



TESTING THE STABILITY OF BETA IN INDIAN STOCK MARKET

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Abstract

In investment, Beta is a measure of volatility in stock, which reflects the price fluctuations in relation to the market. It is widely used to analyze the risk component present in stock market. Beta articulates the tradeoff between minimizing the risk and maximizing the return of an asset in investment portfolio. The objective of this study is to measure the stability of beta in SENSEX companies which are listed in Bombay Stock Exchange Limited (BSE). We use monthly data of sample companies ranging from 2006-2015. We take SENSEX as market proxy. We use CAPM model to which is referred as a standard risk – return model to estimate the beta coefficients of the sample companies. The stability of the beta is tested using regression method. We use dummy variable and time variable in regression model to measure the change in beta over time.

Key Words: Beta, CAPM Model, Measure Of Volatility, SENSEX Companies.

1. Introduction

In modern financial management, risk management plays a significant role in investment decision. Any investor cannot eliminate the risk completely but try to minimize the risk by taking many precautionary measures. Theoretically the risk is classified as systematic risk and unsystematic risk. The systematic risk compares the stock volatility to the market as a whole. It is assumed that higher the volatility, higher the risk. In investment, beta is referred as a systematic risk. Beta expresses the volatility of a stock compare to market and there is a positive association between risk and return. The risk measurement and risk management are two important component in investment decision and the investors expect the stability in beta. Capital Asset Pricing Model (CAPM) is popularly used technique to determine the expected return on risky assets. According to this model, expected return is a positive function of its market beta. The systematic risk which is commonly referred as beta cannot be eliminated through diversification. The financial decisions such as stock selection in a portfolio, performance evaluation, capital budgeting etc. are based on beta estimation. It is significant for academicians, researchers and practitioners. According to Elton et al. (2003) “For very well diversified portfolios, non-systematic risk tends to go to zero and the only relevant risk is systematic risk measured by beta”. The purpose of this study is to examine the stability of beta in Indian stock market by considering most liquid stock. This is important as it determines the predictive accuracy of beta. The firm and industries change overtime which has significant effect on risk assessment of the company. This paper contributes to the existing body of literature. The rest of the paper is classified as follows. Section 2 discusses the literature review. Section 3 describes the significance of the study, Section 4 discusses the data, sample and methodology, Section 5 discusses about the results and Section 6 conclusion.

2. Literature Review

Sharpe (1963) initially proposed Beta coefficients in single index market model. Jensen (1969), Beaver et al. (1970), examined the stability of beta and found that sample company's beta are stable over the period. Blume (1971) examined the stability of beta by using the monthly data of sample companies ranging from 1926 to 1968. The results showed that the historical betas are accurate in predicting the future beta of sample companies. Levy (1971) assessed the future risk of securities and portfolios through beta. He found that the betas are reliable in the case of larger portfolios and less reliable for small portfolios. Sharpe and Cooper (1972) examined the stability of beta of individual securities by using US data for the period of 1931 to 1967. The results showed substantial stability of beta over time for individual securities. Meyers (1973) used monthly differential intervals to showcase the stability of betas in individual securities. The results showed the presence of instability of beta of sample companies. Levitz (1974) examined the stability of beta in individual securities and portfolios and found portfolio betas are more stable than individual company's beta. Barry and Wickler (1976) argue that the changing characteristics of companies are the reason to get instability in beta value. Further, the economic environment, capital structure, business strategies etc., will change from one company to other. Gooding and O'Malley (1977) used 200 US stocks for the period from 1966 to 1974 to examine the portfolio betas. The results showed that there is a correlation between portfolio betas and various market phases. The portfolio betas are instable during the sample period. Fabozzi and Francis (1978), Bos and Newbold (1984) and Brooks et al. (1998) confirmed the instability of beta through their empirical study. They argued that the variation in beta because of macroeconomic and microeconomic factors. Baesel's (1974) Alexander and Chervany (1980) and Theobald (1981) argued that longer the estimation intervals more stable betas. Bildersee and Roberts (1981) showed that betas very systematically when there is a fluctuations in interest rate. The systematic change in



because of function of the pattern of interest rate changes. Gupta and Mallick (1996) examined the sample of 150 companies of BSE during the period April 1991 to March 1996. The results showed the variability in betas during different time period. Engle, (1982) and Bollerslev et al., (1988) empirically showed that the variance and covariance matrix changing overtime which resulted in change in beta. This change because of asymmetry in variance and covariance Chawla (2001) examined the stability of beta for Indian sample companies for a period of April 1996 to March 2002. The results showed that there is an instability of beta for more than 30 sample companies. Moonis and Shah (2003) examined the stability of beta in Indian stock market and the results showed time variation in beta. Manickaraj and Loganathan (2004) used sample companies listed in BSE to examine the stationarity of beta and the results showed non-stationarity over time for the sample companies. Irala (2007) found instability of beta in Indian companies for the period of period 1994-2006 for 660 sample companies. Singh (2008) found variation in the values of beta for a sample of 159 stocks from Indian context. The period of the study was from 1991-2002. Das (2008) concluded that betas are stable in Indian stock market to the extent of eighty five percent. Sarma and Sarmah (2008) used the sample size from BSE for the period of 2001 to 2006. By using chow test, the result stated that the beta are stable for shorter period and not for long length intervals. Mallikarjunappa and Vasantha (2013) used S&P CNX Nifty sample to study the stability of beta in Indian context. Normality test and Augmented Dickey-Fuller (ADF) test results showcased instability of betas in most of the sample companies. Das and Barai (2015) examined the stability of industry beta in Indian stock market. The study concluded by proving existence of dynamic beta in Indian market. The systematic risk of indian industries are susceptible to the global economic effect.

3. Significance of the Study

Risk is omnipresent and it varies from one country to another country. In other words the risk factor differs from emerging markets to developed markets. The risk factor in emerging market like India is comparatively high because of frequent regime changes such as trade policies, monetary policies, and fiscal policies and so on. This leads to high volatility in emerging markets compared with developed markets. Estimation of beta is one of the parameter to see the level of risk present in any assets and estimation of beta and modelling gained lot of importance in finance literature. It is assumed that higher the accuracy in predicting the beta, better the investment decisions. Indian economy is opened up for global investors and attracting many investors to invest in Indian financial market. The well-established financial system is another factor which attracts the foreign investors. Further, it is believed that Indian capital market is one of the most dynamic capital market in the world. The objective of the study is to examine the stability of SENSEX stocks listed in Bombay stock exchange Limited (BSE). The investors are characterized as heterogeneous investors and different investors have different time horizon of investment. Therefore, there is a need to analyze the risk factor associated with their investments. Further, the economic condition of Indian economy is very fluid in nature. In changing market condition, efficient investment decision is possible by studying the stability of beta. It has become increasingly important for the investors to identify the risk factor in each investment asset while taking investment decisions.

4. Data Sample and Methodology

4.1 Data and Sample:

The present study uses monthly return of SENSEX stocks listed in BSE. The sample covers the period from January 2007 to December 2015. The sample period is divided in to three phases. The first phase from January 2007 to December 2009, second phase from January 2010 to December 2012 and third phase from January 2013 to December 2015 which is referred as recession period, recovery period and stable period respectively in general. The sample consist of SENSEX stocks which constitutes 30 stocks listed in BSE. This index represents the major industries stock. The SENSEX stocks are value weighted market capitalized index and they are actively traded stocks from BSE. This index accounts for one fifth of the market capitalization of Indian exchange. These stocks also referred as most liquid stocks in capital market. These highly traded stocks adjust faster to information and hence, prices dissemination to their true value will be faster when compare to other stocks. As the SENSEX companies change over time, our final sample is restricted to 26 stocks based on data availability for sample period. The data is collected from www.bseindia.com. We have taken SENSEX index as market proxy.

4.2 Methodology:

In this study we examine the stability of beta. The monthly return of each security is computed for the sample period. We estimated beta using a market model which is developed by Sharpe (1964) and Lintner (1965). In this model, the excess return of an asset is regressed against excess market return. The standard market model regression defined as:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad t=1, \dots, T$$

where, R_{it} is the excess return on asset i for period t , R_{mt} is the excess return on the market index for period t , α_i is the constant, β_i capture the systematic risk of the asset and ε_{it} is the disturbance term. The term ε_{it} has property of zero mean,



homoscedastic, and follows an independent and identical distribution (i.i.d.) process. In this study, we test the hypothesis that betas are stable across time.

Beta measures the volatility of given asset relative to the market volatility. According to the market model the systematic risk is captured by β_i coefficients which is also referred as financial elasticity. On an individual asset, beta coefficient gives signal of volatility and liquidity in the marketplace. The negative beta indicates negative relationship between stock return and market return. In other words, if market return goes up, the security prices are likely to come down. If the beta value is zero, there is no systematic risk and therefore, there is no relationship with market return. The beta values between 0 to 1 shows that individual stock volatility is less than market volatility. If the beta values are equal to 1, it shows that volatility in share prices and market are equal. Beta values more than 1 means stock has higher volatility than market which reflects high fluctuations in stock prices.

To measure the change in beta over time, we use time and dummy variable in regression model. In the market model regression we used tR_{mt} variable as explanatory variable where, t represents time and it takes the value of 1, 2 and 3 respectively for three different market phases. The regression model is defined as follows.

$$R_{it} = \alpha_i + \beta_i R_{mt} + \beta_{i1} tR_{mt} + \varepsilon_{it} \quad \text{Where, } t=1, 2 \text{ and } 3.$$

The statistical significance of the coefficient of tR_{mt} is tested using t test. If the coefficient found significant at a given level of significance, that would be an indication of fluctuation of beta across time and hence would reject the hypothesis of stability of beta across time. In another approach we use dummy variables to measure the change in beta over time. The model is defined as follows.

$$R_{it} = \alpha_i + \beta_i R_{mt} + \beta_{i1} D_1 R_{mt} + \beta_{i2} D_2 R_{mt} + \varepsilon_{it}$$

Where, D_1 and D_2 the dummy variables in the above regression model.

$D_1=1$ for period two, otherwise 0

$D_2=1$ for period three, otherwise 0

The statistical significance of the coefficient is tested using t test and if the coefficient are statistically significant that is the indication of non-stationarity of beta over time.

5. Results and Discussion

We estimated beta using a market model for the period covering January 2007 to December 2015. Table 1 provides the results of values of betas for SENSEX stocks listed in BSE. For all the three time periods, the betas generated are positive and there is a trend or relationship exists between stock return and market return except for TCS and WIPRO Company which shows negative beta for third period of the study. The Axis Bank, ICICI Bank, Larsen, Reliance Industries Ltd, SBI, Tata Motors Ltd, and Tata Steel Ltd shows beta values more than one for three periods. This indicates that the stocks are more volatile than the market and these securities are aggressive. These company's securities offering the opportunity of a higher rate of return with higher risk. We found Cipla Ltd, Dr. Reddy's Laboratories Ltd, Hero MotoCorp, Hindustan Unilever Limited, Infosys, ITC, Lupin Ltd and Sun Pharmaceutical Industries Ltd Company's has a beta value between 0 to 1 which indicates low volatility in security prices for all the periods. The results indicate that these securities are defensive securities. The p- values has been checked for the statistical significance of the beta coefficients. All the 26 sample companies' beta coefficients are statistically significant at 5% level of significance for overall period. For the sub period 1, 23 companies' beta coefficients are statistically significant. For sub-period 2, the beta coefficients of 21 companies are statistically significant. The third sub-period shows that 18 company's beta coefficients are statistically significant. Therefore, we reject the null hypothesis that betas are stable overtime.

Name of the company	Overall	Period 1	Period 2	Period 3
Asian Paints	0.5711 (0.0005)*	0.4712 (0.0009)*	0.4552 (0.0399)*	1.5557 (0.0463)*
Axis Bank	1.433 (0.000)*	1.3008 (0.000)*	1.502 (0.000)*	2.2451 (0.0037)*



	0.6732	0.5817	0.7885	1.1307
Bharti Airtel Ltd	(0.000)*	(0.0054)*	(0.0039)*	(0.0012)*
	0.3294	0.2256	0.5985	0.4739
Cipla Ltd	(0.0018)*	0.1367	(0.0027)*	0.1726
	0.5255	0.6031	0.3594	0.3218
Dr. Reddy's Laboratories Ltd	(0.000)*	(0.0018)*	(0.0455)*	0.3909
	0.9381	1.0339	0.5767	0.9986
GAIL	(0.000)*	(0.000)*	(0.0003)*	(0.0073)*
	1.0242	1.0454	0.8879	1.114
HDFC	(0.000)*	(0.000)*	0.0517	(0.000)*
	1.1015	0.9971	1.3783	1.2404
HDFC Bank	(0.000)*	(0.000)*	(0.0028)*	(0.000)*
	0.6157	0.5518	0.6892	0.8704
Hero MotoCorp	(0.000)*	(0.0001)*	(0.0082)*	(0.006)*
	0.2854	0.1796	0.417	0.8377
Hindustan Unilever Limited	(0.0035)*	0.1641	(0.0298)*	(0.0108)*
	1.6647	1.5549	1.5565	2.761
ICICI Bank	(0.000)*	(0.000)*	(0.000)*	(0.000)*
	0.5932	0.4779	0.8663	0.7846
Infosys	(0.0001)*	(0.0039)*	(0.000)*	0.2684
	0.3574	0.2855	0.5672	0.434
ITC	(0.0013)*	0.0573	0.0616	(0.0464)*
	1.7452	1.7604	1.5211	2.1061
Larsen	(0.000)*	(0.000)*	(0.000)*	(0.000)*
	0.4179	0.4561	0.3282	0.2268
Lupin Ltd	(0.0091)*	(0.007)*	0.5002	0.5172
	0.9448	1.058	0.5449	0.9703
M&M	(0.000)*	(0.000)*	0.1077	(0.003)*
	0.9303	0.7101	1.2952	1.7126
Maruti Suzuki	(0.000)*	(0.0002)*	(0.000)*	(0.000)*
	0.7372	0.6263	0.9215	1.0314
NTPC Ltd	(0.000)*	(0.000)*	(0.000)*	(0.0096)*
	1.0312	0.9932	0.8721	1.5768
ONGC	(0.000)*	(0.000)*	(0.0468)*	(0.000)*
	1.0285	1.0163	1.0285	1.1175
Reliance Industries Ltd	(0.000)*	(0.000)*	(0.000)*	(0.0001)*
	1.2527	1.2346	1.2363	1.374
SBI	(0.000)*	(0.000)*	(0.000)*	0.081
Sun Pharmaceutical Industries Ltd	0.5433	0.4335	0.9843	0.3378



	(0.0009)*	(0.0018)*	(0.0317)*	0.5247
	1.5552	1.4694	1.9191	1.3233
Tata Motors Ltd	(0.000)*	(0.000)*	(0.0004)*	(0.0026)*
	1.7824	1.8473	1.7534	1.294
Tata Steel Ltd	(0.000)*	(0.000)*	(0.000)*	(0.0208)*
	0.5623	0.7303	0.3569	-0.1614
TCS	(0.000)*	(0.0011)*	(0.0207)*	0.6093
	0.7429	0.8916	0.5754	-0.0507
WIPRO	(0.000)*	(0.000)*	0.0681	0.8951

Table 2 present the result of regression using time as an independent variable in the equation. It is observed that the value of R^2 , a measure of goodness of fit varies from 6.51% to 66.36%. The value of R^2 is greater than 50% for Tata Steel Ltd, Larsen and ICICI Bank. The $\beta_2 (tR_{mt})$ coefficients are between 0 to 1 for Asian Paints, Axis Bank, Bharti Airtel Ltd, Cipla Ltd, HDFC Bank, Hero Motocorp, Hindustan Unilever Limited, ICICI Bank, Infosys, ITC, Larsen, Maruti Suzuki, NTPC Ltd, ONGC, Reliance Industries Ltd, Sun Pharmaceutical Industries Ltd and Tata Motors Ltd. company. The beta values are negative for Dr. Reddy's Laboratories Ltd, GAIL, HDFC, Lupin Ltd, M&M, SBI, Tata Steel Ltd, TCS and WIPRO. For the statistical significance, it is observed that $\beta_2 (tR_{mt})$ coefficient is statistically significant for WIPRO, TCS, Maruti Suzuki and Hindustan Unilever Ltd. The results shows that 24 company's out of 26 companies $\beta_2 (tR_{mt})$ coefficient are statistically insignificant and therefore, the tendency is towards not to reject the hypothesis of stability of beta.

Table 2: Estimates of Regression Using Time as a Variable

Name of the company	R square	α	β	β_2
Asian Paints	0.1249	0.0110	0.1267	0.3180
		0.3257	0.7326	0.1862
Axis Bank	0.4428	0.0011	0.9788	0.3250
		0.9211	(0.0100)*	0.1805
Bharti Airtel Ltd	0.2312	-0.0086	0.2752	0.2848
		0.3287	0.3491	0.1350
Cipla Ltd	0.1040	0.0088	0.0523	0.1983
		0.2261	0.8273	0.2019
Dr. Reddy's Laboratories Ltd	0.1802	0.0143	0.7626	-0.1696
		0.0728	(0.0046)*	0.3207
GAIL	0.4473	0.0001	1.1672	-0.1639
		0.9880	(0.0000)*	0.2948
HDFC	0.3749	0.0002	1.0697	-0.0325
		0.9794	(0.0006)*	0.8687
HDFC Bank	0.4437	0.0020	0.8521	0.1785
		0.8125	(0.0034)*	0.3341
Hero MotoCorp	0.2673	0.0105	0.4448	0.1223
		0.1439	0.0622	0.4245
Hindustan Unilever Limited	0.1138	0.0137	-0.1119	0.2844
		(0.0408)*	0.6106	(0.0472)*



	0.6148	-0.0125	1.1445	0.3722
ICICI Bank		0.1778	(0.0003)*	0.0623
	0.1382	-0.0042	0.3099	0.2027
Infosys		0.6908	0.3759	0.3702
	0.0998	0.0061	0.2011	0.1119
ITC		0.4253	0.4260	0.4930
	0.6637	-0.0049	1.7196	0.0184
Larsen		0.5713	(0.0000)*	0.9207
	0.0651	0.0187	0.5526	-0.0964
Lupin Ltd		0.0936	0.1357	0.6857
	0.3632	0.0029	1.1905	-0.1759
M&M		0.7393	(0.0001)*	0.3489
	0.4257	0.0109	0.1855	0.5330
Maruti Suzuki		0.1765	0.4860	(0.0024)*
	0.3810	-0.0038	0.4382	0.2140
NTPC Ltd		0.5682	(0.0486)*	0.1345
	0.3477	-0.0100	0.8283	0.1452
ONGC		0.3107	(0.0124)*	0.4915
	0.4880	-0.0067	0.9572	0.0510
Reliance Industries Ltd		0.3629	(0.0001)*	0.7446
	0.3573	-0.0073	1.3070	-0.0388
SBI		0.5284	(0.0010)*	0.8764
	0.1035	0.0050	0.3758	0.1198
Sun Pharmaceutical Industries Ltd		0.6534	0.3130	0.6180
	0.4415	-0.0035	1.4188	0.0976
Tata Motors Ltd		0.7736	(0.0006)*	0.7077
	0.5981	-0.0075	2.1431	-0.2581
Tata Steel Ltd		0.4627	(0.0000)*	0.2382
	0.2099	0.0079	1.0745	-0.3665
TCS		0.3368	(0.0001)*	(0.0401)*
	0.2732	0.0007	1.2978	-0.3971
WIPRO		0.9407	(0.0000)*	(0.0398)*

The estimated results of regression using dummy variables are presented in table 3. From the reported results it is noted that R^2 value fluctuates from 6.54% to 66.76%. In addition, it is in 3 out of 26 R^2 is greater than 50%. It is further observed from the result presented in table 3 that β_2 coefficients of Asian Paints, Axis Bank, Bharti Airtel Ltd, Cipla Ltd, HDFC Bank, Hero Motocorp, Hindustan Unilever Limited, ICICI Bank, Infosys, ITC, Maruti Suzuki, NTPC Ltd, Reliance Industries Ltd, Sun Pharmaceutical Industries Ltd and Tata Motors Ltd are between 0 and 1. The β_2 coefficients of Dr. Reddy's Laboratories Ltd, GAIL, HDFC, Larsen, Lupin Ltd, M&M, ONGC, SBI, Tata Steel Ltd, TCS and WIPRO are negative. In the case of β_3 coefficients, Asian Paints, Axis Bank, Bharti Airtel Ltd, Cipla Ltd, HDFC, HDFC Bank, Hero Motocorp, Hindustan Unilever Limited, Infosys, ITC, Larsen, NTPC Ltd, ONGC and Reliance Industries Ltd shows betas between 0 to



1. Further, it is observed that Dr. Reddy's Laboratories Ltd, GAIL, Lupin Ltd, M&M, SBI, Sun Pharmaceutical Industries Ltd, Tata Motors Ltd, Tata Steel Ltd, TCS and WIPRO shows negative β_3 coefficients. The p-values of β_2 coefficients are statistically insignificant for all the sample securities. The β_3 coefficients are statistically significant for ICICI Bank, Maruti Suzuki and WIPRO. For other 23 sample companies the β_3 coefficient are insignificant for the sample period at 5% level of significance. Therefore, the null hypothesis of beta stability is not rejected.

Table 3: Estimates of Regression Using Dummy Variable

Name of the company	R Square	α	β	β_2	β_3
Asian Paints	0.1334	0.0104	0.4864	0.0051	0.8864
		0.3531	(0.0118)*	0.9896	0.1034
Axis Bank	0.4441	0.0008	1.3246	0.1690	0.7749
		0.9424	(0.0000)*	0.6722	0.1589
Bharti Airtel Ltd	0.2313	-0.0087	0.5627	0.2640	0.5863
		0.3296	(0.0003)*	0.4006	0.1745
Cipla Ltd	0.1104	0.0091	0.2275	0.3720	0.2577
		0.2104	0.0667	0.1469	0.4619
Dr. Reddy's Laboratories Ltd	0.1812	0.0142	0.6035	-0.2490	-0.2758
		0.0775	(0.0000)*	0.3777	0.4759
GAIL	0.4608	-0.0005	1.0462	-0.4863	-0.0698
		0.9444	(0.0000)*	0.0586	0.8416
HDFC	0.3777	-0.0001	1.0606	-0.2083	0.0756
		0.9915	(0.0000)*	0.5213	0.8650
HDFC Bank	0.4459	0.0023	1.0101	0.3320	0.2341
		0.7872	(0.0000)*	0.2767	0.5752
Hero Motocorp	0.2674	0.0104	0.5705	0.0971	0.2646
		0.1482	(0.0000)*	0.7009	0.4459
Hindustan Unilever Limited	0.1150	0.0135	0.1815	0.2164	0.6231
		(0.0439)*	0.1110	0.3574	0.0550
ICICI Bank	0.6221	-0.0132	1.5650	0.0099	1.0343
		0.1539	(0.0000)*	0.9757	(0.0217)*
Infosys	0.1420	-0.0038	0.4861	0.4018	0.2462
		0.7186	(0.0078)*	0.2823	0.6301
ITC	0.1042	0.0063	0.2929	0.2627	0.1030
		0.4056	(0.0257)*	0.3298	0.7800
Larsen	0.6677	-0.0054	1.7734	-0.2475	0.2494
		0.5322	(0.0000)*	0.4158	0.5495
Lupin Ltd	0.0654	0.0186	0.4630	-0.1470	-0.1523
		0.0973	(0.0162)*	0.7090	0.7779
M&M	0.3745	0.0023	1.0587	-0.5062	-0.0874
		0.7937	(0.0000)*	0.1016	0.8356
Maruti Suzuki	0.4257	0.0109	0.7172	0.5430	1.0580
		0.1785	(0.0000)*	0.0583	(0.0077)*
NTPC Ltd	0.3822	-0.0036	0.6412	0.2965	0.3620
		0.5863	(0.0000)*	0.2089	0.2628
ONGC	0.3563	-0.0106	1.0161	-0.1746	0.5462
		0.2821	(0.0000)*	0.6145	0.2517
Reliance Industries Ltd	0.4883	-0.0067	1.0139	0.0085	0.1361
		0.3601	(0.0000)*	0.9737	0.7018
SBI	0.3573	-0.0073	1.2668	-0.0288	-0.0857
		0.5321	(0.0000)*	0.9444	0.8797



Sun Pharmaceutical Industries Ltd	0.1186	0.0058	0.4408	0.5315	-0.0897
		0.6030	(0.0220)*	0.1791	0.8680
Tata Motors Ltd	0.4486	-0.0027	1.4644	0.4881	-0.1172
		0.8208	(0.0000)*	0.2553	0.8416
Tata Steel Ltd	0.5991	-0.0072	1.8660	-0.1159	-0.6301
		0.4812	(0.0000)*	0.7479	0.2041
TCS	0.2103	0.0080	0.7007	-0.3114	-0.7772
		0.3334	(0.0000)*	0.2880	0.0546
WIPRO	0.2740	0.0008	0.8897	-0.3146	-0.8601
		0.9271	(0.0000)*	0.3207	(0.0492)*

6. Conclusion

In corporate financial decision, stability of beta is of great concern. In this paper we estimated the beta for SENSEX stocks which are listed in BSE. The market model is used to estimate the constant beta and time varying beta is estimated by using time variable and dummy variables. In the case of market model regression, the betas are statistically significant. The estimation of beta using time variable and dummy variables are statistically insignificant. Therefore, it can be concluded that there is a less ground to conclude the beta values are not stable overtime in Indian stock market. The results will have favourable effect on corporate and investment decisions. The implication of this result is important for the practitioners such as portfolio managers, investment advisors and security analysts who advise in domestic and global investment decisions. The further research can be extended to investigate the stability of beta by using different return frequencies like daily/weekly etc. Further, there is a scope to investigate the stability of industry wise beta over time, stability of portfolio beta, the effect of market and company specific factors and stability of beta on Indian stock market.

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