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MARKET TIMING OF CORPORATE CAPITAL ISSUES: THE INDIAN EXPERIENCE

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ABSTRACT

The study has made an attempt to verify the existence of market timing theory of Baker and Wurgler (US 2002) in Indian context. For this purpose it examined the effects of market-to-book ratio, fixed assets tangibility, profitability and growth in assets on capital structure decision on Indian companies. The study considered 236 Indian companies which made public offerings during ten years period from 2001 to 2010 as sample of the study. Regression models developed by Baker and Wurgler are used for the present study to examine the applicability of market timing theory in India. The study found that the selected independent variables had significant relationship on capital structure decision by Indian companies during the study period. It evidenced that market timing has existed in India during the study period. Eventhough market timing has been a consideration for equity issues, the mild results revealed that it could not be a major consideration.

KEYWORDS

Market timing, market-to-book ratio, equity, retained earnings, leverage and capital structure.

INTRODUCTION

Financial requirement is continues one for every business organization. Whenever a firm requires finance it goes either for equity or debt. Hence capital of a firm consists of debt and equity, the combination of debt and equity is called capital structure. Decisions taken by the firm on its capital gets its capital structure altered. At the time of need of finance firms take decision on its capital structure. Over the period of time researchers undertook studies on the concept of capital structure and some theories have been developed to explain the concepts of capital structure. The Net Income approach of capital structure was the initial attempt to explain capital structure. According to the theory increase in debt finance in capital structure to the possible extent may minimize the weighted average of cost of capital and this increases the market valuation of the equity shares. It summerises that the cost of equity and cost of debt remain unchanged eventhough market value of debt or equity varies. The successor approach of this theory was net operating income approach. It was propounded by David Durand (1959). According to this approach the overall capitalization rate and the cost of debt remain same in all degrees of financial leverage in capital structure. Unlike the net income approach it argues that the changes in capital structure do not affect the market value of the firm. It also argues that the overall cost of capital remain constant irrespective of mode of financing.

The Modigliani and Miller theory of capital structure (MM Theory) is considered as the initial attempt of modern capital structure theories. Initially this theory was developed with the assumption of non-existence of corporate taxes (1958), but latter a correction was made to the theory by including corporate taxes (1963). According to this theory, cost of capital and value of firm are not affected by capital structure. In other words, whatever the debt-equity mix, the cost of capital and firm value remain same. So capital structure is irrelevant to firm value, hence it is popularly known as irrelevant theory of capital structure.

The trade off theory of capital structure states that a company chooses the quantum of equity and debt finance evaluating the cost and benefit. Here cost refers to dead weight costs of bankruptcy and the benefit is the tax savings by using debt finance under financial distress. Hence optimal capital structure is determined by trade-off between the tax benefits of debt and bankruptcy risk. This theory was supported and critised by various studies. Walter I Boudry et al (2010) had evidence to support the study and Hennessy and Whited (2004), Mihov (2004) and Fama and French (2002) did not find supportive evidences for this theory.

Pecking order theory of capital structure suggests a preferential order of choosing the source of finance when the firm requires finance. The first source of finance preferred by managers is retained earnings (internal source). When it is depleted they move to low risk debt securities then to risky debt finance. They resort to equity issues only when they are not in the position to use neither internal finance nor debt finance. This theory also implies that the managers avoid signaling adverse information about firms by using internal fund. The profitable firms have lower debt ratios not because of lower target leverage, but because of having more internal finance. The studies of Lakshmi Shyam-Sundar and Steward C Myers (1999), Lemmn and Zander (2004), Mihov (2004), Kovacs (2003) and H Sin-Yu Liang and Chen Churamaiah Bathala (2009) supported the theory.

In the flow of theories of capital structure a recent theory was added by Baker and Wurgler in 2002. They had given a new dynamic of market timing attempts and named it as "Market Timing Theory". It explains the timing attempts of security issues. This theory states that the managers of firms take capital structure decisions on the basis of the cost of relative securities. They issue either equity or debt when cost of the respective security is lower than the other. This theory suggests that the managers issue equity when the stocks are valued in the market over and above their book value. On the other hand, when the market value of equity is low they prefer debt issue to meet their financial requirements. They theorized that market timing of equity issues have long lasting effect on capital structure. They also found robust negative association between firm leverage and market-to-book ratio. This theory concluded that the past timing attempts of equity market have persistent impact on capital structure. This theory stated that capitals structure is the cumulative outcome of the past attempts of market timing.

Several studies have been undertaken on the hypothesis of market timing theory of Baker and Wurgler. Aydogen Alti (2006), Silvia Z Islam and Richard Heaney (2007), William Elliott et al (2007), Rongbing Huang and Jay R Ritter (2005) and Brian E Young (2007) are some of the pimportant studies which had supportive evidences to market timing theory both in short run and long run period. The studies of Tijs De Bie and Leo De Hann (2007), Arvind Mahajan and Semiah Tartaroglu (2008), Joseph TL Ooi et al (2010) and Usha R Mittoo and Zhou Zhang (2007) found evidence to support market timing theory in short run only but they did not have supportive evidences in long run explanation of the theory. Studies undertaken by Armen Hovakimian (2006) and Harry De Angelo et al (2007) had evidence against the market timing theory. The present study has been made to test the Market Timing Theory in Indian context.

LITERATURE REVIEW

Rajan and Zingales (1995) found that firm size, tangible assets, market-to-book ratio and profitability were the important factors which were correlated with leverage in G7 countries. Baker and Wurgler (2002) brought out a theory called Market Timing theory as the outcome of their empirical study with US data. The theory stated that capital structure is the cumulative outcome of the past attempts of market timings. Rong Huang and Jay Ritter (2005) identified robust

support for market timing theory as an important explanation for time series variation of capital structure. They also found long lasting effect of market timing of securities on capital structure. Ayobgan Alti (2006) in his study supported the market timing and found that firms went for IPO when the market was hot and making more equity issues than cold market firms did. They also found that hot market firms had decline in their leverage ratio during IPO years. Silvia Islam and Richard Heaney (2007) found that the market-to-book ratio and leverage were negatively associated in Australia firms, which means high market-to-book ratio decreases leverage and assets tangibility, profitability and firm size were associated with lower leverage with very small percentage effect. William Elliott et al (2007) found positive relationship between degree of overvaluation of equity and the proportion of the firm financing by equity issues. The results were strong to firm size. Brian Yong (2007) evidenced that private firms delayed their IPOs when the market conditions were not favourable and they were wait until the market conditions improved. Tijds De Bie and Leo De Haan (2007) evidenced the existence of market timing theory in Netherlands firms but there was not long lasting impact on capital structure. Usha Mittoo and Zhou Zhang (2007) evidenced that the effect of market timing on capital structure of Canadian SEOs was weak in short run but it did not have effect in long run period. They also stated that the short run effect of market timing on capital structure occurred mainly because of market-to-book ratio. Harry De Angelos et al (2007) argued that market timing was not the primary motive for issuance of securities. They contended that they issue stock when they require funds and the issue decisions could not be the outcome of market timing. Arvind Mahajan and Semih Tartaroglu (2008) found that there was short run effect of equity market timing attempts on capital structure but there was no persistent effect on capital structure of timing the market in G7 countries by analyzing historical market-to-book ratio. Paritosh Chandra Sinha and Santanu Kumar Ghosh (2009) found that in the over or undervaluation of equity market the cost of asymmetric information related to debt or equity financing reduced in India. Joseph T L Ooi et al (2010) supported market timing theory both at industry level and firm level. They also found that firms took advantages of mispricing of shares to time their financial decisions and minimized cost of capital.

STATEMENT OF THE PROBLEM

Investment in equity stocks are made with an intention to earn returns which occurs through growing value of the investments. Among the determinants of this value, financing decisions is one of the prime factors. Whether an appropriate financing decision had been taken and the consequent capital structure formed will help in augmenting market value and result in maximizing value, is a matter of concern. Among several factors determining capital structure decisions, market timing is an important element of capital structure decisions. The present capital structure, according to one view, is considered as the cumulative outcome of past equity issue decisions indicating that the capital structure decisions would have a long term impact on the firm. Right timing of market in capital structure decisions is expected to be more beneficial to the company. Other than market valuation of equity, many other factors have also been identified and found to have an impact on capital structure decisions. An attempt to find the effects of select important variables as well as timing of public offerings made by Indian companies is expected to throw light on the efficiency with which such decisions were taken.

OBJECTIVES

The study is made with the following specific objectives.

1. To give theoretical background for capital structure theories and
2. To analyse the market timing effects of capital structure decisions of select Indian companies.

DATA AND METHODOLOGY

The study considered 236 public equity offerings made by Indian companies during the period of ten years from 2001 to 2010. The study required both accounting data and market related data. Accounting data of the sample companies were collected from annual reports supplied by 'Capitaline' database and the market data were compiled from the official website of Bombay Stock Exchange (bseindia.com).

HYPOTHESIS FRAMED

- H₀1:** There is no significant relationship between the independent variables and net debt issues.
- H₀2:** There is no significant relationship between the independent variables and net equity issues.
- H₀3:** There is no significant relationship between the independent variables and retained earnings.
- H₀4:** There is no significant relationship between the independent variables and growth in assets.

METHODOLOGY

The study basically relates to verification of the existing market timing theory developed by Baker and Wurgler (2002). The regression model developed by the study is adopted for the present study also. The model considered four dependent variables and four independent variables. The independent variables were selected by the study on the basis of the study undertaken by Rajan and Zingales (1995) to identify the factors influencing capital structure. The study identified four variables which influence capital structure namely market-to-book ratio, fixed assets tangibility, profitability and firm size. The present study also has taken these four variables as independent variables. The model had given the results of the effects of independent variables on annual changes in book leverage. Changes in book leverage was considered as dependent variables. The change was the changes in book leverage over previous year. The changes in leverage was decomposed into equity issues, changes in retained earnings and growth in assets for the purpose of focusing on the actual sources of change. For this purpose the following equation was used.

$$\left[\frac{BL}{A}\right]_t - \left[\frac{BL}{A}\right]_{t-1} = - \left[\left(\frac{E}{A}\right)_t - \left(\frac{E}{A}\right)_{t-1}\right] = - \left(\frac{E}{A}\right)_t - \left(\frac{\Delta RE}{A}\right)_t - \left[E_{t-1}\left(\frac{1}{A_t} - \frac{1}{A_{t-1}}\right)\right]$$

Where,

BL – Book Leverage; A – Total Assets; E – Book Equity; RE – Retained Earnings; E – Changes in book equity minus Changes in retained earnings; t – Current year and t-1 – Previous year

Regression models were applied separately for each dependent variables (Net debt issues, net equity issues, changes in retained earnings and growth in assets) with four selected independent variables viz, Market-to-book ratio, Fixed assets tangibility, Profitability and Firm size. They are,

1. $BL_{it} - BL_{it-1} = \alpha + \beta MBR_{it-1} + \gamma FAT_{it-1} + \delta PR_{it-1} + \phi \ln(FS)_{it-1} + \epsilon_t$
2. $D_{it} - D_{it-1} = \alpha + \beta MBR_{it-1} + \gamma FAT_{it-1} + \delta PR_{it-1} + \phi \ln(FS)_{it-1} + \epsilon_t$
3. $RE_{it} - RE_{it-1} = \alpha + \beta MBR_{it-1} + \gamma FAT_{it-1} + \delta PR_{it-1} + \phi \ln(FS)_{it-1} + \epsilon_t$
4. $A_{it} - A_{it-1} = \alpha + \beta MBR_{it-1} + \gamma FAT_{it-1} + \delta PR_{it-1} + \phi \ln(FS)_{it-1} + \epsilon_t$

Where,

BL – Book leverage; D – Net equity; RE – Retained earnings; A – Total assets; MBR – Market-to-book ratio; FAT – Fixed assets tangibility; PR – Profitability; FS – Firm size; t – Current year and t-1 – Previous year

The ratio of dependent and independent variables were calculated as under,

Net equity issue $\left(\frac{\Delta E}{A_t}\right) = \frac{\text{Changes in book equity} - \text{Changes in retained earnings}}{\text{Total assets}} = \frac{(E_t - E_{t-1}) - (RE_t - RE_{t-1})}{A_t}$

Net Debt Issue $\left(\frac{\Delta D}{A_t}\right) = \frac{\text{Changes in external debt over pervious year}}{\text{Total assets}} = \frac{(D_t - D_{t-1})}{A_t}$

Changes in Retained Earnings $\left(\frac{\Delta RE}{A_t}\right) = \frac{\text{Changes in retained earnings}}{\text{Total assets}} = \frac{(RE_t - RE_{t-1})}{A_t}$

Growth in Assets $\left(E_{t-1}\left(\frac{1}{A_t} - \frac{1}{A_{t-1}}\right)\right) = \left(E_{t-1}\left(\frac{1}{\text{Total Assets}_t} - \frac{1}{\text{Total Assets}_{t-1}}\right)\right)$

Market-to-Book Ratio $\left(\frac{M}{B}\right) = \frac{\text{Total assets} - \text{Book equity} + \text{Market equity}}{\text{Total assets}} = \frac{(A_t - E_t + E_{mt})}{A_t}$

$$\text{Fixed Assets Tangibility } \left(\frac{FA}{A}\right) = \frac{\text{Net Fixed Assets } \left(\frac{FA_t}{A_t}\right)}{\text{Total Assets}}$$

$$\text{Profitability } \left(\frac{EBITD}{A}\right) = \frac{\text{Earning Before Interest Tax and Dividend}}{\text{Total Assets}}$$

Firm Size (e log (S)) = e log (Sales)

Where t refers to current year data and t-1 refers to previous year data.

RESULTS AND DISCUSSION

The following section gives the results of descriptive statistics of dependent and independent variables, it reveals mean, standard deviation, minimum, maximum value and number of observations.

TABLE 1: COMMON DESCRIPTIVE STATISTICS

| MARKET-TO-BOOK RATIO | | | | | | | | | | | |
|------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Particular | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | All |
| Mean | 2.1255 | 1.9868 | 1.1308 | 2.8789 | 2.6574 | 2.7667 | 2.4166 | 2.1945 | 1.0390 | 1.5772 | 1.8626 |
| SD | 1.9260 | 1.7944 | 0.7375 | 2.1769 | 1.3290 | 1.5956 | 1.8875 | 1.7473 | 0.8093 | 1.1875 | 1.5576 |
| Minimum | 0.4193 | 0.5540 | 0.2831 | 0.4161 | 0.4429 | 0.4638 | 0.4722 | 0.3622 | 0.1592 | 0.1737 | 0.1592 |
| Maximum | 6.1733 | 6.4064 | 2.6718 | 8.0901 | 5.9151 | 8.1608 | 8.9696 | 8.7716 | 5.3388 | 8.1711 | 8.9696 |
| FIXED ASSETS TANGIBILITY | | | | | | | | | | | |
| Mean | 0.2955 | 0.3291 | 0.3327 | 0.2839 | 0.3327 | 0.3279 | 0.2944 | 0.3071 | 0.3259 | 0.3072 | 0.3121 |
| SD | 0.3419 | 0.4554 | 0.3538 | 0.2649 | 0.2463 | 0.2037 | 0.2218 | 0.2321 | 0.2496 | 0.2396 | 0.2407 |
| Minimum | 0.0292 | 0.0036 | 0.0035 | 0.0027 | 0.0252 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |
| Maximum | 1.0861 | 1.5766 | 1.2459 | 0.9807 | 1.0249 | 1.0723 | 1.1544 | 1.0053 | 1.3210 | 1.0190 | 1.5766 |
| PROFITABILITY | | | | | | | | | | | |
| Mean | 0.1533 | 0.1474 | 0.1751 | 0.1603 | 0.1623 | 0.1567 | 0.1584 | 0.1610 | 0.1261 | 0.1350 | 0.1457 |
| SD | 0.1264 | 0.2163 | 0.2684 | 0.1948 | 0.1138 | 0.0787 | 0.0955 | 0.1022 | 0.1244 | 0.0926 | 0.1113 |
| Minimum | -0.0127 | -0.0865 | -0.1335 | -0.2455 | -0.1788 | -0.0601 | -0.2631 | -0.2934 | -0.6015 | -0.1206 | -0.6015 |
| Maximum | 0.3837 | 0.6934 | 0.8804 | 0.6258 | 0.3401 | 0.4036 | 0.4553 | 0.4909 | 0.6407 | 0.4637 | 0.8804 |
| FIRM SIZE | | | | | | | | | | | |
| Mean | 4.1866 | 4.0790 | 4.3860 | 4.7016 | 5.4993 | 5.6221 | 5.6979 | 5.9175 | 5.9697 | 6.0493 | 5.8173 |
| SD | 1.7321 | 1.9794 | 1.9965 | 2.3059 | 2.1627 | 1.4272 | 1.5367 | 1.5491 | 1.5953 | 1.5888 | 1.6419 |
| Minimum | 0.7885 | -0.6539 | -0.6733 | -0.8210 | 0.1310 | 1.9213 | 1.7422 | 1.8342 | 1.4884 | 1.4609 | -0.8210 |
| Maximum | 6.7245 | 6.7529 | 6.8871 | 7.7747 | 10.1549 | 10.2980 | 11.0365 | 11.0835 | 11.1497 | 11.0664 | 11.1497 |
| NET DEBT ISSUES | | | | | | | | | | | |
| Mean | 0.2711 | -0.0231 | 0.0347 | 0.1041 | 0.0845 | 0.1129 | 0.0835 | 0.1178 | 0.0670 | 0.0750 | 0.0875 |
| SD | 0.3193 | 0.2456 | 0.0836 | 0.1707 | 0.1939 | 0.1709 | 0.5012 | 0.1557 | 0.3999 | 0.1176 | 0.2975 |
| Minimum | 0.0006 | -0.5742 | -0.0206 | -0.1585 | -0.1793 | -0.1593 | -5.4139 | -0.3147 | -5.4085 | -0.2984 | -5.4139 |
| Maximum | 0.8494 | 0.3658 | 0.2690 | 0.4571 | 0.7938 | 0.7197 | 0.5452 | 0.6870 | 0.5495 | 0.4270 | 0.8494 |
| NET EQUITY ISSUES | | | | | | | | | | | |
| Mean | 0.2710 | 0.0582 | 0.0097 | 0.0594 | 0.0342 | 0.0355 | 0.0247 | 0.0167 | 0.0046 | 0.0114 | 0.0192 |
| SD | 0.3413 | 0.1225 | 0.0299 | 0.1196 | 0.0802 | 0.0393 | 0.0404 | 0.0370 | 0.0269 | 0.0431 | 0.0589 |
| Minimum | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | -0.0094 | -0.0552 | -0.0174 | -0.0552 |
| Maximum | 0.9695 | 0.3454 | 0.0995 | 0.3614 | 0.4172 | 0.1437 | 0.2340 | 0.2646 | 0.3127 | 0.4146 | 0.9695 |
| CHANGES IN RETAINED EARNINGS | | | | | | | | | | | |
| Mean | 0.3289 | 0.1782 | 0.0789 | 0.1225 | 0.1802 | 0.3261 | 0.2588 | 0.2111 | 0.0530 | 0.0773 | 0.1539 |
| SD | 0.2703 | 0.2371 | 0.1457 | 0.2379 | 0.1713 | 0.2271 | 0.2442 | 0.2216 | 0.1731 | 0.1137 | 0.2130 |
| Minimum | -0.0707 | -0.1257 | -0.1534 | -0.3151 | -0.1292 | -0.1101 | -0.4159 | -0.3610 | -1.0245 | -0.2055 | -1.0245 |
| Maximum | 0.6673 | 0.5768 | 0.3785 | 0.6049 | 0.5642 | 0.9298 | 0.9201 | 0.8331 | 0.7698 | 0.5375 | 0.9298 |
| GROWTH IN ASSETS | | | | | | | | | | | |
| Mean | -0.4007 | -0.1629 | -0.1021 | -0.1611 | -0.1678 | -0.2518 | -0.2375 | -0.2077 | -0.0852 | -0.0952 | -0.1571 |
| SD | 0.2285 | 0.3082 | 0.1133 | 0.1809 | 0.1589 | 0.1861 | 0.2062 | 0.1937 | 0.1707 | 0.1107 | 0.1854 |
| Minimum | -0.7134 | -0.7112 | -0.3770 | -0.5999 | -0.4791 | -0.7490 | -0.9492 | -0.9852 | -0.7900 | -0.6239 | -0.9852 |
| Maximum | -0.0067 | 0.1216 | 0.0201 | 0.0445 | 0.0713 | 0.1373 | 0.4030 | 0.3342 | 1.1790 | 0.2536 | 1.1790 |

Source: Computed from data obtained from Capitaline database

Table 1 shows the descriptive statistics of market-to-book ratio for the whole study period and for each year. The mean value of market-to-book ratio was decreasing from 2001 to 2003, and it started to increase upto 2006. Latter it had decreased upto 2009. It showed a hike during 2010 over 2009. The highest mean value of market-to-book ratio was found during 2004 (2.8789) and the lowest was found during 2009 (1.0390), because during the year Indian stock market was affected by global financial crisis with market values of stock registering major fall. It was observed that the mean values of fixed assets tangibility shows a fluctuating trend during the study period. There were no major differences between the years. Mean value of fixed assets tangibility for the whole study period stood at 0.3121 with standard deviation of 0.2407. Highest fixed assets tangibility was found during 2004 and 2005 (0.3327). Lowest ratio was found during 2004 (0.2839). Mean value of fixed assets tangibility for the whole study period stood at 0.3121. The table showed that the mean results of profitability also were in fluctuating trend during the period. The mean value of the whole study period was 0.1457 with the standard deviation of 0.1113. Highest mean value was found in 2003 (0.1751), lowest mean value of profitability stood at 0.1261 which was fallen in 2009. The standard deviation was very low during 2006 (0.0787) and highest standard deviation found during 2003 (0.2684). The results indicated that the mean value of firm size showed that there was steady growth in assets over the study period. Mean value of firm size for the whole study period stood at 5.8173 with the standard deviation of 1.6419. Minimum mean value of firm size was found during 2001 (4.1866) and maximum ratio stood at 6.0493 during 2010. Highest standard deviation was found during 2004 (2.3059).

Table 1 also shows the mean value of net debt issues was 0.0875 with the standard deviation of 0.2975. The net debt issues ranges from -0.0231 to 0.2711. The standard deviation of net debt issues was very high during all the years of the study period. The mean values of net equity issues show a fluctuating trend. It was high during 2001 (0.2710) and the lowest net equity issues was documented during 2009 (0.0046). Mean value for net equity issue for all years stood at 0.0192. Standard deviations were high during all the years of the study period. Standard deviation for the whole study period stood at 0.0589. The Mean value of changes in retained earnings stood at 0.1539 with the standard deviation of 0.2130. It was in fluctuating trend over the study period. Lowest mean value was

found during 2009 (0.0530) and highest was found during 2001 (0.3289). High standard deviations were present over the study period. The Mean value of growth in assets stood at -0.1571 for the study period of 10 years from 2001 to 2010 with the standard deviation of 0.1854.

In examining the existence of market timing theory of Baker and Wurgler in Indian Scenario, the study has attempted with 236 public offerings made by Indian companies. The results of OLS regression are given below for net debt issues made by the selected companies.

TABLE 2: OLS REGRESSION RESULTS FOR NET DEBT ISSUES

| Variables | Co-efficient | t-statistics |
|--------------------------|----------------------|--------------|
| Market to Book Ratio | -0.0050 ^c | -1.7320 |
| Fixed assets Tangibility | -0.0764 ^a | -3.8091 |
| Profitability | -0.1560 ^a | 4.1352 |
| Firm Size | 0.0117 ^a | 3.7624 |
| Constant | -0.0138 | -0.7222 |
| Adj. R ² | 0.0477 | |
| F – Stat. | 12.2998 | |

Source: Calculated from secondary data

Note: a, b and c – Significant at 1%, 5% and 10% levels respectively.

Table 2 shows that market-to-book ratio, fixed assets tangibility and profitability influenced net debt issues negatively (-0.0050, -0.0764 and -0.1560). The coefficient of Market-to-book ratio was significant at 10% level, co-efficient values of other variable were statistically significant at 1% level. Firm size was the only variable which affected the net debt issues positively at 1% level of significance (0.0117). The value of constant stood negatively at -0.0138 which was not statistically significant, which indicated that other than the selected variables other variables influenced net debt issues negatively. The selected independent variables explained net debt issues at 5 per cent as shown by adjusted R square. The calculated value of F-statistics was 12.2998 and it was higher than the table value (3.02), hence the null hypothesis was rejected and the independent variables had significant relationship with net debt issues.

The results of the above table showed that the market value of equity has a negative influence on net debt issues. It means Indian companies reduced debt in their financial structure when the market values of their equity were high. In other words Indian companies went for debt when market value of equity went down. At the lower market valuation of equity, managers go for debt for their financial requirement because at that time they could not fix higher premium on equity shares and cost of capital become higher. To avoid this they tend to issue debt at the time of lower market valuation. The results also showed that firm size and net debt issues had positive relationship, which confirms the theoretical state that large companies depended more on debt rather than any other source of finance. Among other variables, profitability had more negative influence on net debt issues, indicating that high profit companies did not prefer debt as their financial source. Negative influence of fixed assets tangibility on net debt issues of Indian companies showed that companies with high fixed assets tangibility preferred lesser debt finance. Eventhough the results showed positive and negative effects of the variables market-to-book ratio, fixed assets tangibility, profitability and firm size on net debt issues, they were not that very strong. In other words these variables had only mild effects in financing in Indian context. The results of the above results supported the market timing theory in Indian context as market to book ratio had negative influence on net debt issues during the study period.

Pooled OLS regression estimates for the study period of 2001 to 2010, It was arrived at as regression co-efficient \times standard deviation. This would express the percentage change in a dependent variable attributable to a unit change in standard deviation of independent variable. This can be stated as one standard deviation increase in market-to-book ratio was associated with 1.17 per cent decrease in net debt issues (which was calculated as $-1.17 = -0.0075 \times 1.5576$, where 1.5576 was the standard deviation of market-to-book ratio). One standard deviation increase in fixed assets tangibility and profitability was associated with 1.65 per cent and 1.49 per cent decrease in net debt issues respectively ($-1.65 = -0.0687 \times 0.2407$ where 0.2407 was the standard deviation of fixed assets tangibility and $-1.49 = -0.1342 \times 0.1113$ where 0.1113 was the standard deviation of profitability). But one standard deviation increase in firm size was associated with 1.28 per cent increase in net debt issues ($1.28 = 0.0078 \times 1.6419$ where 1.6419 was the standard deviation of firm size).

Having dealt with the position of debt with regard to market timing, the main question, namely whether equity issue has been made considering market value conditions is intended to be studied. The following table reports the OLS estimate of regression results of the influence of market-to-book ratio, fixed asset tangibility, profitability and firm size on net equity issues.

TABLE 3: OLS REGRESSION RESULTS FOR NET EQUITY ISSUES

| Variables | Co-efficient | t-statistics |
|--------------------------|----------------------|--------------|
| Market to Book Ratio | 0.0003 | 0.2975 |
| Fixed assets Tangibility | -0.0203 ^a | -3.3254 |
| Profitability | -0.0335 ^a | -2.9111 |
| Firm Size | 0.0087 ^a | 9.1727 |
| Constant | -0.0537 ^a | -9.2362 |
| Adj. R ² | 0.0905 | |
| F – Stat. | 23.4450 | |

Source: Calculated from secondary data

Note: a, b and c – Significant at 1%, 5% and 10% levels respectively.

The regression results of table 3 indicate that market-to-book ratio affected net equity issues positively (0.0003), but it was not statistically significant. Net equity issues were negatively influenced by fixed assets tangibility and profitability (-0.0203 and -0.0335) significantly at 1% level. Firm size influenced net equity issues of Indian companies positively (0.0087) and it was statistically significant at 1% level. According to the results the value of constant stood at -0.0537, which means that variables other than the selected variables influenced net equity issues negatively. These results are in conformity with established theory. The independent variables involved explained net equity issues to the extent of 9% as indicated by the adjusted R² value. The calculated value of 'F' statistics stood at 23.4450 which was higher than the table value (3.02), Hence the null hypothesis was rejected. So, all the independent variables together had significant relationship with the net equity issues.

The results of this analysis show positive relationship between market-to-book ratio and net equity issues, which basically means Indian companies issued equity shares when the market values of their equity shares were high. But the results are not strong enough to treat as having major influence. The mild effect reveals that, eventhough there was market valuation implication on timing of equity issues in India, it was not substantial. In other words, eventhough there was timing effect in India, the weak results indicates that the market timing was not given the required importance during equity issue decisions. The results also showed that Indian companies did not prefer debt when the market value of equity were high (market-to-book ratio had positive co-efficient on net equity issues and negative influence on net debt issues). Among the four selected variables two variables had positive influence on net equity issues, market-to-book ratio is one among them and hence market timing has had an influence on equity issuance decisions in India. Since the influence of market-to-book ratio on equity issue was positive, the required finance was raised by equity issues, reducing the need for debt issue.

The negative co-efficient of fixed assets tangibility indicates that fixed assets of a company did not influence equity issues decisions in India. Not only on equity issues, it had negative influence on net debt issues also. The negative result of profitability on net equity issues indicates that Indian companies with high profitability did not prefer equity finance for their financial needs. Firm size had positive influence on net equity issues (0.0087) and net debt issues (0.0117) but the result of net equity issue is lesser than the results of net debt issues which means large size companies preferred debt issues for their financial needs rather than equity issues.

On the whole, among the four independent variables, only two variables namely market-to-book ratio and firm size had a positive influence on equity issues of Indian companies. So, the market values of equities were considered for issue of equity shares by Indian companies during the study period. Using OLS regression for the study period of 2001 – 2010, one standard deviation increase in market-to-book ratio tend to result in 0.13 per cent increase in net equity issues ($0.13 = 0.0008 \times 1.5576$, where 1.5576 is the standard deviation of market-to-book ratio). Fixed assets tangibility had negative influence on net equity issues, where one standard deviation increase was associated with 0.23 per cent decrease in net equity issues ($0.23 = -0.0095 \times 0.2407$, where 0.2407 is the standard deviation of fixed assets tangibility). Profitability had very low positive influence on net equity issues. One standard deviation increase in profitability tends to increase 0.02 per cent of net equity issues ($0.02 = 0.0021 \times 0.1113$, where 0.1113 was the standard deviation of profitability). One standard deviation increase in firm size was associated with 1.31 per cent increase in net equity issues ($1.31 = 0.0080 \times 1.6419$, where 1.6419 was the standard deviation of firm size).

The source of finance sorts by firms to meet their financial needs were debt, equity and retained earnings. The need for financing growth in assets should substantially come from debt and equity, in the sense retained earnings may not always play a substantial role in financing. However since it is considered as a source of funds, its influence in the overall financing decisions needs to be assessed. This aspect is taken up for analysis and the results are presented in table 3.

TABLE 4: OLS REGRESSION RESULTS FOR CHANGES IN RETAINED EARNINGS

| Variables | Co-efficient | t-statistics |
|--------------------------|----------------------|--------------|
| Market to Book Ratio | -0.0328 ^a | -9.9257 |
| Fixed assets Tangibility | 0.0013 | 0.0579 |
| Profitability | -0.5447 ^a | -12.6568 |
| Firm Size | 0.0278 ^a | 7.8372 |
| Constant | -0.1382 ^a | -6.3564 |
| Adj. R ² | 0.3107 | |
| F – Stat. | 102.6545 | |

Source: Calculated from secondary data

Note: a, b and c – Significant at 1%, 5% and 10% levels respectively.

Results of OLS regression analysis presented in table 4 showed that market-to-book ratio and profitability had negative influence on changes in retained earnings (-0.0328 and -0.5447), both results were statistically significant at 1% level. Among the two variables profitability affected the changes in retained earnings much higher than market-to-book ratio. Fixed assets tangibility and firm size influenced changes in retained earnings positively (0.0013 and 0.0278). Regression co-efficient of fixed assets tangibility was not statistically significant but the co-efficient of firm size was significant at 1% level. As explained by adjusted R-square all the independent variables explained the changes in retained earnings at 31%. The value of constant stood at -0.1382 and it was significant at 1% level. The calculated value of F-statistics was 102.6545 which was higher than the table value (3.02) at 1% level, Hence the null hypothesis was rejected and the independent variables together had significant relationship with the changes in retained earnings.

The regression result showed that profitability of Indian companies negatively influenced on changes in retained earnings and interestingly the result was higher than any other selected variables. It shows that Indian companies with high profitability did not prefer internal source of finance for their financial need. Market value of equity shares also negatively influenced on changes in retained earnings, it means companies with high market value did not seek for internal source of finance for their financial requirements. Except the co-efficient of profitability all other results were mild. Positive effect of fixed assets tangibility on changes in retained earnings showed that Indian companies which had high fixed assets tangibility preferred internal source of finance for their financial needs. Firm size also had positive co-efficient on changes in retained earnings. It revealed that large companies went for internal source of finance for their financial requirements. It should be bourn in mind that retained earnings is a residual decision. That is, out of the total profits earned a part is declared as dividends and the balance, that is the residue, is retained earnings.

By using OLS estimates it was found that one standard deviation increase in market-to-book ratio was associated with 7.16 per cent decrease in changes in retained earnings ($-7.16 = -0.0460 \times 1.5576$, where 1.5576 was the standard deviation of market-to-book ratio). One standard deviation increase in fixed assets tangibility had increased 0.13 per cent in changes in retained earnings ($0.13 = 0.0053 \times 0.2407$, where 0.2407 was the standard deviation of fixed assets tangibility). Profitability had strong negative association with changes in retained earnings. One standard deviation increase in profitability was associated with 6.96 per cent decrease in changes in retained earnings ($6.96 = -0.6255 \times 0.1113$, where 0.1113 was the standard deviation of profitability). In case of firm size, when there was one standard deviation increase, it tend 2.54 per cent increase in changes in retained earnings ($2.54 = 0.0155 \times 1.6419$, where 1.6419 was the standard deviation of firm size).

As mentioned earlier financial need arises mainly to meet the investment needs and investment leads to growth in assets. To what extent the determinants influence the growth in assets is also verified and the results are presented in table 5.

TABLE 5: OLS REGRESSION RESULTS FOR GROWTH IN ASSETS

| Variables | Co-efficient | t-statistics |
|--------------------------|----------------------|--------------|
| Market to Book Ratio | 0.0275 ^a | 9.7749 |
| Fixed assets Tangibility | -0.0574 ^a | -2.9442 |
| Profitability | 0.4222 ^a | 11.5149 |
| Firm Size | -0.0248 ^a | -8.2074 |
| Constant | 0.1782 ^a | 9.6180 |
| Adj. R ² | 0.2968 | |
| F – Stat. | 96.1958 | |

Source: Calculated from secondary data

Note: a, b and c – Significant at 1%, 5% and 10% levels respectively.

The results of table 5 showed that regression co-efficient of all independent variables were statistically significant at 1% level. Market-to-book ratio and profitability had positive influence on growth in assets (0.0275 and 0.4222). Growth in assets was negatively affected by fixed assets tangibility and firm size (-0.0574) and -0.0248). The constant value of co-efficient stood at 0.1782. All the four controlling variables together explained the growth in assets at 30% as explained by adjusted R-square. Other than profitability all other three independent variables had mild effect on growth in assets. The calculated value of F-statistics (96.1958) was higher than the table value (3.02), hence the null hypothesis was rejected and the independent variables had a significant relationship with the growth in assets during the study period.

The positive regression co-efficient of market-to-book ratio showed that market valuation of Indian companies influenced the growth in assets positively. Profitability influenced growth in assets much higher than other independent variables. Fixed assets tangibility had negative influence on growth in assets. Profitability influenced growth in assets positively which indicated that profitability was considered as a variable for different security issues by Indian companies. Firm size was another variable which had a negative influence on growth in assets during the whole period and all the sub-periods of the study.

But what is surprising is the negative influence of the variable fixed assets tangibility on growth in assets. This basically would imply that financing through various sources had gone to increase total assets and not fixed assets. The components of total assets are tangible fixed assets, intangible fixed assets, long term investments and current assets. Hence it is inforced to conclude that raising of funds had been to finance intangible assets, long term investments in securities (purchase of shares of the companies for mergers, acquisition or creating controlling interest in other companies or financing subsidiaries etc.) and investment in current assets. This means the nature of growth has not been in the expected lines of expanding business operations.

Using OLS regression showed that one standard deviation increase in market-to-book ratio was associated with 5.87 per cent increase in growth in assets ($5.87 = 0.0377 \times 1.5576$, where 1.5576 was the standard deviation of market-to-book ratio). One standard deviation increase in fixed assets tangibility tend to decrease growth in assets by 1.55 per cent ($-1.55 = -0.0646 \times 0.2407$, where 0.2407 was the standard deviation of fixed assets tangibility). One standard deviation increase in profitability was associated with 5.53 per cent increase in growth in assets ($5.53 = 0.4891 \times 0.1113$, where 0.1113 was the standard deviation of profitability). Firm size had negative association with growth in assets, when one standard deviation increase in firm size tend to decrease growth in assets by 2.56 per cent ($-2.56 = -0.0156 \times 1.6419$, where 1.6419 was the standard deviation of firm size).

The results of the hypotheses tested by the study are presented in table 6.

TABLE 6: RESULTS HYPOTHESES TESTED

| Hypothesis | Results |
|--|----------|
| There is no significant relationship between the independent variables and net debt issues. | Rejected |
| There is no significant relationship between the independent variables and net equity issues. | Rejected |
| There is no significant relationship between the independent variables and changes in retained earnings. | Rejected |
| There is no significant relationship between the independent variables and growth in assets. | Rejected |

Table 6 summarises the results of 'F' test analysis relating to the relationship of dependent and independent variables. The hypotheses were set such that if the hypotheses is rejected it goes as per the established theory. In other words the independent variables market-to-book ratio, fixed assets tangibility, profitability and firm size need to have a significant relationship with the variables net debt issues, net equity issues, changes in retained earnings and growth in assets.

The Market Timing Theory of Backer and Wurgler (2002) found that market-to-book ratio had positive effect on net equity issues and it had negative influence on net debt issues. It means companies issue equity when market value of equity increased and otherwise they seek for debt issues. The present study tested the theory in Indian context and the natures of influence of independent variables on dependent variables are given in table 7.

TABLE 7: NATURE OF INFLUENCE OF INDEPENDENT VARIABLES ON DEPENDENT VARIABLES

| Dependent Variables | Nature of Influence | | | |
|------------------------------|---------------------|-----|----|----|
| | MTB | FAT | PR | FS |
| Net debt issue | - | - | - | + |
| Net equity issue | + | - | - | + |
| Changes in retained earnings | - | + | - | + |
| Growth in assets | + | - | + | - |

Source: Computed from secondary data

Table 7 summarises the results of the nature of influence of independent variables on the dependent variables ascertained through regression analysis. It indicates that market timing has been an important consideration since there is a negative influence of market-to-book ratio on net debt issues and a positive influence on net equity issues. This means when market values are low, debt issues have been made and when market values are high compared to book values, equity issues have been made. With regard to other variables namely fixed assets tangibility, profitability and firm size the positive or negative influence on debt and equity issues are explainable. Similarly positive or negative influence of all the variables on growth in assets is also theoretically acceptable. The negative influence of market-to-book ratio and profitability on changes in retained earnings is some what intriguing. Theoretically a positive change in retained earnings results in an enhanced book value which in turn should have the positive influence on market value. This would result in an increase in market-to-book ratio. But in the case of the study companies this has not been the case. This may be explained as due to any one of the following reasons; 1.a low dividend payout might have had a negative influence on market value and/or 2.the future earnings perception of the market might not have been favourable to the company. Both the above would result in lower market values.

CONCLUSION

The study examined the existence of market timing theory of Baker and Wurgler (2002) in Indian context. It found supportive evidences to this theory in India. This study found negative influence of market-to-book ratio on net debt issues and positive influence on net equity issues, it means Indian companies issued equity shares when market value of shares were high and they went for debt issues for their financial requirements when market value was low. Indian companies utilized mispricing of equity shares in market and went for equity issues when market value of equity was high because of lower cost of capital of equity and they were able to fix higher premium on shares at the time of issue. It was also found that the independent variables selected for the study had significant relationship with capital structure decisions in Indian firms. This study indicates that market timing has been a consideration but not a major consideration in equity issue decisions in India.

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