

Effect of Global Recession on Stock Sensitivity Index (B) with Special Reference to Indian IT Sector

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Abstract

With the recession in the year 2008, the growth of Indian economy was slowed and financial markets experienced a downturn. Recession has significantly affected Indian IT companies which depends upon the outsource projects from the West, specially the United States and Europe countries. With the advent of recession, there is change in the market momentum and dynamism. It is also possible that there is a change in the stock sensitivity to its index, thus traders should check whether there is any impact of recession on the stock sensitivity or it is same as before. If it has changed then a subsequent change, in the trading strategy is to be adopted. Thus the present study is undertaken to indentify whether, there is any change in the Beta (β) (Sensitivity of the stock) with respect to its index or it is same as before recession.

Keywords: Recession, Beta (β), IT Companies, BSE Sensex.

Introduction

Recession means significant decline in economic activity spreading across the country lasting more than a few months, normally visible in real gross domestic product (GDP) growth, real personal income, employment, industrial production, and whole sale-retail sales. With the recession in the year 2008, the growth of Indian economy was slowed and financial markets experienced a downturn. Indian economy tackled crisis smoothly in the year 2008 crisis but, presently in year 2012 the country is not even ready for a crisis of much lesser magnitude. Weak finances, persistently high inflation and policy inertia have considerably weakened the Indian economy. A domestic meltdown is expected and our resilience won't be as much as last time. Growth estimates are down to 7.2 percent in the current year, not far from 6.8 percent, the country managed in crisis-ridden 2008-09, and every other indicator is pointing downwards.

Recession has significantly affected Indian IT companies which depends upon the outsource projects from the West, specially the United States and Europe countries. The IT projects are a part of planned expenses for future growth of business. In this period, many US/UK based companies had cut-down their IT expenses. This had a significant impact on Indian IT industry.

Many traders are trading in the market on the basis of the stock relativity to its index. They consider Beta (β) as an important tool for taking their trading decision. Beta (β) represents the stock's sensitivity index. The Beta (β) indicates the relativity of a particular stock with respect to its index. This further means that if the Beta (β) of any company is 1.5, a one percent increase in the index will lead to one and half percent increase in the price of that stock and vice versa.

Beta (β) serves many valuable purposes in investing. It assesses the risk involved with an individual stock. This certainly plays a significant role for investors. Some investors may be willing to invest in a stock with a large Beta (β) with hopes of a large payoff, understanding the larger risk involved with such a stock. Other investors may be more inclined to invest in a safer stock with a smaller β to put less of their investment at risk, understanding that their potential return will not be as high. In addition to assessing the risk involved with an individual stock, Beta (β) can also be used in valuing a company (McClure, 2004). Determining the value of a company serves in comparing its value to the price of the stock. Quite simply, if the calculated value is less than the current stock price, the stock is most likely overpriced and should not be purchased.

With the advent of recession, there is change in the market momentum and dynamism. It is also possible that there is change in the stock sensitivity to its index, thus traders should check whether that is there any impact of recession on the stock sensitivity or it is same as before. If it has changed, then a subsequent change in the trading strategy is to be adopted.

Review of Literature

The period from March 2001 to November 2001 was identified by the National Bureau of Economic Research's Business Cycle Dating Committee, as a period of economic recession in the United States (Associated Press, 2003). The decline in business activity, and rising unemployment were not only the result of the recession; the disclosures of corporate scandals also contributed to the downturn. (Payne and Wong, 2004).

Recent global financial crisis is a major turmoil event which permeated all over the world irrespective of developed or emerging developing countries. This crisis is quite different from Asian financial crisis in 1997 and is more contagious and deeper than Asian crisis. Probably, it is the largest crisis after great recession of 1930s that has affected both real and financial sectors (Llanto and Badiola, 2010). This crisis originated in United States in second half of 2007 with the spark of subprime mortgage crisis and got worst momentum in the year 2008. The contagion of the crisis in the world was due to technological advancement and globalization.

Developing countries also faced negative repercussions of this crisis and experienced adverse impact on their economies via the channel of finance and trade. Net capital inflows from developed countries to developing countries shrunk drastically from the beginning of this crisis. This crisis badly affected FDI, portfolio investment and exports of the developing countries (Iqbal, 2010). Global financial crisis that started from United States after mid 2007 is considered the world's largest crisis after 1930s recession. Of course, this crisis also penetrated to world's stock markets and adversely hit them. Considering this, few studies also assess the impact of this crisis on stock markets.

The role of stock markets is beneficial for providing finance to lacking sectors, helpful to vibrate private sector and sharing risk (Omet 2002). Due to complicated functions of stock exchange, different aspects of it are analyzed in literature on stock exchange by Gittens(2006) and Shen and Shen(2006). Abundant evidence is also available about positive impact of stock market developments on economic growth (Levine and Zervos 1996; Levine, 2002; Nieuwerburgh et al., 2006; Enisan and Olufisayo 2009).

Zuckerman E. and Rao H. (2004) related the market crash of year 2000 to the main features of trading in technology stocks early in the 1990s. Investors and stock traders were not able to explain the implications of the rise and fall of the Internet stock for many years. Ofek and Richardson (2003) pointed out that during that period, the very high volume of trade in Internet stocks indicated a wide gap between the prices and their fundamental values. Demers and Lev (2001) gave two broad reasons for how Internet stocks reached unjustifiably high prices in the late 1990s and early 2000. Roll (1989) suggested downward revised expectations for the worldwide economic activity. Others highlighted that stock prices swing from fundamental values because of the trading activities of the uninformed (Shiller, 1984).

Payne and Daghestani (1998) studied the financial determinants of safety during a period of great optimism, expectations of future growth, and a general feeling among investors that the market could only go up. They concluded on the basis of their analysis, that the firms characterized by safety of investment during this period had in their financial profile a greater level of capital spending, a greater return to total capital, less financial leverage, and surprisingly, less growth potential than a randomly selected group of similar firms.

Using EGARCH model, Olowe (2009) studies the response of stock return and its volatility of Nigerian stock market to this recent global financial crisis. The results of the study shows that stock returns and its volatility in Nigeria are free from the severity of this crisis. In contrast to this study, Adamu(2010) takes same objective for Nigerian stock market with conventional statistical analysis i.e. standard

deviation and variance analysis and divided the data into pre and post crisis period. This study empirically revealed that during the financial crisis period, volatility in Nigerian stock market increased. Ravichandran and Maloain (2010) found that during recent financial crisis, stock markets of six Gulf countries faced negative pressure but these markets become strengthened during post crisis period.

Rationale

Traders consider Beta (β) as an important tool for taking their trading decision. There may be a change in the Beta (β) of a IT Sector stock due to a change in the economic position. Thus, the present study is carried to check effect of recession on the IT sectors companies.

Objectives

- To calculate the stock sensitivity of Indian IT companies for pre recession period i.e. from 1 April 2005 to 31 Mar 2008 and for post recession period i.e. from 1 April 2009 to 31 Mar 2013.
- To identify the effect of recession on stock sensitivity index of Indian IT companies.

Hypotheses

Following Hypotheses are constructed to satisfy the above objective

H_{01} : There is no significant difference between stock sensitivity of Oracle vis a vis BSE sensex, pre and post recession.

H_{02} : There is no significant difference between stock sensitivity of Hexaware vis a vis BSE sensex,pre and post recession.

H_{03} : There is no significant difference between stock sensitivity of Financial Technology vis a vis BSE sensex,pre and post recession

H_{04} : There is no significant difference between stock sensitivity of HCL vis a vis BSE sensex,pre and post recession

H_{05} : There is no significant difference between stock sensitivity of TCS vis a vis BSE sensex,pre and post recession.

H_{06} : There is no significant difference between stock sensitivity of Wipro vis a vis BSE sensex,pre and post recession

H_{07} : There is no significant difference between stock sensitivity of Infosys vis a vis BSE sensex,pre and post recession

H_{08} : There is no significant difference between stock sensitivity of Mphasis vis a vis BSE sensex, pre and post

recession.

Research Methodology

The Study: The study is an Empirical in nature and is undertaken to identify the effect of global recession on stock sensitivity index (β) with special reference to Indian IT sector.

The Sample: The sample of the study is constituted of Eight IT Companies from BSE IT Index Listed since 2005-2006.

Tools for Data Collection: Stock prices of IT companies and BSE Sensex were taken from official website of BSE (<http://www.bseindia.com/>)

Tools for Data Analysis: log of stock prices and BSE sensex was taken for removing the scale effect. Mean and the variance of data set were found fluctuating which means the data was non-stationary. Therefore, the first order difference was taken to make the data stationary. Sensitivity Index (β) was then calculated and paired t-test was applied to identify the pre and post recession effect.

Results and Findings

The paired T test results on the Beta (β) of Oracle indicated that the p-value between pre recession stock sensitivity index and post recession stock sensitivity index of Oracle is .370 since $p > .05$ therefore we fail to reject the null hypothesis H_{01} at 5 percent level of significance. It means that there is no significant difference between sensitivity of Oracle company during prerecession and post recession period. The mean value of β before recession was .520584 and the mean value after recession was .425418 which shows that companies sensitivity towards stock has no significant change due to recession. Also the risk factor of the company, indicated by standard deviation is .4414474 during prerecession and .3631482 during post recession period. The correlation coefficient $r = -.212$ and its p-value $> .05$ which indicates that there is a very low negative correlation between the pre and post recession stock sensitivity of Oracle company.

The paired T test results on the Beta (β) of Hexaware indicated that the p value between pre recession stock sensitivity index and post recession stock sensitivity index of Hexaware is .009 since $p < .01$ therefore we fail to reject the null hypothesis H_{02} at 1 percent level of significance it means that there is significant difference between stock sensitivity of Hexaware company during prerecession and post recession period. The mean value of β before recession was .469186 and the mean value after recession was .851848 which shows that companies sensitivity towards stock has significant change due to recession. Also the risk factor of the company, indicated by standard deviation is 0.5596051 during prerecession and 0.7338765 during post

recession period. The correlation coefficient $r=.916$ and its $p\text{-value}>.05$ which indicates that there is a very high positive correlation between the pre and post recession stock sensitivity of Hexaware company.

The paired T test results on the Beta (β) of Financial Technology indicated that the $p\text{-value}$ between pre recession stock sensitivity index and post recession stock sensitivity index of Financial Technology is $.627$ since $p>.05$ therefore we fail to reject the null hypothesis H_{03} at 5 percent level of significance. It means that there is no significant difference between stock sensitivity of Financial Technology company during pre recession and post recession period. The mean value of β before recession was $.648984$ and the mean value after recession was $.720752$ which shows that companies sensitivity towards stock has no significant change due to recession. Also the risk factor of the company, indicated by standard deviation is $.6149102$ during prerecession and $.4767432$ during post recession period. The correlation coefficient $r = -2.81$ and its $p\text{-value}>.05$ which indicates that there is a very low negative correlation between the pre and post recession stock sensitivity of Financial Technology company.

The paired T test results on the Beta (β) of HCL indicated that the $p\text{-value}$ between prerecession stock sensitivity index and post recession stock sensitivity index of HCL is $.125$ since $p>.05$ therefore we fail to reject the null hypothesis H_{04} at 5 percent level of significance it means that there is no significant difference between stock sensitivity of HCL company during prerecession and post recession period. The mean value of β before recession was $.288387$ and the mean value after recession was $.499667$ which shows that companies sensitivity towards stock has no significant change due to recession. Also the risk factor of the company, indicated by standard deviation is $.6563833$ during prerecession and $.4123298$ during post recession period. The correlation coefficient $r = -.091$ and its $p\text{-value}>.05$ which indicates that there is a very low negative correlation between the pre and post recession stock sensitivity of HCL company.

The paired T test results on the Beta (β) of TCS indicated that the $p\text{-value}$ between pre recession stock sensitivity index and post recession stock sensitivity index of TCS is $.575$ since $p>.05$ therefore we fail to reject the null hypothesis H_{05} at 5 percent level of significance it means that there is no significant difference between stock sensitivity of TCS company during pre recession and post recession period. The mean value of β before recession was $.663348$ and the mean value after recession was $.616642$ which shows that companies sensitivity towards stock has no significant change due to recession. Also, the risk factor of the company, indicated by standard deviation is $.2671131$ during pre recession and $.3588242$ during post recession

period. The correlation coefficient $r=-.233$ and its $p\text{-value}>.05$ which indicates that there is a very low negative correlation between the pre and post recession stock sensitivity of TCS company.

The paired T test results on the Beta (β) of Wipro indicated that the $p\text{-value}$ between prerecession stock sensitivity index and post recession stock sensitivity index of Wipro is $.007$ since $p<.01$ therefore we fail to reject the null hypothesis H_{06} at 1 percent level of significance. It means that there is a significant difference between stock sensitivity of Wipro company during prerecession and post recession period. The mean value of β before recession was $.800262$ and the mean value after recession was $.554915$ which shows that companies sensitivity towards stock has significant change due to recession. Also, the risk factor of the company, indicated by standard deviation is 0.4260415 during prerecession and 0.3263607 during post recession period. The correlation coefficient $r=.071$ and its $p\text{-value}>.05$ which indicates that there is a very low positive correlation between the pre and post recession stock sensitivity of Oracle company.

The paired T test results on the Beta (β) of Infosys indicated that the $p\text{-value}$ between prerecession stock sensitivity index and post recession stock sensitivity index of Infosys is $.052$ since $p>.05$ therefore we fail to reject the null hypothesis H_{07} at 5 percent level of significance. It means that there is no significant difference between stock sensitivity of Infosys company during prerecession and post recession period. The mean value of β before recession was $.730956$ and the mean value after recession was $.569893$ which shows that companies sensitivity towards stock has no significant change due to recession. Also the risk factor of the company, indicated by standard deviation is $.3474402$ during prerecession and $.2894728$ during post recession period. The correlation coefficient $r=-.133$ and its $p\text{-value}>.05$ which indicates that there is a very low negative correlation between the pre and post recession stock sensitivity of Infosys company.

The paired T test results on the Beta (β) of Mphasis indicated that the $p\text{-value}$ between prerecession stock sensitivity index and post recession stock sensitivity index of Mphasis is $.217$ since $p>.05$ therefore we fail to reject the null hypothesis H_{08} at 5 percent level of significance. It means that there is no significant difference between stock sensitivity of Mphasis company during pre recession and post recession period. The mean value of β before recession was $.262687$ and the mean value after recession was $.199209$ which shows that companies sensitivity towards stock has no significant change due to recession. Also, the risk factor of the company, indicated by standard deviation is $.2556664$ during pre recession and $.1337357$ during post recession period. The correlation coefficient $r = -.125$ and its $p\text{-value}>.05$ which indicates that there is a very low negative correlation between the pre and post recession stock sensitivity of Mphasis company.

t value $> .05$ which indicates that there is a very low negative correlation between the pre and post recession stock sensitivity of Mphasis company.

Suggestions

There is no effect of recession on the Beta (β) of IT companies like Oracle, Financial Technologies, HCL, TCS, Infosys and Mphasis. It indicates that the market sensitivity of above mentioned companies has not changed and traders can follow the same trading strategy using Beta (β) as they were following before recession. However, there is significant effect of recession on the Beta (β) of Hexaware and Wipro which indicates the dependency of their stock prices has reduced and now the price movement of their stock has become independent of index movement. Thus, the traders has to change their trading strategy using Beta (β) as they were following before recession.

Conclusion

Thus, the research concludes that there is change in the Beta (β) of only two companies out of the eight companies considered for the study. It also proves that the Beta (β) of almost all top graded companies was same as before, which indicates that, the performance and its relativity to the market is same as was before recession. However, the investor should change their strategy of trading in two companies' viz. Hexaware and Wipro as there is change in the sensitivity of these two companies with respect to its index. The price movements of both these companies have become independent of index movement after recession. Thus, traders and investors should consider this fact before taking any of their trading decision and should check the change in Beta (β) of the stock in which the trading has to be done on regular intervals.

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