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CRIME AGAINST WOMEN – COMPARATIVE ANALYSIS OF ANDHRA PRADESH

Dr. C.Aruna Jyothi
Assistant Professor
Department of Public Administration
Osmania University, Hyderabad.

Abstract

High levels of crime are mainly due to the awareness levels amongst women, followed by more registration of cases. It is further revealed that violence was more reported by the socially and economically deprived sections of the society as compared to women in financially and socially well educated society. Moreover it is a reality that a woman registering a case against her husband or in-laws for domestic violence is thrown out of her house which leaves her no space to fight for her rights. The state governments need to look at various aspects of domestic violence and the aftermath effects of incidence reporting by women which includes providing security, counseling, refuge and information of her rights to lodge a complaint. The state of Andhra Pradesh needs to formulate such policies which can not only strengthen their civil rights but also provide them rehabilitation during the period of case trial so that she is not inflicted to more violence. Kassel city model can be adapted for provided refuge to the victims of domestic violence. It is therefore necessary to strengthen the existing Women Protection Cell with more Women Station House Officers in each district instead of family counseling centers which will assist the victims to register a case in the vicinity of their locality instead of waiting for days to get their cases registered with Women Protection Cell in Hyderabad. It is evident from the data published by Crime in Andhra Pradesh (2011) that Khammam, Guntur and Krishna have higher rate of crime against women committed by known persons and it is therefore necessary for the state agencies to provide them legal assistance in their vicinity.

Introduction

Women are the respected most in India than in any other country or it can be said that women deserved more respect for their work and responsibilities borne by them for the development of society. There are various stories spread among myths and legends about great woman's, their work, bravery, etc. upon which today's society tries to frame a society that respects and honours women for their deeds. But in reality, women are subjected to all forms of violence by men and other women since ancient times and it is increasing year on year. According to Stange, Oyster and Sloan (2011), the crimes that are committed against women in public are

often related to a female's perceived sexualized identity as 'other' or as lesser beings than men. It is further stated that criminal justice systems do not always respond appropriately to crimes against women and this has been challenged by the grass-root groups and feminist academicians. The challenge is in determining how sex and gender interplay with other social variables as well as figuring out the relationship between crimes against women and the objectification of women's bodies. This paper focuses on studying the crime trends pertaining to violence against women and analyse the statistics for crimes against women in Andhra Pradesh as the state has in the recent past taken various drives and initiatives to rehabilitate victims of commercial sexual trafficking.

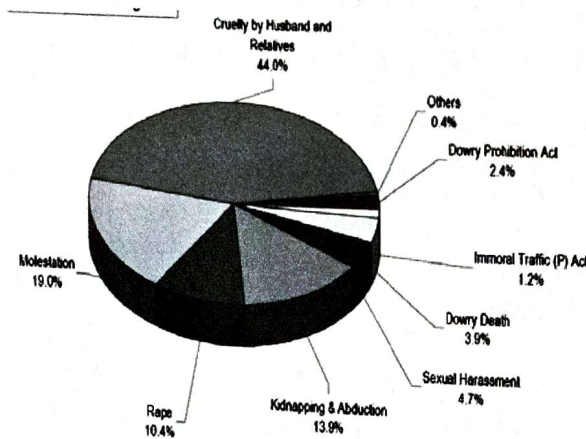
Recognizing Crimes Against Women

Violence against women is the most pervasive yet under-recognised human rights violation in the world and in all societies (Choudhuri, 2008). The World Health Organisation in February 1996 along with a group of international experts on women empowerment agreed to adopt the definition provided by the United Nations General Assembly on violence against women. According to the Declaration on the Elimination of Violence against Women, United Nations Convention in 1993, violence against women is *"any act of gender based violence that results in, or is likely to result in, physical, sexual or mental harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private life"*. This definition clarifies all forms of violence against women i.e. physical, sexual and psychological occurring in the family and in the general community (Choudhuri, 2008). This is one such effort by the world to tackle crime against women while there are various organizations and forums that raise issues of women empowerment now and then to bring about awareness among the general public, particularly women. The Government of India had also declared the year 2001 as women's empowerment year and lot has been done to empower women but there still remains a gap in all those policies which has failed to

bring about decline in the crime rates occurring against women (Kumar and Varghese, 2005).

Figure:1 Domestic Violence – Major head for crime against women

Violent crimes against women in the domestic arena and in wider society appear to be on the increase even though statistics and surveys reveal that



such crimes are on decline. Studies that focus on the perpetrators' motivation suggest that men's violent behaviour towards women is usually characterized as

losing control or flying into blind rage. Women are likely to be attacked by someone they know and this is clarified by the figures published by the National Crime Records Bureau, Government of India, wherein in the year 2010, 44% of the reported crimes against women belonged to "**cruelty by husbands and relatives**" the highest of all crime heads for violence against women. This raises a question regarding the safety of women at home rather than on the streets. The reports mentioned by the NCRB, Government of India reveals that domestic violence i.e. cruelty by husband and relatives; is the major area of focus and policies should be formulated to eliminate domestic violence. According to Choudhuri (2008), domestic violence perpetrated against women by husbands and in-laws, has long been a matter of silent suffering within the four walls of the home and has been regarded as a personal issue and not a crime. However, crimes against women have been recognized as one of the eleven critical areas of concern by the Indian government in its report for the "Fourth World Conference on Women" in 1995 at Beijing.

Various studies on crimes against women indicate that the perpetrators of violence against women are almost men; women are at greatest risk of

violence from known men; women and men are the most frequent victims of domestic violence; physical abuse in intimate relationships is almost always accompanied by severe psychological and verbal abuse; social institutions put in place to protect citizens too often blame or ignore battered women (Choudhuri, 2008). The following figure shows the recurrence of domestic violence in a particular family which tends to continue as a tradition through generations to generations initially starting from marital violence which is later continued by tension building until death.

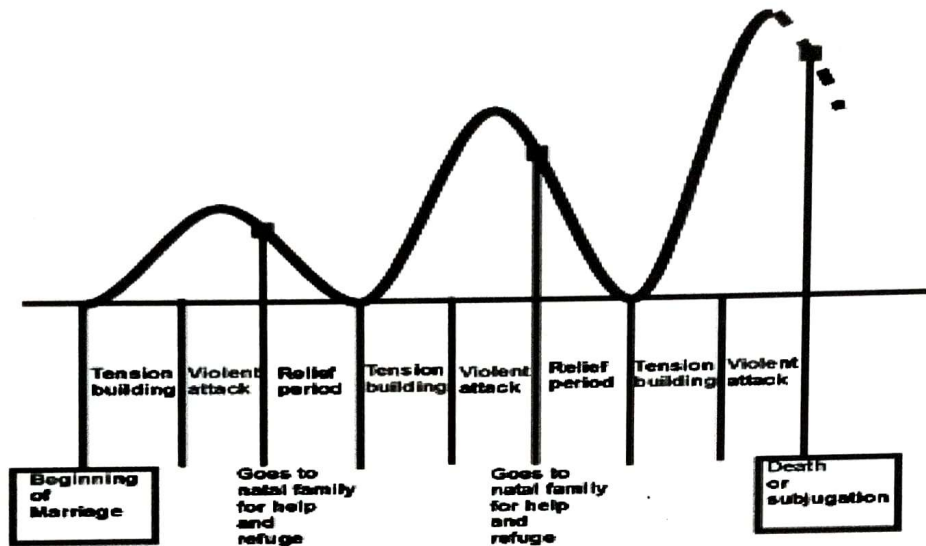


Figure 2: Recurrence of domestic violence

Crime Against Women in India

According to Bharti (2008), a trend of deterioration has been observed relating to issues of crimes against women. It is further mentioned that crimes against women have been increasing faster than the crimes under other heads and conviction rate in the crimes against women is gradually decreasing which reveals a sorry picture of the state of affairs as the cases are not being properly investigated or effectively presented in the court of law. Despite the existence of number of special legislations for providing protection to women, the proportion of crime against women has been increasing. Women continue to be the victims of various types of crimes. Although women may be victims of any of the crimes such as murder, robbery, cheating etc. only the crimes which are directed specifically against

women like rape, kidnapping, sexual harassment, molestation, homicide, and dowry death, torture, atrocities are characterized as crime against women which can broadly be classified into two categories under Indian Penal Code (IPC) and Special and Local Laws (SLL). According to the NCRB (2010) official statistics on Crime in India, it is reported that a total of 2,13,585 incidents of crime against women under both categories were reported as compared to 2,03,804 in 2009, an increase of 4.8%. The rate of crime has increased from 17.4 in 2009 to 18.0 in 2010 wherein Tripura reported highest rate of crime against women at 46.5. According to the following data (Table 1), most of the crime heads such as torture, dowry death, sati prevention act, dowry prohibition act and to an extent, sexual harassment also. It is evident from Figure I above that domestic violence is the major form of crime occurring against women as visualized in Figure 2 (Recurrence of Domestic Violence).

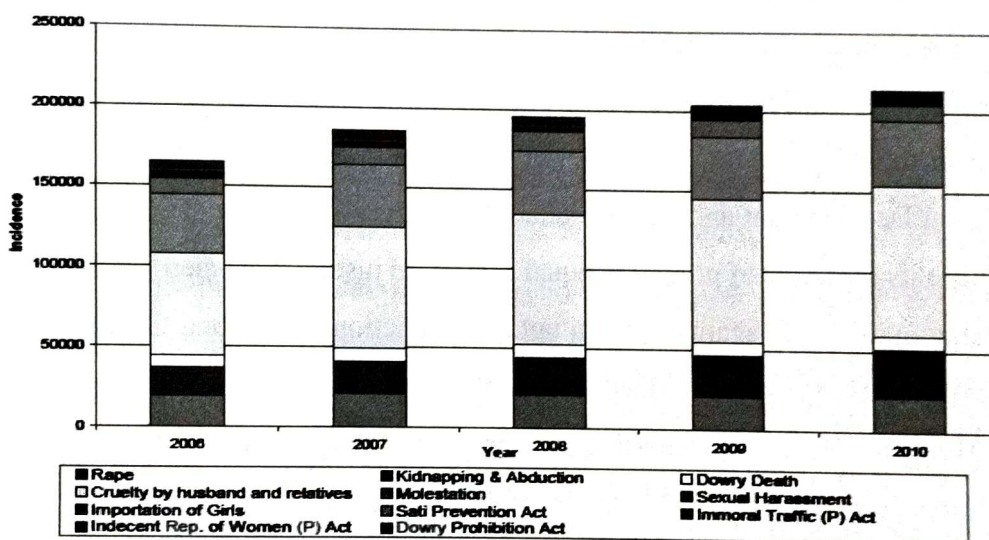
Table: 1 Crime head-wise incidents of crime against women during 2006 - 2010 and percentage variation in 2010 over 2009

Sl. No.	Crime Head	Year					Percentage variation in 2010 over 2009
		2006	2007	2008	2009	2010	
1.	Rape (Sec. 376 IPC)	19,348	20,737	21,467	21,397	22,172	3.6
2.	Kidnapping & Abduction (Sec. 363 to 373 IPC)	17,414	20,416	22,939	25,741	29,795	15.7
3.	Dowry Death (Sec. 302 / 304 IPC)	7,618	8,093	8,172	8,383	8,391	0.1
4.	Torture (Sec. 498-A IPC)	63,128	75,930	81,344	89,546	94,041	5.0
5.	Molestation (Sec. 354 IPC)	36,617	38,734	40,413	38,711	40,613	4.9
6.	Sexual Harassment (Sec. 509 IPC)	9,966	10,950	12,214	11,009	9,961	-9.5
7.	Importation of Girls (Sec. 366-B IPC)	67	61	67	48	36	-25.0

8.	Sati Prevention Act, 1987	0	0	1	0	0	-
9.	Immoral Traffic (Prevention) Act, 1956	4,541	3,568	2,659	2,474	2,499	1.0
10.	Indecent Representation of Women (Prohibition) Act, 1986	1,562	1,200	1,025	845	895	5.9
11.	Dowry Prohibition Act, 1961	4,504	5,623	5,555	5,650	5,182	-8.3
	Total	1,64,765	1,85,312	1,95,856	2,03,804	2,13,585	4.8

(Source: Crime in India (2010) National Crime Records Bureau)

Figure 3: Crime head wise incidence of crime against women during 2006/2010



(Source: Crime in India (2010) National Crime Records Bureau)

Figure 3 above shows the incidence of crime against women for the period 2006-2010 and it is revealed that the crime against women has been increasing gradually and domestic violence i.e. cruelty by husband and relatives seem to hold its place as the major head for crime against women. Though various laws have been enacted and organisations have been created to prevent such crimes, its implementation has been slow in creating awareness about the rights of women and girl child to the general population

which is evident from the increasing trend of crimes against women within the family (Figure 3).

Crime Against Women in Andhra Pradesh

The phenomenal rise in cases of crime against women has been noticed in the recent years which have been attributed to the increasing awareness of women about their rights and willingness to seek legal help in enforcing their rights and also due to increase in population. Still, it is Out of all the cases registered for crimes against women during the year 2010, Andhra Pradesh topped the list with 27,244 cases accounting to 12.8% of total reported cases and ranking first consecutively for the second year. As mentioned above, domestic violence formed the major chunk of cognizable crimes with cruelty by husbands accounting for 12080 cases followed by molestation (4634 cases) and molestation (4562 cases). The Government of Andhra Pradesh has established a Women Protection Cell in Crime Investigation Department that keeps vigil on the entire state through Family Counseling Centres in every district functioning under the control of Women Development and Child Welfare Department. The state has tried to achieve its objective of providing equal rights and justice to women in cases pertaining to crimes against women but the conviction rate among the cases is pathetic as rightly mentioned by Bharti (2008) that cases reported for crime against women is increasing year on year, thanks to the initiatives for bringing awareness among the vulnerable groups; but at the same time, conviction rates are declining gradually which is an area of grave concern and needs to be addressed immediately.

According to Crime in Andhra Pradesh (2011) statistics, 13.61% of total cognizable crime is against women with 23928 cases being registered during 2011 as against 21564 cases in the previous year showing an increase of 11%. Overall Cyberabad ranked first with 1934 cases followed by Hyderabad with 1590 cases. It is important to mention that there was a slight drop in dowry deaths being reported year on year comparison between 2010 and 2011 while dowry murders have increased by 18.8% during the same period. It is further reported that 2959 cases under Dowry

Prohibition Act were reported in the year 2010 and this increased by 29.7% in the year 2011 with 2959 cases being reported under the crime head. The increasing crime trend for violence against women has been found in districts like Khammam, Guntur, Krishna, Warangal and Cyberabad where the year on year variations range between 30 – 60 percent.

The state has brought out various laws and strengthened its infrastructure to deal with these issues and to reduce the crimes against women. The patriarchal mindset, of which violence against is a part, remains a major hurdle in realizing the goal of equality. The crime position of India picturised above is self speaking that such large number of social legislations enacted have been unable to curb down crimes against women. According to Tripathy (2000), agencies which are responsible for maintaining the law and order in society are partly responsible for the failure to control victimization of women in our society. Though the investigating agency shoulders much responsibility to curb down crimes against women, other agencies like Prosecuting Agency, Evidence Supplying Agency, Judiciary and general public cannot escape from their negligence for increase victimization of women (Tripathy, 2000). In order to overcome the technical and legal difficulties, the Andhra Pradesh government proposes to formulate a law on following factors:-

- a. A clear declaration of the basic intent of the law, namely, the object of preventing domestic violence.
- b. A clear and unambiguous statement of the right to be free from domestic violence and the recognition of domestic violence as a violation of the human rights of women.
- c. The definition of domestic violence, which captures women's experience of abuse with some degree of precision.
- d. The definition of the 'shared household' so that rights can be protected within that household.
- e. The relief that can be given to protect women from violence.
- f. The infrastructure available to victims of violence that can make the remedy accessible.
- g. Clarity and simplicity of court procedures.

- h. Monitoring the functioning of the law to see whether it was serving its intended purpose.
- i. Providing a coordinated response to domestic violence by recognizing the role of other agencies such as NGO's, the medical profession, shelter homes and the police in assisting in the prevention of domestic violence

Conclusion

It is understood from the above statistics that the subject of study is a widespread phenomenon and the urban areas are more prone to such offences. According to Mukherjee (2005), such high levels of crime are mainly due to the awareness levels amongst women, followed by more registration of cases. It is further revealed that violence was more reported by the socially and economically deprived sections of the society as compared to women in financially and socially well educated society. Moreover it is a reality that a woman registering a case against her husband or in-laws for domestic violence is thrown out of her house which leaves her no space to fight for her rights. The state governments need to look at various aspects of domestic violence and the aftermath effects of incidence reporting by women which includes providing security, counseling, refuge and information of her rights to lodge a complaint. The state of Andhra Pradesh needs to formulate such policies which can not only strengthen their civil rights but also provide them rehabilitation during the period of case trial so that she is not inflicted to more violence. Kassel city model can be adapted for provided refuge to the victims of domestic violence (Choudhuri, 2008). It is therefore necessary to strengthen the existing Women Protection Cell with more Women Station House Officers in each district instead of family counseling centers which will assist the victims to register a case in the vicinity of their locality instead of waiting for days to get their cases registered with Women Protection Cell in Hyderabad. It is evident from the data published by Crime in Andhra Pradesh (2011) that Khammam, Guntur and Krishna have higher rate of crime against women committed by known persons and it is therefore necessary for the state agencies to provide them legal assistance in their vicinity.

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Corporate Financing in India through FCCB: A Review

Aaishwarya Kulkarni

Assistant Professor

S.P.B.E.M. College of Commerce, Surat, India

Abstract

FCCB is one of the important modes for raising capital in international currency for long duration. The bond has dual characteristic of debt as well as equity. FCCB are regulated in India and issued through automatic and approval route. The paper analyses issue, purpose and redemption of FCCB.

Keywords: FCCB, Issue, Purpose, Redemption

Introduction

Liberalisation of India has paved the way for investment by foreign institutional investors (FIIs) in all types of securities, including corporate debt and government securities in stages and subject to limits. The Indian corporate sector has been allowed to access international capital markets through American Depositary Receipts (ADRs), Global Depositary Receipts (GDRs), and External Commercial Borrowings (include Foreign Currency Convertible Bonds).

A Foreign Currency Convertible Bond (FCCB) is a mix between a debt and equity instrument issued in a currency different than the issuer's domestic currency. It acts like a bond by providing regular coupon and principal payments, but at the same time gives bondholders the option to convert the bond into stock at a future date.

FCCB is expected to gain from buoyant stock market over the next few years and a stronger local currency; these funds are cheaper compared to local borrowings due to high borrowing cost in local markets. Capital formation routed through FCCBs has remained one of the important sources of financing on account of its dual characteristics of a bond as well as equity and its simplified process. FCCB has remained in news, earlier as an instrument to raise capital from international market, and presently due to rising pressure of its redemption.

FCCB policy declared by Reserve Bank of India (also called as ECB policy) focuses on various aspects which include the eligibility criteria for accessing external financial markets, total amount of borrowings to be raised and its maturity structure and end use of the funds raised.

Present paper reviews the concept, mechanism and scenario of FCCB in India.

FCCB-An Understanding

RBI defines Foreign Currency Convertible Bonds (FCCBs) as bonds issued by an Indian company, expressed in foreign currency, and the principal and interest in respect of which is payable in foreign currency. (RBI, Master Circular-2009)

According to the 'Foreign Currency Convertible Bonds and Ordinary Shares Scheme, 1993', bonds are required to be subscribed by a non-resident in foreign currency and convertible into ordinary shares of the issuing company, either in whole, or in part, on the basis of any equity related warrants attached to debt instruments. FCCBs are also known as Foreign Currency Convertible Notes (FCCN).

Therefore it can be said that FCCBs are basically debt instruments with an option of being converted to equity. It has a call option that allows the issuer to make an early redemption and a put option which allows the lender to convert FCCB into equity, at pre-decided conversion price. Conditions can be put in regard to repayment of redemption in form of cash only, or a combination of cash, common stock, or subordinated debt.

Two basic risk factors are associated with these convertible bonds, namely interest rate risk and exchange rate risk, which did not fall in line with the expectations of the corporates.

Mechanism for FCCB

FCCBs can be accessed in India through automatic route and approval route. Major regulators governing the FCCBs in India are Exchange Control Department of RBI and FCCB Division in Department of Economic Affairs at Ministry of Finance. SEBI, FEMA, Stock Exchanges and Company Law also govern FCCBs. FCCB policy aims at keeping maturities long, costs low and encourages infrastructure and export sector financing so as to ensure overall growth of the economy.

Table 1: Mechanism for FCCB

Automatic Route	Approval Route
Eligible Issuers:	
Corporates except financial intermediaries, SEZs, NGOs engages in microfinance activities, Microfinance Institutions (MFIs)	EXIM Bank, banks and financial institutions which had participated in the textile or steel sector restructuring package, IFCs, NBFCs to finance import of infrastructure equipment, Housing Finance Companies satisfying a minimum criteria, Multi-State Co-operative Societies engaged in manufacturing activity, SEZ developers for providing infrastructure facilities within SEZs
Eligible Borrowers	
Companies except financial intermediaries	Infrastructure or export finance companies such as IDFC, IL&FS, Power Finance Corporation, IRCON, Power

Units in Special Economic Zones (SEZ) NGOs engaged in micro finance activities A research report on Foreign Currency Convertible Bond by Indian Companies	trading corporation and EXIM bank Banks and financial institutions which participated in the textile or steel restructuring package NBFCs to finance import of infrastructure equipment for leasing Multistate Co-operative society engaged in manufacturing activities Housing Finance Companies which satisfies the following conditions:- - Minimum net worth of not less than Rs. 500 Crores during the past 3 years - Listing on the BSE or NSE - Minimum size of FCCB is USD 100 million - Applicant should submit the purpose / plan of utilization of funds
Recognised Lenders:	
International banks, international capital markets, multilateral financial institutions such as IFC, ADB, CDC, etc., export credit agencies, suppliers of equipment, foreign collaborators, foreign equity holders Overseas organizations and individuals with a certificate of due diligence from overseas bank adhering to host country regulations (applicable only under the automatic route).	
Amount:	
US \$ 750 mn - Corporates other than	beyond US \$ 750 mn per

services sector US \$ 200 mn - Services sector (Hotels, hospitals, software sector) US \$ 10 mn - NGO	financial year - Corporates other than services sector beyond US \$ 200 mn - Services sector (Hotels, hospitals, software sector) avail FCCBs in Renminbi (RMB) upto US \$ 1 bn - Infrastructure companies
Maturity	
Up to US \$ 20 million – 3 years Between 20 to 750 million – 5 years	Average ten years
All-in-cost ceiling	
years - 300 bp over six-month LIBOR > 5 years - 500 bp over six-month LIBOR	
Permitted End-use	
- For import of capital goods (as classified by DGFT in the Foreign Trade Policy), new projects, modernisation/expansion of existing production units in real sector - industrial sector including small and medium enterprises (SME), infrastructure sector and specified service sectors - Overseas Direct Investment in Joint Ventures (JV)/ Wholly Owned Subsidiaries (WOS) - For first stage acquisition of shares in the disinvestment process and also in the mandatory second stage offer to the public under the Government's disinvestment programme of PSU shares	
Non-permitted End-use	
- on-lending or investment in capital markets - investment in real estate sector - for working capital requirements, general corporate purpose or repayment of existing rupee loans	

Accounting Framework for FCCB

As there was no accounting standard on FCCB, corporates used IAS 29 along with section 78 of Company law 1956 for accounting for FCCB redemption to arrive at an approach to account for redemption premium. Companies either reduce redemption premium from their share premium

reserves (separately reporting it as 'other liabilities'), or treat it as a contingent liability. Indian Accounting Standard 31 requires classify FCCB as equity and debt from 30th April 2011.

The accounting practice in regard to FCCBs is a vague area. Currently, the interest cost, i.e. the coupon payment is not accounted in the profit and loss statement of the company. Accounting for redemption value is also not clear. Companies either report it in the profit and loss statement or securities premium account. Some companies treat it as contingent liabilities. The ambiguous reporting of FCCBs result in under-reporting of true debt-raising cost and overstated profit figures in the financial statements of the company. International Financial Reporting Standards (IFRS) and US Generally Accepted Accounting Practices (GAAP) state that proportionate redemption premium of FCCB is to be charged to P& L Account.

Current Scenario of FCCB

During the years 2007 to 2011, several big Indian corporates opted to raise capital through FCCBs. The stock markets were bullish in 2007 and so the issuers set the conversion prices (the price at which the FCCB can be converted into equity shares) at a high level with the expectation of sustained performance in stock markets and positive economic growth. The scenario for FCCB changed after the global recession in 2008.

Issue of FCCB

FCCB has remained a popular option for raising the capital in international currency. Following table shows trend of issue of FCCBs since 2007.

Table 2: Issue of FCCBs (USD Million)

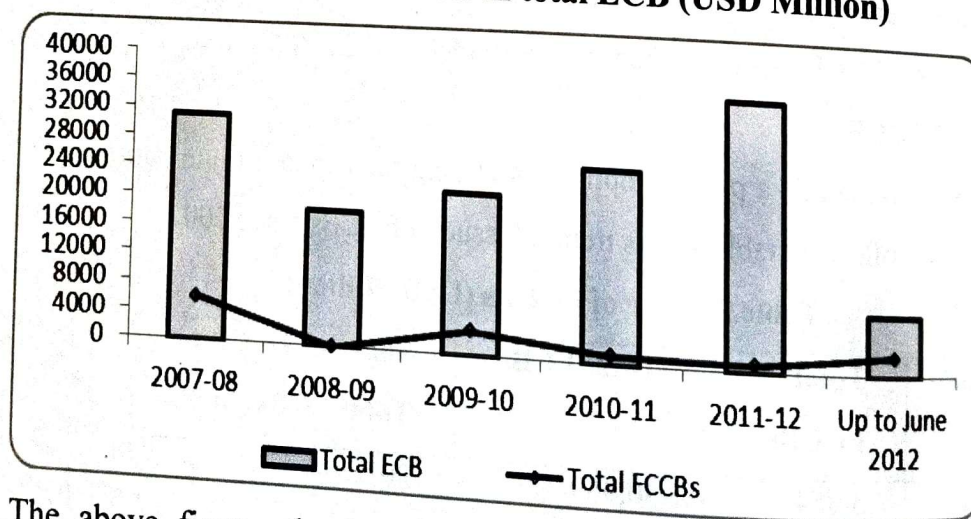
Year	Total FCCBs	Total ECB	Share of FCCB to Total ECBs (in %)
2007-08	5,854	30,959	20
2008-09	27	18,362	1

2009-10	3,274	21,678	15
2010-11	1,270	25,776	5
2011-12	1,067	35,966	3
Up to June 2012	2,611	8,098	3

Source: RBI Data

Share of FCCB issued was high in 2007-08 i.e. FCCB accounted for twenty percent of total ECB issued. Recession led to sudden fall in share of FCCB in 2008-09 to one percent. Share of FCCB increased in 2009-10 to fifteen percent as the Indian economy showed healthy trends. Global Volatility was again witnessed in 2010-11 and 2011-12 which affected share of FCCB issued and the share declined to five and three percent respectively. Up to June 2012 three FCCB were issued.

Figure 1: Share of FCCB in total ECB (USD Million)



The above figure clearly shows that share of FCCB in ECB is showing fluctuating trend. Effect of global recession and global volatility is shown in the years 2008-09 and 2010-11 respectively.

Purpose of FCCB

Following table shows purpose of FCCB issued since 2007 to June 2012. FCCB are issued for overseas acquisition, modernization, new projects, import of capital goods, rupee expenditure, refinancing, expansion and FCCB Buyback.

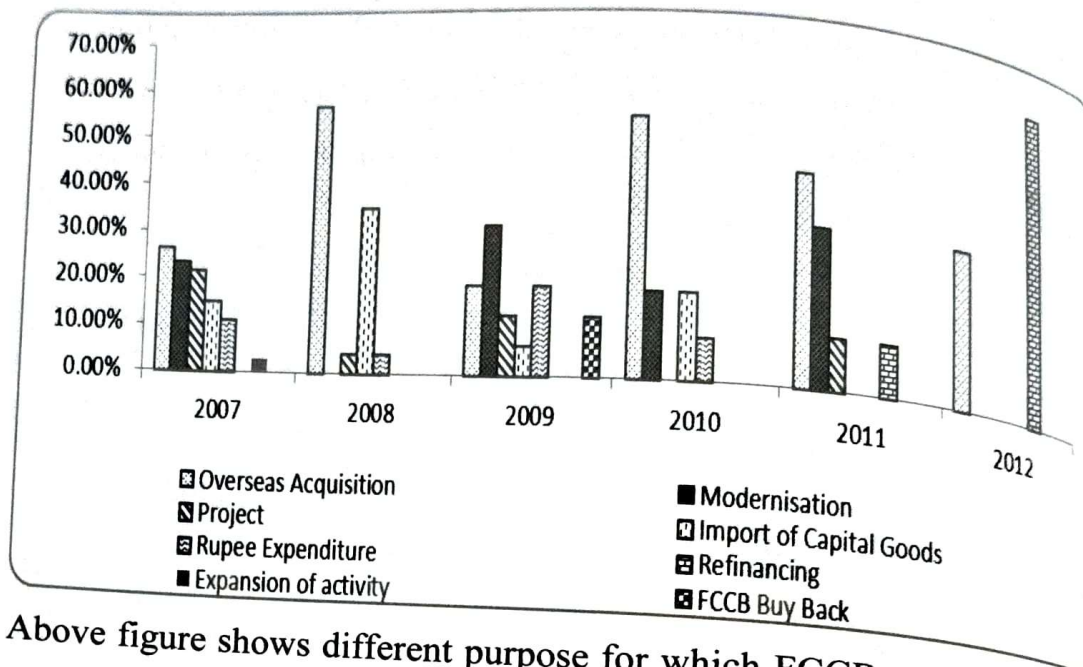
Table-3: Purpose for issue of FCCB

	2007	2008	2009	2010	2011	2012
Overseas Acquisition	26.17%	56.52%	18.75 %	54.55 %	44.44 %	33.33 %
Modernisation	23.36%	nil	31.25 %	18.18 %	33.33 %	nil
New Projects	21.50%	4.35%	12.50 %	nil	11.11 %	nil
Import of Capital Goods	14.95%	34.78%	6.25%	18.18 %	nil	nil
Rupee Expenditure	11.21%	4.35%	18.75 %	9.09%	nil	nil
Refinancing	Nil	nil	nil	nil	11.11 %	66.67 %
Expansion of activity	2.80%	nil	nil	nil	nil	nil

Source: Compiled from RBI Data

Above table shows that overseas acquisition has remained most sought after purpose for issue of FCCB followed by modernisation. FCCB have been issued for overseas acquisition in every year since 2007. It also can be observed that Refinancing is the purpose for FCCB since 2011.

Figure 2: Purpose for issue of FCCB



Above figure shows different purpose for which FCCB are issued. In boom period, FCCB are issued for more number of reasons compared to volatile period. Out of the three FCCBs issued since April 2012, two are for refinancing and one for overseas acquisition.

Redemption of FCCB

Following table shows redemption schedule of FCCBs. Since the year 2010-11, large amount of FCCBs are due for redemption. Following data of six years shows that highest amount of FCCBs are due for redemption in 2012-13.

Table-4: FCCB redemption profile

Year	FCCB Due for Redemption (USD in Million)
2010-11	1169.24
2011-12	3622.70
2012-13	3757.74
2013-14	828.11
2014-15	2451.85
2015-16	482.50

Source: RBI Data

The RBI has noted that companies raising foreign funds are not fully providing for those. In addition, corporate entities that raise long-term fixed-rate foreign currency funds expect the investor will exercise the option embedded in FCCBs and convert it into equity (June 28, 2012).

While the attraction of FCCBs is the lower interest in foreign markets, the woes of the companies have aggravated due to the weakening of the rupee. If the rupee depreciates, the conversion thresholds increase, or the cost of debt goes up. Also Over-leveraging of companies makes reasonable refinancing of loans difficult.

RBI has taken steps to smoothen the process of redemption of FCCB. The Reserve Bank of India has extended the time limit for buyback of foreign currency convertible bonds (FCCB) issued by Indian companies up to March 31, 2012, at discounted rates (June 30, RBI).

The discount rates have been decreased from 15 to eight per cent for premature buyback under the automatic route and from 25 per cent to 20 per cent under the approval route. "A decrease in discount rates will entail higher cash outflow for Indian companies," said the Head of Research of an Indian brokerage. "But there would be higher demand for Indian FCCBs going forward as quality of Indian assets on offer would be enhanced with the said decrease in discount rates."

Crisil had warned that the continuing fall in the equity markets will put tremendous pressure on India Inc to redeem their FCCBs worth around Rs 24,000 crore. (May 2011, www.crisil.com) Recently, the RBI had cautioned that corporates, which raised funds through FCCB, would face problems as holders may not opt for conversion of bonds into equity because of low market value of shares.

Indian private equity (PE) players, unable to find right deals in the current economic environment and having liquid funds, are finding a new way to tap the stock market through foreign currency convertible bond (FCCB)

redemption. Education service provider Educomp Solutions Ltd.'s raised funds from stock market to repay its FCCB redemption. Educomp has raised \$155 million from existing investors such as IFC and Mount Kellet.

After the problems faced by companies like Suzlon, Tata Motors and others due to underperformance at stock markets, FCCB is being more preferred as debt instrument compared to future equity conversion instrument. Foreign investors investing in FCCB now prefer regular interest on bonds, rather than the prospect of profits on conversion to shares a few years down the road due to volatility of stock witnessed during last four years.

A review of FCCB issues shows that buyers of these bonds now insist on conversion prices that are closer to prevailing market prices, than pre-crisis period. More of these bonds also carry annual interest payments, compared to the practice of issuing zero coupon bonds earlier.

Conclusion

Corporates have been using the FCCB as a major finance-raising tool for meeting its capital requirement at competitive rates. FCCBs are affected market fluctuations. The present regulatory regime supports issue of FCCB and relaxes and revises the norms for their smooth performance. Corporates should approach FCCB through more conservative terms and account for their liability of interest and redemption in books of accounts.

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CAPM: "A Roadmap to Develop a Portfolio from National Stock Exchange"

Jay R. Joshi
Assistant Professor
Anand Institute of Management

Abstract

The study focuses on the most largely used Capital Assets pricing Model (CAPM) for making the investment decisions on National Stock Exchange. Using capital asset pricing model the study tries to find whether stocks on national stock exchange are overvalued, properly valued or under valued. The research also concern with the performance evaluation of securities from National stock exchange from selected stock. A narrative path of constructing portfolios with the help of expected return & actual return on selected securities of National stock exchange. It also measures the sensitivity of individual stocks with respect to the market movement. The study expected to be useful to institutional buyers, portfolio managers, mutual fund associates & retail investors.

Key Words: Portfolio, Risk & Return, National stock exchange, Assets, Expected return, Valuation.

Introduction

There are a huge numbers of investment vehicles for servers in India. Some of them are highly liquid while some are fixed kind of securities. The objective of investment should be dependent on individual investors and also focus on the risk bearing limits of individual investors. Investment is a very large decision for individual investors those who are generated a fixed income from employments. Based on the preferred risk, return and liquidity, each investor should select investments that match with his/her investment objectives. The investment pattern of the household sector in India gives a glimpse of the investment preference. The saving pattern of the household sector in India can be differentiated in terms of fixed income securities and floated securities. Investment decision is very difficult and if it is not well planed there is a chance of loss occurring during a certain time period. Investment strategies should concern with the portfolio development. The portfolio development theory was developed by Harry Markowitz in 1952,

which derived the relationship between risk and expected return. It is often called inventor of modern portfolio theory. This theory focuses on the minimum level of risk with higher expected return. In 1952, Roy defined the mean variance efficient portfolio. After that the era of invention in portfolio theories was initiated, and most widely used Capital Asset pricing Model (CAPM) was established by Sharpe, Linter & Black in 1972. It is a single factor model defining the return oriented process.

The Capital Asset pricing Model is very helpful to discover investment pattern with respect to the objectives of individual investors. Practical application of CAPM gives the actual result concern with the investment objectives. The model shows the required rate of return with lower level of risk.

Framework of the Paper

The paper is divided into four parts. Part I contains introduction to the principles and related literature review. Part II contains problem statement & objectives of the study. Part III focuses on the adopted methodology for analysis. Part IV contains finding & conclusions.

Literature Review

Portfolio management is very important thing for an investor. There are several models available for constructing a portfolio. One of the models based on risky securities was developed by Harry Markowitz (1952). According to this model, it's possible to construct an "efficient frontier" of optimal portfolios offering the maximum possible expected return for a given level of risk.

Based on this Markowitz's model, CAPM was developed. In this model, many empirical tests were conducted using proxies for the different variables. Several of these showed that the CAPM didn't hold in many situations and was often inaccurate or unsuitable in predicting asset values.

In 1977, Richard Roll asserted that the CAPM holds theoretically but is hard to test empirically, since stock indexes and other measures of the market are

poor proxies for the CAPM variables. This came to be known as Roll's critique.

The biggest assault on the CAPM came from French and Fama (1984). Using a large sample of cross-sectional stock data including many small-cap stocks and stocks with large book values, they analyzed the accuracy of the CAPM and looked for other factors that explained stock prices (besides systematic risk). Authors found that while the CAPM's measure of systematic risk was unreliable, firm size and book to market value ratios were more dependable. Even so, French and Fama's findings have encountered a great deal of criticism. For example, using better econometric techniques might lead to better results for the CAPM. Just as Roll stated, the CAPM also has many values for which proxies must be found, and the proxies are often inadequate. It is easiest to test the CAPM ex post; although it would be better if an ex ante trial could be realized. Similarly, data mining can lead to conclusions that have no theoretical base.

The foundations for the development of asset pricing models were laid by Markowitz (1952) and Tobin (1958). Early theories suggested that the risk of an individual security is the standard deviation of its returns – a measure of return volatility

Campbell and Hentschel (1992) and Glosten, Jagannathan, and Runkle (1993) had analyzed the relationship between the volatility of the market and the expected return on the market. The relationship between the aggregate volatility and the cross section of expected stock returns have received less attention.

Problem Statement

During last year (April-2010 to March- 2011), market is fluctuating with large variations. The majority of the scripts were highly volatile and investors were unable to take their investment decisions. The lower valuation of stock is concern with the investors' investments in undervalued or properly valued stocks. The current research tries to evaluate & solve the problem of the individual investors and define the investment strategies for them.

Objectives

Objectives of the study are as under:

1. To maximize the return with a lower level of risk and have a better opportunity of investments.
2. To identify the scripts actual annual return.
3. To identify the overvalued scripts, undervalued scripts & properly valued scripts

Methodology:

Capital Assets Pricing Model:

Capital Asset Pricing Model derived from economic theory by Sharpe in

1964 was used for the study. The model is presented as under:

$$R_X = R_f + B_X (R_m - R_f)$$

Where, R_X = expected return of security

B_X = measures of systematic risk

of assets X relative to the market portfolio

R_f = riskfree rate of return (T

bills)

$(R_m - R_f)$ = risk premium

The capital assets pricing model asserts that the selection of portfolio will depend upon the risk free rate and the market return. The capital assets pricing model consists of a capital market line & security market line. The capital market line relates expected return & risk for the portfolio of securities. The security market line relates the expected return & risk of individual securities. On the basis of the above model overvalued, undervalued and properly valued securities can be identified.

Data

The data were collected from National stock exchange selected scripts for the year (April-2010 to March-2011) have been used for the calculating expected return & estimated return. National stock exchange was taken as a proxy for the market index. The risk free rate of return is taken as the 182 days Treasury bill rate of Reserve bank of India (18%).

Development of Portfolio

The portfolio is constructed on the basis of the National stock exchange selected stocks with respect to the annual return containing with the volatile of the market & securities

Analysis and Finding

According to the capital asset pricing model it was found that half of the stocks for the time duration of April-2010 to March- 2011 were over valued/highly over valued out of selected 34 stocks from National stock exchange. 10 stocks were found to be properly valued & 4 stocks were undervalued/highly under valued (see Table - I). By investment in undervalued stocks, investors can expect to earn returns in a long horizon. If investors have already invested their funds in properly valued stock then they should hold on the investment for certain identical time period. 20 scripts which are a part of NSE (National stock exchange) were found to be overvalued and hence should be sold.

Table – I: Valuations of selected stocks from NSE

<i>Company Name</i>	<i>Beta</i>	<i>Estimated Rate of Return</i>	<i>CAPM Return (%)</i>	<i>Nature *</i>
AMBUJA CEMENTS LTD.	0.66	17.24%	17.4984	P.V
ALOK INDUSTRI ES LTD.	1.53	13.05%	10.4262	O.V
BINANI CEMENT LTD.	0.90	15.63%	15.8600	P.V
COAL INDIA LTD.	0.89	24.30%	23.6070	P.V
DABUR INDIA LTD.	0.33	46.29%	46.2900	H. O.V
HINDALC O INDUSTRI ES LTD.	0.67	7.19%	10.7573	U.V

HERO MOTOCO RP LTD	0.67	65.21%	49.6307	H.O.V
CAIRN INDIA LTD.	0.38	-0.66%	10.9092	H.U.V
MARUTI SUZUKI INDIA LTD.	1.65	16.50%	15.5250	O.V
PETRONET LNG LTD.	0.79	23.11%	22.0369	O.V
SHIPPING CORPORATION OF INDIA LTD.	1.25	7.91 %	05.3875	O.V
HINDALCO INDUSTRIES LTD	1.51	7.19%	01.6769	H.O.V
HINDUSTAN UNILEVER LTD.	0.30	87.57%	38.8710	H.O.V
HOUSING DEVELOPMENT FIN. CORPN. LTD	1.06	28.13%	28.7300	P.V
ICICI BANK LTD.	1.51	9.35 %	04.9385	H.O.V
INFOSYS TECHNOLOGIES LTD.	0.58	26.29%	22.8000	O.V
ITC LTD.	0.34	31.36%	22.5424	H.O.V
JAIPRAKASH ASSOCIATES LIMITED	1.93	12.70 %	07.7710	O.V
JINDAL STEEL & POWERS LTD.	1.76	23.76%	28.1376	U.V
LARSEN	1.47	18.44 %	18.6400	P.V

& TOUBRO LTD.				
MAHIND RA & MAHIND RA LTD	1.01	25.92 %	25.9900	P.V
MARUTI SUZUKI INDIA LIMITED	0.79	16.05%	16.4500	P.V
NTPC LTD.	0.69	13.31%	14.7600	U.V
ONGC CORPN	0.95	19.56 %	19.4800	P.V
RELIANC E COMMUN ICATIONS LTD.	1.55	-1.57%	-11.6721	H.O.V
RELIANC E INDUSTRI ES LTD.	1.06	13.88%	13.6328	P.V
RELIANC E INFRAST RUCTURE LTD	2.04	6.11 %	-06.2556	H.O.V
STATE BANK OF INDIA	1.18	12.71 %	11.7578	O.V
STERLITE INDUSTRI ES.	1.60	6.11%	-01.0240	H.O.V
TATA CONSULT ANCY SERVICES LIMITED	0.69	38.80%	32.3250	O.V
TATA MOTORS LTD.	1.49	9.06 %	04.6794	O.V
TATA POWER CO. LTD.	1.14	8.37%	07.0218	O.V
TATA STEEL LIMITED.	1.84	14.22 %	11.0440	O.V
WIPRO LTD.	0.90	20.41 %	20.4100	P.V

(Source: own research work)

* **P.V** – properly valued, **O.V**- over valued, **U.V**- under valued, **H.O.V**- highly over valued, **H.U.V**- highly under valued

The above table indicates the clear picture of the valuation of selected stocks from the NSE (National stock exchange) as per CAPM model. From these it was found that 32.35% stocks were overvalued where 26.47% stocks were highly over valued, 29.41% stocks were properly valued and 8.82% stocks were undervalued where 2.94% stocks (only one security) was highly under valued. It was also noticeable that higher the beta value or estimated return of the stock is overvalued that indicates risk associated with the stock is higher and already generated high returns, while undervalued stocks constantly performed in the specific positive manner.

Conclusions

From the analyses of the NSE (National stock exchange) selected stocks, it was found that most of the securities for the time duration of April-2010 to March- 2011 on NSE were overvalued/highly over valued. Out of 34 stocks, only 10 stocks were found to be properly valued & 20 stocks were overvalued/highly over valued .Overvalued stocks are having high betas & already reach the pick level of return. Three stocks are having higher betas generate with a steady & constant return. Form these, it is advisable for the individual investor to invest their funds in stocks with higher betas and properly valued stocks. It obviously gives higher expected return in future. Therefore from the selected stocks for this study, the preference should be given to Housing development finance corporation Ltd, L & T Ltd and M & M Ltd stocks.

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A Study of Risk and Return of Different Sectors during different Phases of Stock Market during 2007-2009 in India.

Mrunal Joshi
Assistant Professor,
B.R.C.M. College of Business Administration,
Surat, Gujarat

Abstract

Stock market is ever green field for Investment and provides one of the lucrative alternatives of investment. But it is very difficult to select companies for investment as there are number of companies listed in different stock exchanges. In this paper attempt has been made to categorise different stocks on the basis of different sectors and study those on the basis of performance of different Indices of Bombay stock Exchange related to stocks of different sectors i.e. METAL, BSEHC, BSECD, OILGAS, BSEIT, BSEFMCG, AUTO, BANKEX, POWER, REALITY. In this study daily value of selected Indices from January 2007 to December 2009 has been calculated and used. In this study it has been found that there is no major difference in risk and return of different sectors, but there is significant difference in risk and return of same sector in different phases of stock market i.e. bearish trend, consolidation Period and bullish trend.

Introduction

In today's dynamic environment when environmental factors are continuously changing at global level it is very important for all organizations and even an individual to get adjusted with them. All these dynamic factors are also responsible to affect economical aspect of the nation, organizations and individuals too. For individual it is very important to take Investment decision for continuous rise in his economical wealth. When one is investing his personal savings it is very important to consider inflation rate to measure the real rate of return (actual return minus inflation rate). There are number of investment avenues to invest. Some of these investment avenues are bank deposits, post office schemes, company FDs, PPF, bonds, equity shares, mutual funds, real estate, precious Metals etc.

Out of these entire range of alternatives, equity share are representative of growth of different companies and industries in Indian economy. Equity share are operated through primary market (new Issue market) and secondary market (stocks Exchanges). To invest in equity share market there are number of companies, mutual funds and derivatives through which we can invest. But investment decision is not easy, as it is difficult to screen all possible ways to invest in stock market. Shares in the stock market can be categorized on various bases viz. type of business (industry), turnover, value etc. Each type of category of shares does not perform in similar manner, specifically during different phases of stock market. In this paper different stocks of different industries were study for their risk and return. Different sectoral indices introduced by stock exchanges properly represent all these different stock from different industries.

Bombay Stock Exchange and its Sectoral Indices

Bombay stock Exchange (BSE) is the largest stock exchange in India in terms of highest number of companies listed with the stock exchange. If you consider the market capitalization of the companies listed with BSE even then the stock exchange is the largest in the country. BSE has established number of indices, which indicates performance of overall stock market or specific stocks related to those indices.

In 1986 BSE came out with Index called SENSEX – Sensitivity Index. SENSEX is a basket of 30 constituent stocks representing a sample of large, liquid and representative companies. The base year of SENSEX is 1978-79 and the base value is 100.

Sectoral indices of BSE and their companies

Companies in BSE Healthcare Index	BSE Capital Goods Index	BSE CD (Consumer Durables) Index
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Apollo Hospitals Enterprise Ltd	ABB Ltd	Bajaj Electricals Ltd
Aurobindo Pharma Ltd	AIA Engineering Ltd	Blue Star Ltd
Biocon Ltd	Alstom T&D India Ltd	Gitanjali Gems Ltd
Cadila Healthcare Ltd	BEML Ltd	Rajesh Exports Ltd
Cipla Ltd	Bharat Electronics Ltd	Titan Industries Ltd
Divis Laboratories Ltd	Bharat Heavy Electricals Ltd	V I P Industries Ltd
Dr Reddys Laboratories Ltd	Crompton Greaves Ltd	Videocon Industries Ltd
Glaxosmithkline Pharma Ltd	Gammon India Ltd	Whirlpool of India Ltd
Glenmark Pharmaceuticals Ltd	Havells India Ltd	
Ipca Laboratories Ltd	Jyoti Structures Ltd	
Lupin Ltd	Lakshmi Machine Works Ltd	
Opto Circuits (India) Ltd	Larsen & Toubro Ltd	
Orchid Chemicals & Pharmaceuticals Ltd	Praj Industries Ltd	
Piramal Healthcare	Punj Lloyd Ltd	

Ltd		
Ranbaxy Laboratories Ltd	Reliance Industrial Infrastructure Ltd	
Sun Pharmaceuticals Industries Ltd	Siemens Ltd	
	Suzlon Energy Ltd	
	Thermax Ltd	
	Usha Martin Ltd	
BSE FMCG Index	BSE FMCG Index	BSE IT (Information Technology) Index
Colgate-Palmolive (India) Ltd	Britannia Industries Ltd.	Financial Technologies (India) Ltd
Dabur India Ltd	Colgate Palmolive (India) Ltd.	HCL Technologies Ltd
Godrej Consumer Products Ltd	Dabur India Ltd.	Infosys Ltd
Hindustan Unilever Ltd	Godrej Consumer Products	Mphasis Ltd
ITC Ltd	Hindustan Unilever Ltd.	Oracle Financial Services Software Ltd
McLeod Russel India Ltd	ITC Ltd.	Patni Computer Systems Ltd
Nestle India Ltd	Marico Limited.	Rolta India Ltd
Ruchi Soya Industries Ltd	Nestle India Ltd.	Tata Consultancy Services Ltd

Tata Global Beverages Ltd	Ruchi Soya Industries Ltd.	Tech Mahindra Ltd
United Spirits Ltd	Tata Tea Ltd.	Wipro Ltd
	United Breweries Ltd	
	United Spirits Ltd.	

Return

Return is yield plus capital appreciation, if any. The difference between the purchase price and the sale price is capital appreciation and yield is the interest or dividend divided by its purchase price. There are two concepts of return one is actual return and other is expected return. Actual return can be calculated only after realization of return. Expected return is average rate of return. In calculation of average rate of return there are different concept like arithmetical mean and geographical mean. I have used arithmetical mean. Calculation of arithmetical mean is as follow.

$$\text{Expected return} = \text{arithmetical mean} = \frac{\sum x_i}{n}$$

Where, $\sum x_i$ = summation of return (x_i) of all individual period

n = number of observations for which return has been measured

Volatility/Risk

Risk is the potential that a chosen action or activity (including the choice of inaction) will lead to a loss (an undesirable outcome). The notion implies that a choice having an influence on the outcome exists (or existed). Potential losses themselves may also be called "risks".

In finance, risk is the probability that an investment's actual return will be different than expected. This includes the possibility of losing

some or all of the original investment. In a view advocated by Damodaran, risk includes not only "downside risk" but also "upside risk" (returns that exceed expectations). Some regard a calculation of the standard deviation of the historical returns or average returns of a specific investment.

Risk or volatility can be measured through standard deviation or co-efficient of variance. When observations are in absolute term standard deviation is not much useful, than co-efficient of variance should be used. In this research observation is daily return percentage hence standard deviation is used to measure risk or volatility of return. Formula for standard deviation is

$$\sigma = \sqrt{\frac{\sum (x - \bar{x})^2}{n}}$$

Literature Review

Schwert (1988) has also used standard deviation to measure risk. He had shown that the standard deviation of both stock returns and industrial production growth are higher during recessions than during expansions.

Schwert William G. (1990) has used daily return for his study. He had focused on the effect of the 20 percent drop in stock prices on the volatility of stock market return. He had analysed the behavior of daily returns before and after the 1987 crash was unusual relative to the experience of over 100 years of daily data. While the 1987 crash was the largest one day percentage change in prices in over 29000 observations, it was unusual in that stock market volatility returned to low pre-crash levels quickly.

Ahmed Gauher and Syed Abdul Malik (2009), he had stated in his study that according to the Indian establishments, India is not going to be much touched by the crisis if growth rate of some 8 to 9 percent is

going to hold good. But according to the first or preliminary symptoms, the Indian Economy is also going to be hit by the crisis, as already there is a crisis of liquidity in the economy and the estimates of the growth rates are also being lowered.

Kawai (2008), Sub-prime story: Bubble burst in 2008, collapse of the financial system of US, affected global level.

Ravishankar B. and Mahesh Rajgopal (2009), has described several stages of financial crises in US in following way:

1. Initial subprime crisis (June/July 2007)
2. Spillovers into other credit markets (July/August 2007)
3. Liquidity squeeze and forced reinter-mediation (August 2007)
4. Broad-based financial sector strain (Sept/Nov 2007)
5. Growth fears and dysfunctional markets (Jan/Feb 2008)
6. Continued deleveraging and deteriorating credit cycle (March-Sep. 2008)
7. Collapse of Investments Banks such as Merrill Lynch etc.

The BSE Sensex has continued to bleed more out of panic and psychological reasons than for others. In last few weeks (3-4) its study period BSE Sensex fell by almost 15%. It is also due to shortage and dries up of capital from FII and FDI. I have also selected same period for my study.

Sandeep Kumar and Sweta Bakshi (2009), 1.3% industrial growth is the lowest IIP (Index of Industrial Production) data ever registered since last ten years. April-august growth is 4.9% which is also lowest for the first five months of the financial year in 14 year period except 1998 and 2001. The Industrial growth in August of 2008 plummeted to mere 1.3% compared to same month in 2007. This industrial slow down affected transport service too. Global recession will also lead to less tourists coming to India. That will negatively affect tours and

travels industry. The global recession affected IT, automobile industry and export oriented firms adversely.

Louis K.C.Chan, Jason Karceski and Josef Lakonishok (2000), Operating performance of large cap growth stocks in last few years cannot have been trigger for their huge stock returns. Over the period 1996-98 period, large-cap growth stock earned a return of 34% a year, but their operating performance for this period was not outstanding when compared with the past. The growth rate (in terms of sales) for the three years was 6% a year but the average for these companies was 10.3% for the entire sample period. It is not easy to continuously perform at higher rate or increasing rate. The same thing happens with large-cap companies. They also observed that

Small-cap stocks have historically outperformed large-cap stocks and value stocks have had higher return than growth stocks. For the selected period they have found that small-cap stocks did well and small-cap value stocks did particularly well.

Poshakwale, S., & Theobald, M. (2004, May 8), The lead/lag relationship between portfolios comprising large and small cap firms is analytically derived in terms of their speeds of adjustment and degrees of thin trading. Using a number of Indian equity index series that differ in their market capitalization characteristics, large cap indices are found to lead small cap indices and to have higher speeds of adjustment towards intrinsic values.

Chen, H., Lobo, B. J., & Wong, W.-K. (2006) had seen that the U.S. stock plays dominant role in the relation with Indian and Chinese stock market, whereas there is an interactive relationship between Indian and Chinese stock market.

Kawai (2008) described subprime story: Bubble burst in 2008, collapse of the financial system of US, affected global level.

Sandeep Kumar and Sweta Bakshi (2009) observed that 1.3% industrial growth is the lowest IIP (Index of Industrial Production) data ever registered since last ten years. April-august growth is 4.9% which also lowest for the first five months of the financial year in 14 year period except 1998 and 2001. The Industrial growth in August of 2008 plummeted to mere 1.3% compared to same month in 2007. This industrial slow down affected transport service too. Global recession will also lead to less tourists coming to India. That will negatively affect tours and travels industry. The global recession affected IT, automobile industry and export oriented firms adversely. *Joshi, M. C. (2012)* has observed there is no major difference in risk and return of different capitalisation stocks, but in same kind of the stocks of course there is significant difference in risk & return in different phases of stock market. In that work there was conclusion that timing for the investment is more relevant than the type of the stock on the basis of capitalisation. There was no significant difference found in performance of different capitalisation stock during different phase of stock market but in same type of stock there was significant difference in return during different phases (bearish, consolidation and bullish) of stock market.

Objectives

Primary Objectives

- To know the risk and return of different sectoral stocks during different phases of Indian stock market in India.

Secondary Objectives

- ✓ To study the effect of sectoral stocks and phases of stock market on return on stocks.
- ✓ To measure volatility of different sectors during different phases of stock market in India

Research Methodology

Type of Research

For this study Descriptive Research design has been applied, which helped in describing the fact on the basis of which secondary data has been analysed. Daily price data of different Indices of different sectors of BSE i.e. METAL, BSEHC, BSECD, OILGAS, BSEIT, BSEFMCG, AUTO, BANKEX, POWER, REALITY and BSE30 Index has been collected. Then analysis has been done on the basis of daily return, which is calculated on the basis of daily price data.

Population

For this study population includes all different stocks of different sectors and value of their daily prices which determines risk and return related to them from the date of their listing in stock Exchanges in India.

Sampling and Sample Frame

For this study applied Judgmental Sampling is applied to select the time period to be studied. For the study of different sectors' stock I have selected different indices of Bombay stock Exchange i.e. METAL, BSEHC, BSECD, OILGAS, BSEIT, BSEFMCG, AUTO, BANKEX, POWER, REALITY and BSE30 Index have been selected, which properly represent different stocks of different sectors. The time period from 1st January 2007 to 31st December 2009 i.e. three years daily value of selected indices has been observed for this study. This period has been found representing different phases of stock market viz. bearish trend, consolidation Period and bullish trend through major downward, stable and upward trend in stock market. This period represents effect of subprime crises, due to which Indian market got affected and while moved up during the same period.

Sample

After determining two years period and careful study of the chart of daily values of different indices i.e. METAL, BSEHC, BSECD, OILGAS, BSEIT, BSEFMCG, AUTO, BANKEX, POWER, REALITY and BSE30, a particular period from 1st Sept 2008 to 31st May 2009, from the observed the period (1st January 2007 to 30 November 2009) has been selected for the detail analysis. It is based on certain concepts of technical analysis.

Data Collection

Secondary data of daily prices of different capitalisation stocks are collected from internet, website www.bseindia.com.

Data Analysis

First of all Technical analysis is used for the selection of data out of the sample frame. In which support line and resistant line has been drawn on the basis of subjective analysis of trend lines of selected Indices of different Capitalisation stocks.

For the calculation of return arithmetical mean is calculated, which represents expected return and risk is calculated on the basis of deviation from mean. Hence, standard deviation has been used for calculation of risk.

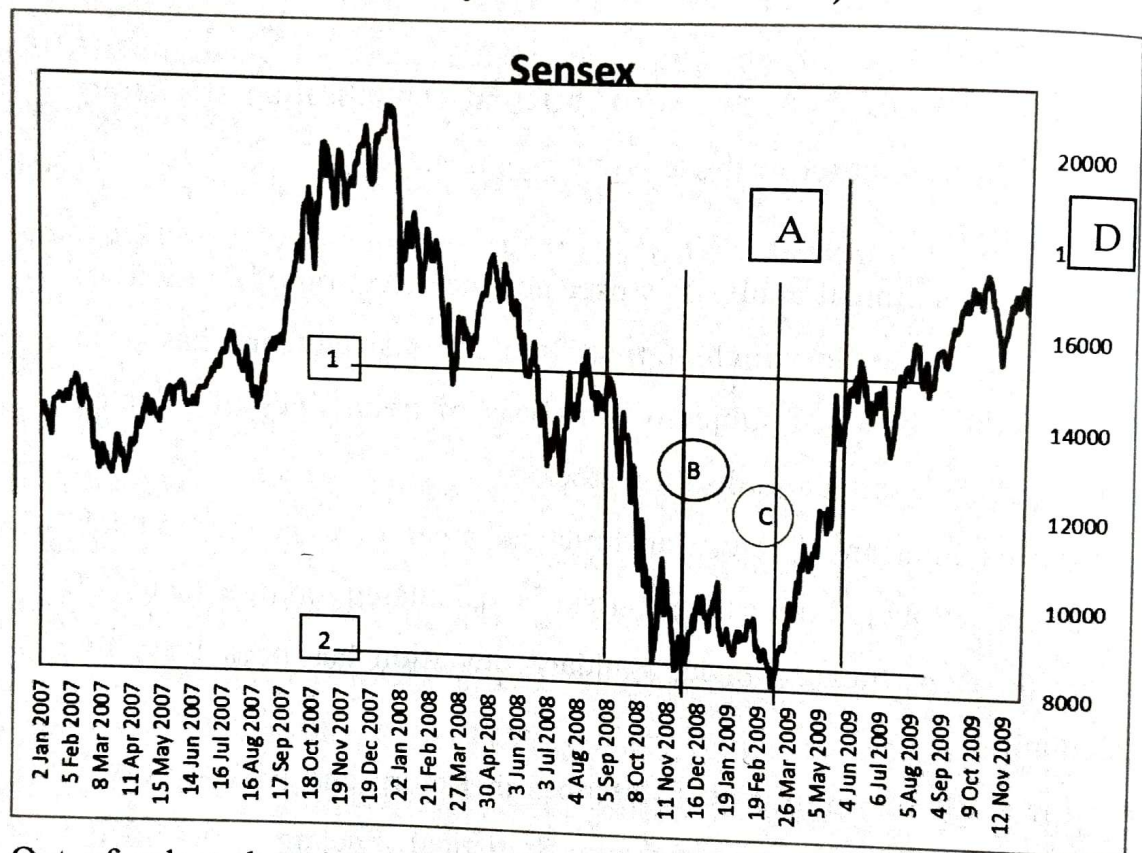
For the study of significant differences in Return and Risk ANOVA with statistical computer package Statistical Package for Social Science (SPSS) has been used. For pair-wise study of significant differences in return and risk among different capitalisation and for different phases Pared t-test of Scheffe has been used.

Interpretation and Analysis of Data

For the study of performance of different Indices of different sectors during different phases of stock Exchange, initially three years data of sensex (BSE 30 Index) has been observed during which different phases of stock market could be observed. That three years time

period is from 1st January 2007 to 30 November 2009. In this paper daily value of selected indices representing different stocks of different sectors has been collected. Then after daily return percentage for all indices for every day has been calculated, as it is very difficult to work with absolute data. Following chart represents absolute data of sensex to identify different phases of stock market.

Figure: 1 Chart of Sensex (January 2007 – December 2009)



Out of selected period it has been observed that on 1st Sept 2008 (Line A in the Figure) onward bearish trend has been started. We can observe that resistant line (Line 1 and 2 in the Figure) has been cross in each capitalisation and bearish trend continued up to 3rd Dec 2008 (Line B in Figure), after which we can observe that again trend has established new support (not marked in the figure) below which it had hardly move and remain less fluctuated up to certain period of time i.e. 12th March 2009 (Line C in Figure). After this consolidation Period again all Indices have cross previous resistant line which

became Support Line (Line 1 and 2) from which bullish trend started and market trend moved up continuously with new support levels till 31st May 2009 (Line D in Figure).

Hence we can select this particular period from 1st Sept 2008 to 31st May 2009, from the observed the period (1st January 2007 to 30 November 2009) for detail analysis, which also properly represents different phases of the stock market. With use of the technical analysis we can divide selected period in basically three parts i.e. three different Phases: bearish trend, consolidation Period and bullish trend. As objective of the paper is to study return and risk of different stocks of different sectors during different phases of stock market; collected data of different Indices like METAL, BSEHC, BSECD, OILGAS, BSEIT, BSEFMCG, AUTO, BANKEX, POWER, REALITY and BSE30 Index of Bombay stock Exchange would be useful for this study.

For analysis of collected data following Statistical Analysis has been done with the help of SPSS software.

Univariate Analysis of Variance

Table: 1 Between-subjects factors

		Value Label	Number of Days
Time Period	1	bearish trend	594
	2	consolidation Period	748
	3	bullish trend	594
Indices	1	METAL	176
	2	BSEHC	176
	3	BSECD	176
	4	OILGAS	176
	5	BSEIT	176
	6	BSEFMCG	176
	7	AUTO	176
	8	BANKEX	176

	9	POWER	176
	10	REALITY	176
	11	BSE30	176

From above table we can observe that total number of data for each Index for the selected period is 176 working days return. For different phases like bearish, consolidation and bullish trend, numbers of observations were 594, 748 and 594 respectively (as they include values for each sector-wise index).

Table: 2 Descriptive statistics

Sectoral Indices	Phase in stock market	Mean	Std. Deviation	Number of days
METAL	Bearish	-1.8288	5.06113	54
	Consolidation	.1583	3.46952	68
	Bullish	1.7060	4.02729	54
	Total	.0235	4.38381	176
BSEHC	Bearish	-.7904	2.43468	54
	Consolidation	-.0936	1.20167	68
	Bullish	.5478	1.86244	54
	Total	-.1106	1.91704	176
BSECD	Bearish	-1.3511	3.99974	54
	Consolidation	-.2308	2.56204	68
	Bullish	1.2099	3.03305	54
	Total	-.1325	3.34101	176
OILGAS	Bearish	-1.0267	4.35764	54
	Consolidation	.2014	3.00958	68
	Bullish	1.1317	3.44017	54
	Total	.1100	3.67790	176
BSEIT	Bearish	-.8974	3.85209	54
	Consolidation	-.1736	2.67580	68
	Bullish	.7717	3.20448	54
	Total	-.1056	3.28296	176
BSEFMC G	Bearish	-.2971	2.45586	54
	Consolidation	.0792	1.17184	68

	Bullish	.1549	2.07218	54
	Total	-.0130	1.92086	176
AUTO	Bearish	-1.0121	3.03288	54
	Consolidation	.2504	1.78988	68
	Bullish	1.0650	2.45196	54
	Total	.1130	2.55162	176
BANKE X	Bearish	-.7585	4.53815	54
	Consolidation	-.1347	3.04381	68
	Bullish	1.4857	4.16084	54
	Total	.1711	3.98295	176
POWER	Bearish	-.9318	4.26394	54
	Consolidation	.1925	2.48873	68
	Bullish	1.0632	3.22292	54
	Total	.1147	3.41195	176
REALIT Y	Bearish	-1.7905	6.37731	54
	Consolidation	-.1758	4.96391	68
	Bullish	2.0523	5.38926	54
	Total	.0124	5.73132	176
BSE30	Bearish	-.9263	3.94333	54
	Consolidation	.0305	2.52188	68
	Bullish	1.0711	3.25394	54
	Total	.0562	3.31164	176
Total	Bearish	-1.0555	4.16026	594
	Consolidation	.0094	2.80330	748
	Bullish	1.1145	3.42726	594
	Total	.0217	3.55815	1936

For the selected period mean return and standard deviation for different indices during different period and their total is calculated in above table. In the same manner during the particular period what was descriptive statistics is given at last part of the table.

From above statistics we can say that Bearish period is most risky period as the standard deviation of it is maximum i.e. 4.16 compare to all other period i.e. 2.80 and 3.43 for consolidation period and bullish trend respectively.

In similar manner we can also observe that the risk in Reality sector is highest in all different sectoral indices during different phases of stock market i.e. 5.39, but at the same time daily return is also highest in Reality sector during bullish phase compare to other indices during all the phases of stock market i.e. 2.05.

Here we need to check that weather returns of different sectors during different phases of stock market are significantly different or not. At the same time we should also check weather different phase of the stock market are significant to affect return or sectors are significant to affect return in stock market or combine effect of both is significant to affect return in stock market. Following statistical test (ANOVA) will help us in determining significant effect on return in stock market.

Table: 3 Tests of between-subjects effects

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	1677.157	32	52.411	4.371	.000
Intercept	.995	1	.995	.083	.773
Sectors	18.837	10	1.884	.157	.999
Phases	1398.728	2	699.364	58.319	.000
Sectors * Phases	259.583	20	12.979	1.082	.361
Error	22820.807	1903	11.992		
Total	24498.879	1936			

Correct ed Total	24497.964	1935			
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R Squared = .068 (Adjusted R Squared = .053)

Above table represents two-way ANOVA table. The F-ratio for sectoral indices 0.157 and p-value is 0.999 which is not less than 0.05. The F-ratio for phases in stock market is 58.32 and p-value is less than 0.5. Therefore it can be said that the effect of sectoral indices is not significant, whereas effect of phases in stock market is significant on return in stock market. The F-ratio of sectors by phases interaction is 1.082 and associated p-value is 0.361, which is not less than 0.05. Thus, the sectors by phases interaction effect (sectors * phases) is also not statistically significant.

Above table is very important for analysing the variation in return of different indices due to sector or due to phase in stock market or due to combine effect. F statistics and significant value assist in determining the significant effect on variation in return. Out of above table we can derive conclusion that there is no significant difference due to sectoral or combine effect of sectoral and phases in stock market, but of course there is significant effect of phases in stock market as separate variable. There is significant difference in different time period return divided in three parts. For the detail analysis post hoc analysis is very useful to identify detailed significant difference in return of different sectoral indices and during different phases.

Estimated Marginal Means

Table: 4 Grand mean of daily return

Mean	Std. Error	95% Confidence Interval	
		Lower Bound	Upper Bound
.023	.079	-.132	.178

Table: 5**Mean of sectoral indices daily return**

Indices	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
METAL	.012	.263	-.503	.527
BSEHC	-.112	.263	-.627	.403
BSECD	-.124	.263	-.639	.391
OILGAS	.102	.263	-.413	.617
BSEIT	-.100	.263	-.615	.415
BSEFMCG	-.021	.263	-.536	.494
AUTO	.101	.263	-.414	.616
BANKEX	.197	.263	-.317	.712
POWER	.108	.263	-.407	.623
REALITY	.029	.263	-.486	.544
BSE30	.058	.263	-.457	.573

Table: 6 Mean of phases in stock market daily return

Phase in stock market	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Bearish	-1.056	.142	-1.334	-.777
Consolidation	.009	.127	-.239	.258
Bullish	1.114	.142	.836	1.393

Table: 7 Mean of sectoral indices * Phases in stock market daily return

Sectoral Indices	Phase in stock market	Mean	Std. Error	95% Confidence Interval	
				Lower Bound	Upper Bound
METAL	Bearish	-1.829	.471	-2.753	-.905
	Consolidati	.158	.420	-.665	.982

	on				
	Bullish	1.706	.471	.782	2.630
BSEHC	Bearish	-.790	.471	-1.715	.134
	Consolidati on	-.094	.420	-.917	.730
	Bullish	.548	.471	-.376	1.472
BSECD	Bearish	-1.351	.471	-2.275	-.427
	Consolidati on	-.231	.420	-1.054	.593
	Bullish	1.210	.471	.286	2.134

OILGAS	Bearish	-1.027	.471	- 1.951	-.102
	Consolidation	.201	.420	-.622	1.025
	Bullish	1.132	.471	.207	2.056
BSEIT	Bearish	-.897	.471	- 1.822	.027
	Consolidation	-.174	.420	-.997	.650
	Bullish	.772	.471	-.153	1.696
BSEFMC G	Bearish	-.297	.471	- 1.221	.627
	Consolidation	.079	.420	-.744	.903
	Bullish	.155	.471	-.769	1.079
AUTO	Bearish	-1.012	.471	- 1.936	-.088
	Consolidation	.250	.420	-.573	1.074
	Bullish	1.065	.471	.141	1.989
BANKEX	Bearish	-.758	.471	- 1.683	.166
	Consolidation	-.135	.420	-.958	.689
	Bullish	1.486	.471	.561	2.410

POWER	Bearish	-.932	.471	- 1.856	-.008
	Consolidation	.193	.420	-.631	1.016
	Bullish	1.063	.471	.139	1.987
REALITY	Bearish	-1.790	.471	- 2.715	-.866
	Consolidation	-.176	.420	-.999	.648
	Bullish	2.052	.471	1.128	2.977
BSE30	Bearish	-.926	.471	- 1.851	-.002
	Consolidation	.031	.420	-.793	.854
	Bullish	1.071	.471	.147	1.995

Post Hoc Tests

The table – Multiple comparisons show the difference in Mean and associated significance level between each pair of groups.

Table 8 Sectoral indices: multiple comparisons (Scheffe's Test)

(I) Sectoral Indices	(J) Sectoral Indices	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
METAL	BSEHC	.1341	.36915	1.000	- 1.4475	1.7157
	BSECD	.1560	.36915	1.000	- 1.4257	1.7376
	OILGAS	-.0865	.36915	1.000	- 1.6681	1.4951
	BSEIT	.1291	.36915	1.000	- 1.4525	1.7107
	BSEFMCG	.0365	.36915	1.000	- 1.5451	1.6181
	AUTO	-.0895	.36915	1.000	- 1.6711	1.4921

	BANKEX	-.1476	.36915	1.000	- 1.7292	1.4340
	POWER	-.0912	.36915	1.000	- 1.6728	1.4904
	REALITY	.0111	.36915	1.000	- 1.5705	1.5927
	BSE30	-.0327	.36915	1.000	- 1.6144	1.5489
BSEHC	METAL	-.1341	.36915	1.000	- 1.7157	1.4475
	BSECD	.0219	.36915	1.000	- 1.5597	1.6035
	OILGAS	-.2206	.36915	1.000	- 1.8022	1.3610
	BSEIT	-.0050	.36915	1.000	- 1.5866	1.5766
	BSEFMCG	-.0976	.36915	1.000	- 1.6792	1.4840
	AUTO	-.2236	.36915	1.000	- 1.8052	1.3580
	BANKEX	-.2817	.36915	1.000	- 1.8633	1.2999
	POWER	-.2253	.36915	1.000	- 1.8069	1.3563
	REALITY	-.1230	.36915	1.000	- 1.7046	1.4586
	BSE30	-.1668	.36915	1.000	- 1.7484	1.4148
BSECD	METAL	-.1560	.36915	1.000	- 1.7376	1.4257
	BSEHC	-.0219	.36915	1.000	- 1.6035	1.5597
	OILGAS	-.2425	.36915	1.000	- 1.8241	1.3391
	BSEIT	-.0268	.36915	1.000	-	1.5548

					1.6085	
	BSEFMCG	-.1195	.36915	1.000	- 1.7011	1.4621
	AUTO	-.2455	.36915	1.000	- 1.8271	1.3361
	BANKEX	-.3036	.36915	1.000	- 1.8852	1.2781
	POWER	-.2472	.36915	1.000	- 1.8288	1.3344
	REALITY	-.1449	.36915	1.000	- 1.7265	1.4367
	BSE30	-.1887	.36915	1.000	- 1.7703	1.3929
OILGAS	METAL	.0865	.36915	1.000	- 1.4951	1.6681
	BSEHC	.2206	.36915	1.000	- 1.3610	1.8022
	BSECD	.2425	.36915	1.000	- 1.3391	1.8241
	BSEIT	.2156	.36915	1.000	- 1.3660	1.7973
	BSEFMCG	.1230	.36915	1.000	- 1.4586	1.7046
	AUTO	-.0030	.36915	1.000	- 1.5846	1.5786
	BANKEX	-.0611	.36915	1.000	- 1.6427	1.5206
	POWER	-.0047	.36915	1.000	- 1.5863	1.5769
	REALITY	.0976	.36915	1.000	- 1.4840	1.6792
	BSE30	.0538	.36915	1.000	- 1.5278	1.6354
BSEIT	METAL	-.1291	.36915	1.000	- 1.7107	1.4525

	BSEHC	.0050	.36915	1.000	- 1.5766	1.5866
	BSECD	.0268	.36915	1.000	- 1.5548	1.6085
	OILGAS	-.2156	.36915	1.000	- 1.7973	1.3660
	BSEFMCG	-.0926	.36915	1.000	- 1.6742	1.4890
	AUTO	-.2186	.36915	1.000	- 1.8002	1.3630
	BANKEX	-.2767	.36915	1.000	- 1.8583	1.3049
	POWER	-.2203	.36915	1.000	- 1.8020	1.3613
	REALITY	-.1180	.36915	1.000	- 1.6997	1.4636
	BSE30	-.1619	.36915	1.000	- 1.7435	1.4198
BSEFMCG	METAL	-.0365	.36915	1.000	- 1.6181	1.5451
	BSEHC	.0976	.36915	1.000	- 1.4840	1.6792
	BSECD	.1195	.36915	1.000	- 1.4621	1.7011
	OILGAS	-.1230	.36915	1.000	- 1.7046	1.4586
	BSEIT	.0926	.36915	1.000	- 1.4890	1.6742
	AUTO	-.1260	.36915	1.000	- 1.7076	1.4556
	BANKEX	-.1841	.36915	1.000	- 1.7657	1.3975
	POWER	-.1277	.36915	1.000	- 1.7093	1.4539
	REALITY	-.0254	.36915	1.000	-	1.5562

					1.6070	
	BSE30	-.0692	.36915	1.000	-	1.5124
					1.6509	
AUTO	METAL	.0895	.36915	1.000	-	1.6711
					1.4921	
	BSEHC	.2236	.36915	1.000	-	1.8052
					1.3580	
	BSECD	.2455	.36915	1.000	-	1.8271
					1.3361	
	OILGAS	.0030	.36915	1.000	-	1.5846
					1.5786	
	BSEIT	.2186	.36915	1.000	-	1.8002
					1.3630	
	BSEFMCG	.1260	.36915	1.000	-	1.7076
					1.4556	
	BANKEX	-.0581	.36915	1.000	-	1.5235
					1.6397	
	POWER	-.0017	.36915	1.000	-	1.5799
					1.5833	
	REALITY	.1006	.36915	1.000	-	1.6822
					1.4810	
	BSE30	.0568	.36915	1.000	-	1.6384
					1.5249	
BANKEX	METAL	.1476	.36915	1.000	-	1.7292
					1.4340	
	BSEHC	.2817	.36915	1.000	-	1.8633
					1.2999	
	BSECD	.3036	.36915	1.000	-	1.8852
					1.2781	
	OILGAS	.0611	.36915	1.000	-	1.6427
					1.5206	
	BSEIT	.2767	.36915	1.000	-	1.8583
					1.3049	
	BSEFMCG	.1841	.36915	1.000	-	1.7657
					1.3975	

	AUTO	.0581	.36915	1.000	- 1.5235	1.6397
	POWER	.0564	.36915	1.000	- 1.5253	1.6380
	REALITY	.1587	.36915	1.000	- 1.4230	1.7403
	BSE30	.1149	.36915	1.000	- 1.4668	1.6965
POWER	METAL	.0912	.36915	1.000	- 1.4904	1.6728
	BSEHC	.2253	.36915	1.000	- 1.3563	1.8069
	BSECD	.2472	.36915	1.000	- 1.3344	1.8288
	OILGAS	.0047	.36915	1.000	- 1.5769	1.5863
	BSEIT	.2203	.36915	1.000	- 1.3613	1.8020
	BSEFMCG	.1277	.36915	1.000	- 1.4539	1.7093
	AUTO	.0017	.36915	1.000	- 1.5799	1.5833
	BANKEX	-.0564	.36915	1.000	- 1.6380	1.5253
	REALITY	.1023	.36915	1.000	- 1.4793	1.6839
	BSE30	.0585	.36915	1.000	- 1.5231	1.6401
REALITY	METAL	-.0111	.36915	1.000	- 1.5927	1.5705
	BSEHC	.1230	.36915	1.000	- 1.4586	1.7046
	BSECD	.1449	.36915	1.000	- 1.4367	1.7265
	OILGAS	-.0976	.36915	1.000	-	1.4840

					1.6792	
	BSEIT	.1180	.36915	1.000	- 1.4636	1.6997
	BSEFMCG	.0254	.36915	1.000	- 1.5562	1.6070
	AUTO	-.1006	.36915	1.000	- 1.6822	1.4810
	BANKEX	-.1587	.36915	1.000	- 1.7403	1.4230
	POWER	-.1023	.36915	1.000	- 1.6839	1.4793
	BSE30	-.0438	.36915	1.000	- 1.6254	1.5378
BSE30	METAL	.0327	.36915	1.000	- 1.5489	1.6144
	BSEHC	.1668	.36915	1.000	- 1.4148	1.7484
	BSECD	.1887	.36915	1.000	- 1.3929	1.7703
	OILGAS	-.0538	.36915	1.000	- 1.6354	1.5278
	BSEIT	.1619	.36915	1.000	- 1.4198	1.7435
	BSEFMCG	.0692	.36915	1.000	- 1.5124	1.6509
	AUTO	-.0568	.36915	1.000	- 1.6384	1.5249
	BANKEX	-.1149	.36915	1.000	- 1.6965	1.4668
	POWER	-.0585	.36915	1.000	- 1.6401	1.5231
	REALITY	.0438	.36915	1.000	- 1.5378	1.6254

Based on observed means

Table 9 Homogeneous subsets (Scheffe's Test)

Sectoral Indices	N	Subset 1
BSECD	176	-.1325
BSEHC	176	-.1106
BSEIT	176	-.1056
BSEFMCG	176	-.0130
REALITY	176	.0124
METAL	176	.0235
BSE30	176	.0562
OILGAS	176	.1100
AUTO	176	.1130
POWER	176	.1147
BANKEX	176	.1711
Sig.		1.000

Means for groups in homogeneous subsets are displayed.

Based on Type III Sum of Squares

The error term is Mean Square(Error) = 11.992

a Uses Harmonic Mean Sample Size = 176.

b Alpha = .05.

Table 8 shows the difference in mean return of different sectoral indices with their association with significant level. Each comparison appears twice, as each of the sectoral indices is compared with the remaining other indices. The magnitude of difference and significance level remains the same, only sign changes with change in the reference group. The reference group is denoted by 'I' and the other categories are denoted by 'J'.

Here each comparison show same level of significance i.e. 1 which is of course greater than 0.05. It means that none of the difference among different sectoral returns is significant. Hence we can say that for the selected period sectoral returns are not significantly different; sectors do not make significant change in return in stock market.

The Homogeneous Subsets (Table 9) created using Scheffe's test show that all sectoral indices are homogenous set. Here, N represents the sample size for each group.

Table 10 Phases in stock market: Multiple Comparisons (Scheffe's Test)

(I) Phases in stock market	(J) Recession	Mean Difference (I-J)	Std. Erro r	Sig.	95% Confidence Interval	
					Upper Bound	Lower Bound
Bearish	Consolidat ion	-1.0650*	.190 32	.0 00	-1.5312	-.5987
	Bullish	-2.1700*	.200 94	.0 00	-2.6622	-1.6778
Consolidat ion	Bearish	1.0650*	.190 32	.0 00	.5987	1.5312
	Bullish	-1.1050*	.190 32	.0 00	-1.5713	-.6388
Bullish	Bearish	2.1700*	.200 94	.0 00	1.6778	2.6622
	Consolidat ion	1.1050*	.190 32	.0 00	.6388	1.5713

Based on observed means.

* The mean difference is significant at the .05 level.

Homogenous Subsets (Scheffe's Test)

Recession	N	Subset		
		1	2	3
Bearish	594	-1.0555		
Consolidation	748			
Bullish	594		.0094	
Sig.		1.000		1.1145
			1.000	1.000

Means for groups in homogeneous subsets are displayed.

Based on Type III Sum of Squares

The error term is Mean Square(Error) = 11.992.

- a. Uses Harmonic Mean Sample Size = 637.768.
- b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.
- c. Alpha = .05.

It can be seen from above Table 10 of phases in stock market (two rows) that the difference in mean return of bearish and consolidation phase is -1.0650 with associated significance level less than 0.05, which means that difference of -1.0650 return is statistically significant. The second row shows the mean return difference between bearish trend and bullish phases, which -2.1700 with associated significance level also less than 0.05, which means that difference of -2.1700 return is statistically significant.

In third row, return during consolidation is compared with return in bearish phase and therefore the difference and significant level will be same as that of first row. In forth row, return of consolidation and bullish phase is compared. The difference in mean return is -1.1050 and associated significance level is 0.000, which means that the difference in return in different phases differs significantly.

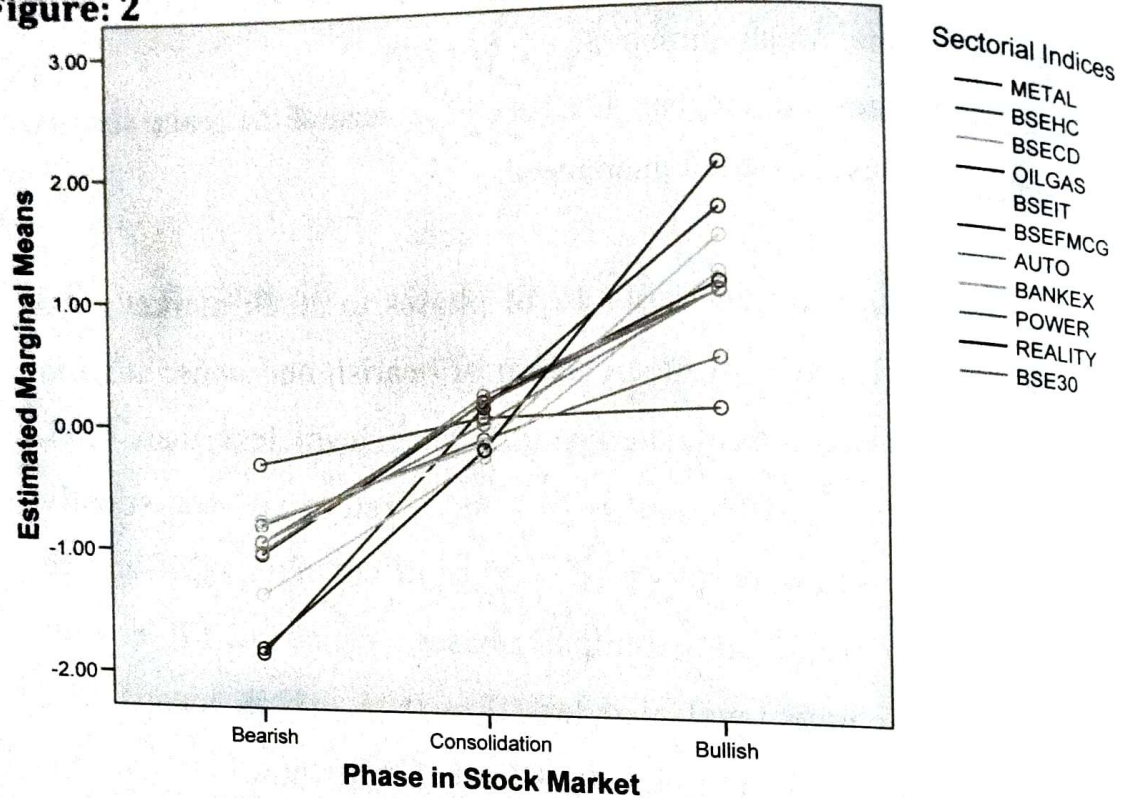
Here again each comparison appears twice, as each of the phase is compared with the remaining two phases of stock market. The magnitude of difference and significance level remains the same, only sign changes with change in the reference group. The reference group is denoted by 'I' and the other categories are denoted by 'J'.

The Homogeneous Subsets table created using Scheffe's test show that bearish, consolidation and bullish all phases are different set.

Here, N represents the sample size for each group.

Estimated Marginal Means of Daily Return

Figure: 2



Conclusion

From above study it can be concluded that when risk will be more chances of making return will be more. Here if we observe performance of different sectoral indices; they do not perform significantly different in any of the phase of the stock market, but the same Indices performs differently in different phases of the stock market. Thus, it can be said that different sector do not make much difference in return in stock market but the timing i.e. the phase during which investment decision is taken, plays important role in investment in stock market as return in different phases are found significantly different in this study.

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HMIS- A BOON FOR MODERN DAY HOSPITALS

Dr. Pranav Thaker., M.S.,
(Pursuing Ph.D in Public Administration from VNSGU)

Abstract

A weak HIMIS hampers the productivity of a hospital badly. The huge amount of information generated in hospitals is of no use if not captured and analyzed properly to increase the productivity and patient satisfaction. Effective strategies must be in place for implementing proper HIMIS so that there is better coordination between different departments and it decreases the Discharge time as it is the final step in the hospital experience and is likely to be well remembered by the patient. Slow or unpredictable discharge translates into a reduction in effective bed capacity and admission process delays. We modified and implemented certain changes in the existing software and integrated all the medical and operational modules of the software like Pathology, Radiology, Patient Care and Billing. We also tested the effectiveness of the software on the work flow by comparing outcomes between the pre-implementation control group and the post-implementation experimental group. The implementation of the software, resulted in drastic decrease in discharge time and resulted in increased patient satisfaction and decrease in the number of payment defaulters.

Introduction

Hospital bed demands occasionally exceed capacity, especially during high-census periods such as viral respiratory seasons¹ (winter seasons). When bed demand exceeds capacity, patient admissions and scheduled surgical procedures can be delayed or cancelled. Patients can also be diverted to other hospitals. These changes can lead to major patient/family dissatisfaction, loss of hospital revenue and loss of competitive edge.

The hospital in question is a leading multi speciality hospital of Surat with a catchment area of entire South Gujarat and neighboring districts of Maharashtra.

Though the patients were satisfied with the clinical services, some of the common complaints patients mentioned in their feedback were:-

- a) The discharge process takes three to four hours even after the doctor had advised discharge.

b) The patients are not informed about the bill amount on a regular basis and at the time of discharge it is difficult for the patients to arrange for cash when the bill amount is high.

c) The preparation of Discharge Summary takes too long and there are too many mistakes in the discharge summary.

Some of the problems being faced by the staff were as follows:-

a) As the Discharge Process was taking too long, it was getting difficult for allotting rooms to new patients waiting for admission which often led to dissatisfaction and resentment among the relatives.

b) The Medical Officers and the consultants complained that the Laboratory reports were not coming on time which delayed the starting of treatment of the patients. The Laboratory staff on their part said that though the reports are ready it is difficult to type the reports due to excess work load and shortage of staff.

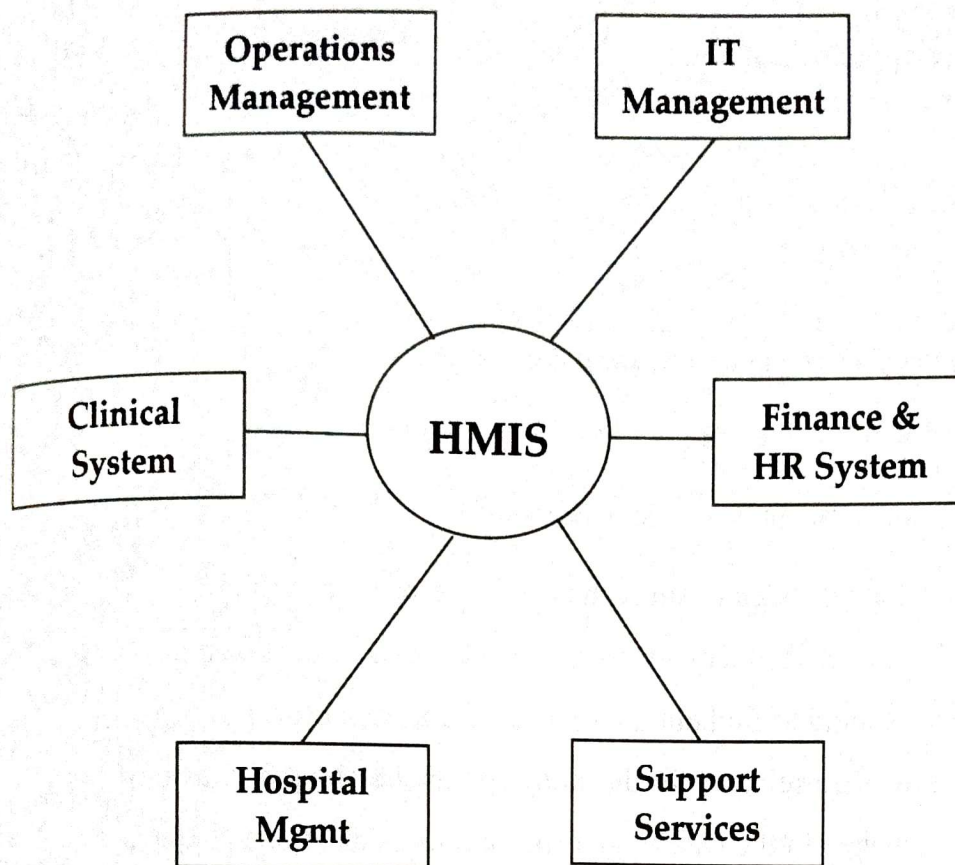
c) As Interim bills were not being prepared on a regular basis, the cases of default of payment were very high which was making it difficult for the management.

d) As the Billing clerk has to make all the entries of the procedures/tests done at the time of making the final bill, it makes the job very lengthy and cumbersome.

e) The Discharge process was not proper and it needed to be rectified.

i) Approach to solving the problem:

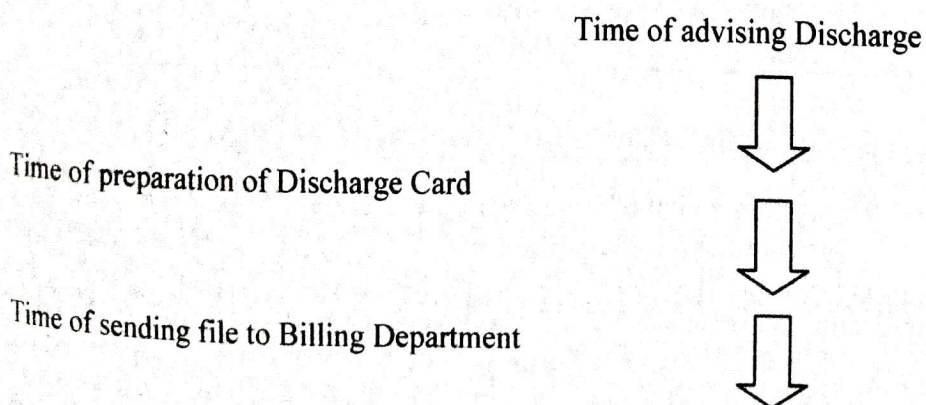
The major problem with the software being used was that all the modules were working as stand alone individuals. It was decided to review the HMIS system of the hospital and work on the feasibility of **integrating all the major modules of the software** which could result in improving the workflow and efficiency of the various services of each department.



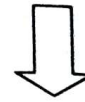
ii) Methodology:

It was decided to monitor the entire Discharge procedure to begin with so that we could identify the areas where we were going wrong and corrective action could be taken.

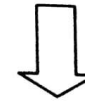
The Discharge process after being studied was divided into the following six parts:-



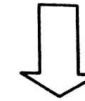
Time when final bill is ready



Time when Final bill is clear



Time of Counseling with Medical Officer



Time when Patient leaves from the room

It was then decided to study the entire discharge procedure of randomly selected patients to arrive at the exact time taken for discharge and to find out the time taken for each process. Ten patients were selected for the study and the break up of the time taken for each step in the Discharge Procedure is as mentioned below:-

On breaking up the entire Discharge process the following facts came forward:-

S.N.	ACTIVITY	AVERAGE TIME TAKEN
1	Time taken for Prep. Discharge card	37
2	Time taken in sending the file to the billing dept	15
3	Time taken in prep the bill	41
4	Time taken for clearance of bill	13
5	Time taken for counseling	11
6	Time taken by the pt. to vacate the room	14

It came to the knowledge that the two activities that were taking the most of the time were :- Preparation of Discharge Card and Preparation of final bill.

We decided to act on the same and the following steps were taken:-

- 1) It was decided to update the inpatient files on a daily basis and the provision for the same was provided at each Patient care department.
- 2) A new post of Floor coordinators was created and the primary responsibility of the coordinators was to update the inpatient files and enter any procedure that takes place in the software.
- 3) The Billing module was also integrated with the Clinical module and hence any entries made in the clinical module, the entries were reflected in the Billing module as well.
- 4) All the details were being entered online and any patient likely to be discharged next day, the Medical officer on duty was asked to update the file and keep it ready for the next day.
- 5) The laboratory module was also connected with the Clinical module and the

iii) Impact on product or services.

The software was implemented on a trial basis for a month's period. Ten patients were again selected on a randomly basis and the results were monitored after the same.

S.N.	ACTIVITY	AVERAGE TIME TAKEN
1	Time taken for Prep. Discharge card	10
2	Time taken in sending the file to the billing dept	7
3	Time taken in prep the bill	11
4	Time taken for clearance of bill	6
5	Time taken for counseling	10
6	Time taken by the pt. to vacate the room	7

On breaking up the entire Discharge process after implementing the changes, the following facts came forward

- 1) We found that the Discharge time came down significantly.
- 2) Billing module and hence whenever the result of any test was entered in the system, the Doctor could view the same in his department without

waiting for hardcopy of the report and the charges of the tests were reflected in the bill of the patient as well.

3) As all the entries were being done online, it was easy for the Billing department to generate Interim Bills and inform the patients about their billing status till date.

4) The incidents of default of payment by the patients also came down drastically as the Billing staff was able to keep a daily track of the Indoor bill of all patients and were able to ask the relatives to clear the outstanding bill from time to time.

5) The reports of patients can be viewed online which helps the Clinical team to start the treatment without wasting precious time.

iv) Details of financial gains achieved in tangible terms and improvement of business results

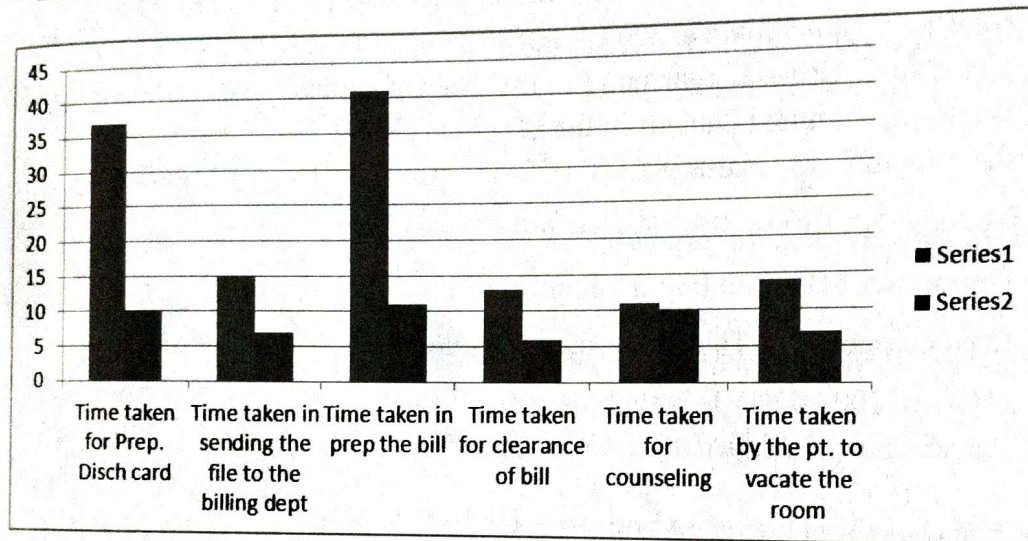
a) Default in payment of hospital bills which was as high as – **10-12%** earlier came down drastically to **2-3%**.

b) Smoothening of discharge process resulted in increased satisfaction among the patients which in turn resulted in repeat visits of the patients. It was found on analyzing the Feed back form of patients that **22%** of the patients wrote that **they would recommend the Hospital to their family members and friends for their health care needs.**

c) Improvement in the services resulted in increase in referral cases from the medical fraternity. The occupancy of the hospital which was around **45-50%** rose to **65-70%**.

d) Improvement in the services also motivated other Visiting Consultants to admit their patients in our Hospital.

S.N.	ACTIVITY	EAR LIER	AFTER IMPROVEMENT
1	Time taken for Prep. Discharge card	37	10
2	Time taken in sending the file to the billing dept	15	7
3	Time taken in prep the bill	41	11
4	Time taken for clearance of bill	13	6
5	Time taken for counseling	11	10



The project demonstrated the importance of a strong HMIS for efficient hospital bed management and decreasing the Discharge Time.

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