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Firm Growth and Retained Earnings Behavior – A Study on Indian Firms

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Abstract

Growth of corporate firms in India is substantially financed by retained earnings. That there are no transaction and bankruptcy costs associated with retained profits makes retained earnings a major source of finance for companies. Potential growth opportunities would place a greater demand on internally generated funds. The importance attached to corporate income retention in enhancing the growth of firms has been the driving force for the study which analyses potential variables that would affect retained earnings and change in retention behavior among companies differing in their growth levels. The sample size comprises 149 profit making Indian companies across seven different industries. The data collected for the period from 1996-2010 are investigated with the help of correlation and multiple regression. The results suggest that across the classifications of sample companies cash flow and dividend are found to be the most influencing variables on retained earnings. Companies with low investment opportunities for growth and expansion prefer to distribute much of their earnings as dividend. The potential investment opportunities are likely to arise far off in the future for these companies. So profit, if retained, remains unutilized for long time or utilized in short-term investment opportunities which would yield low return on investment. Such companies prefer to pay out the earnings and raise capital whenever needed. Thus, the level of earnings retained is very much influenced by the growth rate of the companies.

Key words: Retained Earnings, Growth of companies, Cash Flow, Dividend, Net Fixed Assets.

1. Introduction

A company's dividend policy is its long term financial strategy with regards to deciding how much earnings to pay out as against retaining them for investment in the company. It leads to division of profits between dividend payment to shareholders and reinvestment in the company. There are no transaction and bankruptcy costs associated with retained profits (Altman, 1993). Thus, retained earnings constitute a major source of finance for companies. Investors prefer capital gains over dividends, because capital gain taxes can be deferred into the future and are taxed at a minimum rate while taxes on dividends must be paid as soon as they are received and are taxed at a relatively higher rate. Whenever there is an increase in personal income tax of the shareholders, companies tend to retain and reinvest more of their earnings. Payment of earnings as dividend is associated with agency cost and an opportunity for existing shareholders is lost to reinvest their earnings for growth of the company. William Droms (1990) says that investors benefit more from reinvested earnings than dividends in the long-run. As ensured by Oscar Harkavy (1953), Plough back of corporate profits gives rise to appreciation in the value of corporate securities.

Earnings retained are the most important sources of financing growth of a firm. The level of internal funds conveys information about growth prospects of companies (Gilchrist and Himmelberg, 1995). Growth firms pay lower dividends, reinvest more of their earnings, and provide a greater percentage of their total returns in the form of capital gains. Companies with a few major investment opportunities would limit paying out a larger percentage of their earnings. For this reason, higher dividends are paid in stable, low-growth industries. By contrast, high-growth companies with lots of investment opportunities are likely to pay low dividends because they have profitable uses for the capital. So, growth is likely to place a greater demand on internally generated funds. Higher growth firms use less debt (Rajan and Zingales, 1995). This is because conflicts of interest between debt and equity holders. Myers (1977) also argues that firms with growth potential would have less capital structure. Growth opportunities can produce moral hazard effects and push firms to take more risk. In order to mitigate this problem, growth opportunities should be financed with equity or retained earnings instead of debt. It has been predominantly supported by the empirical studies that internally generated funds have enormously contributed to financing growth of corporations in recent times.

The following paragraphs exhibit the trend in corporate savings in India during the post liberalized era.

1.1 Internal Funds use by the Corporate India

The corporate India seems to have relied heavily upon internal funds for the investment needs. An overview of the financing pattern followed by the Indian corporate sector during the study period 1996-2010 is presented in Table 1.

Both internal and external funds appear to be crucial in funding long-term investment requirements of the firms. The relative importance of internal over external funds has varied considerably from one part of the period to another. Still, on average, the share of internal financing is more than that of external financing to the new financing over the period. The corporate investment in India are predominantly responsive to internal funds than external funds, as has been found over the fifteen-year period that by nearly 54 per cent of the new financing, on average, is funded by internal savings while external funds contribute only 46 per cent. During the years where the firms were with growth rates more than the average, the retained earnings played a significant role in their financing pattern. Even in the periods where the net assets grew at rates lower than the average rate of 15.23 per cent, the firms had heavily employed internal financing. Thus, internally generated funds are mainly employed to finance growth of corporations over the period under study.

The importance attached to the corporate income retention and its proven role in enhancing growth of companies have been the driving force for investigating the income retention behavior of corporate India. The study analyses potential variables that would influence retained earnings in Indian corporate sector. Though there are some existing studies which examine the determinants of corporate retained earnings in India and abroad, the present attempt signifies difference from earlier studies in terms of variables used, sample size and period of study. Following paragraphs describe in brief the results arrived at in studies conducted earlier on retained earnings.

2. Literature Review

Dobrovolsky (1951) has found a positive, strong impact of net income on savings. Lintner (1956) by his investigations on American Corporations concludes that dividends represent the primary and active decision variable. Savings are determined residually. Florence (1959) through his analysis of cross sections of UK firms shows that firms follow a stable dividend pattern which is influenced by both the size and nature of firms. Herbert E Sim (1960) indicates corporations have relied mainly upon internal sources of funds to finance their acquisitions of physical assets. According to him, previous dividend payments and current income are the two factors most influential in determining the level of retained earnings.

Smith (1963) in his study clearly exhibits that proportion saved out of corporate income in a given period depends on both previous level of dividends and on demand and supply conditions for corporate funds. He further reports that there exists a higher marginal propensity to save out of corporate income in the short-run than in the long-run and motives of corporations to save and invest should not be treated as independent as is often done in the discussion of role of corporate savings as a stabilizer. Hart (1963) has attempted to find variation of company savings with its size in select UK corporate firms. He establishes that savings are not significantly different among companies, favouring the contentions of Dobrovolsky and Bates that the retention rate is independent of firm size. Friend and Puckett (1964) show that there exists a strong investor preference for dividend in non-growth industries, while in growth industries there is some preference for retained earnings.

Purnanandam and Rao (1966) have made use of Lintner's specification for their workings. They confirm that Indian companies follow a stable dividend policy and quick adjustment of dividends; in the long-run they show variations in their financial policies in the same industry; their response to fluctuations in profit is very fast.

Dhrymes and Kurz (1967) put forward that firms with high debt –equity ratio display a smaller payout ratio indicating that firms operating with high debt capital would try to reduce the debt and their investment requirements will be financed largely by reinvested profits. Smaller firms retain a higher proportion of their profits than larger firms because smaller firms could not afford to incur heavy cost in going into capital markets to raise their finance. Turnovosky (1967) support that retained earnings are determined as remainder of profits, after dividends are paid out; it is changes in profits than current level which determine how much should be retained by a firm; funds for investment are not very strong in determining the amount of profit retentions by firms. He concludes that retained earnings are determined residually and investment decisions are to play a minor role in allocation of profits.

James Bates and Henderson (1967) identify that internal finance has always been one of the most important

sources of funds for small business enterprises. However, public companies are able to replace this source by a greater degree of external financing, whilst small firms do not have such opportunities. For many small concerns, growth is possible only if it could be financed largely from earnings retained in the business. What proportion of earnings to put by, depends very much on individual circumstances like desire to expand, speed of growth desired, ownership considerations and market prospects etc. Small firms save more out of their income than do large companies in the long-run. Rate of savings is determined mainly by level of profits and dividends paid in the preceding year.

Feldstein (1970) demonstrate that differential tax policy in favour of retention of earnings increases corporate savings. Further improvement of the model by adding "dual tax impact" measured by the ratio of net profit to gross profit does not give an impressive impact on retention policy. Rao and Rao (1970) examine the relation between saving and size of a firm. Results of ordinary least squire show a close resemblance to Bates and Henderson's result. They have further added that marginal propensity to save is higher for small firms than large firms. Average reaction coefficient obtained for large cotton textile firms leads that size of a firm has little bearing on the speed of adjustment as such.

Rao and Sarma (1971) have tested the appropriateness of basic Lintner model in corporate dividend decision. Their results demonstrate that the basic Lintner model is quite appropriate for explaining corporate dividend - saving behavior. Feldstein and Fleming (1971) assess the effect of taxation policy on saving behavior of U.K firms relating to the period 1954-67. They find the existence of considerable positive influence of tax on retained earnings.

Appavadhanulu (1974) examines relationship between size and amount of savings of Indian firms. He reveals that marginal saving rates between size groups are different. It is by and large higher in the small-sized firms. Bhatia (1979) investigates how retained corporate earnings affect stock holders' saving decisions. Results indicated that retained earnings have no significant effect on consumer expenditures. His results do not support the hypothesis that in making spending decisions, retained earnings are treated as a component of income, or their influence is separate from and stronger than the impact of total accrued gains.

Bhole (1980) proves that saving ratio of a company depends upon its type, size and industry. Large companies have a higher saving ratio than the small companies; public limited companies have a higher saving ratio than private limited companies till the middle of 1960s after which saving ratio of latter group exceeds the former. Saving ratio for major part of the corporate sector in India has increased over the period of time. Yet it is still smaller than the one practiced by corporate firms in a country like the U. S. A. The single - most important determinant of saving ratio in case of medium and large public limited companies is net profit after tax, while variables which determine this ratio in case of medium and large private limited companies are cash flow, availability and cost of external funds and price level. Variation in share prices is not significantly explained by dividends or earnings per share. Among these two variables, latter explains relativity better movements in share prices.

Bhole (1980) finds that capital structure of companies does not get affected by increasing the rate of dividend; Indian companies do not practice unusually high plough back rates. He has rejected the suggestion that companies should be discouraged from retaining profit to pave way to growth in capital market in India by establishing that capital markets in countries like the USA were highly developed though companies in such countries had retention rates more than what Indian companies had in that period. According to him the best way to improve return on shares is to improve efficiency and profitability.

Braj Kishor (1980) establishes that internal sources of finance constitute the most important source of financing assets need of selected companies. According to his study, average annual retentions have recorded a consistently rising trend and payout ratio remains uniquely constant for nearly all the years. Thus, given a stable payout policy, fluctuations in profitability largely determine the amount of internal funds. Lagged dividend is the strongest variable negatively influencing retained earnings. Profit after tax has emerged as the next important variable positively influencing retention. Expansion requirements are identified as the least significant variable influencing the retention of profits.

Rao and Vivekananda (1980) point out that influence of income, investment opportunities and liquidity requirements are found to be statistically significant on corporate saving behavior. According to Purohit (1988), medium and large companies save the most whereas the smallest the least. Within medium and large companies, the highest saving is recorded with the largest companies and the lowest with medium companies. The average marginal saving propensity remains highest for medium and large sized companies and lowest for small sized

firms.

Gupta (1989) reveals that while an overall declining tendency is observed in tax provisions and dividend payout ratios, an increasing tendency is noticed in retention ratios in Indian companies during the study period. However, all the three ratios remain fairly consistent. The overall retention pattern indicates that corporations have tried to adopt a stable dividend policy over a period and any increase in quantum of profit before tax due to increase in profits or due to reduction in tax burden, goes to retention. At the same time when profits are inadequate, past reserves are used to pay dividends. It is also observed that constant profit earning industries maintain a certain retention ratio, but low profit or loss incurring enterprises maintain neither a retention ratio nor a dividend payout ratio. However, in all industries, retention ratio remains fairly constant during the period under study.

Mittal (1992) examines the determinants of retained earnings. He has found that variations in dividend paid are very low in comparison to variations in retained earnings in large-sized textile companies. Therefore, retained earnings decision is a residual one. Current ratio has the most significant impact on retention ratio. Debt – equity ratio and corporate tax rate have a depressing effect on retention ratio. Desire to hold excessive inventory and to avoid interest burden do not significantly induce management to retain more profits.

Mahakud (2005) analyses the trend and determinants of retained earnings. Trend in retained earnings is examined on public limited companies, private limited companies and foreign companies in India. On the other hand, determinants of retained earnings are studied by using panel data pertaining to 500 companies listed in S & P CN X 500 Index. Result of the computation of retention ratio and regression equations indicate that corporate retained earnings in India has not increased much and but remained at a low level throughout the period of study. Profit after tax, investment opportunities, availability of external funds, cost of borrowing, dividend policy and shareholding patterns are major determinants of retained earnings.

Kaushik (2007) has tested a hypothesis that domestic and multinational companies have different attitudes towards appropriation of profit. Multinational companies are less concerned about industrial growth of the countries in which they operate. Domestic companies are however relatively more concerned about industrial growth of the parent country. Retention ratio is higher for domestic companies than multinational companies and retained earnings contribute more in assets expansion of multinational companies as compared to domestic companies. Growth rates in profit after tax and retained earnings are almost similar for domestic companies indicating that as profit after tax goes up, retained earnings also go up. The same however is not true in case of multinational companies, as in their case growth rate in profit after tax is much higher than growth rate in retained earnings. This indicates that the practice of managing retained earnings in domestic and multinational companies differ. Profit after tax is the single strongest variable in shaping retained earnings. However, multinational companies, in some cases, in spite of an increase in profit after tax, do not exhibit same increase in retained earnings. Thus, domestic and multinational companies in India manage their retained earnings with different mindsets.

Inessa Love, (2011) examined corporate saving behaviour of industrial companies in Egypt. The focus is on two measures of savings -Financial Savings and Physical Savings. Investment of retained earnings in physical assets such as plant, equipment, etc., is regarded as physical savings. Financial savings represent investment in financial assets like cash holdings, marketable securities etc. Regression results determining the association between the variables and financial savings, explain that firms that exhibit more volatility (measured as standard deviation of sales) have accumulated more financial savings suggesting that firms that have more uncertainty about future cash flows have saved more. With respect to debt levels, there is no significant relationship between debt and financial savings. Firms that are paying higher interest on debt in the previous year have made more financial savings in the current year. A very little or no effect of cash flows on financial savings are found. Growth of firms, as represented by the rate of sales growth, does not show any significant association with internal savings in physical assets. Effect of interest rate and net income are positive and significant. Exporting firms have used more external finance to invest in physical assets. Small firms are more constrained in access to finance and they use less physical savings.

Ramesh Jangili and Sharad kumar, (2011) empirically tested the determinants of private corporate sector savings in India. Results of panel regression model show that corporate tax rate, cost of borrowings, depreciation rate and inventory to sales are negatively associated with retained earnings, whereas profit after tax, external sources of funds, capital formation, interest burden, and value of production are positively associated. It is also observed that corporate tax rate, availability of external funds, cost of borrowings and inventory to sales ratio are found to be the most significant determinants for large firms. Corporate tax rate and value of production rate are

significant for small-sized firms.

3. Methodology

The research methodology followed is explained in the following paragraphs.

3.1 Sample

The Official Directory of the Bombay Stock Exchange, Mumbai classifies the Indian industries into 23 major industries. From the official classification, seven major Indian industries are selected at random which forms the sampling frame. One hundred and forty nine firms, which are on average the most profitable for a period of 15 years from 1996-2010, constitute the sample for the study. The selected companies are classified on the basis of sales growth which is used as proxy for measuring the growth of firms. The data are retrieved from PROWESS data base provided by Centre for Monitoring Indian Economy (CMIE).

3.2 Variables used

Literature review has suggested a number of explanatory variables influencing corporate retained earnings. The selected variables are scaled down to per unit of net worth to cope up with the sample size variation problem. Summary of these variables and reason for their inclusion in the study are enumerated in the following paragraphs.

a. Dividend, current year (DIV_t)

Retained earnings are determined as remainder of profits after dividends are paid out. (Turnovsky, 1967). Rao and Vivekananda (1980) also add that corporate savings will be equal to net profits less dividend payments. Thus, dividend payments would reduce retained profits. A negative association is expected between retained earnings and payment of dividends.

b. Dividend, previous year (DIV_{t-1})

Lintner (1956) advocates that dividend payout is a function of net current earnings after tax and dividends paid in the previous year. Smith (1963) argues that the proportion saved out of corporate income in a given period would depend on previous level of dividends. Therefore one may expect that payout ratio in the current year is to some extent influenced by last year's payout ratio due to the fact that a stable dividend policy is to be followed by companies to ensue shareholders a fair and constant flow of return. Amount of profits retained in the current year is a function of last year's dividend payout. Thus, a negative relationship is expected between lagged dividend and retained earnings.

c. Cash Flow, current year (CFL_t)

Cash flows are estimated by adding depreciation to profit after tax. Britain (1966) views that dividend or retention behaviour is better explained through the use of profit which includes depreciation factor. Given a stable payout ratio, fluctuations in profitability must largely determine internal funds volume (Braj Kishor, 1980). Liberalised rate of depreciation on fixed assets in India in recent years would artificially reduce net profit in the books. So, net profit as revealed by the books of accounts will not represent as a true indicator of profits retained in the business. Thus, cash flow has been considered in place of accounting profits for deciding the volume of retained earnings. Cash flow is assumed to have a positive impact on level of savings.

d. Cash Flow, previous year (CFL_{t-1})

According to Tinbergen (1939) retained income varies directly with current net income and inversely with previous year's income and surplus. The inverse relationship is attributed to stability of dividend requirements. Effect of lagged profits on retention policy has also been tested by Darling (1957). Dividend payout in the last year would have been dependent on last year's cash flow. As has been stated earlier, lagged dividend payments would have a direct bearing on dividend payout ratio and in turn on retention ratio of a company in the current year. Thus, profits retained in the current year are influenced by last year's cash flow. So it is presumed that there exists a negative association between cash flow of the last year and retained earnings in the current year.

e. Interest, current year (INT_t)

Jitendra Mahakud (2005) finds cost of borrowings as one of the major determinants of corporate retained earnings. Out flow of earnings in the form of interest would reduce net profit.

f. Tax, current year (TAX_t)

Retained earnings are negatively affected by tax payments (Panda and Lall, 1993 and Damodaran, 1997). High corporate tax rate increases total tax payments, reducing net income, which, in turn, reduces retained profits.

g. Investment in Inventory, current year (INV_t)

Fixed investment requirements are measured in two ways. One is investment in inventory as it requires a fixed

capital employment and the other one represents investment in fixed assets. Corporate savings are positively related to fixed investment demand (Rao and Vivekananda, 1980). As such, investment in inventory has been included as one of the independent variables and expected to have a positive influence upon retained earnings.

h. Change in Net Fixed Assets, current year (NFA_t)

Higgins Robert (1972) clarifies that when investment in fixed assets increases, retention ratio increases. Bhole (2000) is also of the opinion that greater the prospective investment opportunities, higher will be the retention of profits by a company. Thus, a positive relationship between retained earnings and change in net fixed assets of companies can be expected.

i. Working capital, current year (WCL_t)

Chakraborty (1973) views working capital as a segment of fixed capital employed rather than a mere cover for creditors and emphasizes that working capital is used to pay all operating expenses of running a business. Therefore, working capital requirements are financed through fixed capital. Thus, working capital needs are by and large expected to be satisfied by retained earnings. Higher the need, more will be the amount of retained earnings.

j. Reserves and Surplus, previous year (RES_{t-1})

Relationship between current retention of profits and lagged reserves and surplus total is presumed to be negative on the basis that while last year's reserves and surplus are higher, the companies tend to retain less as companies would always try to maintain a certain level of reserves. This has been propounded by Jitendra Mahakud (2005) as well.

k. External Sources of Funds, current year ($EXSF_t$)

External funds include debt, equity and preference share capital. A higher amount of debt capital induces companies to go for higher retention of profits (Mittal, 1992). However, it is obvious that higher the external funds employed in the capital structure, the greater will be out flow of cash in the form of interest. This would reduce level of retained earnings. So, retained earnings are assumed to be negatively influenced by external funds.

l. Inflation Rate, current year ($INFR_t$)

Rate of inflation and retained earnings are presumed to be associated positively. This hypothesis is attributed to the theoretical proposition that companies are forced to be highly dependent on retained earnings for replacement of their fixed assets during the period of inflation.

m. Beta, current year ($BETA_t$)

Equity investors are reluctant of investing their money in shares for long-term capital appreciation when the prices of such securities are highly volatile. In such circumstances, companies are dependent on retained earnings for their fixed capital requirements. Nifty beta has been taken as proxy for representing share price volatility. Retained earnings will tend to increase as beta approaches to one. Thus, a positive relationship is expected between beta and the amount of retained earnings.

3.3 Scheme of Analysis

The data deflated by net worth are critically examined to investigate the impact of selected explanatory variables on retained earnings with the help of correlation analysis, multiple regression technique and stepwise regression method. In correlation analysis, the strength of the association of the explanatory variables with retained earnings is determined and the extent to which each of the variables account for variation in retained earnings is ascertained by computing coefficient of determination (r^2). In multiple regression technique, the impact exhibited by the variables included in the study upon retained earnings is measured through regression coefficients. In order to examine the combined influence of the selected variables on retained earnings, a regression equation of the following order has been framed:

$$RET_t = a+b_1DIV_t+b_2DIV_{t-1}+b_3CFL_t+b_4CFL_{t-1}+b_5INT_t+b_6TAX_t +b_7 INV_t+b_8 CNFA_t +b_9 WCL_t +b_{10} RES_{t-1}+b_{11} EXSF_t +b_{12} INFR_t+b_{13} BETA_t +e$$

Where,

a	=	Constant
$b_{1...}b_{13}$	=	Regression Coefficients
RET_t	=	Retained Earnings, current year

DIV_t	=	Dividend, current year
DIV_{t-1}	=	Dividend, previous year
CFL_t	=	Cash Flow, current year
CFL_{t-1}	=	Cash Flow, previous year
INT_t	=	Interest, current year
TAX_t	=	Tax, current year
INV_t	=	Investment in Inventory, current year
$CNFA_t$	=	Change in Net Fixed Assets, current year
WCL_t	=	Working Capital, current year
RES_{t-1}	=	Reserves and Surplus Total, previous year
$EXSF_t$	=	External Sources of Funds, current year
$INFR_t$	=	Inflation Rate, current year
$BETA_t$	=	Beta, current year
e	=	Error Term

The significance of the correlation and regression coefficients is tested by comparing the calculated t-vales with the critical value at one per cent and five per cent level. F-value signifies the fit of regression model. Levels of confidence chosen for examining the significance of 'F' statistic are one and five per cent. Stepwise regression method identifies the most potential variables influencing retained earnings.

4. Determinants of Retained Earnings – High-Growth Companies

The determinants of retained earnings in high growth companies are explained in the paragraphs that follow. Only significantly associated variables are taken up for discussion.

Firstly, the variables associated with retained earnings are discussed.

4.1 Variables Associated with Retained Earnings

Table 2 gives the results of correlation analysis. Variables namely cash flow, cash flow of previous year, interest, tax and lagged reserves are positively associated with retained earnings whereas interest, investment in inventory, change in net fixed assets, and external sources of funds have negative association with retained earnings.

4.2 Variables Influencing Retained Earnings

Table 3 summarizes the results of multiple regression analysis worked out between the selected variables and retained earnings for high-growth companies in India.

i. Dividend (DIV_t)

The basic Lintner model which explains that dividend decision is the primary decision and decision to retain is residual has been reflected in the analysis. Dividend has negative impact on the level of retention of profit. The coefficient suggests that for every rupee increase in dividend, there is associated decrease in retained earnings by 0.699.

ii. Cash Flow (CFL_t)

Net income is obviously the conditioning factor for any stream of savings. The relationship between the two is of a fundamental character and is termed as the propensity to save (Braj Kishore). Coefficient of regression between cash flow and retained earnings is 0.787 which evidences that when cash flow increases by a rupee, retained earnings are increased by 0.79 rupee.

iii. Interest (INT_t)

Interest is found negatively associated with retained earnings. An increase in interest amount of one rupee in any year would reduce the retentions by 0.26 rupee.

iv. Tax (TAX_t)

With respect to the coefficient of corporate tax, there exists a significant negative relationship between tax amount and the amount of retained earnings. Companies, which pay higher tax, retain lesser. In respect of high growth-companies, corporate tax reduces the retention by 0.403 rupee for every of its additional rupee of tax payment.

v. Working Capital (WCL_t)

The coefficient of regression between working capital and retained earnings shows that working capital requirements are to some extent financed by retained earnings as far as high-growth companies are concerned. For every rupee of working capital needs, there is retention of profits by 0.082 rupee.

vi. External Sources of Funds ($EXSF_t$)

External sources of funds have negative significant impact on retained earnings con firming high-growth companies reduce retaining their earnings when they have access to capital or debt market to raise finance externally. The coefficient suggests that for every rupee of external capital, the companies under study reduce the retained earnings by 0.026 rupee.

vii. Beta ($BETA_t$)

The coefficient of Beta which measures share price volatility conveys that every unit of its increase would reduce retained earnings by 0.048 rupee.

R^2 value of the regression model confirms that the model is statistically significant and it explains 90.5 per cent of variation in retained earnings. It is clear from the results that retained earnings are negatively influenced by dividend, interest, tax, external sources of funds and beta value. Cash flow and working capital needs are the two variables identified with positive impact upon retained earnings in relation to high-growth companies.

4. 3 The Best Possible Potential Variables Influencing Retained Earnings

In order to judge the magnitude of impact of the best possible set of variables upon retained earnings in respect of high-growth companies, stepwise regression has been performed. Table 4 gives the details of the relationship exhibited stepwise between the selected variables and retained earnings.

Stepwise regression analysis starts with identifying the impact of cash flow on retained earnings. Cash flow has explained variations in retained earnings by 60.6 per cent. Interest included in step two together with cash flow explains 85.6 per cent variation in retained earnings. The marginal contribution of interest towards the variation in retained earnings is 0.25. Working capital requirement is the third variable introduced, which, along with the other two variables explain 87.8 per cent variation in retained earnings. The marginal variation in retained earnings due to the inclusion of working capital is 0.022. Dividend is introduced in step four. Along with cash flow, interest and working capital, dividend explains variations in retained earnings to the tune of 88.9 per cent. The marginal contribution of dividend on variations in retained earnings is 0.011. External funds, included in step five along with the variables already included exhibit variations in retained earnings by 89.7 per cent. Corporate tax is the next variable introduced. All these variables account for 90.2 per cent of variation in retained earnings. Beta being the last variable incorporated in the analysis confirms its marginal contribution towards variations in retained earnings as 0.002. All the selected variables in stepwise regression analysis have shown 90.4 per cent variation in retained earnings.

5. Determinants of Retained Earnings – Moderate-Growth Companies

The determinants of retained earnings in case of moderate- growth companies are discussed in this section.

5.1 Variables Associated with Retained Earnings

The results of correlation analysis run between retained earnings and the select explanatory variables for moderate-growth companies are portrayed in the Table 5. Cash flow, interest, investment in inventory, changes in net fixed assets, working capital and external sources of funds are found to be positively associated with retained earnings.

5.2 Variables Influencing Retained Earnings

Regression results for moderate-growth companies are reported in Table 6.

i. Dividend (DIV_t)

The regression co-efficient expressed between dividend and retained earnings supports the results obtained by Stephen J Turnovsky (1967) that retained earnings are determined as the remainder of profit after dividend is paid out. The negative association between dividend and retained earnings indicates that every rupee of dividend payment would reduce the retained earnings by 0.866 rupee.

ii. Cash Flow (CFL_t)

Brittain (1964) and Darling (1957) have examined dividend behaviour as a function of cash flow rather net profits. This has been the base for having incorporated cash flow instead of net profit as one of the explanatory variables influencing retained earnings. Cash flow exhibiting a positive relationship with retained earnings explains that higher the cash flows, greater would be the retention. The coefficient indicates that a rupee increase in cash flow is associated with an increase of 0.985 rupee in the level of retained earnings.

iii. Tax (TAX_t)

Taxation policy of the government is expected to have a negative impact on retained earnings of the company. High corporate tax would increase the total tax payments which in turn reduces the retained profits. The coefficient indicates that when there is a payment of tax by one rupee retained earnings decline by 0.132 rupee.

iv. Investment in Inventory (INV_t)

Though inventory investment is positively related to retained earnings, the magnitude is small. When inventory requires an additional rupee of investment, retained earnings enhances by 0.016 rupee only.

v. Working Capital (WCL_t)

Retained earnings as an internal source of finance are cost effective due to the fact that there is no issue cost associated to it. So companies are expected to source funds from retained earnings to working capital requirements which are to be financed by permanent sources of finance. The coefficient is positive and significant but the magnitude is small. For every rupee of working capital need arising in the moderate growth companies, retained earnings goes up by 0.043 rupee.

vi. External Sources of Funds ($EXSF_t$)

The regression analysis worked out between the explanatory variables and retained earnings among moderate growth companies clearly describes that the companies largely depend on external funds for financing its assets requirements including investment in inventory, the reason being that the external sources of funds are negatively associated with retained earnings and there is also a negative relationship between change in fixed assets, investment in inventory and retained earnings among moderate growth companies. The significant coefficient of external sources of funds associated negatively with retained earnings explains that when external sources of finance increases by one rupee, there is an associated decline in retained earnings by 0.060 rupee.

vii. Inflation Rate ($INFR_t$)

With rising prices due to inflation, the fund generated through depreciation may not be sufficient enough to replace obsolete fixed assets. So, the companies may have to rely upon retained earnings as a source of funds to replace those assets. Thus the inflation affects retained earnings positively. The coefficients confirm that a rise in inflation rate by a unit increases the retained earnings by 0.234 rupee.

viii. Beta ($BETA_t$)

Beta is negatively associated with retained earnings. The relationship is significant at one per cent level. However the magnitude of influence is small. When beta goes up by one unit, companies increase their dividend payment thereby reducing their retention of profits by 0.017 rupee.

The significance of the model has been tested with the help of F statistic which affirms that the model is a good fit at one per cent level of significance. The model explains 99.8 per cent variation in retained earnings among moderate- growth companies.

5.3 The Best Possible Potential Variables Influencing Retained Earnings

To identify the best subset of variables that influence the level of retained earnings, stepwise regression analysis is

performed. Table 7 reports the regression coefficients of the variables entered stepwise for the moderate-growth companies.

Cash flow introduced in the first step explains 99.5 per cent of variation in retained earnings. External source of funds is the second variable considered in the analysis which produces a marginal variation of 0.1 per cent in retained earnings. The collective contribution of cash flow and external source of funds towards the change in retained earnings is found to be 99.6 per cent. Third step is worked out with an additional variable of dividend paid in the current year. All the three variables account for a variation of 99.7 per cent in retained earnings. The impact of dividend is 0.1 per cent on retained earnings. Introduced in the fourth step, working capital requirements along with other variables included in the above steps explain 99.7 per cent of variation in retained earnings. Working capital and inventory added in steps four and five have not contributed anything towards variations in retained earnings. Inflation rate incorporated in step six accounts on its own for a variation of 0.001 in retained earnings. All these variables viz., cash flow, external source of funds, dividend working capital investment in inventory and inflation rate explain 99.8 per cent of variation in retained earnings. Corporate tax, beta and change in net fixed assets introduced in steps seven, eight and nine do not contribute significantly towards variations in retained earnings.

6. Determinants of Retained Earnings – Low-Growth Companies

Variables that determine the retained earnings in low-growth companies are discussed in the following section.

6.1 Variables Associated with Retained Earnings

Table 8 deals with the correlation analysis carried out for low-growth companies. Dividend, cash flow, lagged cash flow and tax are positively correlated with retained earnings. Interest, investment in inventory, change in net fixed assets, working capital, external sources of funds are negatively associated with retained earnings.

6.2 Variables Influencing Retained Earnings

The results of regression carried out for the set of explanatory variables against the retained earnings are reported in Table 9.

i. Dividend (DIV_t)

Higher dividend payout leads to lower retained earnings. Dividend has a negative significant association with retained earnings. The coefficient illustrates that a rise in dividend by a rupee associates to a fall in retained earnings by 0.886 rupee.

ii. Cash Flow (CFL_t)

Cash flow has been found the predominantly deciding factor of retained earnings throughout the study. When cash flow increases by one rupee, retained earnings go up by 0.963 rupee.

iii. Interest (INT_t)

Surprising to the generally accepted theoretical proposition that that out flow of cash in the form of interest reduces the level of savings, interest is found to be positively associated with retained earnings in low-growth companies in India. When there is a payment of interest by one rupee, retained earnings increase by 0.144 rupee.

iv. Investment in Inventory (INV_t)

There is a negative association between investment in inventory and retained earnings. The association is significant at one per cent level. This means that external funds are used to finance inventory requirements. This would have reduced the level of retained earnings. For every rupee need of investment in inventory, there is a decline in retained earnings by a rupee among low-growth companies.

v. Change in Net Fixed Assets ($CNFA_t$)

The coefficient explains that the low-growth companies are mostly dependent on external source of funds for financing their fixed assets requirements. The t value suggests that the relationship is significant at one per cent level. But the magnitude is small. A rupee need for investment in fixed assets decrease the retained earnings by 0.014 rupee.

vi. Working Capital (WCL_t)

A significant positive relationship is found between working capital needs and the amount of retained earnings. The analysis reveals that low-growth companies retain profits whenever there is a need for working capital exclusive of investment in inventory. Retained earnings are influenced positively by 0.039 rupee by a rupee need for working capital.

vii. External Sources of Funds ($EXSF_t$)

The regression coefficient signifies a negative association between external sources of funds and retained earnings in low-growth companies under study. The regression analysis worked out for low-growth companies describes that inventory and fixed assets requirements are substantially financed by external funds. So, when there are additional external funds flowing inside the company, level of retention of profits reduces. Inflow of external funds by a rupee brings down the retained earnings by 0.066 rupee.

viii. Beta ($BETA_t$)

The coefficient of beta signifies a positive relationship between share price volatility and retained earnings. Higher the volatility of share price, greater will be the amount of retained earnings. When beta touches a rupee mark, the companies under study on average retain their profits by 0.051 rupee.

Retained earnings are explained variations by 98.5 per cent by the model. F Statistic signifies the model at one per cent level.

6.3 The Best Possible Potential Variables Influencing Retained Earnings

With a view to identify the most prominent variables that determine income retention, stepwise regression has been performed. Table 10 presents the results of the analysis. Cash flow is the variable introduced in the first step which explains 95 per cent of variation in retained earnings. The cumulative contribution of external sources of funds and cash flow is 97 per cent. Dividend, introduced in the third step, collectively with cash flow and external funds contributes 98 per cent. Fourth step has been worked out with the introduction of investment in inventory. The variation in retained earnings explained by cash flow, external funds, dividend and investment in inventory as revealed in step four is 98.2 per cent. Investment in inventory has marginally contributed 0.002 of variation in retained earnings. Beta, the next variable introduced in the analysis together with other variables already included in the analysis account for 98.3 per cent of variation in retained earnings. The variation explained by beta alone is 0.001. Working capital is the next potential variable added in the analysis, the combined variation of which, with other variables already added, upon retained earnings is 98.4 per cent. Retained earnings show the variations in itself due to the effect of working capital by 0.001. Net fixed asset is the other variable added in the stepwise regression analysis. It explains variation in retained earnings to the tune of 98.5 per cent. Marginal variation of 0.001 in retained earnings is explained by net fixed assets. Interest is the last variable incorporated in the analysis. All the potential variables introduced in the analysis explain 98.5 per cent of variation in retained earnings in low-growth companies in India.

7. Conclusion

It is interesting to view here some of the earlier findings on retention behavior of firms and differences they maintain in terms of level of savings, and the effect of factors influencing the level of retained earnings. According to Srivastava (1979), growth rate of a company has a great impact on its retained earnings. Schall and Haley (1983) argue that when there are many available investment opportunities for investing funds in profitable manner, the companies with high growth rate tend to follow cent per cent retention policy. On the other hand, the companies with low investment opportunities for growth and expansion prefer to distribute much of their earnings as dividend. Accordingly, the level of earnings retained is very much influenced by the growth rate of the companies. The potential investment opportunities are likely to arise far off in the future for some of the companies. In these companies, the amount of profit retained remains unutilized for long time or utilized in short-term investment opportunities which would yield low return on investment. Such companies prefer to pay out the earnings and raise capital whenever needed.

The regression results yield two observations amongst the high growth companies. The fixed investment needs such as investments in fixed assets and inventory are not financed through retained earnings as the coefficients of these variables are not statistically significant. Working capital requirements are positively significant indicating that retained earnings are utilized for working capital need of the companies, but restricted to a smaller extent, as the magnitude of the effect is small. Another observation in support of the first one is that cash flow and interest are found to be most influential variables deciding the level of savings. So these companies are dependent on borrowed capital rather than the two cost -

wise extreme sources of capitals-equity capital associated with highest cost and the low-cost retained earnings. Thus, the results do not support the view of Howe (1959) that savings out of given profits tend to increase and then decrease with the amount being spent on machinery.

Amongst the moderate-growth companies, their fixed assets and the fixed capital requirements are substantially financed by retained earnings and equity capital rather than debt capital. Cash flow and external capitals and dividend are the most influential variables showing high degree of impact on retained earnings with the signs as expected. The coefficient of interest has not been significantly associated with retained earnings which explains that on average the interest payments has not substantially reduced the retained profits.

The results for low-growth companies convey that cash flow and external sources of funds and dividend are the prominent factors influencing the retained earnings. Investment in fixed assets and inventory are significantly and negatively associated with retained earnings which mean that these needs are financed by external sources of funds and retrained earnings are substitutable to external funds. One common observation across the classifications of the sample companies is that cash flow and dividend are found to be the most influencing variables on retained earnings.

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ANNEXURE

Table 1

Growth of Corporate Assets and Relative Importance of Internal and External Financing of Indian Profitable Firms, 1996-2010*

Year	Annual Growth Rate of Net Assets	Internal Financing to Net Assets	External Financing to Net Assets
1997	29.26	50.53	49.47
1998	25.13	31.87	68.13
1999	14.62	28.69	71.31
2000	5.69	35.46	64.54
2001	5.23	94.80	5.20
2002	4.81	29.24	70.76
2003	-4.31	27.82	72.18
2004	1.25	100.00	0.00
2005	5.56	100.00	0.00
2006	22.17	40.48	59.52
2007	22.97	65.23	34.77
2008	29.88	55.12	44.88
2009	25.32	54.92	45.08
2010	25.59	46.94	53.06
Average	**15.23**	**54.36**	**45.64**

* Since 1996 is the beginning year, growth rate for that year has not been computed.

Source: Compiled for the sample firms from data sourced through PROWESS database of Centre for Monitoring Indian Economy (CMIE).

Table 2

Variables Associated with Retained Earnings – High-Growth Companies Correlation Analysis

Variables	r	t	r^2
Dividend (DIV_t)	0.0379	0.7354	0.0014
Dividend, previous year (DIV_{t-1})	0.0602	1.1694	0.0036
Cash Flow (CFL_t)	0.7786**	24.0586	0.6062
Cash Flow, previous year (CFL_{t-1})	0.2286**	4.5534	0.0523
Interest (INT_t)	-0.4161**	-8.8729	0.1731
Tax (TAX_t)	0.1238**	2.4191	0.0153
Investment in Inventory (INV_t)	-0.2111**	-4.1878	0.0446
Change in Net Fixed Assets ($CNFA_t$)	-0.3512**	-7.2732	0.1233
Working Capital (WCL_t)	-0.0148	-0.2870	0.0002
Reserves and Surplus, previous year (RES_{t-1})	0.1065**	2.0769	0.0113
External Sources of Funds ($EXSF_t$)	-0.3484**	-7.2074	0.1214
Inflation Rate ($INFR_t$)	-0.0855	-1.6640	0.0073
Beta ($BETA_t$)	-0.0577	-1.1207	0.0033

**Significant at one per cent level

* Significant at five per cent level

Table 3

Determinants of Retained Earnings- High-Growth Companies Multiple Regression Analysis

Variables	Regression Coefficient	Std. Error	't' d.f : 364
Dividend (DIV_t)	-0.699**	0.108	-6.445
Dividend, previous year (DIV_{t-1})	0.032	0.101	0.315
Cash Flow (CFL_t)	0.787**	0.018	43.795
Cash Flow, previous year (CFL_{t-1})	0.013	0.016	0.815
Interest (INT_t)	-0.255**	0.030	-8.400
Tax (TAX_t)	-0.403**	0.096	-4.220
Investment in Inventory (INV_t)	-0.008	0.013	-0.612
Change in Net Fixed Assets ($CNFA_t$)	0.002	0.002	0.905
Working Capital (WCL_t)	0.082**	0.009	8.933
Reserves and Surplus, previous year (RES_{t-1})	-0.005	0.007	-0.639
External Sources of Funds ($EXSF_t$)	-0.026**	0.004	-6.327
Inflation Rate ($INFR_t$)	0.250	0.144	1.728
Beta ($BETA_t$)	-0.048**	0.017	-2.774

Constant : -0.009

Standard Error of Estimate : 0.078

Adjusted R^2 : 0.902

R^2 : 0.905**

F-Value : 267.383

** Significant at one per cent level

* Significant at five per cent level

Table 4

Prominent Variables Influencing Retained Earnings- High-growth Companies
Stepwise Regression Analysis

Step	Constant	CFL_t	INT_t	WCL_t	DIV_t	$EXSF_t$	TAX_t	$BETA_t$	R^2
1	-0.080	0.721							0.606
2	-0.038	0.769	-0.355						0.856
3	-0.067	0.736	-0.446	0.061					0.878
4	-0.052	0.770	-0.423	0.052	-0.525				0.889
5	-0.044	0.773	-0.293	0.069	-0.720	-0.020			0.897
6	-0.040	0.787	-0.262	0.074	-0.659	-0.024	-0.391		0.902
7	-0.008	0.785	-0.253	0.079	-0.672	-0.026	-0.396	-0.050	0.904

Table 5

Variables Associated with Retained Earnings-Moderate-Growth Companies – Correlation Analysis

Variables	r	t	r^2
Dividend (DIV_t)	0.0122	0.4303	0.0001
Dividend, previous year (DIV_{t-1})	0.0055	0.1940	0.0000
Cash Flow (CFL_t)	0.9973**	478.6732	0.9946
Cash Flow, previous year (CFL_{t-1})	0.0085	0.2998	0.0001
Interest (INT_t)	0.5776**	24.9557	0.3336
Tax (TAX_t)	0.0258	0.9103	0.0007
Investment in Inventory (INV_t)	0.3951**	15.1695	0.1561
Change in Net Fixed Assets ($CNFA_t$)	0.6595**	30.9457	0.4350
Working Capital (WCL_t)	0.4649**	18.5211	0.2162
Reserves and Surplus, previous year (RES_{t-1})	0.0066	0.2328	0.0000
External Sources of Funds ($EXSF_t$)	0.7416**	38.9918	0.5500
Inflation Rate ($INFR_t$)	-0.0300	-1.0586	0.0009
Beta ($BETA_t$)	0.0204	0.7197	0.0004

**Significant at one per cent level

* Significant at five per cent level

Table 6

Determinants of Retained Earnings- Moderate-Growth Companies Multiple Regression Analysis

Variables	Regression Coefficient	Std. Error	't' d.f : 1232
Dividend (DIV_t)	-0.886**	0.079	-11.164
Dividend, previous year (DIV_{t-1})	-0.020	0.074	-0.274
Cash Flow (CFL_t)	0.985**	0.003	303.883
Cash Flow, previous year (CFL_{t-1})	-0.001	0.003	-0.402
Interest (INT_t)	-0.022	0.024	-0.932
Tax (TAX_t)	-0.132**	0.041	-3.245
Investment in Inventory (INV_t)	0.016**	0.002	8.990
Change in Net Fixed Assets ($CNFA_t$)	0.004	0.003	1.492
Working Capital (WCL_t)	0.043**	0.005	9.117
Reserves and Surplus, previous year (RES_{t-1})	-0.005	0.003	-1.454
External Sources of Funds ($EXSF_t$)	-0.060**	0.003	-18.174
Inflation Rate ($INFR_t$)	0.234**	0.057	4.108
Beta ($BETA_t$)	-0.017**	0.006	-3.043

Constant : -0.051

Standard Error of Estimate : 0.056

Adjusted R^2 : 0.998

R^2 : 0.998**

F-Value : 39029.660

** Significant at one per cent level

* Significant at five per cent level

Table 7

Prominent Variables Influencing Retained Earnings- Moderate-Growth Companies - Stepwise Regression Analysis

Step	Constant	CFL_t	$EXSF_t$	DIV_t	WCL_t	INV_t	$INFR_t$	TAX_t	$BETA_t$	NFA_t	R^2
1	-0.104	0.911									0.995
2	-0.090	0.943	-0.021								0.996
3	-0.060	0.953	-0.023	-0.849							0.997
4	-0.080	0.979	-0.054	-0.882	0.065						0.997
5	-0.060	0.986	-0.059	-0.984	0.039	0.015					0.997
6	-0.075	0.987	-0.059	-0.978	0.040	0.016	0.234				0.998
7	-0.075	0.988	-0.061	-0.848	0.043	0.016	0.239	-0.164			0.998
8	-0.055	0.989	-0.061	-0.892	0.043	0.016	0.237	-0.148	-0.019		0.998
9	-0.054	0.986	-0.062	-0.903	0.041	0.017	0.231	-0.136	-0.018	0.003	0.998

Table 8

Variables Associated with Retained Earnings- Low –Growth Companies – Correlation Analysis

Variables	r	t	r^2
Dividend (DIV_t)	0.0950*	2.0468	0.0090
Dividend, previous year (DIV_{t-1})	0.0900	1.9382	0.0081
Cash Flow (CFL_t)	0.9749**	93.8854	0.9504
Cash Flow, previous year (CFL_{t-1})	0.1230**	2.6582	0.0151
Interest (INT_t)	-0.4096**	-9.6300	0.1678
Tax (TAX_t)	0.1043**	2.2493	0.0109
Investment in Inventory (INV_t)	-0.3240**	-7.3453	0.1050
Change in Net Fixed Assets ($CNFA_t$)	-0.3143**	-7.1009	0.0988
Working Capital (WCL_t)	-0.1513**	-3.2828	0.0229
Reserves and Surplus, previous year (RES_{t-1})	0.0311	0.6674	0.0010
External Sources of Funds ($EXSF_t$)	-0.5593**	-14.4705	0.3128
Inflation Rate ($INFR_t$)	-0.0189	-0.4054	0.0004
Beta ($BETA_t$)	0.0523	1.1232	0.0027

**Significant at one per cent level

* Significant at five per cent level

Table 9

Determinants of Retained Earnings- Low-Growth Companies Multiple Regression Analysis

Variables	Regression Coefficient	Std. Error	't' d.f : 448
Dividend (DIV_t)	-0.846**	0.101	-8.404
Dividend, previous year (DIV_{t-1})	0.081	0.099	0.817
Cash Flow (CFL_t)	0.963**	0.007	130.780
Cash Flow, previous year (CFL_{t-1})	0.007	0.008	0.989
Interest (INT_t)	0.144**	0.046	3.113
Tax (TAX_t)	0.027	0.053	0.514
Investment in Inventory (INV_t)	-0.074**	0.008	-8.957
Change in Net Fixed Assets ($CNFA_t$)	-0.014**	0.004	-3.809
Working Capital (WCL_t)	0.039**	0.007	5.511
Reserves and Surplus, previous year (RES_{t-1})	-0.008	0.007	-1.103
External Sources of Funds ($EXSF_t$)	-0.066**	0.005	-12.118
Inflation Rate ($INFR_t$)	0.099	0.080	1.236
Beta ($BETA_t$)	0.051**	0.008	6.119

Constant : -0.072

Standard Error of Estimate : 0.047

Adjusted R^2 : 0.985

R^2 : 0.985**

F-Value : 2286.921

** Significant at one per cent level

* Significant at five per cent level

Table 10

Prominent Variables Influencing Retained Earnings- Low-Growth Companies
- Stepwise Regression Analysis

Step	Constant	CFL_t	$EXSF_t$	DIV_t	INV_t	$BETA_t$	WCL_t	NFA_t	INT_t	R^2
1	-0.117	1.038								0.950
2	-0.052	0.963	-0.059							0.970
3	-0.019	0.977	-0.063	-0.954						0.980
4	-0.005	0.979	-0.052	-0.917	-0.052					0.982
5	-0.043	0.975	-0.055	-0.836	-0.045	0.038				0.983
6	-0.074	0.969	-0.058	-0.771	-0.070	0.053	0.044			0.984
7	-0.073	0.968	-0.053	-0.762	-0.070	0.051	0.040	-0.013		0.985
8	-0.072	0.963	-0.067	-0.757	-0.072	0.052	0.039	-0.013	0.133	0.985