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Factors affecting Financial Flexibility of Central Public Sector Enterprises

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Abstract-

Financial flexibility is a capability of firm's to acquire the financial resources in response to meet the future financial obligation and to maximize the firm's valuation. The purpose of this study is to investigate factors influencing the financial flexibility based on CPSEs listed on PSU index of Bombay Stock Exchange. For this reason 23 manufacturing CPSEs and 230 observations during the years 2006-07 to 2017-18 have been screened. The result of multiple regression and logistic regression showed that, financial leverage variables in the sample enterprises don't have significant impact on financial flexibility and the current ratio, Return on assets have a positive and significant impact on financial flexibility. Sizes, Return on Sales, Growth variable have a negative and significant impact on financial flexibility.

Keywords: *financial flexibility, financial leverage, Central Public Sector Enterprise, size, profitability.*

1. Introduction

Financial flexibility is a firm's capacity that can mobilize financial resources towards financial obligations to maximize the value of firm. Financial flexibility is an ability to raise financial resources to handle any future unexpected events and to maximize the firm's valuation (Bion, 2008). Modigliani and Miller (1963) were defined flexibility, as a "company's ability to maintain 'a substantial reserve of untapped borrowing power." In other words flexibility is the accessibility of external financing, since this is the one of the fastest growing and gaining importance in raising fund under the firm's capital structure decisions. According to Graham and Harvey (2001) financial flexibility is popular because it helps firm to make future strategic decision related to acquisitions, diversification, etc. The definitions given by Byoun (2008) "the degree of capacity and speed at which the firm can mobilize its financial resources in order to take reactive, preventive and exploitive actionsto maximize firm value." Byoun (2008) put forward the concept of flexibility through the proportion of debt and equity payouts. Marchica and Mura (2010) concluded that firm with higher levels of flexibility records improved levels of investments. Flannery and Rangan (2006) confirmed that firms identify and pursue targeted capital ratios. The changing behavior is estimated with the occurrence of cyclical changes in financial conditions and setbacks and how the firms adopt strategies to return to their target levels. Researchers have discovered that this flexibility can serve as a mediator between the external borrowing power and the implementation of profitable projects on-time and in-line with the competition. We used interpretations relating to firm size, financial assets, retained profits, operational cash flows and dividends paid. The question of financial flexibility's presence is

essential for CPSEs because the developing economies like India stimulate new investment opportunities and cause managers to find tools for increasingthe flexibility, in order to attract additional resources for their businesses' development. The purpose of this study is to examine a relationship between financial flexibility and the factors affecting the flexibility in the CPSEs.

2. Research Question:

What are the factors influencing the Financial Flexibility of the select CPSEs.

3. Hypothesis:

Financial leverage, liquidity, profitability, firm size and Growth Opportunity do not have significant impact on financial flexibility.

4. Review of Literature

The detailed research in reference to the study conducted by DeAngelo and DeAngelo (2007) flexibility is the key concept in the overall theories of capital mix. Goyal (2009) studied the factors influencing the financing decisions, such as size, growth, profitability and many others, that can influence corporate leverage. Marchica and Mura (2010) provide evidence that a traditional approach of maintaining the low leverage helps the firm in restoring their financial resources, which guides firm to showcase advanced performance in their investment abilities. Flexibility provides the managers the prospect to predict the growth probability in the future and expand the level of their long term investment expenditure. Arslan-Ayaydin et al. (2014) observed that firms in the East Asian region, in the study period from 1994 to2009 maintained their flexibility through a defensive leverage policy and by their cash holdings, which resulted as a cushion in the time of uncertainty. Financial flexibility is being maintained primarily through leverage decisions (Graham and Harvey 2001; Bancel and Mittoo 2017).

5. Research methodology

The sample in our research consists of manufacturing Central public Sector Enterprises over the period from 2006-07 to 2017-18. The sample size was selected from 57 government undertakings, which are part of sectorial indices of BSE i.e. BSE-PSU index. Out of 57 enterprises, the researcher has selected all 23 holding CPSEs, as a sample size by using census method. This study is exploratory in nature and depends on the secondary data. The major data source is the PE Survey published by the Department of Public Enterprises, Government of India.

5.1 Multiple Linear Regressions:

Regression analysis is a powerful statistical tool to analyse associative relationships between dependent variable and one or more independent variables. In order to know the factors influencing the failure of CPSEs, multiple regression analysis is used.

$$flix_{it}=\beta_0+\beta_1 Lev_{it}+\beta_1 Cr_{it}+\beta_1 Roa_{it}+\beta_1 Size_{it}+\beta_2 Ros_{it}+\beta_3 Growth_{it}+\varepsilon_{it} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$

where,

$flix_{it}$ = financial flexibility in an *i* firm at the time of *t*

Financial flexibility = operational cash flows / total of assets.

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Financial flexibility = operational cash flows / total of assets.

Lev_{it} = current ratio in an *i* firm at the time of *t*
Current ratio = current asset / current debt.
Roa_{it} = net profit / total of assets
$Size_{it}$ = firm size (log of total assets)
Ros_{it} = return in sale net sale / total sale.
$Growth_{it}$ = Book value of equity – (total assets + market value) / total of assets
ε_{it} = errors

5.2 Logistic Regression:

To understand the probability of failure of the selected CPSEs a logit regression model is used. This model uses a binary dependent variable, a dummy variable for failure. The dummy variable is o if the CPSE is non financial flexible, and 1 for financial flexible.

$$y = \begin{cases} 1\ financialflexible \\ 0\ non\ financialflexible \end{cases}$$

The probability estimation of thismodel will be between 0 and 1.

$$(y = 1/x) = (y = 1/x1,\ x2,\ldots,k)$$(Wooldridge, 2014).

Since the dependent variable is binary, it doesn't satisfy the assumptions of liner regression like normality, linearity and homoscadasticy of independent variable. Failure is measured on an ordinal scale, thus logit model is the appropriate technique. This model is being used by Ohlson, 1980; Daily, et.al 1994; Bernhardsen, 2001; Wooldridge, 2014. The logit model based on function to maximize the probability of observed y values, o and 1 (Tufte, 2000). The maximizing problem is estimated by finding the co-efficient, which gives the highest probability to estimate dependent variable.

6. Results and Discussion:

In order to know the factors influencing the failure of CPSEs, multiple regression analysis is used. The results are tabulated in table 1, table 2 and table 3.

Table 1shows the r^2 value of 0.856, which provides an indication of the percentage of variance in the dependent variable (85.6 %) explained by independent variable.

Table 1: Model Summary[a]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.980[a]	.856	.763	.378

Note: a. Predictors: (Constant), Lev, CR, ROA, Size, ROS, Growth

The result for F-test is significant as tabulated in **Table 2**, this shows that dependent variable is statistically influenced by the independent variables.

Table 2: ANOVA[b]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	11.344	90	.756	9.103	.000[b]
	Residual	3.656	140	.083		
	Total	15.000	230			

Note: a. Dependent Variable: flexibility
Lev, CR, ROA, Size, ROS, Growth

Table : Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.620	.148		4.202	.000
	Lev	.628	.092	.360	2.473	.617
	CR	.103	.168	.423	.612	.044
	ROA	.702	.067	-.876	-1.065	.029
	Size	-.056	.080	.340	.704	.049
	ROS	-.007	.027	-.032	-.276	.007
	Growth	-.048	.058	1.112	.832	.004

Note: p<0.05

As seen in the above table, Financial leverage (0.617) is insignificant and have less influence on financial flexibility and rejected at a 5 percent level of significance. The improvement in unit of financial leverage, financial flexibility increased by 0.628 unit. The results in table 3 shows that the Current ratio, Return on Assets has a positive and significant impact on financial flexibility, and Size, Return on sales and Growth is negative predictor but have significant impact on financial flexibility.

6.1 Logistic Regression:

The effect of the variables on the financial flexibility can be determined through logistic regression. Q_1 is the proportion of financial flexible enterprises in the sample and H_1 is the proportion of non financial flexible enterprises.

$$logL = \sum_{i=1}^{N} w_i logF(q_i(\alpha_i + X_i\beta))$$

$$y = \begin{cases} 1\ financialflexible \\ 0\ non\ financialflexible \end{cases}$$

H_0 = an enterprise is likely to be financial flexible =1
H_1 = an enterprise is not likely to be financial flexible = 0

Table 4: Analysis of Logistic Regression

Variables		B	S.E.	Sig.
	Lev	.486	0.670	.017
	CR	.408	1.279	.049
	ROA	.211	.121	.038
	Size	-.452	.807	.027
	ROS	-.731	1.419	.006
	Growth	-.107	1.473	.029
	Constant	9.601	5.115	.061

Table 4 shows, the co-efficient of Leverage (0.486), Current Ratio (0.408), Return on Assets (0.211), Size (-0.452), Return on Sales (-0.731), Growth (-0.107) is significant at 5 percent level of significance, the $p<0.05$ shows significant impact on the financial flexibility.The study shows that factor have significant impact on financial flexibility. The type I error occurs when the null hypothesis is rejected, type II errors occurs when null hypothesis is not rejected; in our study this would be predicting that an enterprise is likely to be financial flexible, when in the reality they are not.

7. Research and Managerial Implication

The model developed in this study is significant and it can be used for predicting the failure of an enterprise. An elaboration of large sample from different sectors could provide more accuracy for the model. Developing a model using longer panel data would make it less biased. This study continues and expands the research into the conceptual framework of financial flexibility. The research focused on the connections between financial flexibility and the factors influencing flexibility. Financial flexibility is mostly unidentified and ignored in the capital mix decisions that have a substantial role in the efficient performance of firm. This model we have formulated can give the insight on financial flexibility, if the indication and influencing factors are timely established and proper measures will be taken to improve the financial position but the complexity of model make it some degree uncertain. The factors considered in the study and working on these factors will definitely enhance the chances of better performance by the CPSEs. The application of logit model based on factors scientifically better approach to the user for timely detect the CPSE's financial flexibility and avoid the erosion of investment and value of firm.

8. Conclusions

The study identifies the role of different financial factors in the financial flexibility of firm. The conventional debt equity proportion allows firms to raise more funds by avoiding high levels of risk– this provides the opportunity for them to spend more on their investment projects - something the inflexible CPSEs cannot afford to do. The linking of size and flexibility registered low significance as the small firm can opt debt financing, as the financial institutions can see their stability and hence are less hesitant to provide funds to the projects. The higher levels of returns on assets, return on sales is the rationalization for the negative association between the financial flexibility and investment related to the large CPSEs resulted it inability in managing number of assets and hence in undertaking the big leap in investment less often. The results include conclusions regarding the link between flexibility and factors, as well as the impact of external and internal factors on this relationship.

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