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## EFFECT OF FIRM CAPITALIZATION ON EQUITY RISK PREMIUM EXPECTATIONS OF THE INVESTORS: A STUDY OF INDIAN CAPITAL MARKET

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### ABSTRACT

*In this paper, the effect of the market capitalization, the proxy for the firm size has been analysed in estimating the equity risk premium expectations of the investors in the Indian Capital Market. The firms are classified into three categories: large cap, mid cap and small cap companies and various financial market factors are analysed in each category and hypothesized that if the firm size affects the ERP expectations of the investors and also which factors affect the most to the ERP expectations in these categories separately. This study is crucial as the equity risk premium expectations of the investors determines the return expectations of the investors which is important for both the company and the investor as return to the investor is the cost to the company. So, higher the ERP expectation of the investors, higher is the cost of capital for the company.*

### KEYWORDS

Equity Risk Premium, Market capitalization, large cap, mid cap and small cap.

### INTRODUCTION

The size of the firm is measured by the market capitalization. Market capitalization is the overall valuation of the company based on the current market price of the share and the total number of outstanding shares of the company. It is one of the most important measure for the investors in selecting the securities that meet their risk, return and diversification criterion.

The Indian capital market categorizes the whole market in three categories, the large cap stocks, the mid cap stocks and the small cap stocks.

The criterion for this categorization is not static but is dynamic depending on the current overall market position. One of the methods to categorize the firms into large cap, mid cap and small cap is the 80-15-5 rule which helps in the categorization of the companies into these three categories. The rule is as follows:

1. Arrange all the companies in the descending order of the market capitalization.
2. The group of companies from the top which together contribute 80% of the total market cap are called as large cap companies.
3. The next group which contribute the next 15% (80-95%) are the mid cap companies.
4. The remaining 5% companies are the small cap companies.

So, this rule is the dynamic as the market cap of the companies is not static but depends on the current market price of the share and the number of outstanding shares of the company, which also thereby alters the total market capitalization. So, the large cap, mid cap and the small cap companies are defines as follows:

1. **Large Cap Companies:** These are the stocks which are usually large and well established companies commonly called as the blue chip companies which have the strong market presence and generally considered to be the safe investments. The information about these firms is easily and readily available in the market in the newspapers and the magazines, so any internal information of these companies is easily accessed by the investors. They have the good disclosures and no dearth of information for the investors looking into them as they have the separate corporate responsibility divisions to audit the internal performance of each and every department to protect the interest of the investor.
2. **Mid Cap Companies:** Mid cap company stocks are relatively risky than the large cap with the parameters like the size, revenues, employee and the client base as these are less than the established large cap companies. The investors invest in these mid cap companies to become tomorrow's runaway success stories in the future as these are providing the higher returns in the long term as compare to the moderate returns in the short duration.
3. **Small Cap Companies:** These are the newly born companies with smaller revenue with small client base which includes the start ups in the early stage of development. These are potentially the big gainers in the market in the long run, as they are yet to be discovered in the sector with the higher potential growth rate once unfurl in the market, but these are risky also as majority of these companies do not have the financial strength to survive in the bad times due to the mismanaged businesses, lower capital base and less expertise as they are new in their business and may not sustain the tough times in the economy. Also the information for these newly startup companies is not readily available, and hence adding the risk factor for the investors. **Klein and Bawa 1977<sup>1</sup>** found that if insufficient information is available about a subset of securities, investors will not hold these securities because of estimation risk, i.e., uncertainty about the true parameters of the return distribution. If investors differ in the amount of information available, they will limit their diversification to different subsets of all securities in the market.

So, seeing this, the size effect has been analysed for the equity risk premium expectations of the investors in the Indian Capital Market. **Sehgal and Tripathi 2005<sup>2</sup>** proposed the strong size affect existed in the Indian Capital market during the period 1990-2003. They had taken the various market and non market measures to measure the size of the company like market capitalization, enterprise value, net fixed assets, net sales, total assets and the net working capital. All these measures proved that the small cap companies provide the extra normal returns on the risk adjusted basis for a sufficient long period of time. **Xu 2002<sup>3</sup>** also reported the strong size affect in China with the market capitalization as the measure of the market size. The company returns also depend upon the size of the company. **Gabreil & Timmermann 2000<sup>4</sup>** predicted the presence of asymmetries in the variation of small and large firms risk over the economic cycle. Small firms with the little collateral were strongly affected by the tighter market conditions in a recession state than the large and better collateralized ones. They analysed that the small firms displayed the highest degree of asymmetry in the risk across the recession and expansion states which translated into higher sensitivity of the stock returns with the risk. The small listed firms yield higher average returns than the larger firms due to the high sensitivity of the returns to the risk. **Richard Roll 1981<sup>5</sup>** studied this effect by taking the other factors like P/E multiple and dividend yield to see this size effect on the stock returns. **Marc R. Reinganum 1982<sup>6</sup>** indicated that the small firms earn higher average rate of return than large firms even after accounting for the beta risk. The evidence showed that while the direction of the bias in beta estimation is consistent with the Roll's conjecture, the magnitude of the bias appeared to be too small to explain the firm size affect. **Brown & Phillip 1983<sup>7</sup>** also checked the size related anomalies in the stock returns. They showed that the small firms had tended to yield returns greater than predicted by CAPM and the size effect is linear in logarithm of returns and these returns are not stable over the period of time. The small firms are



providing more returns than the large firms only in the long term duration, but in a short term duration, small cap stocks are under performing the large cap stocks. **Dimson and Marsh 1999<sup>8</sup>** proved that small caps outperformed large ones by 4.1% per year between 1955 and 1983, but underperformed by 2.4% per year between 1983 and 1997.

**Arbel, A., Carvell, S., & Strebel, P. 1983<sup>9</sup>** stated that the Institutions, mutual funds, banks and money managers face several difficulties in investing in firms with small capitalizations. They behave somewhat like giraffes that have the more concentration on the tall trees in the investment forest ignoring the underbrush due to the good structural reasons and as a matter of preference. The first issue in small cap stocks is the thinly traded securities which created the liquidity problem for the firm. Secondly the small firms have very low paid up capital that even a small investment in these companies resulted in more than 5 per cent ownership, requiring an insider's report to comply with SEBI regulations which also become large enough to necessitate managerial input, which often falls outside the institution's area of interest and expertise. With respect to their preferences, institutional fund managers may not want to take the greater risk perceived to be associated with small firms. They are expected to follow a prudent investment policy, which frequently means doing what everybody else does. But it was found that the small cap stocks have higher returns than the large cap stocks because of the information deficiency premium that the consumers demand a discount on items with low quality information to compensate them for the additional uncertainty involved or for the cost of acquiring the information to avoid this uncertainty. The availability of higher quality information raises the price of the security and lowers its return relative to the return on small cap securities. The second reason for the large returns in the small cap securities is the inefficient pricing, causing some securities, at least for a while, to be overpriced or underpriced. The factors that make it costly for institutions to invest in certain firms represent a market barrier separating institutions and other investors. If, after adjustment for any information deficiency premium, the excess returns on small cap securities are greater than the market barrier, institutions will obviously step in to take advantage of the difference and eliminate the abnormal returns arising from market inefficiency. As a result, adjusted returns in the small cap will not exceed the market barrier for any length of time.

So, therefore with the prospect of higher returns on the small cap securities, financial institutions and private investors might consider investing part of the pre designated less liquid portion of their portfolios in small cap companies which is the best way for large institutions, in particular, to participate in the small cap segment of the market and earn the higher returns with the minimum risk.

**HYPOTHESIS FORMULATION**

**Null Hypothesis (H<sub>0</sub>):** Here the null hypothesis is that the market capitalization is independent in predicting the equity risk premium expectations of the investors in the Indian Capital Market. This means the risk premium expectations will not be reflected by the market cap or the size of the company, that is the equity risk premium expectations are same irrespective of large cap, mid cap and small cap companies.

**Alternate Hypothesis (H<sub>a</sub>):** The alternate hypothesis is that the market capitalization affects equity risk premium expectations of the investors and the investor perception changes with the change in the market capitalization while investing in the Indian Capital markets and help in predicting the ERP expectations of the investors.

Different statistical tools have been applied to analyze this hypothesis and inferences have been drawn either to accept or reject the null hypothesis at a particular level of significance (5 % level of significance).

**DATA COLLECTION & DATA ANALYSIS**

For studying this objective, the 10 year data of the sixty companies taken in the last objective from 2004 to 2013 has been divided into three groups on the basis of the size of the company. The 60 companies are grouped into three groups with 20 companies each in every group of large cap, mid cap and small cap companies. The data has been analyzed for all the 10 years from 2004 to 2013. So, the list of 60 companies has been divided into three categories of 20 companies each of large cap, mid cap and small cap, and then analyzing the equity risk premium expectations in the different size companies. For the same, the annual returns of each company in each category from the years 2004 -2013 have been taken which is a measure of the returns for the small cap, mid cap and large cap companies. One way ANOVA is then applied among the large cap, mid cap and small cap returns to analyze the impact of size effect on the equity risk premium expectations of the investors in the Indian Capital Market at 5% level of significance.

Another set of analysis has also been done to explore the effect of variables which effect the most in the large cap, mid cap and small cap companies in which the multiple regression has been applied separately on the each category indicating which predictor variables (same as taken in the last objective) has a significant effect on the equity risk premium expectations of the investors. **Mohanty Pitabas 2001<sup>10</sup>** used the Fama and MacBath(1973) regression methodology to see if the size is related to the cross-section of the stock returns. He analysed various factors like size, market leverage, earning to price multiple, beta and price to book value which are also related to the returns of the stocks.

**DATA ANALYSIS**

**ONE WAY ANOVA RESULTS**

The following table showed the mean and standard deviations of the returns in the large cap, mid cap and the small cap companies:

**TABLE 1: MEAN AND STANDARD DEVIATION OF THE RETURNS IN LARGE, MID AND SMALL CAP COMPANIES**

	N	Mean	Std. Deviation
large cap equity returns	196	.0854	.14394
mid cap equity returns	200	.1091	.17979
small cap equity returns	200	.0836	.18770
Total	596	.0928	.17181

The above table shows that the small cap firms had the highest standard deviation and the large cap had the least standard deviations, signifying that the small cap stocks were more risky and volatile, as compared to the mid cap and large cap stocks due to the uncertainties involved in the small cap companies.

**TABLE 2: ANOVA TABLE FOR THE LARGE CAP, MID CAP AND SMALL CAP COMPANIES**

		Sum of Squares	df	Mean Square	F	Sig.	
Between Groups	(Combined)	.081	2	.040	1.371	.255	
	Linear Term	Unweighted	.000	1	.000	.010	.919
		Weighted	.000	1	.000	.012	.912
		Deviation	.080	1	.080	2.730	.099
Within Groups		17.483	593	.029			
Total		17.564	595				

The above table showed that the null hypothesis was accepted and there was no significant difference between the return expectations of the investors while investing in the different size companies with the significance value 0.255 which means the difference is not significant even at 5% level of significance.

**REGRESSION RESULTS OF THE LARGE CAP COMPANIES**

The regression results are shown below:

TABLE 3: DESCRIPTIVE STATISTICS OF THE VARIABLES IN THE LARGE CAP COMPANIES

	Mean	Std. Deviation	N
Return	.0819	.14050	194
Net Profit Margin(%)	.0756	.03010	194
Return on Assets Including Revaluations	.4566	.22294	194
Current Ratio	.2807	.15585	194
Debt Equity Ratio	.1613	.15905	194
Dividend Payout Ratio Net Profit	1.3398	.36835	194
Beta	.2268	.08467	194
Earning Per Share (Rs)	1.5566	.49284	194
P/E	1.7522	.92795	194
P/B	.5316	.20591	194

Source : SPSS Output

The above table shows the mean and the standard deviation of all the predictor and the outcome variables in the large cap companies. The lesser the standard deviation, the more reliable is the mean value of the variable.

TABLE 4: CORRELATION MATRIX AMONG ALL THE PREDICTOR AND OUTCOME VARIABLES IN LARGE CAP COMPANIES

	Return	Net Profit Margin(%)	Return on Assets Including Revaluations	Current Ratio	Debt Equity Ratio	Dividend Payout Ratio Net Profit	beta	Earning Per Share (Rs)	P/E	P/B
Return	1.000	-.336*	.034	-.086	.026	-.036	.151**	-.405*	-.196*	.221*
Net Profit Margin(%)	-.336*	1.000	-.065	.250*	-.318*	.165**	-.242*	.393*	.206*	.181*
Return on Assets Including Revaluations	.034	-.065	1.000	.032	.116	.034	.167*	.108	-.003	-.216*
Current Ratio	-.086	.250*	.032	1.000	-.352*	.446*	-.266*	.131**	-.030	.160**
Debt Equity Ratio	.026	-.318*	.116	-.352*	1.000	-.383*	.291*	-.002	.031	-.205*
Dividend Payout Ratio Net Profit	-.036	.165**	.034	.446*	-.383*	1.000	-.211*	-.086	.007	.174*
Beta	.151**	-.242*	.167*	-.266*	.291*	-.211*	1.000	-.177*	-.133**	-.200*
Earning Per Share (Rs)	-.405*	.393*	.108	.131**	-.002	-.086	-.177*	1.000	.423*	-.009
P/E	-.196*	.206*	-.003	-.030	.031	.007	-.133**	.423*	1.000	.109
P/B	.221*	.181*	-.216*	.160**	-.205*	.174*	-.200*	-.009	.109	1.000

Source: SPSS Output

\* - 1 % level of significance

\*\* - 5% level of significance

The above table shows the correlation matrix among all the predictor and the outcome variables. This helps in finding the relationship between the outcome variable (return) and the other predictor variables. The table shows there are strong positive correlations between return –beta, return – P/B ratio, Net Profit Margin – Current Ratio, Net Profit Margin – D/P ratio, Net Profit Margin – EPS, Net Profit Margin – P/E Multiple, Net Profit Margin – P/B Multiple, Return on Assets – Beta, Current Ratio – D/P Ratio, Current Ratio –EPS, Current Ratio – P/B Ratio, D/E ratio – Beta, D/P Ratio – P/B ratio and EPS – P/E multiple and strong negative correlations between Return – Net Profit Margin, EPS, P/E Multiple; Net Profit Margin – P/E Multiple, Beta; Return on assets – P/B Multiple; Current Ratio – D/E ratio, Beta; D/E ratio – D/P ratio, P/B multiple; D/P ratio – beta; Beta – EPS, P/E multiple and P/B multiple at 1 or 5 % level of significance.

TABLE 5: REGRESSION MODEL SUMMARY FOR LARGE CAP COMPANIES

Model	R	R Square	Adjusted R Square	F Value	F Sig. Value	Durbin-Watson
1	.544	.296	.261	8.586	.000	1.663

Source: SPSS Output

The table shows the overall regression summary of the model. So, here the R value is 0.544 which means that the correlation between the return and all the variables combined is 0.544. The R square value of the regression model in large cap stocks comes to be 0.296 which means that 29.6 % of the variance in the return variables is explained by the predictor variables in the model.

This table also shows the significance of the ANOVA (Analysis of variance) model in explaining the variance by the regression model. Here the F significant value is 0.000 which is significant and makes this regression model significantly explain the variance in this category.

The Durbin-Watson test value in the table is 1.663 which is very close to 2, and hence satisfies the condition that the residual variables are not correlated to each other.

For the generalization of the regression model, the residual normality condition is checked through the residual normal curve and the P-P plots, which are shown below:

FIGURE 1: NORMAL CURVE OF THE RESIDUALS IN LARGE CAP COMPANIES

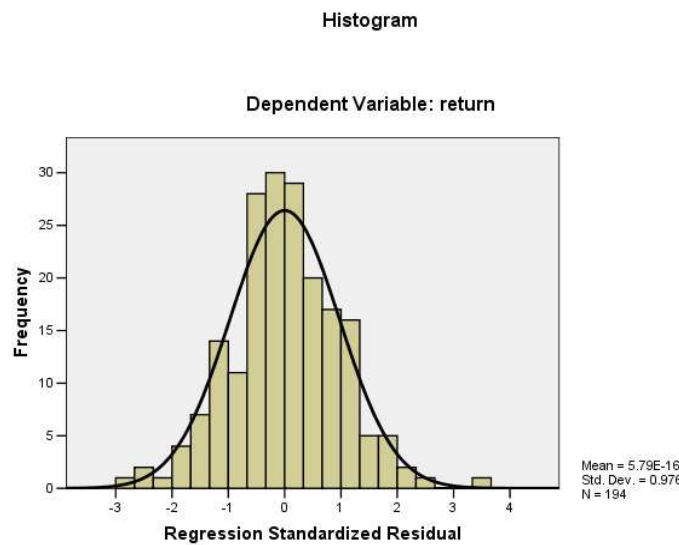
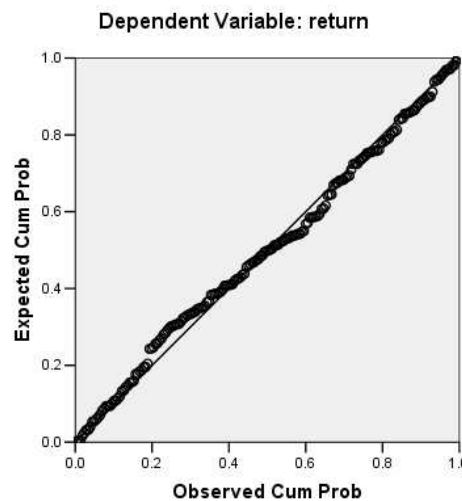


FIGURE 2: P-P PLOT OF THE STANDARDIZED RESIDUALS IN LARGE CAP STOCKS

Normal P-P Plot of Regression Standardized Residual



The figures above show the normal distribution of the residuals, each residual value lies on the straight line of the P-P plot, and hence fulfills the condition of normality of residuals for the generalization of the regression model.

The residual statistics of this regression model is shown in Table below:

TABLE 6: RESIDUAL STATISTICS OF REGRESSION MODEL IN LARGE CAP STOCKS

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.0887	.2521	.0819	.07641	194
Std. Predicted Value	-2.233	2.228	.000	1.000	194
Residual	-.35787	.40276	.00000	.11791	194
Std. Residual	-2.964	3.335	.000	.976	194
Stud. Residual	-3.233	3.444	-.002	1.010	194
Deleted Residual	-.42579	.42945	-.00040	.12629	194
Stud. Deleted Residual	-3.319	3.551	-.002	1.018	194
Mahal. Distance	2.342	36.701	8.954	5.215	194
Cook's Distance	.000	.198	.007	.019	194

Source: SPSS Output

The above table shows the means Cook’s distance of 0.007 which is less than 1, hence satisfies the condition and therefore does not cause a concern for a particular case that effects the model. Also, the Mahal distance is 8.954 which is again less than 11, again satisfies the above condition. Therefore, the residual statistics of the model also proves the effectiveness of the regression model.

**ANALYZING THE INDIVIDUAL REGRESSION COEFFICIENTS OF THE PREDICTOR VARIABLES AND THE CONDITION OF MULTI-COLINEARITY**

The variables which have the significant t value (less than 0.05), have a significant effect on the outcome variable at 5 % level of significance. The multicollinearity condition is checked through the VIF (Variance Inflation Factor) and the tolerance, all shown in the table below:

**TABLE 7: INDIVIDUAL REGRESSION COEFFICIENTS IN LARGE CAP COMPANIES**

	Unstandardized Coefficients		t	Sig.	Collinearity Statistics	
	B	Std. Error			Tolerance	VIF
(Constant)	.188	.068	2.778	.006		
Net Profit Margin(%)	-1.146	.342	-3.356	.001	.715	1.399
Return on Assets Including Revaluations	.072	.041	1.741	.083	.893	1.119
Current Ratio	-.003	.066	-.047	.962	.704	1.421
Debt Equity Ratio	-.049	.064	-.765	.445	.719	1.391
Dividend Payout Ratio Net Profit	-.031	.028	-1.117	.266	.701	1.427
Beta	.125	.114	1.096	.275	.813	1.230
Earning Per Share (Rs)	-.084	.022	-3.833	.000	.650	1.540
P/E	-.006	.011	-.601	.549	.783	1.277
P/B	.212	.045	4.681	.000	.870	1.149

Source: SPSS Output

For checking the multi collinearity in the variables, the VIF value and tolerance was observed. Since all the predictor variables had the values less than 10 as observed in the table above and the tolerance value greater than 0.1, therefore the predictor variables satisfies the multi-collinearity condition.

The above table shows that the Net Profit Margin, EPS and P/B multiple have a significant effect at 5 % level of significance in predicting the equity risk premium expectations for the investors in investing in the large cap stocks.

The regression equation for predicting the return expectations in the large cap companies can be framed as follows:

$$\text{Return} = 0.188 - 1.146 \text{ Net Profit Margin} + .072 \text{ Return on Assets} - 0.003 \text{ current ratio} - 0.049 \text{ D/E ratio} - 0.031 \text{ D/P ratio} + 0.125 \text{ beta} - 0.084 \text{ EPS} - 0.006 \text{ P/E multiple} + 0.212 \text{ P/B multiple}$$

From this regression equation, the researcher can predict the future equity risk premium expectations of the investors in the capital market while investing in the large cap securities by putting the values of the various variables prevailing in the future.

**REGRESSION RESULTS OF THE MEDIUM CAP COMPANIES**

The regression results are shown below:

**TABLE 8: DESCRIPTIVE STATISTICS OF THE VARIABLES IN THE MID CAP COMPANIES**

	Mean	Std. Deviation	N
Return	.1091	.17979	200
Net Profit Margin(%)	.0593	.05244	200
Return on Assets Including Revaluations	.3431	.21329	200
Current Ratio	.2527	.10900	200
Debt Equity Ratio	.2046	.17792	200
Dividend Payout Ratio Net Profit	1.3474	.50855	200
Beta	.1852	.08677	200
Earning Per Share (Rs)	1.3546	.59105	200
P/E	1.7500	.94917	200
P/B	.5021	.24298	200

Source : SPSS Output

The above table shows the mean and the standard deviation of all the predictor and the outcome variables in the mid cap companies, which generally describes the characteristics of the variables including the measures of the central tendency and the standard deviations. The standard deviation shows the degree of variability in the variable value, the higher the value of standard deviation, the more is the variability in the data.

TABLE 9: CORRELATION MATRIX AMONG ALL THE PREDICTOR AND OUTCOME VARIABLES IN MID CAP COMPANIES

	Return	Net Profit Margin (%)	Return on Assets Including Revaluations	Current Ratio	Debt Equity Ratio	Dividend Payout Ratio Net Profit	beta	Earning Per Share (Rs)	P/E	P/B
Return	1.000	-.276*	.034	-.117**	.122**	-.040	.152**	-.348*	-.040	.175*
Net Profit Margin(%)	-.276*	1.000	.359*	.142**	-.196*	.181*	-.271*	.562*	.243*	-.075
Return on Assets Including Revaluations	.034	.359*	1.000	.067	.170*	-.080	-.191*	.151**	.017	-.342*
Current Ratio	-.117**	.142**	.067	1.000	-.275*	-.004	-.254*	.239*	.087	.057
Debt Equity Ratio	.122**	-.196*	.170*	-.275*	1.000	-.234*	.342*	-.147**	-.112	-.422*
Dividend Payout Ratio Net Profit	-.040	.181*	-.080	-.004	-.234*	1.000	-.279*	.057	.069	.288*
beta	.152**	-.271*	-.191*	-.254*	.342*	-.279*	1.000	-.264*	-.195*	-.354*
Earning Per Share (Rs)	-.348*	.562*	.151**	.239*	-.147**	.057	-.264*	1.000	.449*	.108
P/E	-.040	.243*	.017	.087	-.112	.069	-.195*	.449*	1.000	.145**
P/B	.175*	-.075	-.342*	.057	-.422*	.288*	-.354*	.108	.145**	1.000

Source: SPSS Output

\* - 1% level of significance

\*\* - 5% level of significance

The above table shows the correlation matrix among all the predictor and the outcome variables. The significant value in the matrix means that those variables are highly positively or negatively correlated at 5% or 1% level of significance. The above table shows that there are strong positive correlations between Return – D/E ratio, Beta, P/B multiple; Net Profit Margin – Return on Assets, Current Ratio, D/P ratio, EPS, P/E multiple; Return on Assets – D/E Ratio, EPS; Current ratio – EPS; D/E Ratio – Beta; D/P Ratio – P/B multiple; EPS – P/E multiple; P/E multiple – P/B multiple and strong negative correlations between Return – Net Profit Margin, Current Ratio, EPS; Net Profit Margin – D/E Ratio, Beta; Return on Assets – Beta, P/B multiple; Current Ratio – D/E Ratio, Beta; D/E Ratio – D/P ratio, Beta, P/B multiple; D/P Ratio – Beta; Beta – EPS, P/E Multiple, P/B multiple at 1% or 5% level of significance. This helps in finding the relationship between the outcome variable (return) and the other predictor variables.

TABLE 10: REGRESSION MODEL SUMMARY FOR MID CAP COMPANIES

Model	R	R Square	Adjusted R Square	F Value	F Sig. Value	Durbin-Watson
1	.527	.277	.243	8.103	.000	1.336

Source: SPSS Output

The table shows the overall regression summary of the model, which shows the effectiveness of applicability of the linear multiple regression models. So, here the R value is 0.527 which means that the correlation between the return and all the variables combined is 0.527. The R square value of the regression model in mid cap stocks come to be 0.277 which means that 27.7% of the variance in the return variables is explained by the predictor variables in the model.

This table also shows the significance of the ANOVA (Analysis of variance) model in explaining the variance by the regression model. So, the significant value of the F shows the effectiveness of the Regression model. Here the F significant value is 0.000 which is significant and makes this regression model significantly explain the variance in this category.

The Durbin-Watson test value in the table is 1.366 which is very close to 2, and hence satisfies the condition that the residual variables are not correlated to each other.

For the generalization of the regression model, the residual normality condition is checked through the residual normal curve and the P-P plots, which are shown below:

FIGURE 3: NORMAL CURVE OF THE RESIDUALS IN MID CAP COMPANIES

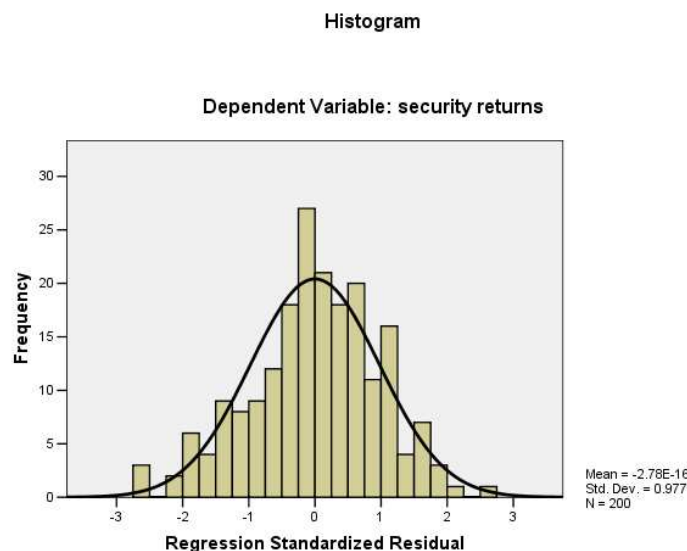
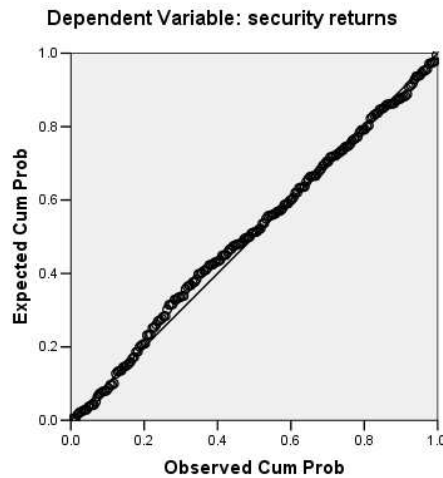




FIGURE 4: P-P PLOT OF THE STANDARDIZED RESIDUALS IN MID CAP STOCKS

Normal P-P Plot of Regression Standardized Residual



The figures above shows the normal distribution of the residuals, each residual value lies on the straight line of the P-P plot, and hence fulfills the condition of normality of residuals for the generalization of the regression model.

The residual statistics of this regression model is shown in Table below:

TABLE 11: RESIDUAL STATISTICS OF REGRESSION MODEL IN MID CAP STOCKS

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.1206	.3583	.1091	.09468	200
Std. Predicted Value	-2.426	2.631	.000	1.000	200
Residual	-.42207	.40063	.00000	.15283	200
Std. Residual	-2.698	2.561	.000	.977	200
Stud. Residual	-2.752	2.589	-.001	1.002	200
Deleted Residual	-.46381	.40946	-.00022	.16095	200
Stud. Deleted Residual	-2.802	2.629	-.001	1.008	200
Mahal. Distance	1.298	43.181	8.955	6.799	200
Cook's Distance	.000	.125	.005	.011	200

Source: SPSS Output

The above table shows the means Cook's distance of 0.005 which is less than 1, hence satisfies the condition and therefore does not cause a concern for a particular case that effects the model. Also, the Mahal distance is 8.955 which is again less than 11, again satisfies the above condition. Therefore, the residual statistics of the model also proves the effectiveness of the regression model.

**ANALYZING THE INDIVIDUAL REGRESSION COEFFICIENTS OF THE PREDICTOR VARIABLES AND THE CONDITION OF MULTI-COLINEARITY**

The individual predictor variables are now observed in the regression model, that how much the each predictor variable affects the outcome variable by observing the b values in the Table below. The multicollinearity condition is checked through the VIF (Variance Inflation Factor) and the tolerance, all shown in the table below:

TABLE 12: INDIVIDUAL REGRESSION COEFFICIENTS IN MID CAP COMPANIES

	Unstandardized Coefficients		t	Sig.	Collinearity Statistics	
	B	Std. Error			Tolerance	VIF
(Constant)	-.103	.085	-1.207	.229		
Net Profit Margin(%)	-.276	.290	-.954	.341	.533	1.877
Return on Assets Including Revaluations	.234	.063	3.713	.000	.680	1.471
Current Ratio	.030	.111	.271	.787	.843	1.186
Debt Equity Ratio	.123	.076	1.622	.107	.678	1.475
Dividend Payout Ratio Net Profit	-.008	.024	-.345	.731	.828	1.207
Beta	.443	.158	2.799	.006	.650	1.538
Earning Per Share (Rs)	-.116	.026	-4.537	.000	.540	1.852
P/E	.027	.013	2.016	.045	.785	1.275
P/B	.309	.059	5.255	.000	.604	1.656

Source: SPSS Output

For checking the multi co linearity in the variables, the VIF value and tolerance was observed. Since all the predictor variables had the value less than 10 as observed in the table above and the tolerance value greater than 0.1, therefore the predictor variables satisfies the multi-collinearity condition.

The above table shows that the ROA, Stock Beta, EPS, P/E multiple and P/B multiple have a significant effect at 5 % level of significance in predicting the equity risk premium expectations for the investors in investing in the mid cap stocks .

The regression equation for predicting the return expectations in this category can be framed as follows:

$$\text{Return} = -0.103 - 0.276 \text{ Net Profit Margin} + 0.234 \text{ Return on Assets} + 0.03 \text{ current ratio} + 0.123 \text{ D/E ratio} - 0.008 \text{ D/P ratio} + 0.443 \text{ beta} - 0.116 \text{ EPS} + 0.027 \text{ P/E multiple} + 0.309 \text{ P/B multiple}$$

From this regression equation, the researcher can predict the future equity risk premium expectations of the investors in the capital market while investing in the mid cap securities by putting the values of the various variables prevailing in the future.

**REGRESSION RESULTS OF THE SMALL CAP COMPANIES**

The regression results are shown below:

**TABLE 13: DESCRIPTIVE STATISTICS OF THE VARIABLES IN THE SMALL CAP COMPANIES**

	Mean	Std. Deviation	N
Return	.0857	.18593	199
Net Profit Margin(%)	.0521	.03282	199
Return on Assets Including Revaluations	.2662	.16973	199
Current Ratio	.2790	.18183	199
Debt Equity Ratio	.2037	.19758	199
Dividend Payout Ratio Net Profit	1.2367	.51300	199
Beta	.2198	.09228	199
Earning Per Share (Rs)	1.3096	.59635	199
P/E	1.6758	.98746	199
P/B	.2995	.20240	199

Source : SPSS Output

The above table shows the mean and the standard deviation of all the predictor and the outcome variables in the small cap companies, which generally describes the characteristics of the variables including the measures of the central tendency and the standard deviations. The standard deviation shows the degree of variability in the variable value, the higher the value of standard deviation, the more is the variability in the data.

**TABLE 14: CORRELATION MATRIX AMONG ALL THE PREDICTOR AND OUTCOME VARIABLES IN SMALL CAP COMPANIES**

	Return	Net Profit Margin(%)	Return on Assets Including Revaluations	Current Ratio	Debt Equity Ratio	Dividend Payout Ratio Net Profit	beta	Earning Per Share (Rs)	P/E	P/B
Return	1.000	-.308*	-.133**	-.138**	.018	.126**	.121**	-.354*	-.142**	.271*
Net Profit Margin(%)	-.308*	1.000	.350*	.354*	-.406*	.238*	-.353*	.700*	.247*	-.099
Return on Assets Including Revaluations	-.133**	.350*	1.000	.300*	-.124**	.104	-.160**	.293*	.120**	-.177*
Current Ratio	-.138**	.354*	.300*	1.000	-.471*	.183*	-.136**	.235*	.091	.217*
Debt Equity Ratio	.018	-.406*	-.124**	-.471*	1.000	-.246*	.338*	-.292*	.002	.133**
Dividend Payout Ratio Net Profit	.126**	.238*	.104	.183*	-.246*	1.000	-.147**	.100	.007	.052
beta	.121**	-.353*	-.160**	-.136**	.338*	-.147**	1.000	-.265*	-.197*	.031
Earning Per Share (Rs)	-.354*	.700*	.293*	.235*	-.292*	.100	-.265*	1.000	.461*	-.094
P/E	-.142**	.247*	.120**	.091	.002	.007	-.197*	.461*	1.000	.097
P/B	.271*	-.099	-.177*	.217*	.133**	.052	.031	-.094	.097	1.000

Source: SPSS Output

\* - 1 % level of significance  
 \*\* - 5% level of significance

The above table shows the correlation matrix among all the predictor and the outcome variables. The significant value in the matrix means that those variables are highly positively or negatively correlated at 5 % or 1% level of significance. There are strong correlations between Return – D/P Ratio, Beta, P/B Multiple; Net Profit Margin – Return on Assets, Current Ratio, D/P Ratio, EPS, P/E Multiple; Return on Assets – Current ratio, EPS, P/E Multiple; Current Ratio – D/P Ratio, EPS, P/B Multiple; D/E Ratio – Beta, P/B Multiple and EPS – P/E Multiple and strong negative correlations between Return – Net Profit Margin, Return on Assets, Current ratio, EPS, P/E multiple; Net Profit Margin – D/E Ratio, Beta; Return on Assets – D/E Ratio, Beta, P/B Multiple; Current ratio – D/E Ratio, Beta; D/E Ratio – D/P ratio, EPS; D/P Ratio – Beta; Beta – EPS, P/E Multiple. This helps in finding the relationship between the outcome variable (return) and the other predictor variables.

**TABLE 15: REGRESSION MODEL SUMMARY FOR SMALL CAP COMPANIES**

Model	R	R Square	Adjusted R Square	F Value	F Sig. Value	Durbin-Watson
1	.525	.276	.241	7.994	.000	1.526

Source: SPSS Output

The table shows the overall regression summary of the model, which shows the effectiveness of applicability of the linear multiple regression model. So, here the R value is 0.525 which means that the correlation between the return and all the variables combined is 0.525. The R square value of the regression model in small cap stocks come to be 0.276 which means that 27.6 % of the variance in the return variables is explained by the predictor variables in the model.

This table also shows the significance of the ANOVA (Analysis of variance) model in explaining the variance by the regression model. So, the significant value of the F shows the effectiveness of the Regression model. Here the F significant value is 0.000 which is significant and makes this regression model significantly explain the variance in this category.

The Durbin-Watson test value in the table is 1.526 which is very close to 2, and hence satisfies the condition that the residual variables are not correlated to each other.

For the generalization of the regression model, the residual normality condition is checked through the residual normal curve and the P-P plots:

FIGURE 5: NORMAL CURVE OF THE RESIDUALS IN SMALL CAP COMPANIES

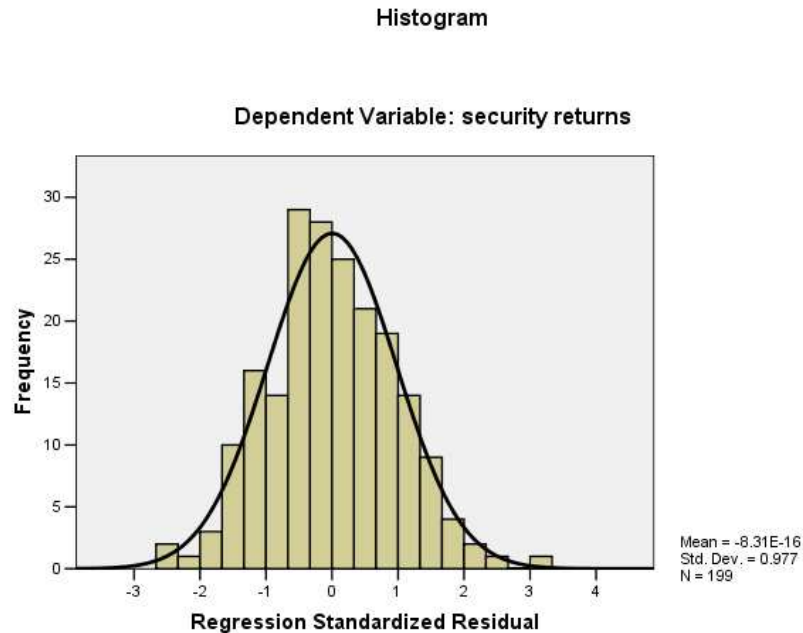
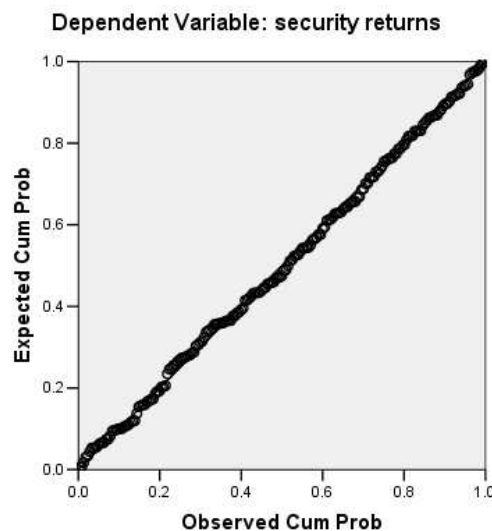


FIGURE 6: P-P PLOT OF THE STANDARDIZED RESIDUALS IN SMALL CAP STOCKS

Normal P-P Plot of Regression Standardized Residual



The figures above show the normal distribution of the residuals, each residual value lies on the straight line of the P-P plot, and hence fulfills the condition of normality of residuals for the generalization of the regression model.

The residual statistics of this regression model is shown in Table below:

TABLE 16: RESIDUAL STATISTICS OF REGRESSION MODEL IN SMALL CAP STOCKS

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	-.1514	.3869	.0857	.09763	199
Std. Predicted Value	-2.428	3.085	.000	1.000	199
Residual	-.40822	.50667	.00000	.15823	199
Std. Residual	-2.521	3.128	.000	.977	199
Stud. Residual	-2.652	3.192	-.004	1.007	199
Deleted Residual	-.45178	.52738	-.00128	.16836	199
Stud. Deleted Residual	-2.695	3.273	-.003	1.013	199
Mahal. Distance	1.715	39.594	8.955	5.779	199
Cook's Distance	.000	.094	.007	.014	199

Source: SPSS Output

The above table shows the means Cook's distance of 0.007 which is less than 1, hence satisfies the condition and therefore does not cause a concern for a particular case that effects the model. Also, the Mahal distance is 8.955 which is again less than 11, again satisfies the above condition. Therefore, the residual statistics of the model also proves the effectiveness of the regression model.

**ANALYZING THE INDIVIDUAL REGRESSION COEFFICIENTS OF THE PREDICTOR VARIABLES AND THE CONDITION OF MULTI-COLINEARITY**

The individual predictor variables are now observed in the regression model. The multi co linearity condition is checked through the VIF (Variance Inflation Factor) and the tolerance, all shown in the table below:

TABLE 17: INDIVIDUAL REGRESSION COEFFICIENTS IN SMALL CAP COMPANIES

	Unstandardized Coefficients		T	Sig.	Co linearity Statistics	
	B	Std. Error			Tolerance	VIF
(Constant)	.134	.062	2.160	.032		
Net Profit Margin(%)	-.873	.549	-1.591	.113	.409	2.447
Return on Assets Including Revaluations	.107	.077	1.379	.169	.768	1.303
Current Ratio	-.274	.082	-3.337	.001	.592	1.689
Debt Equity Ratio	-.251	.076	-3.298	.001	.585	1.709
Dividend Payout Ratio Net Profit	.057	.024	2.393	.018	.896	1.116
Beta	.166	.140	1.185	.237	.794	1.259
Earning Per Share (Rs)	-.080	.030	-2.665	.008	.410	2.439
P/E	.002	.014	.160	.873	.728	1.375
P/B	.304	.064	4.748	.000	.790	1.265

Source: SPSS Output

For checking the multi co linearity in the variables, the VIF value and tolerance was observed. Since all the predictor variables had the value less than 10 as observed in the table above and the tolerance value greater than 0.1, therefore the predictor variables satisfies the multi-co linearity condition.

The above table shows that the Current Ratio, Debt Equity Ratio, Dividend Payout Ratio, EPS, and P/B multiple have a significant effect at 5 % level of significance in predicting the equity risk premium expectations for the investors in investing in the small cap stocks .

The regression equation for predicting the return expectations for investors in this category can be framed as follows:

**Return = 0.134 – 0.873 Net Profit Margin + 0.107 Return on Assets - 0.274 current ratio - 0. 251 D/E ratio + 0.057 D/P ratio + 0.166 beta - 0.08 EPS + 0.002 P/E multiple + 0.304 P/B multiple.**

From this regression equation, the researcher can predict the future equity risk premium expectations of the investors in the capital market while investing in the small cap securities by putting the values of the various variables prevailing in the future.

**SUMMARY OF THE ALL REGRESSION RESULTS**

The following are the regression coefficients of the various variables making the regression line for the large cap, mid cap and small cap companies individually seeing that the variables with the \*\* shows that they are significant at 5 % level of significance and \* shows that they are significant at 1% level of significance.

TABLE 18: SUMMARY OF THE REGRESSION RESULTS OF THE SIZE EFFECT IN ERP EXPECTATIONS

Variables	Large Cap Stocks	Mid Cap Stocks	Small Cap Stocks
(Constant)	.188	-.103	.134
Net Profit Margin(%)	-1.146*	-.276	-.873
Return on Assets	.072	.234*	.107
Current Ratio	-.003	.030	-.274*
Debt Equity Ratio	-.049	.123	-.251*
Dividend Payout	-.031	-.008	.057**
Beta	.125	.443*	.166
Earning Per Share	-.084*	-.116*	-.080*
P/E Multiple	-.006	.027**	.002
P/B Multiple	.212*	.309*	.304*

**RESULTS & CONCLUSIONS**

The following results can be inferred from the above table:

- a. The Net profit margin, Earning per share and the price to book multiple are significant variables for the investors investing in the large cap companies as the investors intend to invest in these companies as these are the blue chip stable companies and have the stable and high profits which therefore impacts the profit margin and the earning per share of the companies.
- b. With the addition of the risk factor in the mid cap companies as these companies are smaller in size as compared to the large cap and have the greater uncertainties involved in the business cycle, the beta of the stock also becomes significant for the investors while investing in the mid cap companies.
- c. In small cap companies, the investor is investing to make profits in the long term, so he is more concern for the future profitability of the company than the current position, so the Debt Equity ratio, Current Ratio and the Dividend Payout Ratio becomes significant which predicts the future of the company as the firms with the high debt level in the capital structure may have the less profitability opportunities for the equity holders, and the dividend payout ratio which signifies the dividend distribution policy of the company which states the future position of the company.

So, in this paper, the equity risk premium expectations of the investors are analysed on the basis of the size effect measured by the market capitalization of the firm and the various variables are explored which have the impact on the equity risk premium expectations of the investors while investing in the large cap, mid cap and the small cap companies.

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