (1979) and others], and share price volatility [Ohlson and Penman (1985) and others]. With preliminary results showing high variability in terms of price and trading volume, the study focused on share price volatility to study liquidity effects of the stock splits.

Share price volatility was estimated using the distribution of stock returns. The daily returns were calculated using the formula $r_1 = \dfrac{S_1 - S_{t-1}}{S_{t-1}}$ for the sixty-day period prior to the pre-announcement window and for the sixty-day period after the post-execution window. The sample mean and sample variance/standard deviation of returns in the two periods were calculated as usual and then compared using standard statistical hypothesis tests.

The lognormal model of stock prices was also used in this context to assess the impact of the stock-split on the underlying process (Hull, 1997). The drift and volatility parameters for the lognormal model in the two periods were estimated as follows (Marshall and Bansal, 1992)

$$\hat{\mu} = 2\log_e(1+\bar{r}) - \frac{1}{2}\log_e\left(s_r^2 + (1+\bar{r}^2)\right)$$

$$\hat{\sigma}^2 = \log_e\left(1 + \frac{s_r^2}{1+\bar{r}^2}\right)$$

The estimated drift and volatility parameters in the two periods were then compared using standard hypothesis tests. The mean and variance of returns of the sample stocks in the forty-five-day period prior to the pre-announcement window and in the forty-five-day period after the post execution window are compared in Table 2.

It was found that the mean returns decreased overall after the split (except for one of the sample stocks), but this decrease was found to be statistically significant for only 8.33% of the sample stocks. It was also found that the variance of returns increased overall after the split (except for two of the sample stocks) and this increase was found to be statistically significant for 83.33% of the sample stocks. Cross-sectional analysis using the paired-samples t-test also showed a significant decrease in mean returns and a significant increase in standard deviation of returns after the split (Table 3).

The drift and volatility parameters of the sample stocks in the forty-five-day period prior to the pre-announcement window and in the forty-five-day period after the post-execution window are compared in Table 4.

It was found that the drift parameter decreased overall after the split (except for one of the sample stocks), and this decrease was found to be statistically significant for 95.83% of the sample stocks. It was also found that the volatility parameter increased overall after the split (except for two of the sample stocks), and this increase was found to be statistically significant for 83.33% of the sample stocks. Cross-sectional analysis using the paired-samples t-test also showed a significant decrease in mean drift parameter and a significant increase in volatility parameter after the split (Table 4).

As variance/volatility of returns is widely considered a measure of liquidity in literature: Ohlson and Penman (1987), Klein and Peterson (1988), Desai et al (1998), Koski (1998)), it may be concluded that there is an increase in liquidity after the split.

4. FINDINGS AND IMPLICATIONS

At the outset, two immediate observations can be made. Firstly, the sample stocks considered for the study were stocks of quite well-known companies; thus, the "neglected firm" hypothesis would not seem to apply in general. Secondly, the split ratio of the sample stocks was found to be very high. The "trading range" hypothesis would imply that stock splits would take place once the stock price exceeded the optimal trading range so that the split ratio would be relatively low, say about 2:1. The observed split ratios in the sample suggest that the "trading range" hypothesis would not seem to apply. The results of the study indicate strong evidence for an increase in the liquidity of the stock after the split. Though the decrease in mean returns was not found to be statistically significant, there was found to be a statistically significant increase in variance of returns; and in terms of the lognormal model, there was found to be a statistically significant decrease in the drift, and a statistically significant increase in the volatility. In fact, the results of the study match very closely with those of Joshipura (2008), who considered an overlapping period of study.

It would be interesting to examine the exceptions in sample stock splits. Only one of the sample stocks has shown increasing mean returns (and increasing drift) after the split, viz. SUN PHARMA; the "neglected firm" hypothesis could apply in this case, with the stock being relatively thinly traded before the split. Further, two of the sample stocks have shown decreasing variance of returns (and decreasing volatility) after the split, viz. BALAJI TELEFILMS and ITC; the "signaling" hypothesis could apply in these cases. There were two major limitations inherent in the study. The first limitation was that the sample size was very small, so the results of the study were only indicative. Another limitation was due to the use of historical data. The results of the study may depend on the specific circumstances inherent in the study period, such as macroeconomic trends, investor psychology, general market trends, and specific sector trends.

5. CONCLUSION

The exact effect of stock split on returns is still unpredictable. While some sectors gave abnormally higher returns than the expected returns, it has been the opposite for the others. Furthermore, we could not find any conclusive relation between split factor and abnormal return of the stock.

This study has analyzed the market effect of stock splits on stock price and return around the split ex-dates for a sample of stock splits undertaken in the Indian market during 2002-2009. Though finance theory predicts that stock splits have no effect on the market behavior around the announcement, our study has concluded that stock splits make a positive impact on stock's return, as compared to index return, over a period of time.

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Figures & Tables

Table-1
Price Effect of Stock Split

COMPANY	SPLIT RATIO	MARKET PRICE (RS)			CHANGE IN PRICE	
		ONE MONTH BEFORE SPLIT	ON SPLIT	ONE MONTH AFTER SPLIT	IN ONE MONTH PRE SPLIT	IN ONE MONTH POST SPLIT
ACC	10:1	142	162	184	13.9%	13.4%
HDFC	10:1	247	267	265	8.1%	-0.7%
HLL	10:1	257	275	242	7.3%	-12.0%
HUGHES SOFTWARE	2:1	1,248	1,433	1,100	14.8%	-23.3%
INFOSYS	2:1	5,535	7,150	10,275	29.2%	43.7%
POLARIS	2:1	1,108	945	665	-14.7%	-29.6%
SATYAM	5:1	671	429	624	-36.1%	45.4%
SONATA SOFTWARE	10:1	68	85	73	25.7%	-14.4%
WIPRO	5:1	1,040	1,450	1,155	39.4%	-20.3%
ZEE	10:1	404	702	1,180	73.7%	68.1%

Table 2
Comparison of mean and standard deviation of daily returns before and after split

Stock	E(r) Before	s(r) Before	E(r) After	s(r) After	Equality of mean returns		Equality of variance of returns	
					t_{cal}	p-value	F_{cal}	p-value
BALAJI TELEFILMS	0.0036	0.0341	-0.0027	0.0266	0.7277	0.2352	0.6060	0.8865
DABUR	-0.0005	0.0278	-0.0067	0.0836	0.3565	0.3615	9.0302	0.0000
GODREJ	0.0034	0.0412	-0.0337	0.1627	1.1065	0.1370	15.5845	0.0000
LEELA	0.0007	0.0304	-0.0502	0.1913	1.3151	0.0974	39.5921	0.0000
HCL	-0.0019	0.0533	-0.0061	0.0756	0.2248	0.4115	2.0598	0.0415
HLL	0.0011	0.0312	-0.0091	0.0826	0.5810	0.2820	7.0323	0.0000
ITC	0.0023	0.0160	0.0021	0.0158	0.0283	0.4888	0.9684	0.5311
POLARIS	0.0104	0.0607	-0.0081	0.0655	1.0304	0.1540	1.1630	0.3572
SATYAM	0.0015	0.0569	-0.0070	0.0850	0.4118	0.3412	2.2348	0.0272
SIMPLEX	0.0018	0.0362	-0.0755	0.2158	1.7665	0.0418	35.5682	0.0000
SUN PHARMA	0.0005	0.0111	0.0011	0.0386	-0.0728	0.4711	12.0776	0.0000
SUPER SPIN	0.0001	0.0327	-0.0458	0.1984	1.1416	0.1296	36.8637	0.0000
UNITECH	0.0205	0.0391	-0.0034	0.1252	0.9124	0.1831	10.2561	0.0000
WIPRO	-0.0001	0.0188	-0.0002	0.0453	0.0088	0.4965	5.7924	0.0000

ITILX	0.0166	0.0530	-0.0083	0.0798	1.2979	0.1003	2.2662	0.0252
TAJGVK	0.0058	0.0283	-0.0007	0.0742	0.4099	0.3419	6.8714	0.0000
GAMMON	0.0081	0.0250	-0.0074	0.0848	0.8762	0.1926	11.5313	0.0000
PRAJIND	0.0091	0.0301	-0.0089	0.0984	0.8749	0.1930	10.7061	0.0000
COMPUTER TECH	0.0130	0.0627	-0.0067	0.0716	1.0345	0.1531	1.3043	0.2601
BULSTER	0.0022	0.0247	-0.0997	0.2868	1.7692	0.0416	135.0701	0.0000
RADICO	0.0044	0.0206	-0.0040	0.0672	0.5988	0.2761	10.5938	0.0000
RANBAXY	-0.0018	0.0138	-0.0031	0.0445	01446	0.4428	10.3641	0.0000
ASHOK LEY	0.0028	0.0300	-0.0059	0.0821	0.5006	0.3095	7.4633	0.0000
SONATA SOFT	-0.0039	0.0611	-0.0142	0.0932	0.4616	0.3232	2.3248	0.0219

Table 3
Paired-sample t-tests of mean and standard deviation of daily returns before and after split

	Mean	Std. deviation	Correlation	p-value	t_{cal}	p-value
Mean daily return before split	0.0042	0.0060	0.1851	0.3866	4.0401	0.0005
Mean daily returns after split	-0.0168	0.0259				
Standard deviation of daily return before split	0.0350	0.0155	0.0580	0.7877	-4.7686	0.0001
Standard deviation of daily return after split	0.0998	0.0657				

Table-4
Comparison of drift and volatility parameters before and after split

Stock	μ_{before}	σ_{before}	μ_{after}	σ_{after}	Equality of drift parameter		Equality of volatility parameter	
					t_{cal}	p-value	F_{cal}	p-value
BALAJI TELEFILMS	0.0066	0.0012	-0.0058	0.0007	45.3707	0.0000	0.3674	0.9913
DABUR	-0.0013	0.0008	-0.0170	0.0070	11.2198	0.0000	81.0332	0.0000
GODREJ	0.0060	0.0017	-0.0822	0.0261	16.8606	0.0000	236.4760	0.0000
LEELA	0.0010	0.0009	-0.1222	0.0358	17.1796	0.0000	1505.9780	0.0000
HCL	-0.0053	0.0028	-0.0152	0.0058	7.6568	0.0000	4.2299	0.0004
HLL	0.0018	0.0010	-0.0218	0.0068	17.1414	0.0000	49.1579	0.0000
ITC	0.0044	0.0003	0.0041	0.0002	3.4938	0.0005	0.9378	0.5619
POLARIS	0.0187	0.0037	-0.0183	0.0043	32.8101	0.0000	1.3518	0.2329
SATYAM	0.0013	0.0032	-0.0176	0.0072	11.9800	0.0000	4.9741	0.0001
SIMPLEX	0.0029	0.0013	-0.1825	0.0453	20.4784	0.0000	1196.8158	0.0000
SUN PHARMA	0.0009	0.0001	0.0014	0.0015	-1.6259	0.0000	145.6699	0.0000
SUPER SPIN	-0.0004	0.0011	-0.1142	0.0385	14.7610	0.0000	1303.3427	0.0000
UNITECH	0.0396	0.0015	-0.0147	0.0156	17.3654	0.0089	103.8058	0.0000
WIPRO	-0.0004	0.0004	-0.0014	0.0021	2.4526	0.0000	33.4951	0.0000
ITILX	0.0314	0.0028	-0.0198	0.0064	36.8681	0.0000	5.1198	0.0001
TAJGVK	0.0112	0.0008	-0.0042	0.0055	13.8003	0.0000	46.9978	0.0000
GAMMON	0.0157	0.0006	-0.0185	0.0072	23.8134	0.0000	132.1075	0.0000
PRAJIND	0.0176	0.0009	-0.0228	0.0096	20.8527	0.0000	113.6240	0.0000
COMPUTER TECH	0.0238	0.0039	-0.0160	0.0051	30.8757	0.0000	1.6996	0.1005
BULSTER	0.0040	0.0006	-0.2541	0.0783	16.4860	0.0000	16541.5968	0.0000
RADICO	0.0086	0.0004	-0.0102	0.0045	20.8531	0.0000	111.7728	0.0000
RANBAXY	-0.0037	0.0002	-0.0073	0.0020	9.0490	0.0000	107.2214	0.0000
ASHOK LEY	0.0052	0.0009	-0.0153	0.0067	15.0916	0.0000	55.3754	0.0000
SONATA SOFT	-0.0096	0.0037	0.0.329	0.0086	12.3816	0.0000	5.3761	0.0001

Table -5
Paired-sample t-tests of drift and volatility parameters before and after split

	Mean	Std. deviation	Correlation	p-value	t_{cal}	p-value
draft parameter before split	0.0075	0.0117	0.1717	0.4226	3.8287	0.0009
draft parameter after split	-0.0420	0.0643				
Volatility parameter before split	0.0015	0.0012	-0.1299	0.5452	-3.2257	0.0037
Volatility parameter after split	0.0138	0.0185				

About Author

Mr. Jyoti Prakash Das

Presently working as senior Lecturer at Rourkela Institute of Technology, Rourkela. Prof. Jyoti Prakash Das is M.B.A. in finance and currently pursuing Ph.D. with an excellent academic record throughout his higher education

Effective management of cross-cultural issues in Business : Need of the moment

Ms. Asmita G. Patwe*, Mr. Prashant B. Wagh**

Abstract

With the recent amplified globalization and miscellany in the professional lives of people, cross cultural management has become an important element of organizational life. For a better comprehension of this phenomenon, cross cultural management research is an apt gizmo. In a progressively globalized market, it has become important to a greater extent to recognize the elemental divergence in culture for effective management of a business. Because organizations cannot run without people, the achievement of any organizational goal will require the support and dedication of people who may be from drastically different walks of life. This study hunts for a better understanding of these issues through a critical review of the relevant literature and a cultural survey of employees of a multinational organization. The results of the review and survey clearly indicate the need for management that recognizes these cultural differences. The research also suggests that many administrators of cosmopolitan organizations at the moment may be neglecting a chance for advancement by ignoring this aspect, and in some cases it may become the final straw between success and failure of the organization. In this research, cross-cultural management issues are addressed in brief. But a detailed research of this kind will definitely help to increase our overall knowledge of cross cultural management.

Culture can be explored from language, religion, value, ethics and many other areas of study as a context. This article focuses on few of these key references. Coverage includes, but is not limited to:

- Human resource Management in Multinational Organizations.
- Work Values.
- Teamwork.
- Social & Organizational Life

Keywords : Cosmopolitan organizations, cultural differences, Globalization, miscellany in the professional lives.

1. INTRODUCTION

Over the last several decades, cross-cultural issues have received an explosion of interest in fields ranging from psychology and education to accounting and marketing. Justifying this interest, culture has been shown to affect virtually every aspect of social and organizational life. Furthermore, social science's focus on cross-cultural factors should continue to grow, given the rise of globalization and its concomitant increase in international trade and communication. The increased interest in cross-cultural issues was largely triggered by Hofstede's book, "culture's consequences," published in 1980 and it proved to be one of the field's most influential works.

2. RESEARCH METHODOLOGY

Type of research: It is a qualitative research, conducted using descriptive research techniques.

Sampling plan: Samples are drawn using non-random sampling. Employees (working at location- Mumbai, India) of a multinational organization operating in more than 31 countries are interviewed.

* Assistant Professor, Matrix School of Management Studies, Pune
** MBA (Marketing), Visiting faculty: At various MBA institutes in Pune

Sample size: 50 respondents.

Sampling method: Non-Probability Sampling.
Data: Primary data & secondary data.

Data collection method: Interview.

Data collection instrument: Questionnaire with close ended question.

Research limitation: Time constraint was the major difficulty while conducting this research. It posed the following situations which appeared to be the foremost limitations for the research:

1. Smaller sample size.
2. Less personal interaction may have resulted into confused responses.
3. Consumers & respondents on whom the research is carried out behave artificially when they are aware that their attitudes, beliefs, views etc are being observed.
4. Qualitative research is not an exact science, though it uses the techniques of science. Thus the results & conclusions draw upon by using this technique are not very accurate.
5. The research conclusions cannot be verified. Reproduction of same project on the same class of respondents may give different results.

3. LITERATURE SEARCH

All available sources that were searched for papers based on cross-cultural issues in business reported original quantitative data. First, a computer search was done. Second, searches of all relevant journals for the 1980-2010 period (or since the journal was introduced) were conducted. Third, major books on cross-cultural studies (e.g., Hofstede, 2001; Hui, 1984; U. Kim et al., 1994; Triandis, 1995) were examined for links to studies containing data. Fourth, various journals were reviewed; total 4 international & 7 national journals were studied for basic outline of the study. Fifth, review of the papers was done and a total of 27 papers were reviewed.

WHAT IS CULTURE?

Taylor (1977) has quoted "culture is a complex whole which includes knowledge, beliefs, art, morals, laws, customs and any other capabilities and habits acquired by man as a member of society". According to this definition, it is easy to know that every nation has different cultural preferences, national tastes and value standards. These factors impact on every part of management in multinational companies, especially on marketing management, human resource management and alliances management. Thus, multinational companies have to consider the cross culture issues when they run multinational business.

3.1. Human resource Management in Multinational Organizations.

Issues faced by HR in global management scenario are expected to change dramatically in coming decades. Thus, HR professionals must play special roles in dealing with these changes and must develop specific competencies to support these roles.

Workplace flexibility is expected to be on the rise as the future workplace, the 'virtual office' is characterized by creative and flexible work arrangements. In addition, off-site employees can expect to attend fewer meetings. Specified work will become much more collaborative and management will spend nearly all its time managing cross-functional work teams who enjoy a lot of autonomy. In essence, there will be a movement, a trend towards a decentralized model of HR.

HR managers will have to accommodate employees in their virtual work locations and find ways to manage corporate culture, socialization and employee orientation. In order to obtain and maintain a competent workforce, they must act as organizational performance experts and shape employee activities without face to face congregation.

It is believed that cultural differences shape managerial attitudes. When developing multinational management programs, this factor has to be considered & addressed. For e.g., British managers value individualism in

achievements and decision making and independence, whereas French managers appreciate competent direction, fringe benefits, security and contented conditions, while Indian managers give more importance to hierarchy-strict channelization, team benefits & limited autonomy.

HR managers must, therefore, be well aware of and appreciate other cultural norms to support organization diversity. An organization that recognizes and supports cultural diversity will enjoy an edge as it will be utilizing the market elements that it serves as its employees. With mounting globalization and competition in the market, a diverse staff is advantageous in magnetizing and retaining a strong client base. "While competing in an international market, employees from diverse national backgrounds provide language skills and understanding of other cultures. HR professionals will also be responsible for providing cultural sensitivity training for the organizations employees and for managers throughout the entire organization." (Czebter, Anamaria, 2002)

As per the discussion with a team of HR managers from a multinational multi-cultural organization the most important & necessary issue in cross-cultural HR management is managing the off-site employees, whereas the most challenging thing in managing cross-cultural team is managing work place diversity.

The Management of Workplace Diversity

In order to effectively manage workplace diversity, Cox (1993) suggests that an HR Manager needs to amend a generally ethnocentric view to a culturally relative outlook. This shift in philosophy has to be embedded in the managerial framework of the HR Manager in his/her planning, organizing, leading and controlling of organizational resources.

As suggested by Thomas (1992) and Cox (1993), there are several best practices that an HR manager can adopt in ensuring effective management of workplace diversity in order to attain organizational goals. They are:

Planning a Mentoring Program

One of the best ways to handle workplace diversity issues is through initiating a Diversity Mentoring Program. This could entail involving different departmental managers in a mentoring program to coach and provide feedback to employees who are different from them. In order for the program to run successfully, it is wise to provide practical training for these managers or seek help from consultants and experts in this field. Usually, such a program will encourage organization's members to air their opinions and learn how to resolve conflicts due to their diversity. More importantly, the purpose of a Diversity Mentoring Program seeks to encourage members to move beyond their own cultural frame of reference to recognize and take full advantage of the productivity potential inherent in a diverse population.

Organizing Talents decisively

Many companies are now realizing the advantages of a diverse workplace. As more and more companies are going global in their market expansions either physically or virtually, there is a necessity to employ diverse talents to understand the various fortes of the market.

With this trend in place, an HR Manager must be able to organize the pool of diverse talents strategically for the organization. He or she must consider how a diverse workforce can enable the company to attain new markets and other organizational goals in order to yoke the full impending of workplace diversity.

An organization that sees the existence of a diverse workforce as an organizational asset rather than a liability would definitely enjoy a multi-functional workforce to support the growth.

Developing motivational approaches in Cross-cultural environment

Workplace motivation can be defined as the influence that makes us do things to achieve organizational goals: this is a result of our individual needs being satisfied (or met) so that we are motivated to complete organizational tasks effectively. As these needs vary from person to person, an organization must be able to utilize different motivational tools to

encourage their employees to put in the required effort and increase productivity for the company.

To be effective, an organizational reward system should be based on sound understanding of the motivation of people at work. As motivation is highly influenced by culture of individuals, an analytical study of motivational factors becomes a mandate in a multi-ethnic organization.

3.2 Work Values

Professional values are the guiding beliefs and principles that influence work behavior. While these values may change over time and around different life events, core beliefs should stay the same. Professional values are usually an extension of personal values--things like honesty, generosity and helpfulness.

- **Company Values**

The values of a company are the basic principles that guide its business. Company executives may decide what business to take on, depending on how a potential client aligns with the company's core beliefs and values. Company values also dictate behavioral expectations for employees, vendors and clients. While each company's values are different--some may value sustainable practices over efficiency, while others put efficiency in the top spot--there are some values that generally guide most companies like truthfulness, integrity and teamwork.

- **Why Values Matter**

Professional values distinguish employees and organizations. When customers look for a company to associate with, they incline to look for values that align with their own and beliefs that will contribute to their professional goals.

As an employee, his/her own set of professional values matter because they guide workplace behavior, work ethics and mentality.

During the survey conducted in an MNC, following work values are considered as the most important ones to the employer. The values are listed below in an order of importance given by the employer-

a) **Adaptable**

Employers seek employees who are adaptable and maintain flexibility in completing tasks in an ever changing workplace.

b) **Dependable & Responsible**

Employers value employees who come to work on time, are there when they are suppose to be, and are responsible for their actions and behavior.

c) **Possess a Positive Attitude**

Employers seek employees who have initiative and the motivation to get the job done. A positive attitude gets the work done and motivates others to do the same. It is the enthusiastic employee who creates an environment of goodwill and who provides a positive role model for others.

d) **Strong Work Ethic**

Employers value an employee who understands and possesses a willingness to work hard.

e) **Honest**

Employers value employees who maintain a sense of honesty and integrity above all else.

f) **Self-Motivated**

Employers look for employees who require very little supervision and direction to get the work done in a timely and professional manner.

g) **Motivated to Grow & Learn**

In an ever-changing workplace, employers seek employees who are interested in keeping up with new developments and knowledge in the field.

h) **Strong Self-Confidence**

Employees who recognize their skills and strengths are able to utilize them in the workplace and require little prodding or supervision to get their work completed.

i) **Professional Behavior**

Employers value employees who exhibit behavior that is professional at all times.

j) Loyal

Employers value employees they can trust and value their loyalty to the company.

It is clear that there is a huge gap between thinking of employer & the employees. This makes it extremely important to generate awareness about the work values in the employees. In cross cultural organizations it becomes more difficult as the work values are highly influenced by culture.

3.3 Team work

The mono-cultural team is a history

The organizations of today consist of employees from all the corners of the globe. Contemporaries work in multi-cultural groups either in the same office or across countries. Issues can and do arise in areas such as approach to management, expectations, decision making, planning, conflict management and communication styles.

It is vital that clear lines of communication are encouraged and cross cultural mis-understandings are played down if these multi-cultural teams are to function effectively.

Cross Cultural Team Building - Challenges & Benefits

A detailed discussion with the HR manager of the MNC led to the importance of promoting team work in a multi-cultural organization, along with the challenges & benefits of the team work in such institutions.

Challenges:

The discussion pronounced that the organization has felt that team building is more difficult in some countries than others. The company operates in more than 31 countries the world over. The graphical representation shows that the company felt that major cross cultural team building challenges are with Japan (14%), France (14%) & the Middle East (14%) followed by China (13%) and Germany(10%).

Benefits :

- Facilitates the building of interpersonal relationships.
- Fosters mutual understanding and respect.
- Helps understand where cross cultural differences recline.
- Provides solutions, guidelines and techniques to help the team building process.

3.4 Social & Organizational Life.

Social identity theory suggests that people classify themselves and others in categories based on some salient characteristics, such as gender, race, or ethnicity (Brunetto and Farr-Wharton, 2002; Haslam, 2002). Such distinctions and attachments affect their group and self-attribution, including stereotypic attribution (Abrams and Hogg, 1999). The consequences of socially constructed identities include in-group favoritism, negative stereotyping and subordinating of out-groups, inter-group competition, and role conflict (Wharton, 1992). The distinctive identity of employees in a work setting subsequently results in the exclusion of minorities from group membership and important decision-making and less access to support, which, in turn jeopardizes career advancement. The perception of unfair treatment eventually creates an overall negative work environment for all employees (Capozza and Brown, 2000). From a social identity perspective, group membership and the perception of group status are relevant to understanding intergroup relations in organizational settings.

The management in a multi-cultural organization needs to address some pertinent issues concerning gender and cultural group contribution in the work place. The issues include effective use of human resources, workers' perceptions of their work environment, participation in decision-making, support from managers and colleagues, and opportunities for career advancement.

4. FINDINGS & SUGGESTIONS

1) Consider how a diverse workforce will enable company to meet organizational goals. E.g. - At a Fortune 500 manufacturing company, Asians purchased many of the products. When the company hired a Director of Asian Markets, profits

increased dramatically in less than one year because of the targeted marketing efforts.

2) If senior management advocates a diverse workforce, make diversity evident at all organizational levels. Otherwise, some employees will hastily conclude that there is no prospect for them in company. Show respect for diversity issues and promote clear and positive responses to them. Demonstrate company's commitment to multi-cultural tolerance.

3) Remove artificial barriers to success like the style of interview - behavioral or functional- may be a disadvantage to some job candidates while interviewing a cross cultural group. Employees from countries outside the US and non-Caucasian populations may downplay their achievements.

4) Retain diversity at all levels. The definition of diversity should go beyond race and gender to include lifestyle issues.

5) Provide practical training using relevant examples to teach small groups of people how to resolve conflicts and value diverse opinions. Training needs to highlight the significance of diverse ideas as well. Employees care more about whether or not their boss seems to value their ideas rather than if they are part of a group with similar cultural background or an ethnically diverse workforce.

6) Train leaders to move beyond their own cultural frame of reference to recognize and take full advantage of the productivity potential inherent in a diverse population. How can you provide diversity training at company?

7) Arrange for get-togethers of people from diverse ethnicity. This may help in improving understanding & tolerance amongst the groups or individuals.

8) Involve managers in a mentoring program to train and provide feedback to employees. Most influential counselors can be people who have little in common. Someone from a different background, a different race or a different gender may mentor each other well.

5. CONCLUSION

In today's economic context markets for products, services and human resources have become increasingly global. Managers operate in an increasingly complex, dynamic and interdependent world. Culture has a powerful impact on organizational behavior and practice of management. Managers are now required to deal with challenges and misunderstanding emanating from cross-cultural differences. Effective management in modern environment necessitates cross-cultural competency.

This challenge is not unique to multinationals as many domestic firms also face multicultural environments (e.g., ethnically diverse employees and/or customers).

The organizations operating in this multiethnic business scenario have to find out ways to effectively anticipate and address cultural differences toward organizational and individual success.

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Figures & Tables

Figure 1. Managing offsite employees

Most important(Weightage out of 10)
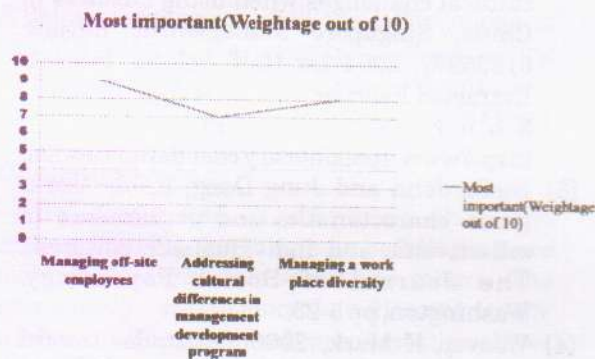
Figure 2. Managing workplace diversity

Most difficult(Weightage out of 10)
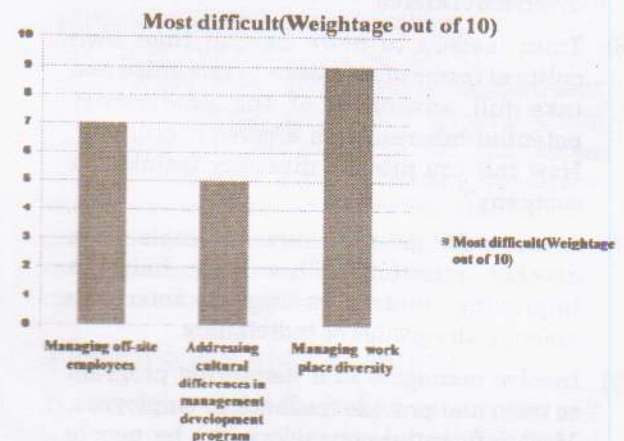
Figure 3. Difference between most prefered work values by employees perception about the same
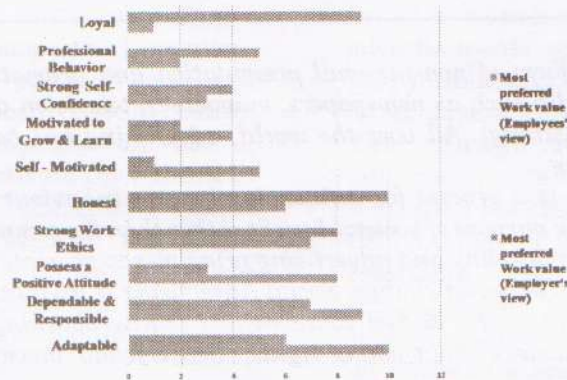
Figure 4. Countries for resistance in cross culture team building
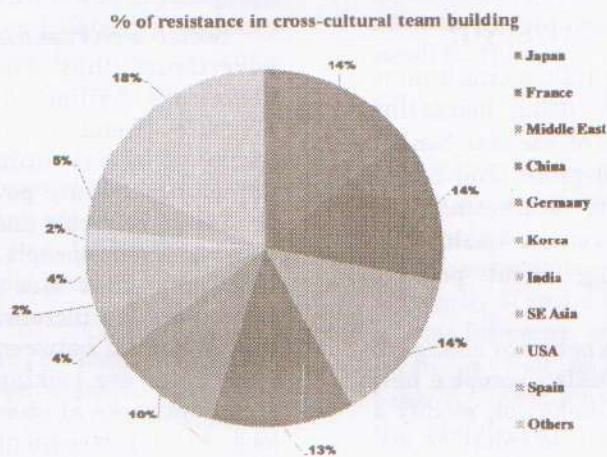
About Authors

First Author-**Asmita Patwe** is a university approved lecturer working in a leading business school at Pune.

Asmita Patwe, a management lecturer, has been a facilitator to post graduate management students for last three years. She has published research papers in International & national Journals & presented papers in conferences at different levels.

Second Author-**Prashant Wagh** is acting as an Area Head, handling sales as well as operations of a growing exterior architectural supplies firm.

Prashant Wagh along with handling a variety of tasks also has been mentoring students in different renowned management school in Pune. He has published and presented several research papers at international & national conferences.

"Impact of Social Advertising on Customers"

Dipesh D. Uike*, Shweta Y. Japulkar**

Abstract

"Advertising is any paid form of non-personal presentation and promotion of ideas, goods and services through mass media such as newspapers, magazines, television or radio by an identified sponsor" (Kotler and Armstrong). All over the world, advertising has been considered the most successful tool for marketing.

Social advertising is a process for influencing human behaviour on a large scale, using marketing principles for the purpose of societal benefit rather than for commercial profit (Bill Smith 1999). It's about applying marketing and advertising principles to promote health and social issues and bringing about positive behavior change. Social Advertising is used in advertisements of Ideas like 'Bell Bajaao' movement, water & fuel conservation, family planning, use of contraceptives, domestic violence, consciousness about voting rights, 'Beti Bachao' movement, 'Nirmal' Gujarat, 'Jago Grahak Jago', etc.

The purpose of this paper is: To find out the impact of Social Advertising on customers; to find out the influential elements of Social Advertising; How those factors influence the behaviour of customers; and what the benefits of Social Advertising to the customers are. Nagpur region is considered for the research.

Keywords : *Impact, Social, Advertising, Customers, Behavior, Influential Elements*

1. WHAT IS SOCIAL ADVERTISING?

Definition: It is a process for influencing human behavior on a large scale, using marketing principles for the purpose of societal benefit rather than for commercial profit (Bill Smith 1999). It's about applying marketing and advertising principles to promote health and social issues and bringing about positive behaviour change.

Social Marketing sells a behavior change to a targeted group of individuals - accept a new behavior, reject a potential behavior, modify a current behavior, abandon an old behavior, etc. Social advertising represents advertisement formats that engage the social context of the user viewing the advertisement. Whereas in traditional, non-social, advertising the advertisement is targeted based on what it knows about the individual person or the individual page, in social advertising the advertisement is targeted based on what it knows about he individual user's social network.

Social advertisement is the first form of advertising that systematically leverages historically "offline" dynamics such as peer-pressure, friend recommendations and other forms of social influence. In fact, social advertisements are powerful because they act as trusted referrals and reinforce the fact that people influence people. It's no longer just about messages that are broadcasted out by companies, but increasingly about information that is shared between friends. The fact that advertisers are looking to reach out to many social networks at once means that they often look to advertisement networks to deliver advertisements across them through custom applications.

Companies mainly use advertisements for commercial purpose, i.e., to promote their product and brand. However, the market today is observing a sudden increase in the number of social advertisements along with commercial ones. Social advertising is defined as the use of media-based messages that are intended to

*Assistant Professor, Dr Ambedkar Institute of Management Studies and Research, Deeksha Bhoomi, Nagpur

** Assistant Professor, Guru Nanak Institute of Engineering & Technology, Dahegaon, Kalmeshwar Road, Nagpur

educate or stimulate people in the society to engage themselves in voluntary social activity such as health service, environment conservation, national unity, etc. Social advertising is used to change the perception, attitude and behavior of public at large and intends to bring about a positive social change. Social advertising encompasses the use of creative techniques to motivate the citizens to take desired actions. Effective social advertising campaigns identify the target audience and influence the people to associate themselves with good causes and undertake positive actions, which would help in benefitting society at large.

On the basis of their origin, social advertising in India can be categorized into two types: first, social advertisements whose sole purpose is to advertise for a social cause. Such advertisements are produced and designed mainly by the government, NGOs or non-profit organizations. The second category includes advertisements of companies that associate themselves with a social cause. These advertisements, besides highlighting the social cause, also market a product or service. By initiating such campaigns and associating with a good cause, the company not only displays its responsibility to society but also creates a good brand image for itself and builds loyal customers.

Earlier, social advertisements were launched solely by the government and social agencies. The purpose of these advertisements was to provide information and generate awareness among the people about various social issues. But today, social advertising has undergone a change. These advertisements are not only highlighting the social issues, but are also focusing on motivating the masses to come forward and participate in social causes. Such advertisements are using various creative approaches to motivate the public. Today, many commercial organizations along with government organizations are working to launch campaigns to spread awareness about various social issues.

Nowadays we find a lot of advertisements with a social message i.e. conveying a social message or creating awareness among the masses of India about key issues which are of prime importance and act as a democratic right to the common man. These social advertisements operate as Corporate Social Responsibility (CSR) activity for corporate. The latest advertisements which we see are Tata Tea "Jaago Re" campaign, Airtel advertisements and many more. Many companies are creating advertisements with a CSR message in order to generate the sense of conscientiousness and trust in the brand while some other are made from the Government's side. Such advertisements help in establishing an image of a brand and helps common man relate the brand with it. These advertisements create a huge impact on the mass audiences of India. For example, the Tata Tea "Jaago re" campaign which was aimed at making people aware about exercising right to vote was well received by viewers. Hence such kind of CSR advertisements help in generating top-of-mind recall for these brands.

Emotions evoke change

Social advertising (public service advertising) is the form of advertising that is designed to educate or motivate people to undertake socially desirable actions. Emotions are a basic component of advertising, and especially of social advertising. Emotions have a huge influence on perception, remembering, recall as well as change in attitudes and behavior. Emotions help people to remember the situations and messages in which they appeared. They evoke physiological changes as well as changes of perception (halo effect), reduce criticism and rational thinking abilities. Those changes have a strong impact on people and can motivate them to act, follow the suggestions expressed in advertising and deliver the promise of satisfaction.

Emotions can be divided into 2 continuums: Positive vs. Negative, Rational vs. Emotional. Social advertisements use the wide range of emotions to influence our behavior. They scare us, affect us, sadden us, and make us laugh or anger us. Rational arguments aren't enough to change behavior or attitudes.

There are two types of social advertising:

Both forms of advertising are based on emotion. Warning advertisements create a threat (car accident, death, etc.), present the cause of the threat (driving under the influence of alcohol) and show the solution of how to avoid the consequences (don't drink and drive). They both refer to negative consequences and evoke fear - advertisement from The Danish Road Safety Organization. However, too heavy a load of negativity can have the reverse effect on the viewers, creating psychological discomfort and leading them to reject the message. Advertisements that make people want to help each other are based on the effectiveness of compassion, message comprehension and the availability of the viewers' means to help. More people will donate money in the form of a text message (SMS message) while sitting on their sofa in front of the TV than will make a bank transfer - "Papa don't preach": the spiral of change.

Social advertising can't be sententious because we can't limit all social problems to simple and predictable explanations and solutions. Social advertising should give a voice to those who never had it and to those who never have a chance to stand up and tell about the problem while using an honest and authentic voice. In social advertising, there is no place for taking problems with a grain of salt. Social advertising covers serious and fundamental human problems like human suffering and moral choices. It requires both serious and real solutions. However, the cause and the emotions aren't enough to create societal change. They teach, warn, and shock, etc., but a month long campaign against drinking and driving will not change behavior. Emotions need to work out the mind; they need time to build ways to our conscious and subconscious like ants build corridors in an anthill.

Social advertising needs to have a long term strategy and deep understanding of human motivations in order to achieve its goal: change in behavior or/and attitudes. There is no recipe written on how to create an effective social campaign. Measuring a social campaign's effectiveness is difficult and rare. Social advertising is too important to be left out to chance. Measuring recall isn't enough. Effectiveness of social advertising should be measured on three levels - motivation, engagement and recall. Higher the motivation and engagement, better the effectiveness of advertising in terms of generating a change. Attention is scarce.

Today, social advertising shares the same problems as commercial advertising: dull sensitivity, immunity to advertising messages, scarce attention, increasing clutter and choices. Advertisers are forced to use nontraditional and sometimes controversial means in order to get their messages through to their viewers. There is more social advertising that uses humor and sex in the fight for viewers' attention. Speed Bandits is the campaign from The Danish Road Safety Organization (2006) made as an American news report, where the focus is set on "liberal" Denmark for taking the creative initiative in combating speed violations in Copenhagen. Topless models are seen waiving around speed limit signs, hoping to attract the attention of the passing-by drivers. Speed Bandits' movie became one of the most viral films on the Internet. The viral character of the campaign attracted millions of viewers to the campaign site and created a lot of attention from both target groups and traditional media. The latter one increased the effectiveness of the campaign and reached the general public by giving it lots of media space. In the first week alone, the campaign was seen 1 million times. With the contagious movie, lots of attention and buzz there is still the key question left – did the campaign reduced speed violations?

Research conducted for the Danish Road Safety Council had shown that out of the targeted drivers, 30% thought more of their speed as a result of the film. Statistics for persons killed in traffic accidents shows increase from 306 in 2006 to 400 in 2007. Another example of a very viral movie using not only sex but also humor is the campaign from The Danish Cancer Organization against tanning beds. They used Mascha Vang, reality TV star. This was really a great idea; it generated lots of views, comments and laughs

about the model and the ending, though the question about effectiveness of the campaign is still open.

Examples of Social Advertisement:

> Accept a new behavior: Wear a life vest while boating (reduce drowning events)

> Reject a potential behavior: Pregnant woman should avoid alcohol (reduce incidence of birth defects)

> Modify a current behavior: Parents wear car seat belts as a model (reduce injuries in accidents)

> Abandon an old behavior: If you smoke, quit that (reduce incidence of birth defects).

2. LITERATURE REVIEW

> Social sector advertisements in the print medium during the period January-June 2010 have registered a 17 per cent drop in volumes compared to the same period in the previous year. According to a recent AdEx India study, a division of Tam Media Research, the dip was due to lack of issues that required immediate communication. "Social sector advertisements are almost always issue-driven. So, if there is an issue that requires urgent communication, for instance, awareness on how to tackle sudden occurrence of bird flu, social sector advertisements automatically go up. Therefore, the 17 per cent dip in print advertisements by social sector in 2010 may be because the advertisers did not have any immediate communication requirement. While the print advertisements for social sector went down, they saw a 10 per cent rise in volumes on television in the same period as compared to the previous year. The agency says the two could be linked. "Audio-visual medium, with celebrity endorsements, appears to push the credibility of the issue. For instance, if Amitabh Bachchan is pitching for polio immunisation, a lot more families, especially in rural areas, would take interest in it," Mukherjee said. According to the AdEx report, in early 2007, maximum

social advertisements were endorsed by Amitabh Bachchan with 'health awareness' advertisements being most prominent among all. According to advertising agencies, organisations that advertise heavily in social sector advertisements spend at least Rs 5 crore annually in print advertising. Moreover, government organisations as well as NGOs have increased advertisement spends by about 30 per cent over the last five years owing to the growing economy and literacy levels, which have also boosted their work volume. According to the AdEx report, early 2007 saw non-metro city newspapers garnering 56 per cent of the overall social advertisements, while mini-metro newspapers followed close behind with 11 per cent share. Metro city newspapers had only 3 per cent share in social sector advertising during the first half of 2007. This is because most social sector activities are region-specific, say advertising agencies. Approximately 40 per cent of the advertisement volumes in print in the early half of 2007 were accounted for by the Government of India, Ministry of Health and Family Welfare, Government of Assam, NACO and Government of Delhi. Out of the approximately 400 social sector organisations that advertised in print throughout 2007, more than 90 per cent of advertisement volumes were garnered by government organisations. Comparatively, 2006 saw central and state governments garnering 93 per cent share in social advertisements in print. While the Centre topped the print advertising chart in 2007, followed by the Ministry of Health and Family Welfare, the latter had topped social advertisements in print last year. The top new organisations in social sector advertising in 2007 include the Government of Tamil Nadu, Cancer Aid and Research Foundation, Laadli Mumbais Girl Child, Government of Uttarakhand, Pneumo ADIP, Ministry of Social Justice and Empowerment, Ministry of New & Renewable Energy, ICONGO, SIAM, and Suvarna Gramodaya.

- Bollywood Shahenshah Amitabh Bachchan not only ruled the box office in the first half of 2007 but also emerged as the top celebrity with the most endorsements for social causes on television. According to a study conducted by media research group AdEx, out of 22 celebrities who were a part of social advertisements on television during January-June 2007, Bachchan had the maximum number of endorsements. Be it Pulse Polio or Asian Conservation Awareness, Big B was seen in the television promoting a cause. He accounted for 65 per cent of the advertisements, followed by bubbly Juhi Chawla at 18 per cent and John Abhraham at four per cent. The Cheeni Kum star was brand ambassador for Pulse Polio, Asian Conservation Awareness and Heroes Project. The star is also brand ambassador of many corporates, including Cadbury's, Emami, Parker and Dabur. Strikingly, Shahrukh Khan and cricketer Sachin Tendulkar, who endorse many brands, did not have much to boast of as far as social causes were concerned. According to the Adex study, the first half of the year saw a rise of 10 per cent in advertising volumes of social advertising compared to the same period last year. Government organisations continued to garner larger share of advertisements on social causes at 83 per cent, followed by NGOs at 17 per cent.

- A recent report by Emarketer looks at the renewed interest in social advertising – it comes in cycles – and finds that in the U.S. 6.7% of all online advertisement spending will go towards social causes. This is now a $1.68 billion dollar industry, which shows just how seriously brands are taking social platforms. While the interest in social media has really been growing among companies for the past 2-3 years, the budgets have been slow to follow. This report is, however, encouraging and shows the serious investment that's being made. Indeed, the same report finds that online advertising spend will rise to more than $2 billion in 2011. The majority is going to Facebook, which one would expect, but as these case studies show companies are starting to look more at how other channels can work for them as Facebook runs the risk of becoming overloaded with brands.

The rise in social advertising also has huge implications for companies that invest in social platforms and build their entire products around it – with the likes of gaming platform Zynga being a good example. Their advertisement campaign with Microsoft certainly proved the case for innovative online advertising. It also shows that there's real money to be made from the web and companies that seek to monetize through advertising need to find new ways of doing this. It's not about sticking in Google advertisements anymore or even leaving sections of your site open to sponsorship. Companies have to work harder to get in front of viewers' eyeballs, as they battle with a complete turnaround in user behaviour. The future of advertising is social and pretty exciting.

3. OBJECTIVES

- To find out different factors of social advertising.
- To find out the most influential factors of Social Advertising.
- To find out the impact of Social Advertising on customers.

4. RESEARCH METHODOLOGY

1. **Type of Research:**

- Research type of project is exploratory research.

2. **Method of Data Collection**

   Primary data

a. Structured Questionnaire method.

b. In-depth Interview method.

   Secondary data

a. Magazines, Business Units, Newspapers, Journals of marketing.

b. Business websites and other websites.

3. **Sample Design**

- **Geographical area/ Universe:**

Nagpur region is considered for study.

> ➤ **Sampling Unit:**

People in Nagpur region are considered.

> ➤ **Sampling Method:**

For this research probability sampling is used.

The design of the sample is as follows:

- Type of the probability sampling: - Simple Random Sampling.

- Sample Size: - 400.

4. ANALYSIS TOOL

> ➤ Five point rating scale question-naire for getting customers response.

> ➤ Factor Analysis.

5. DATA ANALYSIS AND INTERPRETATION

Appropriate statistical analysis was adopted. The data was tabulated and analyzed. Factor analysis was used for analyzing the data. Data received through questionnaire was first tabulated and then statistical formulas used for each kind of data.

Factor Analysis is used for categorizing the different variables.

Note: Factors having score greater than 0.5 are selected.

6. FINDINGS AND CONCLUSIONS

Factor analysis reflects five crucial factors on the basis of extraction (Table 3). From extraction values it can be concluded that Support in Resolving Issues, Accept Rules And Regulations, Getting Knowledge, Change In Behavior, Support in creating good social environment, Awareness About Issues, Change in attitude and Awareness on harmful products/services are the most sensitive factors of social advertisements.

Support in Resolving Issues, Accept Rules and Regulations has been identified crucial for factor-1. Getting Knowledge, Change in Behavior, and Support in creating good social environment has been identified crucial for factor-2. Awareness on issues has been

identified crucial for factor-3. Change in attitude has been identified crucial for factor-4. Awareness on harmful products or services has been identified crucial for factor-5. Change in Attitude also has been identified crucial for factor-5. So these are the factors that are most influenced by the social advertising.

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Figures & Tables

Table 1: Communalities

	Initial	Extraction
Awareness about issues	1.000	.796
Getting Knowledge	1.000	.814
Change in attitude	1.000	.764
Support in social message Implementation	1.000	.792
Change in behavior	1.000	.785
Support in resolving issues	1.000	.738
Support in creating good social environment	1.000	.584
Support in cultural advancement	1.000	.609
Awareness about harmful products or services	1.000	.766
Awareness about misleading companies	1.000	.655
Influence on daily life	1.000	.664
Accept rules and regulations	1.000	.759
Discourage wrong events	1.000	.546

Extraction Method: Principal Component Analysis.

Table 2: Total Variance Explained

Component	Initial Eigen values			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.104	16.188	16.188	2.104	16.188	16.188	1.832	14.095	14.095
2	1.660	12.771	28.958	1.660	12.771	28.958	1.648	12.676	26.772
3	1.587	12.204	41.162	1.587	12.204	41.162	1.578	12.139	38.911
4	1.483	11.409	52.571	1.483	11.409	52.571	1.526	11.738	50.649
5	1.406	10.817	63.388	1.406	10.817	63.388	1.519	11.685	62.334
6	1.030	7.920	71.308						
7	.967	7.442	78.751						
8	.725	5.574	84.324						
9	.603	4.638	88.962						
10	.448	3.448	92.409						
11	.396	3.050	95.459						
12	.333	2.563	98.022						
13	.257	1.978	100.000						

Extraction Method: Principal Component Analysis

Table 3: Component Matrix

	Component					
	1	2	3	4	5	6
Awareness on issues	3.154E-02	-2.417E-02	.683	-.367	-.367	-7.178E-02
Getting Knowledge	-3.747E-02	.523	-.362	.474	.474	-3.272E-02
Change in attitude	.235	-.604	2.626E-02	.577	.477	.339
Support in social message Implementation	-.445	-1.875E-02	-.187	-.665	-.665	-.219
Change in behavior	3.223E-02	.574	.572	.274	.274	.162
Support in resolving issues	.563	-.222	-.304	1.029E-02	1.029E-02	-2.510E-02
Support in creating good social environment	8.776E-02	.675	3.533E-02	-.164	-.164	.256
Support in cultural advancement	.557	-8.438E-02	.283	4.519E-02	4.519E-02	-.289
Awareness on harmful products or services	-.171	-.126	-.144	-.390	-.390	.717
Awareness about misleading companies	3.828E-02	.314	-.546	1.554E-02	1.554E-02	-.197
Influence on daily life	-.618	-.123	.352	.295	.295	-.154
Accept rules and regulations	.691	.221	8.806E-02	-.205	-.205	.214
Discourage wrong events	-.568	2.547E-02	-3.465E-02	.260	.260	.249

Extraction Method: Principal Component Analysis.
6 components extracted

Table 4: Factor analysis of social advertisements

Components	Variables		
1	Support In Resolving Issues	Accept Rules And Regulations	
2	Getting Knowledge	Change In Behavior	Support in creating good social environment
3	Awareness on Issues		
4	Change in attitude		
5	Awareness on harmful products or services		

About Authors

Prof. Dipesh D. Uike (Author)

He is a Computer Engineering Graduate, have done MBA in Information Technology Management and Marketing Management from RTM Nagpur University. He has submitted doctoral research (Ph. D) on 'Impact of CRM on IT industries' in RTM Nagpur University. He has a certification in Oracle and VB. He has Passed UGC-NET.

He is a Regular full time faculty and working as an Assistant-Professor in Dr. Ambedkar Institute of Management Studies and Research (DAIMSR), Deekshabhoomi, Nagpur. He has seven years of professional teaching experience in B.E. and M.B.A. College.

Prof. Shweta Y. Japulkar

She is a Commerce Graduate and post-graduate, have done MBA in Financial Management and Marketing Management from RTM Nagpur University. She is pursuing doctoral research (Ph. D) on 'Correcting Service Deficiencies through Customer Relationship Management-A Study of Nationalized Banks in Vidarbha Region'.

She is a Regular full time faculty and working as an Assistant-Professor in GNIET, Nagpur. She has four years of professional teaching experience in Commerce and M.B.A. College.

Stress at the workplace - A feminine perspective in the Indian ITES context

Ms. Evangeline.E.T*

Abstract

Make no mistake — sorrow in the workplace can claim many victims. Countless companies lose valuable employees or find themselves watching helplessly as a bubbly, cheerful person transforms into a depressed, unproductive individual. In India, with the joint family system having been eroded by cosmopolitan living, our treatment of loss has also changed. Previously, large families lived in closer proximity and experienced grief collectively. Even rituals associated with death were designed to allow the gradual letting out of the pangs of distress. In today's society erratic work timings and the arrival of new knowledge industries such as ITES/BPO has not only distanced one's own family but also made individuals connect with colleagues in the workplace as a type of extended kin.

This paper is attempted to analyze the effect of stress in women working at call centers in Chennai and problems faced by them. The attempts are also made to understand the recent trends in handling stress among women employees and the initiatives taken by the organization to manage stress The study is mainly at exploratory level and it throws light on issues such as age, education, motivation, commitment and decision making power and health of those at call centre. It is very essential to manage workplace stress because it affects not only the individual and the organization but also the society at large. This paper discusses the various reasons for stress and attempts to suggest various approaches to manage it for the betterment of the individual and the organization.

Keywords : Stress, Women, Call Centers, Techniques, Initiatives, ITES/BPO

1. INTRODUCTION

Digital technology has revolutionized the world as never before. Rapid transformation has taken place in the global scenario. The present era is witnessing a rapid change from an industrial to a knowledge-based global economy. In this era of knowledge, 'Call Centers' serve an integrated factor of communication. The contribution of BPO-Call Centre is significant in terms of income and earnings, growth and employment generation. The Call Centre work force has come to occupy an important role in the Indian economy. A Call Centre has a very pleasant working environment. It is open round the clock as calls keep coming from different parts of the world. Most Call Centers offer customer-related marketing services. There are mainly two types of calls - 'Inbound Calls' and 'Outbound Calls'. Inbound calling is for customer support, where the customer calls to seek answers for his queries. Outbound calling

is related to tele-sales, where operators themselves contact the clients. In a business-to-business client-partner business scenario, relationship temperament from business inception to product/service stabilization stage is the driving force to set the rhythm, pace and mood of the business. There is always an essence of stress in any business planning, operation and execution. Stress is a problem in almost all the countries of the world, irrespective of whether the economy is strong or weak.

From an individual's point of view, stress is our body's physical, mental and chemical reactions to circumstances that frighten, confuse, endanger or irritate us. If taken positively, stress is a friend that strengthens us for the next encounter, but if taken negatively, it can have adverse effect on both physical and psychological factors. Stress affects not only the individual but also his/her environment. It has

* Assistant Professor, DOMS, Veltech High-tech Dr.Rangarajan Dr.Sakuntala Engineering College, Avadi, Chennai – 6000 62

an effect on the individual's family, work and society. As we have seen positive stress adds anticipation and excitement to life. So our goal should be to learn how to manage it rather than eliminating it. We are all individual creatures with unique requirements and hence there is no single level of stress that is optimal for all people. What is distressing to one may be a joy to another.

The growth of call centers has been estimated at an annual rate of 15-20 percent, and this growth will continue as corporate organizations all over the world recognize the strategic value of call centers in an e-commerce world. India has been selected as a base for their call centers by many companies, because it lies in a time zone that makes it the preferred area. Call centers in India are extremely cost effective because of low salary structure. Mushrooming of call centers all over the country has provided more employment opportunities, but in turn have increased most of the women employees' family problems.

In order to meet the time-schedules with other countries, the working hours in call centers are completely upside-down. There are shifts and that too with no holidays. Call centers in metros are open round the clock. "Call Centre Women" have no social life, no holidays, and in fact, no time to spend with family or friends. They don't even have leisure time to read newspapers, magazines or watch mind-less TV programs. As a result, when they are at home, they are listless, bad-tempered and depressed. All call centre workers are single women living with their parents or away from home. Employees' turnover at call centers is high, as women leave the job when they get married.

This study is mainly at an exploratory level, to determine the reasons of stress among women employees in call centers in India. It throws light on issues such as working conditions, family background, job responsibilities, and mental as well as physical stress.

2   STUDY BACKGROUND

Women in India were accepted in traditional profiles like teachers, nurses, secretaries or clerks. But against this background, a large number of women are joining call centers.

Indian women have taken up professional roles to create an identity for their own. Participation of women in BPOs is rapidly growing and is expected to go up. The number of professionals increased from 6800 (1985) to 650,000 in 2003-2004 (NASSCOM 2004). As per NASSCOM estimates, women comprise 20-25% of total number of science and engineering graduates in the country. Majority of women are affected by life-cycle factors such as marriage, child-birth and sexual division of labor within the household. In call centre industry, career development takes place through hard work, training, application and continuity in learning. There is an aspect of learning which involves doing rather than using (Rosenberg 1993). The industry requires long hours of work. Stress is, therefore, inevitable and cannot be avoided as uncertainties and unexpected changes keep occurring in the environment.

3   REVIEW OF LITERATURE

According to Taber's Cyclopedia Dictionary, "Stress is the result produced when a structure, system or organism is acted upon by forces that disrupt equilibrium or produce strain." A manager trying to make profits in a competitive market is under stress. Stress is everywhere and influences everyone.

Hens Selye developed a model called the General Adaptive Syndrome Model to explain the stress phenomenon and the stress level. This model has three stages. The first stage is the alarm reaction stage, which involves the body's response to or familiarizing itself with the new situation or stressor. The second stage is the resistance stage, which involves resisting and reacting to the situation and the third stage is the exhaustion stage, which is the aftermath of resistance. If the resistance stage goes on for a long period, then the person becomes distressed. Kalai Selvan, Associate Consultant, the ICFAI Research Center, Chennai, through his article "Managing Workplace Stress" has discussed the different categories and stages of workplace stress and has suggested various approaches to manage it for the betterment of the individual and the organization. "Women in Call Centers" published in the Economic & Political Weekly found serious health problems associated with the call centre industry, particularly those

working late night shifts. It said, "90% of the respondents have no social life or interaction with people in the family"- March 11, 2005: Call Centre Callers.

Adesh Goyal, Executive Vice President & General Manager, Hughes BPO Services, commented at a seminar held in November 2006 on Outsourcing that "Half of the employees smoke too much and many quit the industry due to stress". People at call centre are at relatively young at age and without specific training in stress management and they are ill-equipped to handle rude customers on the phone. World Socialist Web Site's (WSWS) news and analysis study documents exploitation in Indian call centre (by Jake Skeers, 23rd November 2005). Work force at call centers are under constant stress because of their work load and competitive pressure and surveillance staff in this sector reported health problems such as nervousness, chronic fatigue, body ache, insomnia, nausea, anxiety, restlessness and depression due to odd working hours and stress. Articles published in Indian Feminist & Labor Publication are much more critical of call centers employment, many calling the workers "Cyber Coolies". Recent articles point out the following problems:

❏ High pressure to meet unreasonable quotas. (Mujumdar 2004)

❏ Majority of women are engaged in a dead-end career where the workers do not ever move up the job ladder within their organization. (Remesh, 2004, P. 27)

❏ Lack of opportunities for promotion or for acquiring transferable skills. (The Voice of the Working Women, 2004)

❏ Loss of identity created by serving foreign customers and speaking foreign accent. (The Voice of the Working Women, 2004)

4 OBJECTIVES

❏ To understand the position of women in call centers

❏ To examine the impact of call centre employment on women's mental stress

❏ To find out different ways by which they can manage stress better

5 METHODOLOGY

The study is mainly at an exploratory level to determine the reasons of stress in women employed in call centers and problems faced by them. It throws light on issues such as age, education, motivation and commitment, decision making power and health. A questionnaire was circulated at random to women working in call centers at Chennai.

Kendall's Coefficient of Concordance

Kendall's Coefficient of Concordance, represented by the symbol (W), is an important non-parametric measure of relationship. It is used for determining the degree of association among several (K) sets of ranking of (N) objects or individuals. When there are only two sets of ranking of N objects, we generally work out Spearmen's Coefficient of Correlation but Kendall's Coefficient of Concordance (W) is considered an appropriate measure of studying the degree of association among three or more sets of ranking. This descriptive measure of the agreement has special applications in providing a standard method of ordering objects according to consensus when we do not have an objective order of the objects.

The basis of Kendall's Coefficient of Concordance is to imagine how the given data would look if there were no agreement among the several set of ranking and then to imagine how it would look if there were perfect agreement among the several sets. Each case is a judge or rater and each variable is an item or person being judged. For each variable the sum of ranks is computed. Kendall's W ranges between 0 (no agreement) and 1 (complete agreement. Here the Kendall's value is 0.263. Thus, there is very low agreement level among respondents between variables, which would cause stress among girls working in call centers.

The procedure for computing and interpreting Kendall's Coefficient of Concordance (W) is as follows:

a) All the objects, N, should be ranked by all judges in the usual fashion and this information may be put in the form of a K by N matrix;

b) For each object determine the Sum of Ranks (R_j) assigned by all the judges 'K';

c) Determine Rj to obtain the value of s as under:

$$s = \sum (Rj - \overline{Rj})^2$$

Work out the value of W using the formula:

$$W = \frac{s}{\frac{1}{12}K^2(N^3 - N)}$$

Where $s = \sum (Rj - \overline{Rj})^2$

K = No. of sets of ranking, i.e., the number of judges.

N = No. of objects ranked

$$\frac{1}{12}K^2(N^3 - N)$$

= maximum possible sum of the squared deviation, i.e., the sum which would occur with perfect agreement among K rankings.

$$s = \sum (Rj - \overline{Rj})^2$$

$$= 19904.25$$

$$W = \frac{19904.25}{\frac{1}{12}2500(8000 - 20)}$$

$$= 0.01197$$

To judge the significance of this W, we look into the table for critical value of s in the Kendall's Coefficient of Concordance for finding the value of s at 5% level for K=50 and N=20. This value is 16900.00, and thus, for accepting the null hypothesis that K sets of rankings are independent, our calculated value of s should be less than 16900.00. But the worked out value of s is 19904.25, which is higher than the table value, which shows that W=0.01197 is significant. Hence, we reject the null

hypotheses and infer that the judges are applying essentially the same standard in ranking the N objects, i.e., there is significant agreement in ranking by different judges at 5% level.

6. LIMITATIONS

The limitations of this research are that it is exploratory in nature and covers only 50 women at random. Individuals are not having clear concept about positive as well as negative effects of stress and they are confused between stress at work place and stress related to their personal lives. Further, research could be undertaken to study women working at different levels with a good sample selection at every level, and also comparison with those working in metros can be done.

7. FINDINGS

From the study conducted, there are three clear major issues emerging from call centers: -

❏ The first issue relates to balancing of family and social life for women in call centers. As they work in night shifts and also at odd hours, they are unable to spend sufficient leisure time with family members. As a result, the contact between family members breaks up.

❏ The second issue is related to the stress level of women in call centers; the cause being monotony of work and dealing with abusive clients, which leads them to overreact to situations.

❏ The final issue identifies the poor work environment. The major problem is related to sexual harassment and offensive behavior in work place.

8. SUGGESTIONS

Handling the abuse

Agents handle an average of 110 calls a day, and 80 percent of the calls that come in have some level of emotion. Usually, a caller is calling in because he/she is frustrated, angry, upset or concerned—something has happened and he/she is not happy.

Therefore, it is crucial that agents and especially the call center managers note these

occurrences and become better prepared and informed on handling them for the sake of their workers and their callers. In these situations, the task should become how to handle this type of emotional call rather than instantly labeling it "abusive" and "not acceptable".

Job Rotation

Call Centers should institute job sharing/intern program in their call centers. CSRs that meet or exceed job expectations are eligible to do a rotation for three months in other groups. CSRs work half a day on phones and the other half in Correspondence Dept, Research Dept, Work Force Management, or Quality Assurance. This breaks up their day, teaches them new skills, & provides us with a pool of trained staff whenever needed.

Sports Activities

Call centers should organize a sports week along with the agents and supervisors and also take part in the same. This will definitely bring a change in their working performance as far as it can be seen.

Budget for activities

If employee turnover is a major problem, budgeting money for employee activities / incentives may be undertaken. They should have an activity committee that plans birthday decorating, holiday potlucks, contests, etc. Involve the staff to join and participate in the committee.

Weekly Employee Focus Group

Any employee can come to a weekly or bi weekly focus group with the call center manager and human resource manager. Questions from the employees are posted publicly and also the date that the issues were addressed.

Monthly Newsletter from the Company

Yes, this is a time consuming endeavor but if done right and done consistently, could be a great medium to communicate new/revised policies, reward employees/teams, train your

employees, and build strong team spirits.

Daily Department Huddle

Each team/department should be highly encouraged to have this quick huddle daily with their employees. This goes a long way in building that strong bond between employees and supervisors and yes, this time can also be used to communicate.

Monthly letter from the boss

It could be from the VP of Ops or it could be from the CCM. The point is that the company will have an opportunity every month to speak to the workforce.

9. CONCLUSION

It is desirable to employ HR professionals with knowledge of human psychology in call centers. They should look for counselors to refer those employees' problems, which they actually are not able to retain. Young women in call centers between 18 to 21 years should be guided on physical and mental coordination to cope with a job that requires hyper-alert efficiency. Because of the sexual stigma associated with the job, it doesn't bring status to women in society. Establishing an equitable and gender safe work culture and highlighting the respectability of call centers is required, which creates pleasure in the job and increases the motivation for women in call centers.

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Figures & Tables

Table 1. Descriptive Matrix

S.No	Variables	No. Of Response Per Rank						sum of ranks(Rj)
		5	4	3	2	1	0	
1	Hair Loss.	30	5	5	5	0	5	195
2	Head ache.	25	10	5	4	2	4	190
3	Decision making.	15	10	4	4	7	10	142
4	Self Image.	24	4	10	5	5	2	181
5	Consumption of Coffee.	35	5	3	2	0	5	208
6	Poor work/Life balance.	20	10	12	3	2	3	184
7	Body Ache.	25	10	5	4	2	4	190
8	Disturbance in family Life.	30	5	5	5	0	5	195
9	Disturbed Sleep.	35	5	3	2	0	5	208
10	Short temperedness.	25	10	5	4	2	4	190
11	No motivation & Excitement.	15	10	7	4	10	4	79
12	Fatigue.	25	5	10	2	4	4	183
13	Tiredness.	35	5	3	5	0	2	214
14	No social Recognition.	15	4	10	4	10	7	139
15	Less self confidence.	30	5	5	5	5		200
16	Isolation.	15	10	4	7	4	10	145
17	Disturbed Personal life.	35	3	2	5	0	5	203
18	Mental Stress.	25	10	5	4	2	4	190
19	No Achievement	15	10	7	4	10	4	154
20	Stress relieving exercise.	30	5	5	5	0	5	195
	Number of variables.	N=20						
	Number of Samples.	K=50						

Table 2. for Calculation of s

Rj	R̄j	(Rj - R̄j)	(Rj - R̄j)²
195	179.25	15.75	248.0625
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Table 3. Calculation of Mean Ranks

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7	Body Ache.	3.68
8	Disturbance in family Life.	3.8
9	Disturbed Sleep.	3.9
10	Short temperedness.	4.16
11	No motivation & Excitement.	3.8
12	Fatigue.	1.58
13	Tiredness.	3.66
14	No social Recognition.	4.28
15	Less self confidence.	2.78
16	Isolation.	4
17	Disturbed Personal life.	2.9
18	Mental Stress.	4.06
19	No Achievement.	3.08
20	Stress relieving exercise.	3.9

About Author

Ms. Evangeline is a MBA from a premium Institute of Chennai, Sathyabama Institute of Science and Technology, (Sathyabama University), currently pursuing M.Phil from Prist University. Working as an Assistant Professor in Veltech High-tech Dr.RANGARAJAN Dr.SAKUNTHALA Engineering College, Avadi. Her Expertise is in the field of Human Resources. Prior to this, she was working in Software Company called RediSolve Inc., as a Senior HR Executive. She has published many papers in National and International Conferences and contributed to Journals. Total Experience is 4 years.

Forecasting Financial Ratios for Credit Lending In Banks Using Artificial Neural Networks : A Case-Study of Punjab National Bank

Dr. Roli Pradhan*, Dr.K K Pathak**, Prof.V P Singh***

Abstract

It is important to understand the early warning indicators and implications of corporate financial distress. If the firm lending credit can predict if a company is on its way to financial distress, then it can plan a strategy in time. Similarly, it is vitally important for an auditor to be able to assess whether or not a company is a growing concern in preparing the audit report (Morris 1997). The significant consequence of corporate financial distress has generated a lot of research interest and numerous methods have been applied to develop prediction models. This paper first surveys the existing literature for various techniques that have been developed to assess credit risks including the credit scoring models and quantitative models pioneered by Beaver and Altman which focuses on the borrower's inability to meet credit obligation. Thereafter, the paper uses the tailored back-propagation neural network endeavors to predict the financial ratios expressing the position of a firm to regulate the bankruptcy and assess the credit risks. It first estimates the financial ratio for a firm from 2001-2008 to train the BPNN and uses the estimates of the year 2009 and 2010 values in the validation process. Finally, it dwells to draw predictions for the period 2011-2015 and emphasizes the growing role of BPNN application based prediction models for banking sector with a case study of Punjab National Bank. We conclude with practical suggestions on how best to integrate models and research into policy making decisions.

Keywords : *Financial Ratios, Neural Networks, Credit Lending, Forecasting*

1. INTRODUCTION

THE recent global economic crises are a result of absence of effective early warning systems. The need for an effective failure prediction model to act as an alarm for the corporate is the basic need of any economic system. The model has to be robust over a period of time.

Credit analysis is a key component of modern finance. It is used in both the capital markets, evaluating bond investments and the banking markets, evaluating credit applications. Throughout the years many techniques have been developed to assess credit risks. These include credit scoring models often built around the 5 Cs of credit (character, capacity, collateral, conditions and capital) and quantitative models pioneered by Beaver and Altman that focus on a borrower's probability of default (or inability to meet credit obligations). Finance, accounting and banking programs across the globe typically include a significant amount of credit risk assessment, usually in conjunction with the evaluation of financial statements. Likewise, there has been a continual development and refinement of credit and default assessment models in both the academic and practitioner worlds. Based on the evidences and circumstantial evaluation of financial institutes it is rational enough to conclude that the institutes from times immemorial have been engaged in risk modeling since the time they have been incorporated. From centuries the financial institutes like banks have operated on intuitive models that are based on personal judgement and experience.

The paper studies the application of neural network in forecasting financial ratios. The financial ratios have been divided into different pillars. The paper is an attempt to forecast the

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ratios so as to communicate the financial position of the firm by forecasting its financial ratios up to 2015. Thus the aspects of lending can be evaluated and reestablished. Within the framework of the present study, it was attempted to construct a ratio model, which enables early identification of pattern for bankruptcy. The ratios are divided into different pillars to state the area of financial viability. Neural network has been used for the forecasting of financial ratios. The financial position of the banks when they go out to obtain credit can be computed. The forecasted position can also benefit in planning the repayment period and also assist to plan the terms of credit.

Experience with the recent crisis forced the bank authorities and the central banks on the global level to draw a number of lessons. The result being the new Basel Capital Accord which enlisted guidelines that all banks should develop systematic validated methods for assessing the risks associated with lending. As a result the new rules may increase the operational security of the banks in granting the credit. They are required to establish objective criteria and techniques for modeling the assessment of risk, thus cutting down dependence on subjective personal judgement. Basel II norms are adopted to prevent banks from unexpected losses, improv profitability, increase risk carrying capacity and undertake more obligations. In consistence with the Basel Accord, it is realistic to expect that additional analytical tools be designed to manage the credit risk more effectively in the periods to come. We can, therefore, hope that credit scoring models would serve as a platform for these changes. Even though statistical models were formulated about 30 years ago, credit lending does not have any benchmarks. Still paucity of default information continues to prove a principal obstacle to researchers.

2.   BRIEF LITERATURE REVIEW

Credit risk is probability that a borrower will fail to make required payments of principle and interest over the life of the loan. Risk plays an important role in the lending arena. At loan inception, the lender estimates the expected credit risk that the borrower presents over the life of the loan. In absence of provisions to control the increase in credit risk, the lender prices the expected outcome in the interest rate of the loan. Both lender and borrower suffer when the expected credit risk of borrower is high, the lender with increased risk over the life of the loan and the borrower with a high interest rate. These suggest that both the parties involved in credit lending benefit when provisions are included in contrast to control increase in credit risk. Bankruptcy is the condition in which a business cannot meet its debt obligations, petitions a federal district court for either. This paper examines an alternative approach using neural network to forecast financial ratios so as to relate to prediction of bankruptcy before it actually occurs.

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on Merton (1974) and commercialized by firms like Moody's KMV (Crosbie and Bohn 2001), have also been studied (e.g., Vassalou and Xing 2004; Hillegeist et al. 2004). Although Hillegeist et al. (2004) find that these structural models outperform purely accounting-based, reduced form models, Campbell et al. (2008) find that information from structural models does not add any additional explanatory power to reduced form models utilizing both accounting and market information. Bharath and Shumway (2008) show that the functional form suggested by the Merton model is useful for predicting defaults, though it does not serve as a sufficient statistic for the probability of default.

3. MODEL DESIGN AND METHODOLOGY

In this paper a two step methodology has been adopted. The part A provides steps formulated for the prediction of financial ratio pillars followed by part B, which enlists the steps followed for the prediction of financial ratios using artificial neural networks.

The basic ratios are formulated from details mentioned in published statements like balance sheet, cash flow statements, yearly details of banks, profit and loss statements obtained from CMIE database and Reserve Bank of India. Data is also taken from the official websites of the banks and financial institutions and the internet. Prior researches have identified financial ratio for bankruptcy prediction and the usefulness of these financial ratios for bankruptcy prediction can be known from the literature survey. Consequently this research work uses financial data i.e. published time series data for the last 10 years from 2000 to 2009. This research tries to present a holistic view by incorporating various ratios and then relating them to examine the explanatory capabilities of the financial ratios to suggest the position of the bank. Construction of the basic ratios into ratio pillars is a vital ingredient of the basic work done prior to deployment of neural network.

Part A: Eight ratio pillars have been constructed for the needful; they being:

1. Investment Valuation Ratio Pillar.
2. Profitability Ratio Pillar.
3. Management Efficiency Ratio Pillar.
4. Profit & Loss Ratio Pillar.
5. Debt Coverage Ratio Pillar.
6. Cash Flow Indicator Ratio Pillar.
7. Leverage Ratio Pillar.
8. Overall Performance Ratio Pillar.
    Part B: Prediction of Financial Ratios using ANN Model
1. Catering to Neural Network inputs
2. Tolerance level Minimization
3. Data convergence using Neural Networks
4. Formulation of Absolute error
5. Prediction of ratios in each Ratios pillar
6. Data Validation

4. BPNN MODEL APPLICATION – CASE OF PNB

Punjab National Bank is a state-owned commercial bank located in New Delhi. The bank was incorporated in the year 1895 at Lahore. The Bank has the distinction of being the first Indian bank to have been started solely with Indian capital. Total business of the bank crossed Rs 5 lac cr as on December 2010 aided by rapid branch expansion. Total number of branches rose by over 500 from 4427 in FY09. Dominant position of PNB in north India will ensure steady credit growth as the bank has one of the largest branch network spread in northern India

The basic input sheets for all the eight pillars are formulated for PNB. The process of ratio pillar formulation uses the book formulae for computation of the ratios in each pillar, which will further be used as input parameters for Artificial Neural Network. The details of the ratios and the values are enlisted in the table 1.

5. BPNN MODELING ANALYSIS, RESULTS AND OUTCOMES

After the computation of the basic ratio pillars, as suggested by Table 1, this section uses the ratios in each pillar as inputs to train the network. The network after training computes the values of the ratios from 2009 upto the year 2015 at different tolerance level. The validation is done by the values obtained for the year 2009 and 2010. The tolerance level that provides the closest values is considered for prediction. The Table 2 provides details of the convergence study done for all the pillars for the

bank in the study. Table 3 provides details of the percentage error at the adopted level of tolerance.

6   OBSERVATIONS

The validation was carried out for all the ratios. By the analysis of standard error the included ratios and excluded ratios were formulated. The ratios that have shown a deviation greater than 25% from the actual field data estimates are ignored. Such ratios are termed as excluded ratios. The excluded ratios have not been considered in the prediction process and have been dropped out from the prediction process. The ratios are enlisted in Table 4. The estimates from 2001 to 2008 were applied to train the back propagation neural network and subsequently estimate the values for the year 2009 to 2010. The data values were used for validation. Based on these values predictions were drawn using BPNN from 2011 to 2015. The market has witnessed several ups and downs during the period 2005 and 2010 and the modeled BPNN has been able to closely predict the values from 2005 to 2010. The trained BPNN has been able to forecast the values of the internal included ratios of the ratio pillar in approximation to the actual values, suggesting that the BPNN has the ability to forecast the financial ratios.

7.   ANALYSIS & FINDINGS

As per the above convergence study table 5 provided the details of the size of ANN used for prediction and the associated level of tolerance.

In the investment valuation pillar it has been observed that the Dividend per Share moves in the range from 1% to 5% and the similar swing of 3% to 45% has been predicted by the neural network. The ratio Operating Profit Per Share (Rs) shows a movement of 3% to 47% and as suggested by the network also being 0.7% to 41%. The ratio Net Operating Profit Per Share (Rs) shows a movement of 0.8% to 37% and as suggested by the network also being 0.5% to 32%. The ratio Free Reserves Per Share (Rs) shows a movement of 2% to 41% and a similar trend is projected by the network. Earnings per Share show a movement from 2% to 43% and the network shows a similar fashion, it being approximately 1% to 41%. Book Value shows a movement from 2% to 23% and the network shows a similar fashion, it being approximately 1.4% to 9%. In the profitability pillar it has been observed that the Interest Spread ratio shows a range of 0.1% to 11%, similar to the range of 0.1% to 14% as predicted by the network. The Adjusted Cash Margin (%), moves in the range from 2% to 7% and the similar swing of 0.3% to 3% has been predicted by the neural network. The ratio Net Profit Margin shows a movement of 1.3% to 13% and the same is suggested by the network also, it being 0.2% to 8%. In the profitability pillar it has been observed that the Interest Expended / Interest Earned moves in the range from 2% to 17% and a similar swing of 4% to 18% has been predicted by the neural network. The ratio Operating Expense / Total Income shows a movement of 6% to 13% and the same suggested by the network being 8% to 12%. Selling / Distribution Cost Composition shows a movement from 5% to 9.5% and the network shows a similar fashion, it being approximately 5% to 9.5%. For Current Ratio a movement from 7% to 14% is observed and the network shows a similar fashion, it being approximately 9% to 20%. Quick Ratio shows a movement from 3% to 20% and the network shows a similar fashion, it being approximately 2% to 14%. In the leverage pillar it has been observed that the Net Financial Leverage moves in the range from 1% to 16% and the same movement of ratios has been predicted by the neural network, it being 1% to 12%. For the Interest Coverage the ratios oscillate in the range from 1% to 12% and the network suggests a similar trend, it being 0.1% to 12%. The Long term debt to assets ratio shows a movement from 2% to 35% and the network showed a similar pattern. Debt–Equity Ratio shows a movement from 3% to 24% and the network moved a similar pattern of 1% to 24%. Owner's fund as a percent of Total Source shows a movement from 0.6% to 10% and the network moved a similar pattern of 1% to 9%. Total debt to assets ratio shows a movement from 0.5% to 4% and the network moved a similar pattern. Long term debt to assets ratio shows a movement from 0.1 % to 5% and the network moved a similar pattern.

In the study it has been observed that the Credit Deposit Ratio shows a movement of 3.3%

to 12% and the same suggested by the network being 0.4% to 9%. Cash Deposit Ratio shows a movement from 3% to 32% and the network shows a similar fashion, it being approximately 1% to 34 %. Financial Charges Coverage Ratio shows a movement from 0.7% to 13% and the network shows a similar fashion, it being approximately 0.5% to 9%. Financial Charges Coverage Ratio Post Tax shows a movement from 1.6% to 3.7% and the network shows a similar fashion, it being approximately 0.6% to 2%.

In the study it has been observed that the Dividend Payout Net Profit Ratio show a range of 1% to 15% and a similar kind of range of 0.4% to 16% is predicted by the network.   The Dividend Payout Cash Profit Ratio moves in the range from 6% to 20% and the similar swing of 3% to 21% has been predicted by the neural network. The Earning Retention Ratio shows a movement of 1% to 10% and the same suggested by the network also is 1% to 10%. The Cash Earning Retention Ratio shows a movement of 1% to 11% and a similar trend of 1% to 10% is projected by the network. Adjusted Cash Flow Times shows a movement from 4% to 12% and the network shows a similar fashion, it being approximately 6% to 10%. In the study it has been observed that the Interest Income / Total Funds show a range of 1% to 18%, with similar kind of range of 0.3% to 13% being predicted by the network. The Interest Expended / Total Funds move in the range from 3% to 27% and the similar swing of 0.2% to 13% has been predicted by the neural network. The ratio Profit before Provisions / Total Funds shows a movement of 4% to 15% and a similar trend of 4% to 18% is projected by the network. The Loans turnover ratio shows a movement from 7% to 18% and the network shows a similar fashion, it being approximately 5% to 15%. The ratio Total Income / Capital Employed (%) shows a movement from 5% to 22% as observed and the network shows a similar fashion, it being approximately 2% to 20%. The Interest Expended / Capital Employed (%) shows a movement from 7% to 16% as observed and the network shows a similar fashion, it being approximately 0.6% to 10%. Punjab National Bank had capital adequacy ratio of 14.03%. Capital adequacy ratio indicates capacity of the bank in terms of meeting the time liabilities and other risks. Core capital consists primarily of common stock and disclosed reserves or retained earnings which stood at 8.98% and its borrowing deposit was 2.09%. Its total assets stood at Rs 2,469.18 billion and determinant of the value (of a company) i.e. its net worth at Rs 146.53 billion. This parameter has been determined on the basis of total asset growth, deposit growth, advances growth, NII growth, net profit growth and increase in net worth. Punjab National Bank`s total assets grew 24.07%, deposit jumped 26.01%, advances rose 29.46%, it witnessed a growth of 27.04% and 50.86% in its NII and net profit respectively. Its net worth registered a growth of Rs 23.35 billion. This parameter comprises of returns on assets, yield on advances, cost of deposits, and return on net worth, cost /income and return on investments. The bank earned 1.39% returns on assets, 10.68% yield on advances, its cost of deposits were 6.15%, return on net worth was 21.09%, cost/income was 74.18% and its return on investments was 7.51%

8.   CONCLUSION

In times of economic distress the model would provide assistance in finding the financial viability of the firm. As the ratio pillars incorporate all the terms to be included during assessment of the firm's financial position there are less chances of being misguided in terms of credit lending. This model would act as an early warning system for the corporate as has long been desired. The tailored back-propagation neural network endeavors to predict the financial ratios expressing the position of a firm to regulate the bankruptcy and assess the credit viability when a bank requires credit and can also be utilized to plan the periods of recovery of the lent amount. The analysis also suggested the forecast of the financial position of the firm in case of loan value enhancement as well as the extension of the repayment period. This also renders to be effective in the designing of policies related to credit viability and thus proves to be a vital tool to regulate the occurrence of credit defaults.

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About Author

Ms. Evangeline is a MBA from a premium Institute of Chennai, Sathyabama Institute of Science and Technology, (Sathyabama University), currently pursuing M.Phil from Prist University. Working as an Assistant Professor in Veltech High-tech Dr.RANGARAJAN Dr.SAKUNTHALA Engineering College, Avadi. Her Expertise is in the field of Human Resources. Prior to this, she was working in Software Company called RediSolve Inc., as a Senior HR Executive. She has published many papers in National and International Conferences and contributed to Journals. Total Experience is 4 years.

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3. MODEL DESIGN AND METHODOLOGY

In this paper a two step methodology has been adopted. The part A provides steps formulated for the prediction of financial ratio pillars followed by part B, which enlists the steps followed for the prediction of financial ratios using artificial neural networks.

The basic ratios are formulated from details mentioned in published statements like balance sheet, cash flow statements, yearly details of banks, profit and loss statements obtained from CMIE database and Reserve Bank of India. Data is also taken from the official websites of the banks and financial institutions and the internet. Prior researches have identified financial ratio for bankruptcy prediction and the usefulness of these financial ratios for bankruptcy prediction can be known from the literature survey. Consequently this research work uses financial data i.e. published time series data for the last 10 years from 2000 to 2009. This research tries to present a holistic view by incorporating various ratios and then relating them to examine the explanatory capabilities of the financial ratios to suggest the position of the bank. Construction of the basic ratios into ratio pillars is a vital ingredient of the basic work done prior to deployment of neural network.

Part A: Eight ratio pillars have been constructed for the needful; they being:

1. Investment Valuation Ratio Pillar.
2. Profitability Ratio Pillar.
3. Management Efficiency Ratio Pillar.
4. Profit & Loss Ratio Pillar.
5. Debt Coverage Ratio Pillar.
6. Cash Flow Indicator Ratio Pillar.
7. Leverage Ratio Pillar.
8. Overall Performance Ratio Pillar.
   Part B: Prediction of Financial Ratios using ANN Model
1. Catering to Neural Network inputs
2. Tolerance level Minimization
3. Data convergence using Neural Networks
4. Formulation of Absolute error
5. Prediction of ratios in each Ratios pillar
6. Data Validation

4. BPNN MODEL APPLICATION – CASE OF PNB

Punjab National Bank is a state-owned commercial bank located in New Delhi. The bank was incorporated in the year 1895 at Lahore. The Bank has the distinction of being the first Indian bank to have been started solely with Indian capital. Total business of the bank crossed Rs 5 lac cr as on December 2010 aided by rapid branch expansion. Total number of branches rose by over 500 from 4427 in FY09. Dominant position of PNB in north India will ensure steady credit growth as the bank has one of the largest branch network spread in northern India

The basic input sheets for all the eight pillars are formulated for PNB. The process of ratio pillar formulation uses the book formulae for computation of the ratios in each pillar, which will further be used as input parameters for Artificial Neural Network. The details of the ratios and the values are enlisted in the table 1.

5. BPNN MODELING ANALYSIS, RESULTS AND OUTCOMES

After the computation of the basic ratio pillars, as suggested by Table 1, this section uses the ratios in each pillar as inputs to train the network. The network after training computes the values of the ratios from 2009 upto the year 2015 at different tolerance level. The validation is done by the values obtained for the year 2009 and 2010. The tolerance level that provides the closest values is considered for prediction. The Table 2 provides details of the convergence study done for all the pillars for the

bank in the study. Table 3 provides details of the percentage error at the adopted level of tolerance.

6 OBSERVATIONS

The validation was carried out for all the ratios. By the analysis of standard error the included ratios and excluded ratios were formulated. The ratios that have shown a deviation greater than 25% from the actual field data estimates are ignored. Such ratios are termed as excluded ratios. The excluded ratios have not been considered in the prediction process and have been dropped out from the prediction process. The ratios are enlisted in Table 4. The estimates from 2001 to 2008 were applied to train the back propagation neural network and subsequently estimate the values for the year 2009 to 2010. The data values were used for validation. Based on these values predictions were drawn using BPNN from 2011 to 2015. The market has witnessed several ups and downs during the period 2005 and 2010 and the modeled BPNN has been able to closely predict the values from 2005 to 2010. The trained BPNN has been able to forecast the values of the internal included ratios of the ratio pillar in approximation to the actual values, suggesting that the BPNN has the ability to forecast the financial ratios.

7. ANALYSIS & FINDINGS

As per the above convergence study table 5 provided the details of the size of ANN used for prediction and the associated level of tolerance.

In the investment valuation pillar it has been observed that the Dividend per Share moves in the range from 1% to 5% and the similar swing of 3% to 45% has been predicted by the neural network. The ratio Operating Profit Per Share (Rs) shows a movement of 3% to 47% and as suggested by the network also being 0.7% to 41%. The ratio Net Operating Profit Per Share (Rs) shows a movement of 0.8% to 37% and as suggested by the network also being 0.5% to 32%. The ratio Free Reserves Per Share (Rs) shows a movement of 2% to 41% and a similar trend is projected by the network. Earnings per Share show a movement from 2% to 43% and the

network shows a similar fashion, it being approximately 1% to 41%. Book Value shows a movement from 2% to 23% and the network shows a similar fashion, it being approximately 1.4% to 9%. In the profitability pillar it has been observed that the Interest Spread ratio shows a range of 0.1% to 11%, similar to the range of 0.1% to 14% as predicted by the network. The Adjusted Cash Margin (%), moves in the range from 2% to 7% and the similar swing of 0.3% to 3% has been predicted by the neural network. The ratio Net Profit Margin shows a movement of 1.3% to 13% and the same is suggested by the network also, it being 0.2% to 8%. In the profitability pillar it has been observed that the Interest Expended / Interest Earned moves in the range from 2% to 17% and a similar swing of 4% to 18% has been predicted by the neural network. The ratio Operating Expense / Total Income shows a movement of 6% to 13% and the same suggested by the network being 8% to 12%. Selling / Distribution Cost Composition shows a movement from 5% to 9.5% and the network shows a similar fashion, it being approximately 5% to 9.5%. For Current Ratio a movement from 7% to 14% is observed and the network shows a similar fashion, it being approximately 9% to 20%. Quick Ratio shows a movement from 3% to 20% and the network shows a similar fashion, it being approximately 2% to 14%. In the leverage pillar it has been observed that the Net Financial Leverage moves in the range from 1% to 16% and the same movement of ratios has been predicted by the neural network, it being 1% to 12%. For the Interest Coverage the ratios oscillate in the range from 1% to 12% and the network suggests a similar trend, it being 0.1% to 12%. The Long term debt to assets ratio shows a movement from 2% to 35% and the network showed a similar pattern. Debt–Equity Ratio shows a movement from 3% to 24% and the network moved a similar pattern of 1% to 24%. Owner's fund as a percent of Total Source shows a movement from 0.6% to 10% and the network moved a similar pattern of 1% to 9%. Total debt to assets ratio shows a movement from 0.5% to 4% and the network moved a similar pattern. Long term debt to assets ratio shows a movement from 0.1 % to 5% and the network moved a similar pattern.

In the study it has been observed that the Credit Deposit Ratio shows a movement of 3.3%

to 12% and the same suggested by the network being 0.4% to 9%. Cash Deposit Ratio shows a movement from 3% to 32% and the network shows a similar fashion, it being approximately 1% to 34 %. Financial Charges Coverage Ratio shows a movement from 0.7% to 13% and the network shows a similar fashion, it being approximately 0.5% to 9%. Financial Charges Coverage Ratio Post Tax shows a movement from 1.6% to 3.7% and the network shows a similar fashion, it being approximately 0.6% to 2%.

In the study it has been observed that the Dividend Payout Net Profit Ratio show a range of 1% to 15% and a similar kind of range of 0.4% to 16% is predicted by the network. The Dividend Payout Cash Profit Ratio moves in the range from 6% to 20% and the similar swing of 3% to 21% has been predicted by the neural network. The Earning Retention Ratio shows a movement of 1% to 10% and the same suggested by the network also is 1% to 10%. The Cash Earning Retention Ratio shows a movement of 1% to 11% and a similar trend of 1% to 10% is projected by the network. Adjusted Cash Flow Times shows a movement from 4% to 12% and the network shows a similar fashion, it being approximately 6% to 10%. In the study it has been observed that the Interest Income / Total Funds show a range of 1% to 18%, with similar kind of range of 0.3% to 13% being predicted by the network. The Interest Expended / Total Funds move in the range from 3% to 27% and the similar swing of 0.2% to 13% has been predicted by the neural network. The ratio Profit before Provisions / Total Funds shows a movement of 4% to 15% and a similar trend of 4% to 18% is projected by the network. The Loans turnover ratio shows a movement from 7% to 18% and the network shows a similar fashion, it being approximately 5% to 15%. The ratio Total Income / Capital Employed (%) shows a movement from 5% to 22% as observed and the network shows a similar fashion, it being approximately 2% to 20%. The Interest Expended / Capital Employed (%) shows a movement from 7% to 16% as observed and the network shows a similar fashion, it being approximately 0.6% to 10%. Punjab National Bank had capital adequacy ratio of 14.03%. Capital adequacy ratio indicates capacity of the bank in terms of meeting the time liabilities and other risks. Core capital consists primarily of common stock and disclosed reserves or retained earnings which stood at 8.98% and its borrowing deposit was 2.09%. Its total assets stood at Rs 2,469.18 billion and determinant of the value (of a company) i.e. its net worth at Rs 146.53 billion. This parameter has been determined on the basis of total asset growth, deposit growth, advances growth, NII growth, net profit growth and increase in net worth. Punjab National Bank`s total assets grew 24.07%, deposit jumped 26.01%, advances rose 29.46%, it witnessed a growth of 27.04% and 50.86% in its NII and net profit respectively. Its net worth registered a growth of Rs 23.35 billion. This parameter comprises of returns on assets, yield on advances, cost of deposits, and return on net worth, cost /income and return on investments. The bank earned 1.39% returns on assets, 10.68% yield on advances, its cost of deposits were 6.15%, return on net worth was 21.09%, cost/income was 74.18% and its return on investments was 7.51%

8. CONCLUSION

In times of economic distress the model would provide assistance in finding the financial viability of the firm. As the ratio pillars incorporate all the terms to be included during assessment of the firm's financial position there are less chances of being misguided in terms of credit lending. This model would act as an early warning system for the corporate as has long been desired. The tailored back-propagation neural network endeavors to predict the financial ratios expressing the position of a firm to regulate the bankruptcy and assess the credit viability when a bank requires credit and can also be utilized to plan the periods of recovery of the lent amount. The analysis also suggested the forecast of the financial position of the firm in case of loan value enhancement as well as the extension of the repayment period. This also renders to be effective in the designing of policies related to credit viability and thus proves to be a vital tool to regulate the occurrence of credit defaults.

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Hillegeist, Stephen; Keating

hiring and retention decisions. Most of the responses were "professionalism", "research and publication", "frequency of job shift" and "innovation in teaching". A small number of responses were given for "initiatives of the faculty", "students' likeability", "Team player" etc. Few B-schools however did not provide any additional evaluation standards.

Consulting component

Consulting was typically allocated only a small percentage for Associate Professor and the Assistant Professor was not at all considered for this component for evaluation. The importance did increase at the higher academic ranks, and the difference between the importance at the assistant and associate professor ranks for hiring was found. The main reason for this difference at the assistant professor rank, based on respondent comments, was the importance of completion of the doctoral dissertation by the faculty member, particularly for retention.

10. CONCLUSION

Creating a talented faculty pool is obviously a long drawn task. One needs to focus more on research-driven programmes leading to Ph.D. The not-so-robust Ph.D pipeline in the country would make the problem a long-term one. Apart from lucrative remuneration packages, there is a need for 'extra-economic incentives' to attract and retain faculty. Setting aside more resources for research and publication activity could improve the situation in due course. The industry should also carve out a role for itself in this process by setting up endowments and other incentives. Hiring retired faculty on a contractual basis and giving them limited tenures and allowing faculty close to retirement to continue in teaching without occupying their substantial position can be one suggestion. A great deal of flexibility regarding non-monetary and monetary incentives linked to additional deliverables would also be required. A major shortfall in this direction is the inability of our institutions of higher learning to attract and retain qualified and trained faculty of high order.

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Figures & Tables

Figure 1. Factors affecting employees in the teaching profession :
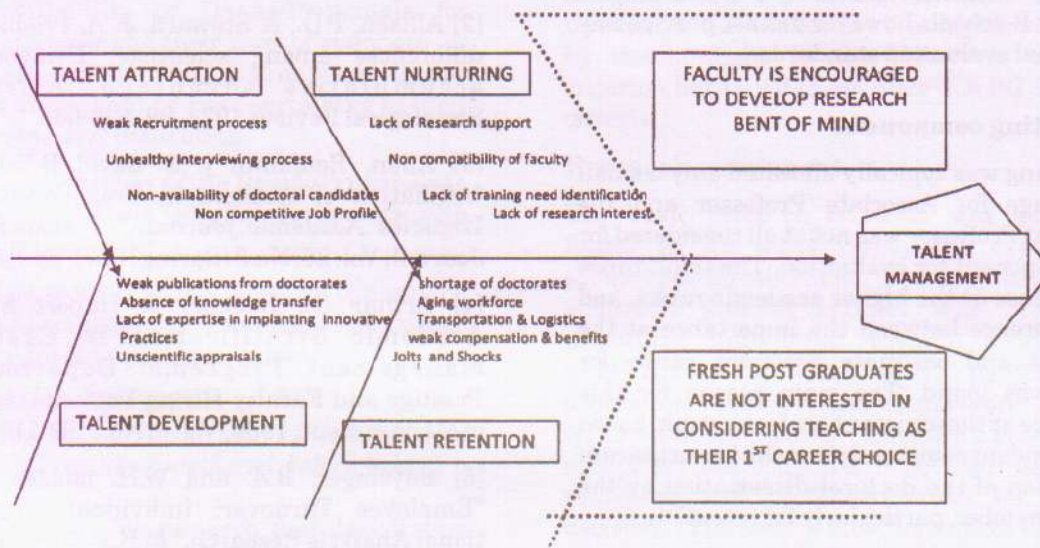
Table 1. Sample size and technique

	B-SCHOOL Karnataka	TOTAL FACULTY (Core)	Nature of the data
POPULATION	192*	1170	As per AICTE
SAMPLE	78	75	simple Random

*as per AICTE website: Aug 2010

Table 2. Criteria/Factors considered by the institute in selecting faculty (Rank)

1= not considered 2= considered only as a formality 3= considered only if there is a competition/more number of required candidates 4= considered as a preference 5 = considered as a mandate

Criteria/Factors	30 institutions- presented in percentage				
	1	2	3	4	5
Qualification as per AICTE	Nil	nil	nil	Nil	100%
Experience as per AICTE	Nil	nil	nil	nil	100%
Quality of Teaching	30%	34%	6%	15%	5%
Interest in Research Area	Nil	12%	18%	61%	9%
Team player capabilities	20%	72%	2%	6%	Nil
Gender	40%	46%	12%	1%	Nil
Age group	Nil	47%	9%	42%	2%
Extra curricular activities	100%	nil	nil	nil	Nil
Reference/Influence	59%	6%	32%	1%	2%
Corporate network (strength)	Nil	9%	17%	58%	16%
Personality/Physical appearance	2%	70%	8%	16%	4%
Previous Publication	4%	Nil	23%	35%	38%
Previous Institution (Status/Rank)	Nil	4%	21%	62%	13%
Number of jobs changed by the candidate	Nil	Nil	17%	72%	11%
Communication skill	Nil	Nil	8%	72%	20%
Student feedback (post demo lecture)	34%	28%	7%	29%	12%
Salary compatibility (individual vs institution)	Nil	Nil	4%	10%	86%
Expectation/demands of the candidate towards Research Benefits	14%	53%	3%	18%	12%
Distance/Geographical location	Nil	8%	2%	86%	4%
Family Size and Background	82%	13%	5%	nil	Nil
Subject compatibility	36%	6%	Nil	58%	nil
Industry experience	nil	Nil	6%	67%	27%
PG from Top B-Schools	12%	12%	26%	32%	18%
Alumni of the institute	30%	8%	7%	42%	13%
Administration work load	Nil	nil	24%	43%	33%

Ho: There is no relationship between factors affecting faculty attrition decision and faculty relocating decisions.

Table 3. Factors Affecting Job Decisions

Respondents were given a list of 32 factors/criterion on a four point scale as follows: 1=not important, 2=slightly important, 3=quiet important, 4=extremely important. Mean Job Importance Scores and Rankings

	FACTORS	Assistant prof N=30		Associate/Prof. N=45	
		Mean	rank	Mean	Rank
1	Teaching load	3.27	1	2.38	6,7
2	compatibility with other faculty	3.13	2	2.28	9
3	Support available for research, research assistance	3.1	3	2.86	1
4	Release time for research	2.84	8	1.76	20,21
5	flexibility - day to day work schedules	3	5	2.1	12
6	Criteria used for promotion and tenure decisions	2.96	6	2.48	5
7	library, research database and computer facilities	2.83	7	2.57	4
8	scope for experimenting new pedagogy	3.03	4	2.17	11
9	Geographical location	2.73	9	2.72	3
10	availability of funds for travel to meetings	2.7	10 to 12	1.72	22,23,24
11	B-school Ranking	2.7	10 to 12	2.24	10
12	existence of a PhD programs or tie-ups with university	2.7	10 to 12	2.38	6,7
13	availability of supplemental research grants	2.63	13 to15	1.97	16,
14	likelihood of obtaining tenure (change in designation)	2.6	13 to15	2.76	2
15	available recreational and cultural activities	2.6	13 to15	2.03	14,
16	location of school	2.53	16 to 17	1.79	18,19
17	amount of administration work	2.53	16 to 17	1.52	29
18	job opportunities for spouse	2.4	18	2.07	13
19	salary history and projections	2.37	19 to 20	2.34	8
20	compatibility with departmental head	2.37	19 to 20	1.79	18,19
21	geographical location	2.3	21	2	15
22	Infrastructure. Eg. Classrooms, pick and drop facility etc	2.27	22	1.72	22,23,24
23	fringe benefits package	2.2	23	1.66	25,26
24	opportunity to teach desired courses	2.1	24	1.66	25,26
25	quality and motivation of students	2.07	25 to 26	1.55	28
26	compatibility with dean	2.07	25 to 26	1.45	32
27	support for further studies and foreign trips	2.03	27	1.76	20,21
28	distribution of decision making power	1.96	28	1.61	27
29	back ground and research orientation of other faculty	1.8	29	1.86	17
30	class size	1.73	30	1.72	22,23,24
31	corporate tie-ups and opportunity for networking	1.5	31	1.48	30,31
32	consulting and MDP Assignments	1.47	32	1.48	30,31

Table 4.

	Value	Rank1	Rank2	Correction factor	Actual Rank(a)	Actual Rank(b)	Correction Factor	Rank1	Rank2	Value	S.no.
1	3.27	1	32	0	1	6.5	0.5	6	26	2.38	1
2	3.13	2	31	0	2	9	0	9	24	2.28	2
3	3.1	3	30	0	3	1	0	1	32	2.86	3
4	3.03	4	29	0	4	20.5	0.5	20	12	1.76	4
5	3	5	28	0	5	12	0	12	21	2.1	5
6	2.96	6	27	0	6	4	0	4	29	2.57	6
7	2.83	7	26	0	7	5	0	5	28	2.48	7
8	2.8	8	25	0	8	11	0	11	22	2.17	8
9	2.73	9	24	0	9	3	0	3	30	2.72	9
10	2.7	10	21	1	11	23	1	22	9	1.72	10
11	2.7	10	21	1	11	10	0	10	23	2.24	11
12	2.7	10	21	1	11	6.5	0.5	6	26	2.38	12
13	2.63	13	20	0	13	16	0	16	17	1.97	13
14	2.6	14	18	0.5	14.5	8	0	8	25	2.34	14
15	2.6	14	18	0.5	14.5	14	0	14	19	2.03	15
16	2.53	16	16	0.5	16.5	18.5	0.5	18	14	1.79	16
17	2.53	16	16	0.5	16.5	29	0	29	4	1.52	17
18	2.4	18	15	0	18	13	0	13	20	2.07	18
19	2.37	19	13	0.5	19.5	2	0	2	31	2.76	19
20	2.37	19	13	0.5	19.5	18.5	0.5	18	14	1.79	20
21	2.3	21	12	0	21	15	0	15	18	2	21
22	2.27	22	11	0	22	23	1	22	9	1.72	22
23	2.2	23	10	0	23	25.5	0.5	25	7	1.66	23
24	2.1	24	9	0	24	25.5	0.5	25	7	1.66	24
25	2.07	25	7	0.5	25.5	28	0	28	5	1.55	25
26	2.07	25	7	0.5	25.5	32	0	32	1	1.45	26
27	2.03	27	6	0	27	20.5	0.5	20	12	1.76	27
28	1.96	28	5	0	28	27	0	27	6	1.61	28
29	1.8	29	4	0	29	17	0	17	16	1.86	29
30	1.73	30	3	0	30	23	1	22	9	1.72	30
31	1.5	31	2	0	31	30.5	0.5	30	2	1.48	31
32	1.47	32	1	0	32	30.5	0.5	30	2	1.48	32

Table 5.

Diff	(Diff)^2
-5.5	30.25
-7	49
2	4
-16.5	272.25
-7	49
2	4
2	4
-3	9
6	36
-12	144
1	1
4.5	20.25
-3	9
6.5	42.25
0.5	0.25
-2	4
-12.5	156.25
5	25
17.5	306.25
1	1
6	36
-1	1
-2.5	6.25
-1.5	2.25
-2.5	6.25
-6.5	42.25
6.5	42.25
1	1
12	144
7	49
0.5	0.25
1.5	2.25
Sum =	1499.5

Rs =   32736

0.954194159   0.045806

Std Error =
0.179605302

Z1 =
5.312728236

Alpha =
0.01
So Z(acctp) =
2.33

since Z1 > Z, there exists a positive correlation

Conclusion

Table 6.

Assistant professor criteria	Rank
Teaching load	1
Compensation	2
Research facility	3
Administering new teaching pedagogy	4

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Table 7.

Associate & Professor Criteria	Rank
Research	1
Change in designation/promotion	2
Geographical location	3
Library facility, database etc	4

Table 8.

Particulars	Response
Non scientific	34%
Too rigid	30%
Requires relaxation	16%
Requires redesign	20%
Any other (specify)	0%

Table 9. Basic Evaluation Criteria

GRADE COMPONENT↓	Assistant professor		Associate professor		Professor	
RESEARCH	current	Expected	current	expected	current	expected
Academic Journals	1%	24%	1%	28%	1%	33%
Conference Publications	2%	7%	7%	7%	7%	8%
Case Study publication	-	9%	1%	9%	1%	11%
TEACHING LOAD	94%	55%	84%	36%	21%	2%
SERVICE Community service	-	2%	-	3%	15%	4%
CONSULTING	-		-	10%	53%	40%
OTHERS	3%	3%	7%	7%	2%	2%
TOTAL						

About Authors

Prof. Savitha G R carries with her IO years of experience in corporate, teaching and research. She has done her MBA HR from MIT and also holds an M. Phil Degree in Commerce. Her area of specialization in teaching is HR & Organizational Behavior. She has presented numerous research papers at various forums.

Prof Anand K Joshi has done his Mcom. LL.B, MBA (HRM), PhD (Management).He brings in 20 years of experience in Technical Education, Management Education, Teacher Education, Distance Education and Public Systems for having worked in IGNOU, NCTE, AICTE and Ministry of Textiles, Govt. of India. He was also Visiting Faculty & Examiner to ICAI, ICWAI & ICSI Institutes.

Measuring Service Quality Performance of Hero-Honda's Workshop

Shailesh Limbad*

Abstract

Given the increasing value of after sales services in automobile industry, this research assessed the expectations and perceptions of service quality in two wheeler automobile agency of Hero-Honda by applying the SERVQUAL model. The purpose of this study was to gain better understanding of the service quality dimensions that explore the relationship between service quality and customer satisfaction. Some of these dimensions are tangibility, assurance, empathy, reliability, responsiveness. The performance on all of these dimensions has shown a strong impact on customer satisfaction. Though customer satisfaction can be secured through high-quality products and services, service quality has been recognized as a key factor in differentiating service products. The findings indicated, as a whole, that the customers' perceptions of service quality provided by the agency were more satisfactory than their expectations.

Keywords : Service quality, SERVQUAL model, Customer satisfaction.

1. INTRODUCTION

Customers are viewed as a group whose satisfaction with the organization must be incorporated in strategic planning efforts. The best quality services are helpful to the organization for increasing brand equity. Service quality has been seen as critical for service firms to position themselves strongly in a competitive environment (Parasuraman, et al., 1985, Shemwell et al., 1998; Mehta et al., 2000) and also helpful for achieving long term objective of the organization and improving the level of services. With better understanding of customers' perceptions, companies can determine the actions required to meet customers' needs. Organizations can identify their own strengths and weaknesses, where they stand in comparison to their competitors and chart out path for future progress and improvement. Customer satisfaction measurement helps to promote an increased focus on customer outcomes and stimulate improvements in the 'before' and 'after' sales practices and processes used within the company.

2. LITERATURE REVIEW

The role of service quality is widely recognized as being that of a critical determinant for the success of an organization in today's competitive environment. Any decline in customer satisfaction due to poor service quality would be a matter of concern. Consumers, being more aware of rising standards in service and prompted by competitive trends, have developed higher expectations. Services are inherently intangible and high on experience and credence qualities. In order to promote them effectively, a service provider must first identify the dimensions used by consumer to evaluate the service quality.

3. SERVQUAL

Service quality, as noted earlier, is generally used to measure customers' perception of services rendered (Zeithaml et al., 1990). Customers are ideal for appraising how well employees have provided quality service because they are in a better position to observe employee performance than employees' supervisors (Bowen and Schneider, 1988). In 1988, Parasuraman et al. developed a 22-item instrument named SERVQUAL, for measuring service quality. The scale was developed from an initial pool of 97 items generated through a series of focus group sessions conducted with consumers. The initial pool of 97 items was reduced to 22 to form the SERVQUAL scale with a reported reliability above 0.90

* Assistant Professor, Shree Swami Atmanand Saraswati College of Management and Information Sciences, Varachha, Surat, Gujarat.

(Parasuraman et al., 1988). The scale was said to tap five different underlying dimensions of customer service termed Tangibles, Reliability, Responsiveness, Assurance, and Empathy (Parasuraman, Zeithaml, & Berry, 1988). The instrument assesses customers' perception of quality by comparing their expectation with their perception of the services received, across various service quality dimensions. The techniques used to develop the measuring instrument were thorough and rigorous, with the validity and reliability of the scales well documented (Parasuraman et al., 1985, 1988, 1991; Zeithaml et al., 1990).

SERVPERF Scale

Cronin and Taylor (1992) were amongst the researchers who leveled maximum criticism on the SERVQUAL scale. They provided empirical evidence across four industries to corroborate the superiority of their 'performance only' instrument over disconfirmation-based on SERVQUAL Scale. In equation form, it can be expressed as:

$$SQ_i = \sum_{j=1}^{K} P_{ij}$$

Where

SQi = perceived service quality of individual 'i'.

k = Number of attributes / items

P = Perception of individual 'i' with respect to performance of service firm on attribute 'j'

The SERVPERF scale is found to be superior not only as an efficient scale but also more as being efficient in reducing the number of items to be measured by 50 per cent. (Hartline and Ferrell, 1996; Babakus and Boller, 1992; Bolton and Drew, 1991). In the present study, the SERVPERF scale is used to measure the service quality in workshop for after sales services given at the workshop.

Objective of the study
Primary Objectives:
To know customers' satisfaction level towards after sales services of Hero-Honda's new workshop.
Secondary Objectives:
➤ To know the importance of each of the service quality dimensions.

➤ To know the reasons for low frequency of customer visits at Hero-Honda's new workshop.

➤ To know the customer preferences for selecting workshop for after sales services.

3. RESEARCH METHODOLOGY
● Research design:-
Research Methodology is a systematic design, collection, analysis and reporting of data and finding relevance to appraisal-specific personnel situation facing the Hero-Honda's workshop. It is an overall framework of project that indicates what information needs to be collected from which sources and by which procedures. It is also the plan, structure, and strategy of investigation conceived so as to obtain answers to research questions and to control variance. Here the descriptive research design has been used because we wanted to study the problem of low frequency of visit of customers at the after-sales service at workshop at Nandida.

● Sampling Design:-
Sampling Method:

The multi sampling design is used for the said research.

➤ Non-probability Sampling design had been used and the sampling method employed was convenience Sampling.

➤ Probability sampling design had been used and the Sampling method employed was Stratified Non-proportional Sampling.

Sampling element: Existing customers of "Hero-Honda's workshop".

Sampling unit: Service users of "Hero-Honda's workshop".

Extent: Bardoli region.

Survey Time: 20th May to 23rd June 2008.

Choice of Survey Method: Here face-to-face personal interview method is used.
RELIABILITY TEST

Purpose of this test:-

Reliability Analysis address the issues of whether this instrument (SERVQUAL) will produce the same result each time. It is administered to the person in the same setting. In other words, this test is used to know the reliability of the instrument which states whether the instrument would be useful in the same type of surveys in the future.

Reliability Statistics

Cronbach's Alpha	N of Items
0.929	16

Here Alpha is 0.929. According to the thumb rule, if the alpha is more than 0.5 than the reliability of the instrument is good and vice versa. Here we can say that instrument's reliability is excellent.

4. FINDINGS

Findings of the study, objective-wise, are explained below:

Primary Objectives:

➤ **To know customers' satisfaction level towards after sales services of Hero-Honda's new workshop.**

To achieve this objectives the SERVQUAL instrument was used with 5 different dimensions.

Null Hypotheses (Ho): There is no significant difference between the calculated sample mean for individual service parameter and hypothesized population mean (4.00). In other words, it means that we hypothesized that for individual service parameter respondents are agreeing to the given statement. Because of workshop's services availability and responsible staff, I hope customers at least agree with the SERVQUAL statements.

$$H_o : \bar{x} = \mu = 4$$

Alternative Hypothesis (H₁): There is significant difference between the calculated sample mean for individual service parameter and hypothesized population mean (4.00). In other words, it means that we hypothesized that for individual service parameter respondents do not agree to the SERVQUAL statement. It is possible that customers might more than agree or less than agree.

$$H_1 : \bar{x} \, f \, \mu = 4$$

Significance level: Here test of hypothesis is at 95% confidence level i.e. the chance of type-1 error occurring is 5%.

Here the result is tested at 95% confidence level. For the significant value less than 0.05, the null Hypothesis Ho is rejected or the alternative Hypothesis H1 is accepted. For the significant value greater than 0.05, the Null Hypothesis Ho is failed to reject. We also conclude that customers more than agree but less than strongly agree (shown in the calculated means shown in the table as more than 4) with the SERVQUAL statements. So here service quality performance is good and this measurement will be useful to make any improvement in particular service area.

If here the specified value is taken as 4 then our hypothesis is rejected. So just check whether customers strongly agree with the services or not?

Null Hypotheses (Ho): There is no significant difference between the calculated sample mean for individual service parameter and hypothesized population mean (5.00). In other words, it means that we hypothesized that for individual service parameter respondents strongly agree with the given statement. Because of workshop's services availability and staff being responsible, I hope customers strongly agree with the SERVQUAL statements.

$$H_o : \bar{x} = \mu = 5$$

Alternative Hypothesis (H₁): There is significant difference between the calculated sample mean for individual service parameter and hypothesized population mean (5.00). In other words, it means that we hypothesized that for individual service parameter respondents do not strongly agree with the servqual statements.

$$H_1 : \bar{x} \, f \, \mu = 5$$

Significance level: Here test of hypothesis is at 95% confidence level i.e. the chance of type-1 error is occurring is 5%.

Here the result is tested at 95% confidence level. For the significant value less than 0.05, the null Hypothesis Ho is rejected or the alternative

Hypothesis H1 is accepted. For the significant value greater than 0.05, the Null Hypothesis Ho is failed to reject. We also conclude that customers less than strongly agree with the servqual statements. So here service quality performance is good and this measurement will be useful to make any improvement in particular service area.

Secondary Objectives:

➢ **To know the importance of each of the service quality dimensions.**

To achieve this objective the linear regression method has been used.

A linear regression line is like

Y=+1x1+2x2+3x3+4x4+5x5

Where, Y = Dependent variable (Overall satisfaction)

x1, x2, x3, x4, and x5 are the independent variables

α is constant= 0.395

β1 =-0.214,	x1 = Tangible factors,
β2 =0.307,	x2 = Reliability factors,
β3 = 0.272,	x3 = Responsiveness factors,
β4 = 0.450,	x4 = Assurance factors,
β5 = 0.026.	x5 = Empathy factors.

So, linear regression line is, Overall satisfaction=

0.395+ (-0.214) (x1) + (0.307) (x2) + (0.272)(x3)+ (0.450) (x4) + (0.026)(x5)

Where tangible attributes of service quality affected negatively on overall satisfaction for after-sales service quality performance. Assurance attributes are more affected (0.450) and empathy has less affected attributes (0.026) to build overall satisfaction.

2) **To know the reasons of low frequency of customer visits at Hero-Honda's new workshop.**

To achieve this objective individual question was framed with different option and customers were asked to give reason for not coming to new workshop. Two major reasons were found out for low frequency of visits at the new workshop.

➢ Low awareness about new workshop

(31.5%).

➢ Purchasing from old shops; so customers prefer old workshop (22%).

3) **To know the preferences for using workshop for after sales services.**

To achieve this objective one ranking question was framed and customers were asked to give their rank according to their expectation from the workshop for after-sales services.

Other findings:

There is no significant difference between overall satisfaction mean and actual satisfaction mean.

Paired samples t-test

Null Hypotheses (**Ho**): There is no significant difference between the overall mean and actual satisfaction mean. In other words, we hypothesized that customers are satisfied with the Hero-Honda's service quality performance.

$$Ho : \bar{x}1 = \bar{x}2$$

Alternative Hypotheses (**H1**): There is significant difference between the overall mean and actual satisfaction mean. In other words, we hypothesized that customers are not satisfied with Hero-Honda's service performance.

$$H1 : \bar{x}1 \ f \ \bar{x}2$$

Significance level: Here test of hypothesis is at 95% confidence level i.e. the chance of type-1 error occurring is 5%.

Here significant value for overall customer satisfaction is less than 0.05, so Null Hypothesis (Ho) is accept; it means that there is no significance difference between the overall satisfaction mean and actual satisfaction mean. So we can say that customers' answers are reliable or without biases. Because overall satisfaction mean is a more or less match to the actual question in the questionnaire.

5. CONCLUSION, IMPLICATIONS AND DIRECTIONS FOR FUTURE RESEARCH

From the survey it is to be found that customers are overall satisfied with the service quality performance of the Hero-Honda's new

workshop. It shows the credibility of the workshop, which results into overall satisfaction. Also, here the main reasons are mentioned because of which it has low intensity of the customers for servicing of their bikes. So it is the responsibility of the top management to overcome this problem.

Further, as per customers' suggestions & findings of this research, its management can implement the strategies. As the Reliability of this research instrument is excellent, in future again study can be done in same research setting for post implementation analysis of those strategies.

From the findings, the following suggestion are being made to workshop management and the authorized dealer of Hero-Honda motorcycles to get optimum benefit by knowing the service quality and brand awareness from the customer of Bardoli town and surrounding region.

➤ Service quality is good and customers are overall satisfied with the performance. So keep the same standard of performance in future.
➤ Customers have different satisfaction levels as per their experience with the services. So don't worry because services are heterogeneous and every customer has different perception related to your services.
➤ Assurance attributes of service quality is more important where empathy is a less affected attribute. So try to improve it by spending more resourses for getting higher customer satisfaction.
➤ Most of the customers are not aware of the new workshop. So company can use marketing communication strategies like advertisement. There are various media available in the market like television, news paper, radio and pamphlets for advertising.
➤ As most of the people consider the following criteria as important or less important while they are coming for servicing their bikes, the company should focus on these criteria.
  • Best service performance is more important
  • Home delivery facilities are considered as a less important variable.

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Figures & Tables

Table 1. One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Sympathetic in solving service related queries	70	4.47	.896	.107
Takes reasonable time for service & delivering	70	4.40	.875	.105
Staff is willing & responsive to help customer	70	4.43	.972	.116
Employees understand specific problem	70	4.47	.863	.103
Mechanics explain maintenance tips at delivery time	70	4.30	1.054	.126

Table 2. One-Sample Test

	Test Value = 4					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Sympathetic in solving service related queries	4.400	69	.000	.471	.26	.69
Takes reasonable time for service & delivering	3.826	69	.000	.400	.19	.61
Staff is willing & responsive to help customer	3.690	69	.000	.429	.20	.66
Employees understand specific problem	4.568	69	.000	.471	.27	.68
Mechanics explain maintenance tips at delivery time	2.381	69	.020	.300	.05	.55

Table 3. One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
New workshop is clean	70	4.86	.352	.042
Staff uniform is good	70	4.70	.574	.069
Uses up-to-date equipment helps to deliver prompt service	70	4.61	.708	.085
Keeps service record accurately	70	4.69	.553	.066
Promptness of front man in opting job card	70	4.81	.460	.055
Promptly deliver bike after service	70	4.60	.824	.098
Trustfulness of the staff	70	4.57	.734	.088
Behavior of staff is polite	70	4.51	.847	.101
Provides safe services.	70	4.59	.789	.094
Serves individual attention	70	4.56	.754	.090
Staff attitude & courtesy is good	70	4.54	.793	.095

Table 4. One-Sample Test

	Test Value = 5					
					95% Confidence Interval of the Difference	
	t	df	Sig. (2-tailed)	Mean Difference	Lower	Upper
New workshop is clean	-3.391	69	.001	-.143	-.23	-.06
Staff uniform is good	-4.376	69	.000	-.300	-.44	-.16
Uses up-to-date equipment helps to deliver prompt service	-4.558	69	.000	-.386	-.55	-.22
Keeps service record accurately	-4.757	69	.000	-.314	-.45	-.18
Promptness of front man in opting job card	-3.380	69	.001	-.186	-.30	-.08
Promptly deliver bike after service	-4.064	69	.000	-.400	-.60	-.20
Trustfulness of the staff	-4.887	69	.000	-.429	-.60	-.25
Behavior of staff is polite	-4.799	69	.000	-.486	-.69	-.28
Provides safe services	-4.391	69	.000	-.414	-.60	-.23
Serves individual attention	-4.911	69	.000	-.443	-.62	-.26
Staff attitude & courtesy is good	-4.824	69	.000	-.457	-.65	-.27

Table 5.

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta	B	Std. Error
(Constant)	.395	.645		.613	.542
TENGIBLE	-.371	.183	-.214	-2.024	.047
RELAIBILITY	.372	.165	.307	2.248	.028
RESPONSIVENESS	.354	.167	.272	2.120	.038
ASSURANCE	.527	.181	.450	2.908	.005
EMPATHY	.030	.204	.026	.146	.884

Table 6.

	Frequency	Percent
Already users of new work shop	70	35.0
Not aware of new workshop	63	31.5
Workshop distance is too long	15	7.5
Not satisfied with service performance	5	2.5
Not satisfied with staff behavior	1	0.5
Purchasing from old work shop so preferred old work shop	44	22.0
Think both are different & not under same authority	2	1.0
Total	200	100.0

Table 7.

Rank	Parameter	Maximum Responses
Rank-1	Best service performance	108
Rank-2	Low cost of service	52
Rank-3	Responsiveness and politeness of staff	45
Rank-4	Better infrastructure	43
Rank-5&6	Law traffic	46&64
Rank-7	Home delivery of bike	114

Table 8. Paired Samples Statistics

	Mean	N	Std. Deviation	Std. Error Mean
Overall (state.1-16)	4.571429	70	.5413481	.0647035
Satisfied (state.17)	4.49	70	.794	.095

Table 9. Paired Samples Test

	N	Correlation	Sig.
overall & satisfied	70	.751	.000

Table 10. Paired Samples Correlations

	Paired Differences					Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		Std. Error Mean
					Upper	Upper
overall – satisfied	.0857143	.5273510	.0630305	.0400281	.2114567	.178

About Author

Shialesh Limbad has completed his MBA in 2009 with marketing specialization from "Shrimad Rajchandra Institute of Management and Computer Application", VNSGU, Surat, Gujarat. He has 1 years of teaching experience of graduate level and working as an assistant professor in "Shree Swami Atmanand Saraswati Collage of Management" situated at Varachha, Surat, Gujarat. He has also worked in ICICI Prudential Life Insurance Company for more than 1 year.

A New Approach to Design Matching Schemas

Sumit Jain*, Dr. Sanjay Tanwani**

Abstract

It is difficult to access matching schema from multiple, heterogeneous databases, which involve dealing with different data models, different schema and different Query Language and interfaces for any particular keyword. A key challenge is to integrate data from multiple information sources. There are several problems related to Data Integration, such as, to rewrite the view for the mediated schema whenever a new source is to be integrated or whenever an existing source changes its schema. A data integration solution may address this problem. This paper reduces the schema-matching burden of system builders by proposing a new orthogonal approach to achieve the same. We can process this by designing a universal text file containing some information just like mediated schema, which in no way affects any of the database.

Keywords : *Data Integration, Data Integration approach, Universal Text File*

1. INTRODUCTION

The World-Wide Web is crowded with community, such as those of movie fans, database researchers, bioinformatists, intelligence analysts, and so on. As such communities reproduce, research on their data management challenges has attracted increasing attention [7], [8], [9]. A key challenge is to integrate data from multiple information sources. For example, the multiple information sources may want to integrate all information about publications, from DBLP, Google Scholar, and researchers' homepages, among others. Today, integrating such data within a multiple information sources is largely handled by a relatively small set of volunteers, henceforth called builders. The main task of builder is to establish semantic correspondences called matches between the elements of the schemas of the data sources. For example, a 1-1 matches such as address=location and complex matching such as name = concat (fname,lname). Creating complex matches is fundamentally harder than the 1-1 matches. To solve this task, builders often employ a matching tool to find match candidates, then examine and repair the candidates to obtain the correct matches.

Information finding in such an environment is only possible with the use of information finding tools. Definitely, schema matching still solves so many problems and many matching tools have been proposed. But such type of tool is not perfect and still has many problems to solve. Many schema matching approaches have already been proposed, all of which aim to minimize human involvement and hence manual labor in this cumbersome yet critical step.

As Anhai Doan puts it, "to facilitate the widespread deployment of integration systems in online communities, it is crucial to develop solutions that reduce the schema-matching burden of system builders. Given the exponential rate at which online portals and accessing data from multiple sources are proliferating, the task of matching schemas remains at the heart of database research today [6]. In this paper we propose a new orthogonal approach to achieve the same.

Rest of the paper is organized as follows: In section 2 we describe definition of Data Integration, Section 3 describes how Data Integration works, in Section 4 we describe the process of Data Integration terminology, Section 5 shows Data Integration approach, Section 6 shows overview of data integration approach and Section 7 describes the new approach with simple example of airline reservation. Finally, section 8 terminates with

* Assistant Professor, Sanghavi Innovative Academy, INDORE
** Professor, School of Computer Science & Information Technology, DAVV Indore

drawing conclusions and mentioning future scope of the topic.

2. DEFINE DATA INTEGRATION

It is a modern world saying, "Information is power". As we know that an organization contains a huge amount of database for its own use, often that information of one organization may be useful to another and vice versa. So, if two organizations share their information, it means that the information power of both would increase and benefit the two. However, we observe that the databases of two organizations are typically heterogeneous which does not allow the data to be unified.

Data from dissimilar systems is not easily accessible. Data is found throughout the enterprise, in multiple dissimilar systems and in many different formats. Data is spread everywhere—on the mainframe, in databases, in unclear inheritance systems, in spreadsheets, on desktops, in enterprise resource planning (ERP) applications, on message queues, in flat files, etc.

So what's the solution? Data integration.

If you look up the -word, "integration" in the dictionary, it says:

"The act of combining pieces working together to form a unified whole"

Several definitions of Data Integration are available.
Data Integration is defined as "the problem of combining data residing in different sources and providing users with a unified view of these data" [2] Similarly [1] defines it as "process of combining several data sources such that they may be queried and updated via some common interface".
Hanna Zhong defines in [4] as "Provide **uniform access** to data available in **multiple, autonomous, heterogeneous** and **distributed** data sources".

The ARF defines data integration as follows: [3] "A formal process to combine information from two or more separate data sources, making use of information in the databases for the purpose of accurately estimating certain values that are not available in any single data source."

3. HOW DATA INTEGRATION WORKS

The approach to Data Integration, when client poses query through query interface, is through qualified input element. This query will be sent on the global schema or mediated schema. The query is transformed into specialized one, original or target database. Then one of the most important issues is mapping between the global schema and the target schema and answering queries that are posed to the global schema. Finally, the user will view the unified format.

From Fig1, Data Integration sounds like a simple idea. Because many organizations store information on multiple databases, they need a way to retrieve data from multiple sources and assemble them in a unified way. Data Integration focuses on information, not files.

4. A NOTE ON TERMINOLOGY

For the purpose of this paper, we have adopted the following terminologies:
Schema: Structure that contains description of objects created by a user, such as base tables, views and constraints, as part of a database.
Mapping: The way the global and source schemata interconnect is called mapping.
Local (source) /target Schema: Structure of the various data sources and the way they relate to one another is the source schema.
Global Schema: Unified view produced from a processed query is the global schema.
Query: A *database query* is a request for information from a database.
Query Interface: The query interface of the Web database usually contains multiple input elements, each of which may be associated with a schema attribute of the backend database.
Wrapper: Wrappers are attached to each data sources, handle data formatting transformation between local data model and the data model in the integration system.

5. DATA INTEGRATION APPROACHES

The problem of combining heterogeneous data sources under a single query interface is not a new one. The merging can be done at several levels in the database [6]. From Fig 2, there are two general approaches to this problem: tightly coupled (materialized view) and loosely coupled (virtual view) integration.

From Fig 3 it can be noted that one popular approach is *Data Warehousing*. It is a well-known example of tightly coupled (materialized) integration. Here data from several sources are extracted, transformed, and loaded into source and can be queried with a single schema. This can be perceived architecturally as a tightly coupled approach because the data reside together in a single repository at query time. Problems with tight coupling can arise with the "freshness" of data, for example, when an original data source is updated but the warehouse still contains the older data and the ETL process needs to be executed again. It is also difficult to construct data warehouses when you only have a query interface to the data sources and no access to the full data.

Loosely Coupled Data Integration

The system does not provide a real integrated view of database but provides many links to other data known as 'cross-reference'. The recent trend in data integration has been to loosen the coupling between data. Here the idea is to provide a uniform query interface over a mediated schema (see figure 4). This query is then transformed into specialized queries over the original databases.

It has to be defined, once and for all, by the database managers of the online portal. This central database schema "talks" to different databases, each are having their own schema interface. The "talking" is achieved by the help of wrappers and matching between the schemas. There are several problems related to DI, but the main ones are:

1. To rewrite the view for the mediated schema whenever a new source is to be integrated.
2. To rewrite the view for the mediated schema whenever an existing source changes its schema.
3. To efficiently execute the query over the various local and remote data sources.

A data integration solution may address this problem. Many schema-matching approaches have already been proposed, all of which aim to minimize human involvement and hence manual labor in this cumbersome yet critical step. We list the most notable ones below:

6. OVERVIEW OF SCHEMA MATCHING APPROACHES

Linguistic Approach

1) Name Based:

Name based approach matches same and similar names. Similarity between names can be defined as follows:

a) Element's name in one schema may be synonym of element's name in other schema. Example "Location" and "Address" are synonyms. Hence this is important information, which can be used to match schemas.

b) Elements name in one schema may be an abbreviation of elements name in other schema. For example, "Customer name" and "Cname" are linguistically different, but still similar.

c) Equity of hypernyms: Hypernyms are defined as more generic forms of the word. For example, book is a publication and article is a publication. This implies book is equivalent to article. Hence similarity in the meaning of two words can be exploited.

d) Similarity of name based on common substrings.

2) Description based:

In some schema description of certain schema element is given in comment. So we can extract information from commented text to match elements of different schema. For example Cname /customer name Vs Customer name can be matched easily by using text in comment.

Constraint Based Approach

Schema often contains constraints to define data types, value ranges, uniqueness, relationship type, etc. If both schemas show these constraints then it can be used in matching. For example, if "Student Number" in schema 1 and "student id" in schema 2 have its data type, then they can be matched. But as

illustrated, if it is used independently then it may lead to mismatching. So it cannot be used independently. It can be used to reduce matching choices.

Instance Level Approach

When we have limited information about schema matching, then use of content of database may play an important role in matching elements of different schemas. Even when substantial schema information is available, the use of instance level can be valuable to uncover incorrect interpretation of schema information. This can help disambiguate between equally plausible schema-level matches by choosing to match the elements whose instances are more similar.

For text elements a linguistic characterization based on information retrieval techniques is the preferred approach, e.g., by extracting keywords and themes based on the relative frequencies of words and combinations of words, etc. For more structured data, such as numerical and string elements, we can apply a *constraint-based characterization*, such as numerical value ranges and averages or character patterns. As an instance, this may allow recognizing phone numbers, zip codes, geographical names, addresses, ISBNs, SSNs, date entries, or money-related entries (e.g., based on currency symbols).

Combining Different Matchers

Matchers based on approaches described above utilize different information and have thus different applicability for a given match task. Therefore, a matcher that uses just one approach is unlikely to achieve as many good match candidates as the one that combines several approaches (Hybrid matcher). Hybrid matchers directly combine several matching approaches to determine match candidates based on multiple criteria or information sources. For example, using name matching with namespaces and thesauri combined with data type compatibility.

7. OBSERVATION

The review of current matching approaches makes it clear - All the current matching methods are not fool-proof. Neither can any

method boast of accurate results. We propose a new orthogonal approach that can be useful independently and also as an additional layer over the existing matchers to improve upon their results.

8. OUR APPROACH

It is important that in the loosely coupled data integration solution system, the view of the mediated schema has to be changed, whenever a target database is added or when an old database modifies itself. Our aim is to develop a new mechanism which fires queries to the data sources, gets the answers to those queries and gives the exact result of the query to fire further queries.

We can process this by designing a universal text file containing some information just like mediated schema, which in no way affects any of the databases. It is useful to note that the information is useful for query processing, but not otherwise. Now, imagine that a new target database is being added to the system. *The information of the text file is fed perfectly to the target database.* But if used to different scopes of the two schemas, some fields may remain empty in the target database or some of the information may not be put in the target database. Now, through the given interface (Java, JSP, PHP, XML etc) provided by the target schema to the mediated schema *we can query the target database, which is already fed with "our" information*. The key task is to *analyze the answers to the queries* and based on the analysis *generate more queries* between the two interfaces. Our aim to work on developing this algorithm, which helps to generate queries, is based on response from the target database and finally find out exact results.

As an example, we have portal that fetches information about tickets/reservation, etc., from different databases. Let us consider what an Airline Industry virtual mediated schema looks like:

Airline No.	Source	Destination	Distance Covered	Departure Time	Arrival Time	Fare
....	....	....	....	....	....	....

Now, the portal wants to add a new database of airlines "SAHARA Inc". New database of this data source is different from our mediated

schema and looks like:

Flight No.	Airline	Source	Destination	Duration of Journey	Departure Time	Arrival Time	Fare
......	......	......	....	....	....	......	...

Actual target database has new field names, but the central server is not able to fetch the field names. It will be done through the given interface (Java, JSP, PHP, XML etc) between the schema. Now, to direct any queries that it receives, the central mediated schema needs to "make sense" of the interface provided to it by the target database. Thus, the central server has to rewrite the queries that it gets so that they make logical sense to target database, which is able to return appropriate results. Hence, it becomes imperative for central server to know what each of the interface fields provided to it mean. To achieve that, it will feed the pre-written universal text file which, in this case, is:

G8-204 leaves from Bangalore at 17:25 PM, covers 2000 km to reach New Delhi at 21:30 PM and cost is Rs. 6324/-.

S2-23 leaves from Bangalore at 07:25 AM, covers 2000 km to reach New Delhi at 10:30 AM and cost is Rs. 5324/-.

We mentioned before that the universal text file is perfectly fed to the target database. It should be mentioned here that universal text file could be in the form of database as well.

Now, we set some parameters (according to the information in universal text file) to the interface provided to us and get back some information from target database. The target database can be considered as a black box which takes in some inputs (parameters of the interface) and returns an output (see fig 6) by running some backend query(which we cannot see) on the target database. So, in a sense, the interface could be seen as a collection of functions, which take in some combination of inputs and return an output.

It should be a point of interest that when we provide the input we have no idea of what the output should be. For example, if one of the interface forms is represented as a function:

$$F(x1, x2, x3, x4 \ldots xn) = (k1, k2, k3 \ldots \ldots km),$$

we don't have any information about x1,x2,x3 etc. (except that they are n in number). By

having a pre-determined input-output relationship (by universal text file), we need to know what function F does. To be more precise, the mediated schema should know what query over itself would behave the same as function F, i.e. they both give same outputs for same set of inputs.

Now, Imagine that an interface form, if we can call it that, asks for two parameters "Source" and "Destination" and returns all the "Flight no." Here are some examples of parameter combinations:

a) We give 9.10 A.M and 11.35 A.M: Because the parameters make no sense to target database, it would return NULL.

b) We give Rs. 2000/- and Rs. 500/-: Because of inconsistencies of the data, we again get NULL.

c) We give "Bangalore" and "New Delhi": We get back S2-23. Now, we know that S2-23 goes from Bangalore to New Delhi; we might infer that this could be "source" and "destination". Then again, as a verification step:

d) We give "Bangalore" and "New Delhi": We get back S2-23, which verifies our guess.

e) We give "Indore" and "Mumbai": We get MTH376.

It is clear to find a pattern in the output of queries and guess the queries, which give that output.

➢ Assumptions

1) The interface form can have fields, which can have other meanings than equality (greater than, less than). In that case, for a deeper analysis of the example, data would be needed or required. Here, to begin with, we assume that all the fields in the forms are equality fields.

2) The back end queries over the target schema can become complex if they include GROUP BY, AVG, COUNT etc. So we assume that the queries involved are simple queries (SELECT, JOIN, WHERE).

3) There would always be some interfaces, which we would not be able to "match" our target with.

At this stage it would be wise to mention the barriers that we expect to face:

1) Once we receive some output (which we should receive in maximum of „P' number of combinations for r inputs), we can always try

out all the combinations of a tuple and get an estimate of the query. The challenge is to optimize this number.

2) Because the example database is universal and we are targeting large class of domains, the size of example database is crucial as well; It needs to be large enough to complete verification for large class of queries in different domains. The size should also be optimized to the best possible.

Although we have taken several assumptions and made the problem easier, the problem still remains a non-trivial one. We believe that our approach is a novel approach which not only opens a new dimension in schema matching, but would also assist the existing matching approaches. If the work done by us takes the database community closer to the solution of query matching problem by even an iota of percent, we would feel gratified.

9. CONCLUSION

This paper has addressed the key challenge to integrate data from multiple information sources. A new orthogonal approach has been used to reduce the schema-matching burden of system builders. A universal text file has been designed, containing some information just like mediated schema, which in no way affects any of the databases. The working of the universal text file has been explained with the help of an example. The file analyzes the answers to the queries and, based on the analysis, generates more queries between the two interfaces. There is an interface, which could be seen as a collection of functions, which takes in some combination of inputs and returns an output.

An algorithm is developed, which helps to generate queries based on response from the target database, and finally finds out exact result.

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Figures & Tables
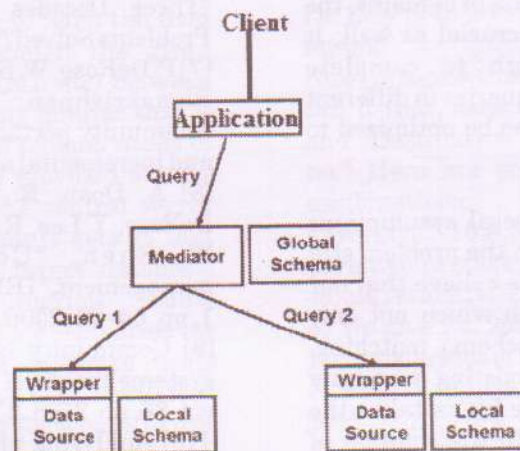
Figure 1: Architecture of Data Integration

Client

Application

Query

Mediator   Global Schema

Query 1   Query 2

Wrapper   Wrapper

Data Source   Local Schema   Data Source   Local Schema

Figure 2: Classification of Data Integration Approaches

Data Integration Approaches

Tightly (Materialized)   Loosely (Virtual)
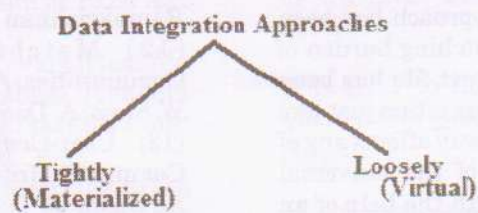
Figure 3: Tightly coupled integration

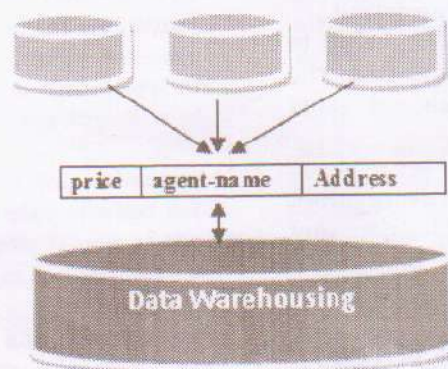price   agent-name   Address

Data Warehousing

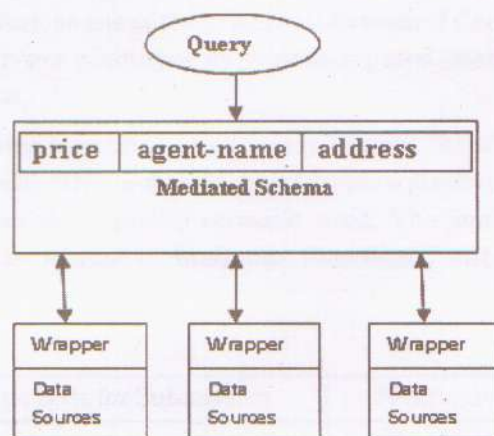**Figure 4: Loosely coupled Integration**

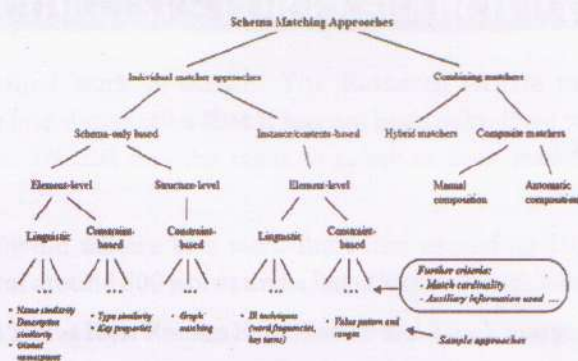**Figure 5: Classification of Schema Matching**

Figure 6: Target Database can be imagined to behave as a black box.

About Author

Prof. Sumit Jain is working as an Assistant Professor at Sanghavi Innovative Acedemy, Indore. His specialization area is computer science and information technology. He is professionally qualified and highly experienced Ph.D. scholar. His total working experience is more than 8 years.

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