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An Empirical Test of Capital Assets Pricing Model and Three Factor Model of Fama in Indian Stock Exchange

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ABSTRACT

Purpose

The Research paper has focused on the recent growth of capital markets in India and the need of practitioners in these markets to determine a stable price for securities and achieving expected return have brought theories of predicting securities price more into consideration. Among different models the CAPM of Sharp (1964), Lintner (1965) and Fama – French's three-factor model (1993) are more considered by researchers and practitioners. The purpose of this Research Paper is the empirical testing of Capital Asset Pricing Model (CAPM) and three factor model of Fama for the Indian capital market with reference to the NSE&NSE, both for individual assets and for portfolios,

Methodology

The study using a sample of daily data and Annual Average for 54 companies listed on National Stock Exchange, during the period from 2010 to 2016, following the interpretation of results and usefulness of the model estimates. The research paper intention is to find if the relationship between expected return and risk is linear, if beta is a complete measure of the risk and if a higher risk is compensated by a higher expected return.

Findings

The results confirm that the intercept is statistically insignificant, upholding theory, for both individual assets and portfolios. The tests do not essentially provide validation against CAPM and FAMA, however other simulations can be built, more close to reality,

Conclusion

The results confirm that the intercept is statistically insignificant, upholding theory, for both individual assets and portfolios. The tests do not essentially provide validation against CAPM and FAMA, however other simulations can be built, more close to reality, improving the model and offering an alternative which also takes into account the specific conditions of Indian capital market and the global financial crisis consequences.

Keywords: CAPM. FAMA, High risk, Expected return, Linter and portfolios
JEL Classification: Finance, Accounts and Capital Structure theories

INTRODUCTION

The present research study has highlighted on capital-asset pricing model (CAPM) and it's played an important role in modern finance and modern capital theory. The pull of the CAPM is that it offers powerful and intuitively pleasing predictions about how to measure risk and the relation between expected return and risk (Fama & French, 1992). According to the CAPM, investors aim to minimize the variance and maximize the expected return of their portfolios. The standard version of the CAPM, as developed by Sharpe (1964) and Lintner (1965), relates

the expected rate of return of an individual security to a measure of its systematic risk. Systematic risk as measured by beta, captures that aspect of investment risk which cannot be eliminated by diversification. One property of the CAPM is that investors are compensated with a higher expected return only by accepting systematic risk. In addition to this, the CAPM suggests that higher-beta securities are expected to give higher expected returns than lower-beta securities because they are more risky (Elton & Gruber, 1995).

The other side research paper focused on the validity of the Fama and French three-factor asset pricing model on the National Stock Exchange and Bombay Stock Exchange (NSE &BSE). Monthly excess stock returns over the period from 2010 to 2016 are used in the analysis. Realized returns show that portfolios containing large firms have higher average excess returns than portfolios containing smaller sized firms. In this research paper for the evaluated market values share purpose has consider the 25 portfolios are made allowing to size and book-to-market ratio of firms in order to explain the variations on excess portfolio returns by using market risk factor, size risk factor and book-to-market ratio risk factors. Size factor has no effect on portfolios having big-size firms but can explain the excess return variations on portfolios having small and medium-sized firms. Fama and French three-factor model has control on explaining variations on excess portfolio returns but this control is not durable throughout the test period on the NSE&BSE.

Purpose of the Research Paper

This research paper main intention is to test the Reliability and validity of the Capital Asset Pricing Model and three factor model using the assets traded on the NSE &BSE. The Capital Asset Pricing model or in short the CAPM is symmetry model that relates stocks risk free rate measured by beta to their returns. Its main massage is that stocks returns are increasing proportionally to their betas and that this relationship is positive and linear. It is expressed by so called Security Market Line (SML). A complete derivation and logic behind the model will be described. The present paper three independent tests of the model will be performed based on previous studies of the researchers such as Black, Jensen, Scholes, Fama and MacBeth. And will describe their studies in more detail. This paper use the monthly returns on the stocks in the years 2010-2016. Due to this relatively short testing period the original tests must be modified to accommodate the available data.

LITERATURE REVIEW

Authored	Years	Description of the authored view in his context and listed variables
Diwan	2010	Examined the validity of the CAPM for the Bombay stock Exchange. The study has used weekly stock returns from 28 companies listed on the Bombay stock exchange from November 2004 to October 2009
Lazar and Yaseer	2009	Investigated the validity of CAPM in Indian Market. The study used the data of 70 companies of BSE100 and tested the validity of CAPM, test of SML and test of Non-linearity.
Abbilash et al	2009	Analyzed the relevance of factors other than beta that affect asset returns in the Indian stock market. Only non-financial firms included in the BSE100 index were considered for the analysis
Connor and Sehgal	2001	The study found evidence for pervasive market, size, and book-to-market factors in Indian stock returns. The cross-sectional mean returns

		are explained by exposures to these three factors, and not by the market factor alone.
Mohamed and Abirami	2004	The authored has discussed The sensex and 91 days Treasury bill were used as market proxy and risk free return respectively
Obaidullah	1994	The study used monthly price of 30 stocks ranging from 1976-1991. Multiple regressions was performed and found that the description of CAPM was not valid in Indian market during the period for the sample stocks
Ray	1994	In his research paper explored the result found using Fama-MacBeth methodology was that CAPM did not seem to hold for the Indian capital market
David	2010	CAPM version is examined and resulted that the estimated zero-beta rate obtained is not statistically different from zero, and the estimated portfolio beta coefficient is statistically significant
Allen and Bujang	2009	In his research paper The findings suggest that both the Log Logistic and Weibull hazard models seem to support the existence of negative duration dependence for both positive and negative runs of abnormal returns,
Huang and Hueng	2008	Applying the empirical model adaptive least square with kalman foundations proposed by Mc CuHoch (2006), it is found that there is a positive risk return relationship in the up market and a negative relationship in the down market
Watson	2008	The results supported the conclusion that betas, while useful, are not sufficient on their own to account for the variation in equity returns in the CARICOM markets
Punsak	2007	This means that these stocks are undervalued stocks. Whereas 12 real-estate stocks has the expected rate of return lower than the required rate of return based on CAPM
Han	2006	The mispricing results are as equally successful in as Adrian's model, the momentum in the optimal factor loading is confirmed. During the transitional business-cycle periods, the factor loading seems to be more volatile
Taylor	2005	The empirical test of the CAPM showed that the CAPM was fairly successful in predicting the price of individual assets. None of the three necessary conditions for a valid model were rejected at the 95% level.
Fama and French	1993	Test whether variations on stock prices, in relation to size and BE/ME reflect the variations on earnings. Fama and French (1995, p.131) show that consistent with rational pricing, high BE/ME signals persistent poor earnings and low BE/ME signals strong earnings.
Aksu and Onder	2003	This study contains only non-financial firms traded in the ISE during the 1993-1997 period. Monthly stock returns including dividends are used in the analysis. They find that Fama and French model has explanatory power on explaining stock return variations.
Gaunt	2004	Tests validity of both the Fama and French model and the CAPM in Australian Stock Exchange. He finds that Fama and French three-factor

		model provides a better explanation of Australian stock returns than the CAPM
Doganay	2006	Tests the Fama and French model on Istanbul Stock Exchange. Test period includes the months from July 1995 through June 2005. This study supports that excess market portfolio return, size and market-to-book ratio are effective on the variations of excess portfolio returns.
Richard Roll	1997	In his research study explored that the exact composition of the market portfolio is practically not possible to determine. Thus according to the author it is not possible to test CAPM empirically.

Scope of the Study

The main objective of this research paper is to check the validity of the Capital Asset Pricing Model and three factors Model using the assets traded on the Indian Stock Exchange and Mumbai Stock Exchange. The Capital Asset Pricing model or in short the CAPM is equilibrium model that relates stocks risk measured by beta to their returns. It is that stocks returns are increasing proportionally to their betas and that this relationship is positive and linear. In this paper three independent tests of the model will be performed based on previous studies of the researchers such CAPM, FAMA and Linter.

Significance of the Study

The research paper explore in Finance theory, it is normally accepted that the expected return of the market is positively and equivalently related to the provisional volatility meaning that if there are prospects of higher levels of risk associated with a particular investment then greater returns are required as compensation for that higher expected risk. A number of empirical studies conducted to test the validity of CAPM give results against the model. Fama-French (1992) while testing validity of CAPM found that the relationship between beta and average return for BSE &NSE common stocks was weaker than predicted by CAPM. Lintner (1965) performed the first empirical test of the CAPM using a two-stage regression.

Objective of the Study

The study will be conducting for examine the application of capital asset pricing model (CAPM), and three factor model of FAMA with a specific emphasis on of its main components, namely the risk-free rate, investment analysis, beta and other related components the study will be conducting on individual securities listed in Indian Stock Exchange (FSE).

1. To revised the empirical validity of Advance CAPM Frame work in the France capital market by using portfolios having different number of security
2. To evaluate Capital Assistant Pricing Modal and Three Factor Model of Fama in Indian stock Exchange.
3. To examine whether the expected rate of return is linearly related with the stock beta, i.e. its systematic risk and non-systemic risk affects the portfolios' returns.
4. To study the validity of the Capital Asset Pricing Model and Three Factor Model of FAMA using the assets traded on the Indian Stock Exchange and is equilibrium model that relates stocks risk measured by beta to their returns.

Hypothesis

1. There is a significant difference between predicted return in Fama – French's model and that in CAPM in the context of India.
2. There is a significant relationship between expected return in Fama – French's model and market risk premium in the context of India.
3. There is a significant relationship between expected return in Fama – French's model and Expected return estimated in CAPM is closer to the real return.
4. The CAPM explain returns on the NSE &BSE better than the three-factor model that uses market capitalization and earnings price ratio as risk factors.
5.

Research Methodology

The CAPM and three factor model of Fama models in Indian stock market are applied to using the same FF methodology they measure the variables to check if those models can be applied in this emerging market. The study comparisons between the measured returns according to those models with real variables and with each other were implemented.

Data Description

The period of this study extended from January 2010 to December 2016, using monthly and yearly average stock prices and rate of retunes for corporations listed in Indian Stock Exchange (NSE &BSE). The source of all the data used in this study is the website of the Indian stock exchange (http://www.nse.com.in/). The number of observations is top 50 listed companies in the first part of the study to check the applicability of those models.

Model specification for this research paper in the context of India Stock market: - with reference to NSE &BSE

The Fama and French Three Factor Model

The Fama and French (1992, 1993) three factor model uses the standard multiple regression approach. It is expressed in the form of equation (I) below:

$R_{p,t} - R_{f,t} = a_{pt} + bp\,(R_{m,t} - R_{ft}) + Sp\,(SMB) + h_p\,(HML) + m_{pt}$ ----------(1)

Where

$R_{p,t}$ = Average monthly return of portfolio

R_{ft} = Monthly risk free rate

$R_{m,t}$ = Expected monthly market return

SMB = Small minus big (proxy for company size)

HML = High minus low (proxy for value premium i.e. BE/ME)

bp, sp and hp = Factor sensitivities or loading which are the slope coefficients in the time series regression

Q_{pt} = the intercept of the time series regression

μ_{pt} = the stochastic error term

The Capital Asset Pricing Model (CAPM)

In order to test the CAPM of portfolio in this study, we construct six portfolios and estimate the regression model for each of them by imposing hp=sp=0 in equation (I). Therefore, our portfolio CAPM equation for this study is as follows:

$R_{p,t} - R_{f,t} = Q_{pt} + bp\ (R_{m,t} - R_{ft}) + \mu_{pt}$ .....(2)

Where:
All the variables are fully defined in equation (I) Equation (II) enables us to effectively compare the performance of CAPM and the three factor model and to identify the risk factors in asset pricing in the Indian stock market.

DATA ANALYSIS

Result of the Bivariate Analysis of CAPM and three factor model of Fame

The present Research paper main purpose was to test the existence of three factors model of Fama and CAPM beta that significantly explained stocks' returns in the Indian stock market. The factors considered were market capitalization and the ratio of earnings to price. The methodology of Fama and French was used. The betas were calculated and portfolios were formed, for the investigation of the effect of the three-factor CAPM during the testing periods, 2010 and 2016. Cross-sectional regressions were run for the portfolio returns as the dependent variable against the beta and the mentioned factors as the independent variables as explained by the equation below;

$$R_p = \lambda_0 + \lambda_1\beta_p + \lambda_2\beta_i + \sum_p \ldots\ldots\ldots\ldots (1)$$

Where

R_p = is the portfolio return

Bi = is the proxy for factor i

$\sum_p$ = is the random disturbance term in the regression equation

The proxies for the risk factors are the natural logarithm of the product of market shares and end of year prices was the proxy for market capitalization and the ratio of the earnings per share to the end of year prices was a proxy for the earnings to price ratio. If each of the mentioned factors are relevant in explaining asset returns on the Indian Stock Exchange, then the estimated parameter $\lambda 2$ should be significantly different from zero. The bivariate analysis allowed for the testing of the following hypotheses about CAPM;
Hypothesis: $\lambda 2 = 0$, There is a significant relationship between expected return in Fama – French's model and market risk premium in the context of India.

EMPIRICAL FINDINGS

The tests for the ability of the firm specific factors, that is, market capitalization of expected return and market risk premium, to explain the variation in stock returns was carried out using equation 1 and data from 2010 and 2016. Table 1 below shows the results for the test for 2016.

Table: - 1 bivariate analysis results for the year of 2010 to 2016

		Parameter	standard error	t-value	p-value
Expected rate of return from selected portfolio	λ_0	3.250	2.987	2.367	0.069
	Λ_1	1.028	1.576	1.670	0.258
	Λ_2	4.801	1.067	2.860	0.004
Rate of premium at systematic risk	λ_0	-2.360	4.589	1.357	0.569
	Λ_1	3.287	2.679	2.698	0.001
	Λ_2	1.980	5.369	2.874	0.895

Source: Amos output

Test for the Effect of Expected Return and Market Premium

From the above table -1 the results for the bivariate analysis for period of 2010 to 2016 showed that the value for λ_0, λ_1 and λ_2 were not significantly different from zero since their p-values were all greater than 0.05. If the CAPM hypothesis is true then λ_0 should be equal to the market risk premium and risk free rate, λ should be equal to the market risk premium and λ should be equal to zero. Therefore, the results for λ and λ were contradictory to the hypothesis and H_{10} was not rejected at 5% level of significance. The results for period 1 indicated that firm size, that is, market capitalisation, did not explain the variation in portfolio returns during the period. The two-factor model did not reveal any superior results in explaining portfolio returns than the single-factor model (CAPM), therefore the results showed evidence in support of CAPM.

Cross sectional analysis and significant of the market capitalization and EPS

The presently the study going to discuss here Through 5 yearly average cross sectional analysis and polled multiple regression analysis has been done for this study. There are two types of Ordinary Least Square (OLS) regression run to applicability of three factor Fama- French model in the context of India and the justification of CAPM in BSE & NSE as a representative of emerging markets in developing countries: for six yearly (2010-2016) average cross section regression model, and two, polled regression model. In average cross sectional analysis the proxy variables sales and market capitalization were interchanged. In polled regression it is taken the impulse dummy variable. In all aspect the years are significant which indicates the impact of time on the model as well as the size (both the market capitalization and EPS). As time have the impact on the model, so incorporation of year dummy has rather improve the overall significance of the regression model.

Estimating a model for a particular firm requires data on the market rate of return, the risk-free rate of return, and stock returns from the financial institutions. The data for this example consist of daily observations from January 2010 through December 2016 on the market return, the risk-free rate. Risk premium is the excess return of a security over the risk-free rate or, rather, the extra return that investors require for bearing risk. The R^2 value of 0.2540 means that about 2% of the variation in the stock returns can be explained by the independent variables of the market. The correlation among the dependent and independent variables is 0.1658, which shows the interdependency among the variables.

Table:-2 Five Yearly Average Cross Sectional Analysis: (Size, Beta, BM) Variables in the equation

Variable	B	SE (Standard error Beta) B	Beta	T	Sig T
Beta	-0.0258	0.0056	-0.0041	-3.0251	0.256
BM	-0.5896	0.0458	-0.0210	-0.0293	0.586
Size	0.0048	0.0001	0.0056	-1.0258	0.089
Constant	0.0008	0.0569	0	0.2350	0.596
Multiple R 0.1658	R^2 0.2540	Adjusted R^2 0.213			
F-statistic 4.0235	Signif F 0.0532				

Source: spss output

The F_{score} = *4.0235* for cross sectional analysis and significant at 5% level and the beta

is significant at 1% level other variables BM and Size (market capitalization) are not significant to explain the dependent variable. So it can be said that beta have the relationship with the stock return.

Regression Analysis Results: - The Fama & French Three-Factor test

There is a significant relationship between expected return in Fama – French's model and Expected return estimated in CAPM is closer to the real return as well as study the Rates of Return on the 15 Portfolios are three Factors are the Independent Variables.

Table: - 3 Regression Analysis Results

Fama & French Three-Factor Model						
Rp-Rf = a + β1(Rm-Rf) + β2SMB + β3 HML + +ε						
	Book-to-Market ratio			Book-to-Market ratio		
	Low	Medium	High	Low	Medium	High
portfolio	Intercept			t-statistic		
Small	0.25	0.86	0.18	0.41	0.00	-0.95
Medium	-0.85	0.26	0.46	0.36	-0.01	-0.15
Big	-0.21	-0.50	-0.43	0.50	-0.14	-0.26
portfolio	β 1			t-statistic		
Small	-0.28	0.98	0.73	1.23	0.25	0.37
Medium	-0.57	-0.49	0.81	0.69	0.36	0.91
Big	0.53	-0.65	0.50	021	0.63	0.19
portfolio	β 2			t-statistic		
Small	1.02	0.58	0.57	2.39	0.52	0.67
Medium	0.72	0.82	0.68	1.02	0.41	0.49
Big	-0.10	-0.39	-0.58	0.02	0.74	0.28
portfolio	β 3			t-statistic		
Small	0.10	0.23	0.14	0.59	0.85	0.53
Medium	0.25	0.58	0.85	0.27	0.96	0.62
Big	-0.25	-0.71	0.19	0.32	0.39	0.57
portfolio	β 4			t-statistic		
Small	-1.05	-2.08	-1.94	0.56	0.28	0.65
Medium	1.59	0.86	0.67	-0.27	0.17	0.48
Big	0.58	0.68	0.98	-0.11	0.15	0.36
portfolio	β 5			t-statistic		
Small	0.51	0.75	0.69	0.21	0.35	0.67
Medium	0.51	0.46	0.17	0.58	0.16	0.91
Big	0.89	0.12	0.31	0.58	0.34	0.26
portfolio	AdjustedR2			s(e)		
Small	0.24	0.17	0.61	0.84	0.95	0.49
Medium	0.58	0.69	0.41	0.46	0.75	0.31
Big	0.85	0.64	0.81	0.71	0.42-0.65	0.60

Source: Calculated by the researcher* significant different from zero at the 5% level. ** Significant different from zero at the 10% and confident level 99% margin of error 5%.

Source: spss output

The table -3 describes that the estimation results of the Fama & French Three-Factor model, the results show that the Fama &French three factor model have the ability to provide better explanation to the variation in the expected rate of return, also the three factors model have superior power to predict the portfolios rates of return , for more specification the both factors (SMB and HML) have the ability to explain the variation in rate of return, but the (HML)

factor have more constant relation with the portfolios rate of return . The adjusted R^2 s for the Fama & French three factor model for all portfolios range from (23% to 93%). This evidence about the superiority power to the three factors model are consistent with result that found by Fama & French (1993), Faff (2001) for Indian stock market and Bombay stock market share values duration of the selected period of 2010 to 2016.

Regression Results of 32 portfolios under listed of NSE &BSE: - to apply the CAPM with under following regression method

Table:-4 to test the CAPM explain returns on the NSE &BSE better than the three-factor model that uses market capitalization and earnings price ratio as risk factors

Years	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**
γ_0	(0.056) 0.562	(0.019) 0.267	(0.096) 0.560	(0.024) 0.480	(0.056) 0.510	(0.083) 0.850	(0.001) 0.125
β_{adj}	0.235 0.008	0.685 0.003	0.456 0.009	0.267 0.004	0.168 0.010	0.429 0.019	0.670 0.063
S/F	(0.253) 0.201	(0.119) 0.457	(0.086) 0.520	(0.124) 0.860	(0.156) 0.210	(0.023) 0.150	(0.201) 0.355
L/F	0.362 0.546	0.258 0.351	0.369 0.571	0.147 0.237	0.741 0.480	0.852 0.680	0.963 0.680
Skew	0.001 0.512	0.201 0.351	0.360 0.658	0.350 0.258	0.260 0.560	0.251 0.680	0.360 0.560
E/kurtosis	(0.230) 0.253	(0.158) 0.256	(0.586) 0.598	(0.680) 0.250	(0.556) 0.910	(0.263) 0.150	(0.201) 0.565
R2 (%)	21.02	34.18	11.58	15.86	13.68	17.69	15.59

Source: Amos output

According table-4 the present research paper has discussed in the above table the analysis considers four important aspects. The significance and joint explanatory power of the explanatory variables. The research paper assess these aspects based on the F-test and the R2 respectively. Then the analysis consider at the nature of the relationships between individual explanatory variables and average yearly stock returns, as depicted by the sign of respective partial regression slope coefficients. Further the research study concentrated on the statistical significance of the relationships between individual explanatory variables and average yearly stock returns, as inferred from the P values. Finally the study has examine changes in the above three aspects as the distance of the prediction period increases from 2010 to 2016.

In this connection the study observed Based on the F-test, findings all but one of the regression models above to be statistically significant at 5%. With reference to the R^2, the joint explanatory power of the explanatory variables in the duration of 6 years of the test period ranges from 8.43% 1 years to 60.11% in years 6. Further than the after completing of 3 years, the explanatory power of the model generally falls from 48.56% in the years of 5 to just 16.47% in last year 2016. Thus, the regression model best explains average yearly stock returns over a prediction range of about 6 years, outside which explanatory power becomes substantially low. This is a new finding in the context of CAPM tests in the NSE &BSE.

Note:

1. There is a positive relation between beta and average yearly stock returns. Thus, high beta stocks are expected to generate higher subsequent average returns.
2. There is generally no relation between size and average stock returns in a year

3. There is generally a negative relation between current liquidity and average rate of returns.
4. There is generally a negative relation between skewness and average returns.

Results of CAPM: - Estimates of the Measure of Systematic Risk (Beta)

Present Research Paper tested the capital asset pricing model using Fama and MacBeth (1973) method. Following the literature, the study also tests basic CAPM to aid comparison. As per initial part of the methodology the beta coefficients are estimated for individual securities for the duration of 6 years from 2010 to 2016, in the Indian capital market with reference NSE&BSE.

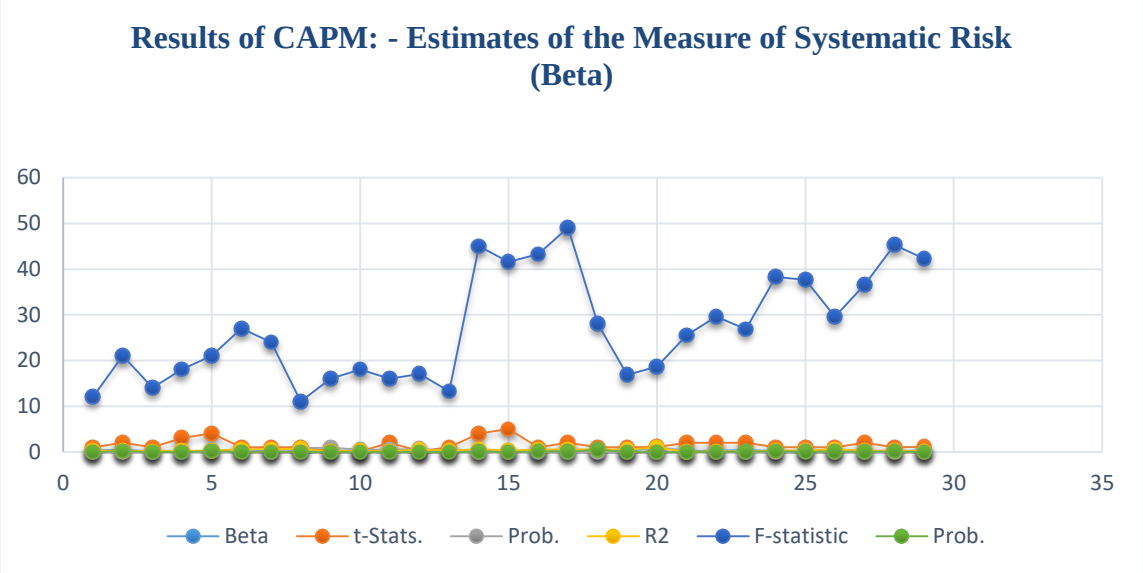
Table: - 5 Results of CAPM: - Estimates of the Measure of Systematic Risk (Beta)

Portfolio	Beta	t-Stats.	Prob.	R^2	F-statistic	Prob.
TCS	0.2341	1.0230	0.002	0.230	12.032	0.000
Reliance	0.5698	2.0310	0.000	0.256	21.023	0.201
HDFC	0.0546	1.0145	0.000	0.214	14.023	0.000
ITC	0.0238	3.0245	0.125	0.235	18.023	0.000
ONGC	0.3576	4.0231	0.201	0.260	21.032	0.201
Infosys	0.2369	1.0236	0.236	0.586	27.023	0.002
SBI	0.2145	1.0475	0.000	0.574	24.025	0.000
Coal India	0.3480	1.0235	0.850	0.680	11.026	0.005
IOC	0.2376	0.2301	0.964	0.080	16.029	0.001
HUL	0.2670	0.1254	0.482	0.250	18.028	0.002
ICICI	0.2469	2.0365	0.450	0.125	16.023	0.000
NTPC	0.3468	0.2135	0.670	0.560	17.058	0.000
BHEL	0.3501	1.0235	0.154	0.256	13.250	0.000
Larsen	0.3020	4.0230	0.005	0.589	45.028	0.010
Bharti Airtel	0.2324	5.0231	0.00	0.354	41.560	0.001
Tata Motors	0.1028	1.0231	0.005	0.487	43.264	0.100
Britannia	0.4120	2.0321	0.006	0.602	49.095	0.025
NHPC	0.2560	1.0235	0.001	0.546	28.087	0.501
LIC	0.2547	1.0254	0.010	0.568	16.860	0.000
Zee Entertain	0.9801	1.0750	0.003	0.987	18.698	0.000
Motherson Sumi	0.2370	2.0321	0.000	0.020	25.572	0.001
Tech Mahindra	0.2601	2.0145	0.000	0.120	29.568	0.001
Dr Reddys Labs	0.4501	2.0369	0.009	0.135	26.861	0.010
Grasim	0.1253	1.0258	0.021	0.250	38.265	0.201
Cipla	0.1207	1.0369	0.231	0.360	37.690	0.012
Dabur India	0.2056	1.0147	0.050	0.601	29.568	0.020
Tata Steel	0.2016	2.0125	0.061	0.238	36.587	0.023
JSW Steel	0.1803	1.0125	0.023	0.236	45.265	0.123
NMDC	0.2610	1.0861	0.061	0.210	42.275	0.000

Source: spss output

From the table no -5 the research study indicated that the when these betas are plotted with the returns of respective stocks on a scattered diagram, the research study has observe that stocks with higher beta risk do not certainly produce higher returns. The relationship is depicted in figure. These results are not just enough to invalidate the applicability of standard CAPM in India. It is essential to estimate the counterpart values of coefficients by regressing the according equation to test the basic CAPM.

Figure -1



According to above figure it will shows that results based on the table no-5, the main purpose for the figure its indicating the beta, R square and t-test values representing on the line chart

Table:-6 the results of estimated coefficients of basic CAPM are presented

Average Estimated Coefficients of Basic CAPM

Variables	ƛot	ƛ1t	ƛ2t	ƛ3t
Average	-0.0120	0.0568	0.5203	0.5620
Std. Deviation	-0.2350	0.5680	0.5680	0.2456
t-statistics	0.5103	0.2368	0.0230	0.2561
Prob.	-0.3650	0.6580	0.5602	0.2560

Source: spss output

The CAPM accepts that the interrupt term should be zero for each stock of the listed companies under the NSE&BSE. The average estimated value of the intercept (-0.0108) is not significantly different from zero (t = -0.2829), consistent with CAPM. The average estimated market excess return (ƛot) is 0.0492. One tailed t-test is conducted to test the condition. The results show that is not different from zero (t = 0.6020), which invalidates the assumption CAPM. On the other side, the average estimated coefficient of beta-square (ƛ2t = -0.0179) is very small and not statistically different from zero (t = -0.4235). It is therefore safe to conclude that the risk-return relationship is linear. Finally, the average estimated coefficient of non-beta risk (ƛ3t =-0.5196) is also not statistically different from zero (t = -0.5240). This proves that the residual or non-beta risk has no effect on the expected return of stocks. . This incompetence is might be the resultant of undiversified portfolios, inefficient market, and short study period.

CONCLUSIONS

This study has explored the new alternatives in depth, in order to solve the CAPM empirical failure, coming to the Fama and French Three Factor Model. The research study results acquired show empirical suggestion in favor of Fama and French Three Factor Model, respect to the CAPM. The present research study can say that for the sample period and the market analyzed, there exist evidence of how the characteristics related to the size and the BE/ME ratio, explain the assets returns. But these results are due to the way the portfolios are

formed. This research paper has given future perspectives on such research can be on discovering whether firm explicit factors explain risk in brad asset classes like business sorted portfolios, examining the role of business cycles on the asset pricing and company fundamentals, testing whether size effect is found only in emerging markets or developed markets or both.

The Present Research paper results revealed that the Fama &French three factor model have the ability to provide better explanation to the variation in the stocks rate of return and expected rate of return in the capital market with reference NSE and BSE, for more description both factors (SMB and HML) provide good explanatory control to the variation in stocks rate of return, but the (HML) factor have more continuous relation with the portfolios rate of return in the all methodology that used to test the three factors model.

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