Chapter 7: Summary and Conclusion

7.1 Summary

7.2 Conclusion

7.3 Scope of Further Study

Introduction: The chapter contains three units of discussion. In the first section, a brief summary of the research work is discussed. In the second section, conclusion of the work has been discussed and in the third section further scope of research is discussed.

7.1 Summary:

From the discussion of the previous chapters we can summaries this thesis in the following way: the background of the research work, the objective of the study, including the hypothesis of the work, methodology used in this thesis, results and discussion of the research work, and finally interpretation and recommendation. In the background part of the work, it is found that the effect of risk on a firm's value is one of the widely used research interests. The basic question of the previous work was to find out whether there had any optimal capital structure mix where a firm's value could be maximized. To find out the answer many works were done all over the world. MM's theory (1958) was among one of the old and world-famous works where authors investigated capital structure has no impact on the value of a firm when interest on the debt is not a tax-deductible expense. But after criticism of the said theory, they reinvestigated the said hypothesis and pointed out that if the interest on the debt is tax-deductible expense then the value of a firm is a function of the leverage and the effect of leverage is positive(MM theory,1963). There were many more empirical studies where significant positive and negative result were found such as Jensen and Meckling (1976), Miller (1977), Myer (1977), Myer and Majluf (1984), Graham (2000), Baker and Wurgler (2002), Welch (2004), etc. Akin, empirical capital structure theories such as the theories of trade-off, pecking order, and market timing have been extensively studied and tested empirically in a different country, but the outcome has given mixed results. Friend and Lang (1988), Barton (1989), Bos and Fetherston (1993), Booth (2001), Abor (2005),

Mollik's (2005) work have found out mixed results on capital structure theory. Therefore no harmonious results were found all over the world. The past study basically was done on capital structure risk and its effect on firm value but no study was done on how internal risks are related to firm value industry-wise. So the basic objective was to find out how internal risk affects firm value in the Indian context. The MM (1963) theory was the basic of my research work as in India's economy, interest is tax shield expense. So debt-equity may have a positive effect on firm value in the Indian economy. Moreover, there were very few number of study on operating risk and its effect on firm value. This creates a research gap in the said field. These inspire me to test empirically whether the said assumption is true in the current Indian economy. To achieve the said objective some of the hypotheses were generated.

To achieve the said objective BSE500 Company's data set was used. The period of the data set ranges from 2001 to 2017. Secondary data of a total of 497 companies was collected from the capitaline database. The data were rationalized by deducting extraordinary value and eliminating outlines. Then the linear model and nonlinear polynomial model with panel least square methods, Robust least square method and panel EGLS model were used sequentially to estimate the effect of the independent variable on the dependent vectors. The correlation matrix (table 2A, 2B, 2C) of the dependent and independent variables calculated first which shows that there have some correlations among the variables. The panel unit root test (Table 4) show that data was stationary but DW test (table 5A) result shows that autocorrelation present in the data series. The normality of the data series was again tested by the Heteroskedasticity test (Fig.1A) of the regression residual with the help of Jacque-Bera test statistic which shows a significant problem for ordinary OLS. The outlier of the regression residual was also tested by using the Leverage plot (Fig 4B) and Hat matrix ratio (Fig.4A) which

shows a number of outliners present among the data series. Johansen and Pedroni Residual Cointegration test (Table 8, 7) was also conducted which shows significant cointegration between the variables but VECM (table 9A, 9B, 9C, 10) shows that no causality is running from independent to dependent variables in the long run or in the short-run in two cases. Then the above hypothesis was tested using liner regression models where panel data (comprised of the cross-section and time-series data) is used. The results (PART one of Table 5C1, 5C2, 5C3, 5C4, 5C5) show that Debt-equity ratio is significant when cash PE ratio and relative economic value added considered as dependent variables and insignificant in other cases. On the other hand, operating risk (OR) is significant when PBV and EVEBIDTA considered as dependent variables but the sign is different in two cases. The effect of FR is significant when PER and PCEPS considered as dependent variables. The effect was positive in the said cases. The effects of dummy variables are also mixed for different valuation ratios. To test the significance of the regression model, R^2 and adj.R^2 statistics show the significant value of the regression and, F or Rn-sq statistics confirms the suitability of the said regression model. In part two of the above tables 5C1, 5C2, 5C3, 5C4, and 5C5 Robust-Least Square methods show different results than the earlier. It is true that this method is more suitable than the panel OLS method. The explaining power of independent variables(value of R^2) has increased in each case. After analyzing and interpreting the results of the regression it was found that the nonlinear model can be able to estimate the effect of coefficient value more efficiently than the linear model. So the polynomial model was implemented and the R^2 value is increased with 1% level of significance effect in the said model. After a rigorous analysis, it was found that for the data set Panel-EGLS model with cross-section weights should be able to bring far better results for heterogeneous data set. After implementing the said model we found R^2 for each valuation ratio has increased

significantly and the coefficient value of most of the independent variables is significant. It means the panel EGLS model with a cross-sectional weight (econometrics model) can be able to catch the effect of independent variables. From the model result (Part three of Table 5C1, 5C2, 5C3, 5C4, 5C5) it was observed debt-equity ratio has a significant negative effect on firm value except for dependent variables price-earnings ratio. The operating risks also have a significant negative effect except for one case on the firm value. The effect of financial risk on value of the firm is positive in two cases, negative in two cases and insignificant in one case. It was observed from the coefficient of independent variables that their significant values have changed from the previous model. The variables coefficients of dummy variables significantly influence most of the valuation ratio except the M-CAP to Sales valuation ratio. To test the efficiency of the model over the random effect model Hausman test was also conducted. The test result shows that the fixed effect model was better than random effect model in estimating the coefficient value of independent variables. But in cross-section, there were 497 companies with their individual effect. If we run the regression equation or built a regression equation with this 497 coefficient it will be difficult to estimate the firm value. So this 497 company was clubbed into 12 broad industry groups as per NIC 2004. The industry groups were acts as cross-section items with a fixed effect on firm value. The industry group's coefficient values were calculated from the dummy variables coefficient. Wald test was also conducted to find out the equality of two or more coefficient values.

During the analysis of the coefficient value of the linear regression equation under panel EGLS model with cross-section weight, it was found that independent variables are differently correlated with firm valuation ratio in a different cluster. It induces me to further check the even better econometric model which would be applicable for the

nonlinear relationship. When the relationship of regression variables is nonlinear and the coefficient value changes its sign with different cluster(level) polynomial regression equation would be more suited to estimate the regression coefficient better.

After implementing the polynomial model, the R^2 value improves and the statistical significance of the coefficient is also changed for many independent variables. The results of the regression in the current model are given in table 18B. The R^2 value for different valuation ratios ranges from 45% to 72% which means variability of dependent variability can be estimated by the current model are from 45% to 72% for different valuation ratios. The value of the F statistic is also significant for each dependent variable which signifies general applicability of the said model. From the table 18B, it was found that debt-equity ratio has a significant negative impact on price-earning ratio, cash price-earing ratio and Mcap to salese valuation ratio. On the other side operating risk has a positive impact on the firm value except for the price to book based valuation ratio. The financial risk has a positive impact on PE ratio and cash PE ratio but the negative impact on the rest of the three dependent variables. Thus on an average the effect of financial risk is negative on value of the company.

7.2. Conclusions:

The study is related to finding a relationship between corporate risk and value of the company. The corporate risk has several connotations. However, this study is restricted to traditional concept of business risk of a company that is internal in nature and being managed by company themselves. To achieve the desired objective, different concept of valuation has been considered as dependent variable. Several dependent variables has

been considered. To consider classification on the basis of nature of industry dummy variables have been considered. Some 'theoretically related' dependent variables has also been considered. The financial leverage has been considered as proxy of financial risk. Further the literature suggests debt-equity ratio has also been considered as proxy of financial risk. This paper has considered both debt-equity ratio and financial leverage as proxy for firm's internal risk.

It was surprised to note that debt-equity ratio and financial risk are not highly correlated as per correlation matrix and also analysis through Variance Inflation Factor (VIF). It is one of most interesting observation in descriptive analysis which is required to be investigated in future research. This study is important for one more reason as it considered type of industry as dummy variable. It is observed that nature of industry has relationship with value of the firm. Thus, considering nature of industry as one variable in regression, better fit regression equation could have been developed.

The assumptions of risk increase the value of the company at least at the initial level. There after debt-equity ratio has lower and lower impact on valuation ratio as debt level rises in the capital structure. The financial risk yielded negative impact on valuation ratios e.g. relative economic value added ratio (EVEBIDTA) and M-Cap to sales ratio. The, operating risk has positive impact on value of the firm in general.

Finally, on the basis of through analysis in linear and non-linear regression model the study made an attempt to establish relationship between risk variables and valuation variables.

This study is unique in considering debt-equity and financial leverage both as proxy of

finance risk. The finance risk affects the valuation ratios on an average. However, operating risk affects the corporate valuation positively especially in the short term. One of the very important observations of the study is that the relationship between risk variables on valuation variables is non-linear in nature.

Our study offers several recommendations. The study would help individual and institutional investor in their decision making process. The absorption of data related to risk in stock prices would help the market to be more efficient ensuring capital flow in desired line. The government should draft policy to discourage excessive debt in capital structure. According to our study, the debt-equity ratio should never go beyond 1.5 point. Consequently, financial institutions including banks should also follow lending norms accordingly. Thus assumption of risk would not be left to the entrepreneurs alone. Such type of interference by government would be a welcome move for the economy as a whole. This not only would help to prevent the company from collapsing but also would discourage business adventurism at the cost of public money or money of the outsiders.

7.3. Scope of Further Study

In this study, some research questions were generated during the discussion and interpretation of the work which may pave the way for further research work. The said matter is discussed in this paragraph. In our work, we found debt-equity has a negative impact on firm value and financial risks also have an average negative impact on firm value. However, their coefficient value was different. We have not studied whether the debt-equity ratio always increasing the financial risk of a firm or not. How different levels of debt-equity affecting financial risk can be studied. The cross country study

helps to more generalized view and general applicability of the said relation. In cross country analysis it may help why in India the debt-equity has negative effects on firm value. The Industry-wise variance analysis will help to find out in which industry the risk value relationship is higher and in which it is lower. In our work, we found a negative effect of debt fund and financial risk but why said relation is present were not disclosed in the present research work. Further work may be a help to explore the said matter. In the present work, no time value concepts were considered. How will be the relation between dependent and independent variables if the time value of money were considered were not discussed? One may implement the said concepts to find out the relation between two variables. In our work, we are not discussing or find out why firms using debt instead of its negative effect on firm value. In this study, we also did not find why MM (1963) theory couldn't match instead of tax-saving opportunity. Further study may help to explore the said question. Are systematic risk (beta) affected by the unsystematic risk of a firm can be studied further. In my work no systematic risk was considered.

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