CHAPTER 2: RESEARCH METHODOLOGY

- Objective of study
- Hypothesis development
- Review of Literature
- Research design
- Sample, sample selection criteria
- Operational definition of variables used in the study
- Data Analysis Techniques
  - Multiple regression: Tobit regression
  - Discriminant analysis
  - Event study

2.1 OBJECTIVES OF THE STUDY

- To draw comparison between Indian and developed countries with specific reference to US and UK on the regulations and process of buyback post 1998.

- To investigate the relative importance of drivers like free cash flow, dividend substitution, undervaluation, capital structure correction for share repurchase in India either in isolation or jointly.

- To investigate the different set of drivers which result in the adoption of different modes of repurchase with specific reference to open market repurchase or tender offer as a method of share repurchase.

- To investigate the financial benefit of share repurchase to the shareholder and promoter.
2.2 HYPOTHESIS DEVELOPMENT

I. $H_01$: There is no significant difference in the buyback activity of India and developed countries like US and UK.

$H_{a1}$: There is a significant difference in the buyback activity of India and developed countries like US and UK.

II. $H_02$: There is no relative importance of drivers like free cash flow, dividend substitution, undervaluation, capital structure correction for share repurchase in India either in isolation or jointly.

$H_{a2}$: There is a significant relative importance of drivers like free cash flow, dividend substitution, undervaluation, capital structure correction for share repurchase in India either in isolation or jointly.

III. $H_03$: There is no significant difference between the set of drivers for open market repurchase and fixed price tender offer.

$H_{a3}$: There is a significant difference between the set of drivers for open market repurchase and fixed price tender offer.

IV. $H_04$: There is no significant financial benefit like increase in returns of share buyback to the shareholder and promoter.

$H_{a4}$: There is a significant financial benefit like increase in returns of share buyback to the shareholder and promoter.

2.3 REVIEW OF LITERATURE

2.3.1 SHARE BUYBACK AND PAYOUTS

(Weaston, 2007)$^1$ describes that share repurchase has changed the empirical pattern of payouts. There are two theories that can be attributed to share repurchase. The first being Clientele effect. He suggests that tax situations create clientele effect. Groups that pay high taxes on dividends would prefer to invest in the stock of companies that pay low dividends. In case of

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equilibrium, the corporate dividend payout pattern would match the preference of dividend clientele. In his article (Weston, 2007)² also discusses the life cycle theory and relates it to share repurchase. The finance managers retain earnings when reinvestment increases the NPV. Whenever the returns are less than payouts are made. A related proposition is that when firms retain cash flows rather than pay them out they can expect to reach a stage when cash flows should be used to pay dividends or share repurchases. Young firms which sustain the initial phase require financing for future and do not pay dividends. A large firm with moderate growth does not need much external financing. But it requires funds for new growth opportunities hence it repurchases with less frequency. Firms in maturity or decline have diminishing requirement for capital expenditure and negative working capital requirement. Such firms payout a higher percentage of their profits and in such situations share repurchase exceeds cash dividend payout.

(Weston, 2007)³ reinforces this theory by quoting Famma and French (2001) where it was observed that the dividend paying firms in 1973 were 52.8% which rose to 66.55 in 1978 and declined to 20.8% in 1999. Although the number of firms increased but their size was small and had high investment and high R & d rates. Similarly in the same study it was found that 25 mature companies accounted for 54.9% dividend of all industrials. Hence for a mature firm increased payouts will signal that the management behaves responsibly in the interest of the investors.

2.3.2 DRIVERS OF SHARE BUYBACK
The corporate uses buy back for the following reasons.

- Signaling

The most evident reason for repurchase in literature is information revelation or signaling. Managers repurchase stock to reveal their private information about the firm’s favorable future prospects (D’Mello & Shroff, 2000)⁴. When firms believe that their share is trading at a price lower than its intrinsic worth, they buy back their shares at a price higher than the prevailing

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² Ibid 37
market price. Through this they signal the undervaluation with a view to improving the share price of the company and transfer the wealth from short term traders to long term traders (Chan, 2004). The payment for repurchases is being made out of the free cash flow of the company, which would have been otherwise redeployed to earn some returns.

- **Excess cash**

Companies having excess cash and in dearth of profitable investments go in for buyback. They usually encounter agency conflict. The management acts in its own interest rather than the interest of the shareholders. It results in overinvestment in unprofitable investments and underinvestment in potentially profitable investments. To deter the improper utilization of this excess free cash companies go in for share buyback. Such companies benefit most from buyback and they do so to minimize excess cash. (Chan, 2004)

- **Capital structure correction**

Buyback, by itself increases the leverage of the company by reducing the book value of equity. Hence it acts as a method for capital restructuring for the company. Share repurchase may be beneficial for companies that perceive its current leverage is below optimal target. So companies with low leverage benefit more from share repurchase (Chan, 2004). Studies conducted previously have witnessed such capital structure correction more in overvalued companies than in undervalued companies, where the leverage ratio improves significantly post buyback (D’Mello & Shroff, 2000).

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7 Ibid 42

Takeover deterrence is also one of the popular reasons for share buyback. Companies which are potential targets for takeovers usually go in for share buyback to increase the share price of the company and hence making takeover difficult for the acquirer.

This is more prevalent in firms which are overvalued and still go in for share repurchase. (D’Mello & Shroff, 2000)\(^9\)

- Substitute to dividends

There are two schools of thought when we say dividends are substituted by repurchases. One suggesting that the dividends cannot be substituted by repurchases since both serve different signaling purpose. Dividends are used to signal a company’s future prospects while repurchases signal undervaluation. The other school of thought suggests that both dividends and repurchases signal for undervaluation and agency conflicts and can be used as substitutes (Grullon G. &., 2004)\(^{10}\). In the present study we try to test this issue by considering dividend substitution as one of the hypotheses.

Dividends and share buybacks serve the same purpose, of returning excess cash to the shareholders. The basic difference lies in the nature of customer we are dealing with. Dividends are paid to all the shareholders while buyback is made to the shareholders who are willing to surrender their shares and discontinue their association with the firm completely or partially. Such shareholders are referred as tendering shareholders. They tender their shares to the companies. The shareholders who do not wish to tender their shares are called non tendering shareholders. Distribution of excess cash through repurchase subjects the shareholders to capital gain tax. Dividend distribution is subject to dividend distribution tax\(^{11}\) in the hands of the companies. It is seen that capital gain tax is preferred by high net worth tax payers. Hence due to their taxation impact, dividends and share repurchase act as substitutes.

(Norgaard & Norgaard, 1974)\(^{12}\) tested the hypothesis that both repurchasing and non-repurchasing firms come from the same population. A sample of 700 was selected and 15

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\(^9\) Ibid 44


\(^{11}\) Dividend income (as referred u/s 115-O of the I.Tax Act 1961) paid by Companies and Mutual Funds are exempt from tax. A 15% dividend distribution tax and surcharge of 3% is paid by companies before distribution.

variables were selected for studying the financial performance. Using multiple discriminant function analysis it was analyzed that repurchasing and non-repurchasing firms were different. The repurchasing companies have a lower profit expectation and firms are repurchasing to adjust to the market conditions.

Richard and Corinenorgaad (1974)\textsuperscript{13} studied the financial performance of repurchasing and non-repurchasing firms using the following variables book value to share price, current price earnings, net working capital by net worth, 5 years price earnings, average 3 year payout, average 5 year yield, cash and marketable securities to current liabilities, cash to assets, return on net worth, cash spending on investment to book value, debt to equity, growth of earnings per share 5 years average and current yield.

(Grullon G. P., 2011)\textsuperscript{14} study the firm characteristics on the propensity to pay using the following variables firm size, market to book ratio, return on assets, sales growth rate, volatility of share price, retained earnings to total assets and firm age. In case of repurchasing firms it represents the extent to which repurchase is being practiced. The higher the ratio the more is the extent of repurchase. For non repurchasing firms this value is taken to be zero. Undervaluation It is the ratio of the market value of the firm to its intrinsic value.

(Dittmar, Why do firms repurchase stocks, 2000)\textsuperscript{15} investigates the relationship between share repurchase and distribution of excess cash, the capital structure, control and compensation policies. Author analyzes firms listed on Compustat for the period 1977 to 1996 and outlines the motives for buyback to be excess cash, undervaluation, optimal leverage ratio, management incentive, takeover deterrence. So author suggests that buyback may not necessarily arise of some internal factors like distribution policy or capital structure decision but also due to some external factors like undervaluation or takeover threat. (Dittmar, Why do firms repurchase stocks, 2000)\textsuperscript{16} uses Tobit model to estimate for each year using cross-sectional data. Repurchase has been measured as the dollar value of amount repurchased to the market value of equity of previous year. For firms not repurchasing this value is zero.

\textsuperscript{13} Grullon, G. P. (2011). Has the propensity to pay out declined? Journal of Financial and Quantitative Analysis, 46(01), 1-24
(Dittmar, Why do firms repurchase stocks, 2000)\textsuperscript{17} measures excess cash in terms of cash and cash equivalents to total assets for the previous year and net income plus depreciation plus changes in deferred taxes to total assets in the previous year. Undervaluation is measured as the market value of equity plus debt to the total assets for the previous year. Distribution of cash is measured as the cash dividend paid to the net income of the previous year. (Dittmar, Why do firms repurchase stocks, 2000)\textsuperscript{18} uses natural logarithm of total assets as a proxy for information asymmetry. The author uses market adjusted rate of return for the previous year as a measure of misvaluation. For leverage (Dittmar, Why do firms repurchase stocks, 2000)\textsuperscript{19} uses net debt (debt minus cash and cash equivalents) to total assets, however in analysis he replaces this by debt to total assets and finds no significant difference in the results.

Takeover has been measured using a dummy variable equal to one if the firm has a takeover threat and zero if there is no takeover threat.

(Dittmar, Why do firms repurchase stocks, 2000)\textsuperscript{20} uses a Wilcoxon rank sum test has been used to compare two subsamples of repurchasers and non repurchasers. It was observed that median market value to book value of repurchasing firms is significantly lower than that of the non-repurchasing firms for all the years. However the median return of repurchasing firms is significantly higher than the non repurchasing firms. The cash flow of repurchasing firms is significantly higher than the non-repurchasing firms. Similar is the case for dividend payout. The leverage indicated by the ratio of debt to total assets is lower for repurchasing firms than for non-repurchasing firms.

The results of regression analysis conducted by (Dittmar, Why do firms repurchase stocks, 2000)\textsuperscript{21} suggest that

- Firms repurchase when they are undervalued as was evident from the negative sign of the coefficient of market value to book value. The p value is less than 0.050 for eighteen out of twenty years.
- It was observed that large firms usually go in for buyback as was evident from the positive sign of natural logarithm of total assets, for nineteen out of twenty years. The p value is less than 0.010 for all twenty years.

\textsuperscript{17} Ibid 52
\textsuperscript{19} Ibid 54
\textsuperscript{20} Ibid 54
\textsuperscript{21} Ibid 54
The coefficient on return is rarely negative, hence it contradicts the fact that firms repurchase after negative performance.

Firms go in for buyback to distribute the excess cash as is evident from the positive and significant coefficients of cash and cash flow.

Repurchasing firms did not have low dividend payouts, so substituting for dividends was not the reason to go in for buyback.

To rearrange the capital structure was one of the reasons to go in for share buyback.

The paper finally concludes by saying undervaluation and distributions of excess cash are by and large the most evident reasons for buyback. Buybacks do not substitute for dividends and in some periods firms go in for buybacks to alter their capital structure.

(Grullon G. a., 2000)\textsuperscript{22} suggest that there is no single reason for firms to go in for buyback. The two common reasons are to boost earnings per share and signaling firm’s optimism about their future prospects. The signaling perspective has two versions, the first being the management’s expectation that future earnings are going to increase and the second being the management’s disagreement with how the shares are presently priced. The authors state some hypotheses on the basis of several literatures available.

Firms repurchase in order to increase their earnings per share. The underlying assumption is that firm has some idle assets after selling which the firm may get some extraordinary EPS. However theory suggests reducing the firm size will add value only when the marginal effect of opportunity cost of capital is decreasing.

Managers are ready to spend in the form of buybacks because they feel that the future investments can be financed by anticipated increase in future income. Hence companies which expect decreases in earnings are not likely to distribute excess cash in the form of share repurchase.

Companies having high book to market value are considered to be value stocks and such firms repurchase due to undervaluation.

Companies with excess capital are at risk of overinvesting in unproductive investments and under investing in profitable ventures, referred to as agency cost. To overcome the agency cost firms with excess cash repurchase shares to return the shareholders their money.

• Companies going in for buyback do not have profitable investment opportunities in future and, therefore they return the cash to shareholders. However this aspect has micro dimension. By share buyback they are helping the process of reallocating capital from unproductive sectors to a more productive sectors resulting in efficient capital market allocation.

• Dividend and share repurchase act as substitute to each other because of the difference in tax treatments in the hands of the investor. The tax on dividends is higher than the capital gain tax. The benefit of buyback is that the post buyback share prices will increase and capital gain tax will be applicable when the shareholders want to sell the shares. The tax on dividend is similar to income tax and cannot be deferred, however the tax on capital gain can be deferred till the shareholder actually sells the share.

• Companies make repurchases in order to make adjustments in their leverage ratios. The authors have not tested these hypotheses empirically. (D’Mello & Shroff, 2000)\textsuperscript{23} test whether firms repurchase when they assess the firms economic value exceed the market value. Undervaluation here is measured in terms of economic value. Here (D’Mello & Shroff, 2000)\textsuperscript{24} have used earning based valuation model. The value of the firm is a combination of book value of equity and discounted future abnormal earnings. Undervaluation is arrived at by comparing the economic value with the prevailing market price. (D’Mello & Shroff, 2000)\textsuperscript{25} find out that repurchasing firms are significantly more undervalued than the non repurchasing firms. (D’Mello & Shroff, 2000)\textsuperscript{26} try to identify the motive of repurchase by overvalued companies and suggest that these companies are usually large in size; have high cost of capital and higher P/E ratio as compared to undervalued firms. The leverage ratio for such firms’ increases post buyback, however for undervalued companies it remains more or less the same. So for these companies corporate restructuring rather signaling undervaluation is the main reason for buyback. Overvalued firms face threats of takeover during two year period surrounding repurchase. Hence takeover deterrence is also one of the reasons for repurchase.

\textsuperscript{24} Ibid 59
\textsuperscript{25} Ibid 59
\textsuperscript{26} Ibid 59
(Aaquith & Jr., 1986) study the capital market reaction to equity cash flow decisions and find out that dividends and share repurchases are signals of management’s view of the firm’s performance. (Aaquith & Jr., 1986) suggest that dividends and repurchases, though similar, play different signaling roles. Dividend suggests management’s belief on the firm’s future prospects while repurchases signal management’s conviction of the under pricing of the share. Benefits of open market are that no premium is to be paid at the time of repurchase; moreover capital gain tax is lower than that of income tax rates applicable to dividends. So the more efficient way for companies is to distribute the excess cash is through the open market repurchase. However in the US tax code, repurchases qualify for capital gain only if they are not equivalent to paying dividend. So in US substituting dividends by open market repurchases is not possible.

(Medury, 1992) try to explain the stock repurchasing behaviour on the basis of leverage adjustment hypothesis; free cash flow hypothesis, the clientele hypothesis and anti take over hypothesis. They study 283 repurchasing firms out of which 63.25% were open market repurchases. 14 variables were selected to exhibit each firm’s financial and operational strength. These variables exhibited five broad dimensions namely market evaluation and expectation, liquidity and asset structure, operating characteristics, capital structure and indebtedness, and size and scale of operations. The authors find that open market repurchasers have more operating cash flows but limited investment opportunities, hence such firms prefer to repurchase their shares rather than investing in other ventures.

2.3.3. SHARE PRICE PERFORMANCE AND BUYBACKS

(Cudd, 1996) Study the cumulative average abnormal return of 620 U.S. corporations in four event windows of 11 days, 21 days, 61 days and 121 days around the announcement date to find

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28 Ibid 63


out positive and statistically significant cumulative average abnormal return for tender offer buyback.

(Padgett, 2007) study the UK repurchases between the period of 1999 to 2004 and find a significant positive return for 31 day event window. The market model has been used for studying the abnormal return as has been done in the present study. The sample used is of 413 UK firms in the study period. The announcement date is the date in which the buyback announcement has been published in the newspaper which is consistent with the present study. The regression coefficients are estimated using an estimation window of (-270 to -21 days). In the present study a 200 days estimation window has been used.

(Chakraborty, 2009) studies the share price reaction to the buyback announcements. During the period of July 2001 to March 2007 she studies 68 announcements of buyback. She has used event study methodology to study the impact of announcements on share price. Due to the limitation of normality in the return distribution she further uses a non parametric rank test, the Corrado’s rank test. The result of the event study suggests that there is a strong reaction to the share prices on the day of buyback announcement at 1% level of significance. The same result is found with the help of the Corrado’s rank test a non parametric test at 1% level of significance. Following the day of announcement there is no retreat in the share prices. So she concludes by saying that companies are able to signal undervaluation to the investors successfully through buyback announcements.

(Thirumalvalavan, 2005) study the share price behaviour around stock repurchases and dividends to see the signaling power of the announcements. The authors have analyzed 22 buyback announcements belonging to BSE 500 index for the period of 2002-04. Authors use the event study methodology to arrive at the results. They conclude by saying that buybacks and dividends are able to signal for share undervaluation and the signaling power of share repurchase is higher than that of dividends in case of undervaluation.

32 Chakraborty, Madhumita.2009. The announcement of share buyback and market reaction : Evidence from India. International Conference on Business and Finance, held at Hyderabad during 9th - 10th January
(Rajagopalan, 2012) find 1.32% non-significant abnormal return on the announcement date. The CAAR on this day is 5.36%. For the other days the value is lower and non-significant. Hence the buyback announcement contains some value for the shareholder however the market captures the information very fast and does not allow any abnormal return after that. Study also observes a weak signal to the market in case of fixed price tender offer buybacks. The study thus finds evidence of signalling on AD+1 and hence the null hypothesis of zero CAR in the event window is not accepted.

2.3.4. REGULATORY FRAMEWORK OF BUYBACK

(Kim, 2003) The authors have surveyed open market repurchase regulations of 10 largest stock markets in the world on the basis of their stock market capitalization in 2000. The countries studied in the order of largest to smallest are United States, Japan, The United Kingdom, France, Germany, Canada, Italy, the Netherlands, Switzerland and Hong Kong. The study finds out that apart from US the buyback regulations are stricter in other countries specially disclosure requirement. The disclosure requirement in the US are least stringent compared to the other countries in the survey.

(Kim, 2003) have compared the buyback regulations of ten counties on the following parameters listed below

a) Whether a perquisite for the share repurchase is an approval at the shareholders meeting or whether just a board approval is sufficient,

b) Whether there is any restriction on repurchase prices, repurchase volume, and timing of repurchase,

c) What are the disclosure requirements,

d) Whether there is any restriction on insiders trading activity in relation to repurchase trading activity

Regulations regarding Share Buyback in US

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(Reimers & Singleton, 2010)\textsuperscript{37} suggest that as per Generally accepted accounting principles has two ways to account for treasury stock the cost method and par value method. In the cost method the purchase of treasury shares recorded at cost in a contra equity account called treasury stock. It is shown on the balance sheet at the end of stockholder’s equity as deduction. The cost method is the most prevalent method for accounting for treasury stock.

(Reimers & Singleton, 2010)\textsuperscript{38} suggests that in the power value method there is no treasury stock account on the balance sheet. The cost of the repurchased share is deducted from paid-in capital accounts and the shares are treated as if they were retired. If the company pays more than the issue price of the share then the excess cost is deducted from the retained earnings. If there is no sign of treasury stock in the balance sheet it is better to check the shareholder’s equity to see if the company is buying back its own share.

(Kim, 2003)\textsuperscript{39} “As aforementioned, SEC Rule 10b-18 gives repurchasing firms immunity from the antimanipulation provisions of the Securities Exchange Act of 1934, provided that certain conditions are satisfied. 5 The four conditions are listed below.

1. \textit{(Manner of purchase)} Repurchases are made through only one broker or dealer in a given day.
2. \textit{(Timing condition)} No repurchase is made as an opening transaction or during the last half hour of a trading day.
3. \textit{(Price condition)} No repurchase is made at a price exceeding the highest current independent bid price or the last independent sale price, whichever is higher.
4. \textit{(Volume condition)} Non-block repurchase volume does not exceed the higher of: (A) one round lot,
or (B) the number of round lots closest to 25% of the average daily trading volume for the preceding four calendar weeks.”


\textsuperscript{38} Ibid 109

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(Weston, 2007) in his article have said that adoption of Rule 10b-18 by the Securities and Exchange Commission( SEC) increased the buyback activity in US. The rule protects the repurchasing firms from stock price manipulation.

(Reimers & Singleton, 2010) suggest that under the Securities and Exchange Commission( SEC) rule 10b-18 with effect from December 2003 require companies to disclose in their 10-k and 10-Q a table listing all repurchases for the fiscal quarter, total number of repurchases, average price paid per share, total number of shares purchased as apart of specific repurchase plan and the maximum number of shares that can be repurchased under the plan. Companies may include footnote describing all publicly announced repurchase plan including date of each announcement, share or dollar amount approved and the expiration date.

(Grullon G. &., 2004) Open market repurchase in US are regulated by SEC Rule 10b-18 , enacted in 1982. Before this enactment open market repurchase in U.S. faced possibility of illegal price manipulation. In 1960s there were several rules like SEC Rule 10b-10 and Rule 13e-2 which if adopted would have been rules with stronger disclosure requirements. However SEC adopted Rule

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10b-18 that gave safe harbor to open market repurchase firms where compliance with the rules condition is voluntary and not mandatory. This rule was one of the major factor behind the increase in buyback activity in United States.

SEC Rule 10b-18 gives repurchasing firms immunity from antimanipulation provisions of Securities Exchange Act of 1934, provided four conditions are satisfied. If these conditions are not met by a firm the firm loses it immunity or safe harbor.

**Reason for adopting SEC Rule 10b-18**

Thomoson (2010) states that the issuer has a strong interest in the market price of the security. The price of the common stock may determine the price of the further offering and also talk about the health of the company. Hence the issuer will have an incentive to manipulate the stock price. Repurchasing the share at a higher price may also be a manipulative behavior. However the issuer may also engage in open market repurchase due to legitimate reason. Therefore, in 1982, the Securities Exchange Commission (the “SEC”) adopted Rule 10b-18 to provide a non-exclusive safe harbor for issuer repurchases.

**Disclosures on Open Market Repurchase in U.S.**

(Kim, 2003) suggest that insufficient disclosures increases information disparity between insider shareholders and outside shareholders creating a potential conflict of interest between them. An open market repurchase program contains rough estimates of number of shares to be repurchased and approximate period of buyback planned. Management is not bound by the announcement since it is not a commitment. Buyback is on the discretion of the mangers and information such as date of buyback, price of buyback and how many shares to be bought back are not disclosed. Post the event the quarterly aggregate dollar amount is publically available.

**Regulatory framework for Buyback in UK**

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43 Regulation M under the Securities Exchange Act of 1934 (Exchange Act), which governs the activities of underwriters, issuers, selling security holders, and others in connection with offerings of securities.
Share buybacks in the U.K. are regulated by a combination of the Companies Act 1985 and the Listing Rules of London Stock Exchange (LSE) (Oswald, 2004). Under LSE’s Model Code, firms are prohibited from repurchasing their own shares during periods when information asymmetry between managers and shareholders is more accurate. These non-trading windows are known as ‘close periods’ which are defined as the period of two months immediately preceding the preliminary announcement of the company’s annual result or if shorter, the period from relevant financial year end to and including the date of announcement. Further, firms executing share reacquisitions in the open market are also required to notify the LSE of the transaction by 8.30a.m. on the day of buyback (Oswald, 2004).

The listing rules of London Stock exchange specify that purchases within a period of 12 months of 155 or more of the company’s share capital must be made by tender offer. Purchases below 15% limit may be made by open market as long as price paid is not more than 5% above the average of the market value of those shares for 10 business days before the repurchase is made. (Rau & Vermaelen, 2002).

U.K. Companies Act states that only “distributable profits” or the proceeds of a fresh issue of shares can be used to finance the purchase. U.K. regulators are concerned about the preemption rights of shareholders and therefore require a company to cancel all repurchased shares (Rau & Vermaelen, 2002).

**Share buyback in India**

In India a company, authorized by a resolution passed by the board of directors at the meeting to buyback its shares or other specified securities shall file a copy of resolution, with the board and the stock exchanges, where the shares or other specified securities of the company are listed, within two working days of the date of passing the resolution.

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48 Ibid 60
49 Securities and exchange board of India(Buy Back of Securities ) regulations, 1998, pp 1-35.
A company may buyback its shares or other specified securities from its existing (security holders) on proportionate through tender offer provided that 15% of the number of securities which the company proposes to buyback or number of securities entitled as per their shareholding whichever is higher, shall be reserved for small shareholders. A company making a buyback offer shall announce a record date for the purpose of determining the entitlement and the names of security holders who are eligible to participate in the proposed buyback. The letter of offer along with the tender offer form shall be dispatched to the security holders who are eligible to participate in the buyback offer not later than 5 working days. The date of the opening of the offer shall not be later than 5 working days from the date of dispatch of letter of offer. The offer for buyback shall remain open for a period of 10 working days. The company shall accept shares or other specified securities from the security holder as on the basis of their entitlement as on record date. The shares proposed to be bought back shall be divided into two categories reserved category for small shareholders and general category for other shareholders. After accepting the shares or other specified securities tendered on the basis of entitlement shares or other specified left to be bought back, if any in one category shall first be accepted, in proportion to the shares or other specified securities tendered over and above their entitlement in the offer by security holders in that category and thereafter from security holders who have tendered over entitlement in other category. The escrow account shall as and by way of security for performance of its obligations under the regulations, on or before the opening of the offer deposit in an escrow account such sum as specified in sub-regulation. Amount in escrow account if consideration to be paid does not exceed Rs 100cr is 25% of amount payable or if Consideration payable exceeds 100cr is 25% upto Rs 100cr and 10% thereafter. The company shall immediately after the date of the offer open a special account with a banker to an issue registered with the board and deposit therein , such sum as would together with 90% of the amount lying in the escrow a/c make-up the entire sum due and payable as consideration for buyback in terms of these regulations and for this purpose may transfer funds from the escrow account. The company shall complete the verification of offer received and make payment of consideration to those security holders whose offer has been accepted within 7 working days of the closure of the offer.50

50 Securities and exchange board of India (Buy Back of Securities) regulations, 1998.pp 1-35.
In case of open market repurchase the special resolution passed by the board of directors at its meetings shall specify the maximum price at which the buyback shall be made and the buyback shall not be made from the promoters or person in control of the company. The company shall appoint a merchant banker and make a public announcement. The public announcement shall be made atleast 7 days prior to the commencement of buyback and shall contain disclosures. A copy of public announcement shall be filed with the board within two days of such announcement along with fees. The public announcement shall also contain disclosures regarding details of the brokers and stock exchanges through which the buyback of shares and specified securities would be made. The buyback shall be made on stock exchanges having nationwide trading terminals. The buyback of shares or other specified securities shall be made only through order matching mechanism except all or none order matching system. The company and the merchant banker shall submit the information regarding the shares or other specified securities bought back to the stock exchange on daily basis and publish the same information in a national daily on fortnightly basis when additional 5% of the buyback has been completed. (If no buyback is there during the period the company and merchant banker shall not be required to publish the details in a national daily.) The identity of the company as a purchaser shall appear on the electronic screen when the order is placed.\

2.4 RESEARCH DESIGN

2.4.1 TYPE OF RESEARCH
Exploratory: The study explores the factors that are missing in the Indian regulatory system which would increase the acceptance level of the buyback process by the Indian companies.

Descriptive: The study uses the data collected from both primary and secondary sources to investigate different set of objectives and analyze the financial gain arising out of share buyback.

2.4.2 DATA
Sample for secondary data: Buy back Companies from India

   – 90 companies for open market repurchase

51 Securities and exchange board of India(Buy Back of Securities ) regulations,1998.pp 1-35
54 companies for fixed price tender offer

These companies were selected from securities exchange board of India (SEBI). On the website the public announcement of these companies was available under the category of fixed price tender offer and open market buyback. The public announcements were available from the year 2004 onwards hence the companies have been selected from January 2004 to September 2013. In open market repurchase list few names are Jindal Power and steel, Kirloskar Oil engines limited, JK Lakshmi cement ltd, Reliance infrastructure, Hindustan unilever Ltd, Godrej Industries ltd etc. In case of fixed price tender offer companies few examples are Monnet Ispat & Energy Ltd., Reliance energy limited, Godrej consumer products, Reliance industries ltd.

Buyback Companies in the sample are listed on Bombay Stock Exchange and have announced for fixed price tender offer buyback or open market repurchase during the period January 2004 to September 2013. The control companies should be in the same industry as sample of buyback companies as per CMIE prowess database industry classification. The economic activity codes of buyback and control companies are kept the same. They are listed on Bombay Stock Exchange.

Annexure 1 gives the companies which announced for open market repurchase in the study period. Annexure 2 gives the list of companies which announced for fixed price tender offer during the study period. Annexure 6 gives the list of control companies selected in the study for corresponding open market repurchase firms. The mapping for control companies with the corresponding buyback companies has been done on the basis of listing category, NIC economic activity code, year of incorporation and industry category. Annexure 7 presents the mapping done for A category listed firms for open market repurchase. Similarity mapping has been done for B category, T category firms in case of both open markets repurchase and fixed price tender offer.

Data Type: Cross sectional data

2.4.3 SAMPLE, SAMPLE SELECTION CRITERIA
Sampling frame for the study:

- Open market repurchase : 90 companies have repurchased between December 2003 to September 2013. (Source: Bombay stock exchange (BSE) website).
Tender offer repurchase: 54 companies have repurchased between December 2003 to September 2013. (Source: SEBI website)

Sample Selection Criterion

- Buyback companies: Companies listed on BSE or National stock exchange (NSE) which have bought back their shares either through open market repurchase or fixed price tender offer. (Refer Annexure 1 and 2)
- Control Companies: Companies which are similar to buyback companies in market capitalization and listing category who have not gone in for share repurchase. (Refer annexure 6 and 8)

Since the numbers of observation are limited in case of secondary data analysis hence census has been used.

2.4.4 DATA COLLECTION METHODS

DATA COLLECTION METHOD FOR COLLECTING SECONDARY DATA

- Document Review
- Observation: Annual reports. Press release
- Web search: BSE, NSE, SEBI, NYSE. Annual reports from company website, Centre for monitoring Indian economy (CMIE) Prowess database
- Various policies from national organizations: Society for capital market research and development.

The lists of buyback companies were first compiled. The public announcement for both fixed price tender offer and open market buybacks were available on SEBI’s website. All the public announcements were studied to obtain information on size of buyback, the buyback premium, the contact of the company, the associated merchant banker, the reasons for buyback and the change in the promoter’s stake post buyback. The details of data compiled from the public announcement is available in 9 and annexure 10. The financial performance of the buyback company and its corresponding control company was obtained for a year immediately preceding the buyback year.
from the balance sheet and income statement as available in CMIE database. The performance indicators were computed using this data. The details of financial performance of open market repurchase companies on 31st March before the year of buyback is given in annexure 5. The financial indicators of the control companies for open market repurchase is given in annexure 6. Annexure 9 has data on financial performance of tender offer buyback companies prior to buyback and annexure 10 has financial data on financial indicators of Control Company prior to the buyback year. The share price data for each company of the fixed price tender offer list and open market buyback was obtained for 240 days before the buyback announcement and 20 days later to the buyback announcement from CMIE database.

2.4.5. OPERATIONAL DEFINITION OF VARIABLES USED IN THE STUDY
(Norgaard R. &., 1974)\(^{52}\) studied the financial performance of repurchasing and non-repurchasing firms using the following variables book value to share price, current price earnings, net working capital by net worth, 5 years price earnings, average 3 year payout, average 5 year yield, cash and marketable securities to current liabilities, cash to assets, return on net worth, cash (Norgaard R. &., 1974)\(^{53}\) spending on investment to book value, debt to equity, growth of earnings per share 5 years average and current yield.

(Grullon G. P., 2011)\(^{54}\) study the firm characteristics on the propensity to pay using the following variables firm size, market to book ratio, return on assets, sales growth rate, volatility of share price, retained earnings to total assets and firm age.

**Dependent Variable**

- Share repurchase: Value of share repurchases during the year to Market value of equity in previous year.

\[ R_{it} = \frac{REPAT_{it}}{MV_{it-1}} \]

\[ REPAT_{it} = \text{Rupee value of amount repurchased by } i \text{ th firm in } t \text{ year} \]

\[ MV_{it-1} = \text{Market Value of equity of } i \text{ th firm in } t-1 \text{ year.} \]

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\(^{53}\) Ibid 74

In case of repurchasing firms it represents the extent to which repurchase is being practiced. The higher the ratio the more is the extent of repurchase. For non repurchasing firms this value is taken to be zero.

**Independent Variables**

1. **Undervaluation**
   It is the ratio of the market value of the firm to its intrinsic value. (DeMarzo, 2008)\(^{55}\) define this ratio as P/B ratio (price to book value ratio).

   (Medury, 1992)\(^{56}\) have used the same ratio in their study a measure of market evaluation. (Chan, 2004)\(^{57}\) use book value of equity in previous year to the market value of equity in the month end prior to buyback for mispricing in their study. (Dittmar, 2000)\(^{58}\) has defined undervaluation as market value of equity plus debt in the previous year to total assets in the previous year. Taking just the book value of debt has a demerit. If debentures form a part of debt then their market value should be considered since they are traded. In the present study we are concerned with the undervaluation of share prices rather than undervaluation of the total assets of the company. So here undervaluation is studied in terms of undervaluation of equity.

   \[ U_{it-1} = \frac{MV_{it-1}}{BV_{it-1}} \]

   \[ MV_{it-1} = \text{Market Value of equity of } i \text{ th firm in } t-1 \text{ year.} \]

   \[ BV_{it-1} = \text{Book value of equity of } i \text{ th firm in } t-1 \text{ year.} \]

   If the ratio is 1 the firm’s share is trading at its true value. If this ratio is less than one it means the share is trading at a price lower than it’s worth and hence the scrip is undervalued.

2. **Profitable Investments**

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Profitability ratio can be measured either in terms of capital employed or in terms of sales (Damodaran, 2008)\(^{59}\). In this study and in studies on similar line, the concern is to measure the returns on the capital employed. (Medury, 1992)\(^{60}\) have measured profitability of the firm as return on total assets. In the present study it is measured by the return the firm is generating on the capital employed by it. This provides an insight into the firm’s performance and its future prospects.

\[
P_{i(t-1)} = \frac{(PBIT)_{i(t-1)}}{(\text{Capital employed})_{i(t-1)}}
\]

\[
= \text{ROCE of the } i \text{ th firm in } t-1 \text{ year.}
\]

The higher the value of the ratio the higher is the profitability of the firm.

3. **Dividend Payout**

The dividend policy is popularly measured in two forms dividend yield or dividend payout (Damodaran, 2008)\(^{61}\). Further (Aaquith & Jr., 1986)\(^{62}\) found that the magnitude of benefit to the shareholders, arising due to dividends, is directly proportional to the size of dividend to be measured in terms of either dividend yield or dividend payout. In this study, since the concern with the quantum of dividend we use the latter definition.

It is measured as the ratio of dividend paid out to the profit after tax in the previous year. It measures how much excess cash the company is distributing compared to its earnings.

\[
D_{i(t-1)} = \frac{\text{DIV}_{i(t-1)}}{\text{PAT}_{i(t-1)}}
\]

\[
\text{DIV}_{i(t-1)} = \text{Dividends paid by } i \text{ th firm in } t-1 \text{ year}
\]

\[
\text{PAT}_{i(t-1)} = \text{PAT of } i \text{ th firm in } t-1 \text{ year}
\]

The higher the ratio the higher is the evidence of the company distributing cash through dividends.

4. **Capital structure**


\(^{60}\) Ibid 84


Leverage can be measured in a number of ways like debt to equity, debt to total assets, and long term debt to assets. (Chan, 2004)\textsuperscript{63} use debt to total assets as a measure of leverage. (Medury, 1992)\textsuperscript{64} have used four measures of capital structure viz. ratio of debt to equity, ratio of long term debt to equity, ratio of debt to total assets and ratio of long term debt to total assets.

In the present study the objective is just to arrive at the obligation of the firm in terms of debt, hence here we use debt to equity ratio. It helps to assess the extent to which borrowings is present. (Horne, 2008)\textsuperscript{65}

It is measured as a ratio of the total debt to total equity of the company in the previous year.

\[ L_{it-1} = \frac{D_{it-1}}{E_{it-1}} \]

\[ D_{it-1} = \text{Total Debt of } i \text{ th firm in } t-1 \text{ year} \]

\[ E_{it-1} = \text{Total equity of } i \text{ th firm in } t-1 \text{ year} \]

Higher the ratio, larger is the proportion of debt in the current capital structure.

5. **Excess cash**

(Medury, 1992)\textsuperscript{66} measure liquidity in terms of current ratio, quick ratio and cash to total assets.

In order to measure the current assets that can be easily converted to cash we used a variant of current ratio which includes cash and marketable securities. (Damodaran, 2008)\textsuperscript{67}. It is measured as the ratio of cash in hand, at bank and marketable securities in the previous year to the current liabilities and provisions of previous year.

\[ C_{it-1} = \frac{CASH_{it-1}}{CL_{it-1}} \]

\[ CASH_{it-1} = \text{Cash in hand, bank and marketable securities of } i \text{ th firm in } t-1 \text{ year} \]


\( \text{CL}_{i,t-1} = \text{Current liabilities and provisions of } i \text{ th firm in } t-1 \text{ year} \)

2.4.6. TESTING METHODOLOGY

2.4.6.1. DIFFERENCE BETWEEN REPURCHASING AND NON-REPURCHASING FIRMS: DISCRIMINANT ANALYSIS

(Norgaard & Norgaard, 1974)\(^{68}\) suggest that multiple discriminant function analysis technique can answer if the companies can be divided into two or more distinct groups and what are the distinguishing characteristics of these companies.

Discriminant analysis has been in the paper as a classifying methodology to predict the drivers for share repurchase. (Medury, 1992)\(^{69}\) try to explain the stock repurchasing behaviour on the basis of leverage adjustment hypothesis; free cash flow hypothesis, the clientele hypothesis and anti take over hypothesis. They study 283 repurchasing firms out of which 63.25% were open market repurchases.

The variables used in the study are capital structure correction, excess liquidity, lack of profitable investment opportunities and dividend substitution.

2.4.6.2. DRIVERS OF BUYBACK: TOBIT REGRESSION

Tobit Model

In our case the dependent variable is observable only for the buyback companies and for the rest of the companies it is zero i.e. the dependent variable is directly zero. This type of regression is often called censored regression. Here the dependent variable is limited for some reason. Since some observations for the dependent variables are zero running OLS would result in inappropriate estimates. (Brooks, 2008)\(^{70}\)

Here the sample is divided into two groups, one in which we have information on both the independent variables and dependent variables which represents the firms repurchasing share in this context. The independent variables are cash, free cash flow, and dividend payout, debt to equity ratio, undervaluation and return on capital employed. The dependent variable is the repurchase ratio. The second group is the one in which we have information only on independent variables. It is represented by the non repurchasing firms in this case.

\(^{69}\) Ibid 94
This model is called Tobit model because it was developed by James Tobin (1958). The model is in the form that the independent variable $Y_j$, assumes the form for observations, $j = 1, 2, \ldots, n$

$$Y_j = \max(Y_j^*, 0)$$

Where $Y_j^*$ are variables generated by linear regression. This is given by

$$Y_j^* = \beta'X_j + U_j$$

Where, $X_j$ is the vector of regressors.

Tobit regression is used to identify the variables that affect the firm’s decision to go in for share repurchase. The model to be considered for the study is given as equation (I) below.

$$R_{it} = b_0 + b_1C_{it-1} + b_2U_{it-1} + b_3L_{it-1} + b_4P_{it-1} + b_5D_{it-1} + e_{it} \ldots \ldots \ldots \ldots (I)$$

Where,

$R_{it} = \text{Repurchase amount in } t \text{ time to MV of equity in } (t-1) \text{ time by } i \text{ th firm}$

$C_{it-1} = \text{Cash and cash equivalents to Current liabilities and provisions held by } i \text{ th firm in } (t-1) \text{ time.}$

$F_{it-1} = \text{Free cash flow for } i \text{ th firm in } (t-1) \text{ time.}$

$U_{it-1} = \text{Undervaluation of } i \text{ th firm in } (t-1) \text{ time.}$

$L_{it-1} = \text{Leverage of } i \text{ th firm in } (t-1) \text{ time.}$

$P_{it-1} = \text{Profitability of } i \text{ th firm in } (t-1) \text{ time.}$

$D_{it-1} = \text{Dividend payout of } i \text{ th firm in } (t-1) \text{ time.}$

$e_{it} = \text{Random error}$
The expected signs for regression are summarized below

TABLE 1 : Expected Sign of Regression Coefficients

<table>
<thead>
<tr>
<th>Expected Sign of Regression Coefficient</th>
<th>CASH</th>
<th>DIV</th>
<th>D/E</th>
<th>MV/BV</th>
<th>ROCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>Positive</td>
<td>Negative</td>
<td>Negative</td>
<td>Negative</td>
<td>Negative</td>
</tr>
</tbody>
</table>

2.4.6.3 SHARE PRICE PERFORMANCE : EVENT STUDY

The event study, using financial data measures the impact of a specific event on the value of the firm. The impact of an event is reflected in its share prices (Mackinlay, 1997). The null hypothesis of the study is that the event has no impact on distribution of returns. The event window consists of days prior and post the event (Mackinlay, 1997). The measurement of the event’s impact requires measurement of abnormal return. The abnormal return is measured by finding the actual return on the security and the normal or expected return without the event conditioning. For finding the normal return an estimation window is defined. In case of daily data and market model parameters, the estimation could be over 120 days prior to the event (Mackinlay, 1997). Generally event window is not included in estimation window (Mackinlay, 1997).

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73 Ibid 99
74 Ibid 99
AR_{it} = R_{it} - R_{it}

Where AR_{it} is the abnormal return of a security I on time t, R_{it} and R_{it} are the actual and normal return on security i and market for period t. Normal return can be estimated using different models like constant mean return model or market model (Mackinlay, 1997)\(^\text{75}\). Market model is a statistical model that relates the return of a security to the return of the market portfolio (Mackinlay, 1997)\(^\text{76}\). The market model for I th security is given by:

\[ R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it} \]

Here R_{it} and R_{mt} are the return on security i and market for period t. \( \epsilon_{it} \) is the error or disturbance, \( \alpha_i \) and \( \beta_i \) are OLS estimates of slope and intercept. Here \( \mathbb{E}(\epsilon_{it}) = 0 \); \( \text{var}(\epsilon_{it}) = \sigma^2 \); \( \text{Cov}(\epsilon_{it}, \epsilon_{jt}) = 0 \).

The Sensex has been used as the market index in the study for calculating market model parameters. (Hyderabad, 2009)\(^\text{77}\) has deployed 41 days event period and 200 days estimation window for 68 buyback announcements both open market repurchase and fixed price tender offers. In the current study we use 41 days event window (-20,0,+20) and 200 days estimation window.

**Figure 2 Event study**

**Figure 1 Event study**

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\(^{75}\) Ibid 99

\(^{76}\) Ibid 99

The abnormal returns are aggregated along time as well as across securities (Mackinlay, 1997). The first aggregation is through time. The average abnormal return on a day for all securities is found.

$$\text{AAR}_{it} = \frac{\sum \text{AR}_{it}}{N}$$

Where $\text{AAR}_{it}$ is the average abnormal return of $N$ securities on day $t$. The cumulative effect is captured by cumulative average abnormal return. The cumulative average abnormal return is given by:

$$\text{CAAR}_{it} = \text{CAAR}_{it-1} + \text{AAR}_{it}$$

$\text{CAAR}_{it}$ is the cross sectional average of abnormal returns of each day of the event window.

The abnormal returns are residuals from market model and hence follow normality. The cross sectional t test is applied to see if the average abnormal return is different from zero or not.

The t-test statistic is given below:

$$t = \frac{\text{AAR}_t}{s/\sqrt{N}}$$

Figure 2 presents the event study model used in the current study.

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