

CORPORATE SELF-GOVERNMENT IN PRACTICE: LEGAL AND ADMINISTRATIVE DETERMINANTS OF SHARE BUYBACK DECISIONS IN INDIA

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ABSTRACT

This study examines share buybacks—a method of capital reduction wherein companies repurchase their shares from shareholders or the open market. Particularly, factors affecting buy back size have been analysed using multiple regression and quantile regression on 271 buybacks by Indian firms listed on BSE during the period: 1999–2000 to 2022–2023. Results reveal that method of buyback, price-to-book ratio, reserves and surplus, and time dummies significantly impact buyback size. Through quantile regression, the study highlights how corporate self-governance, politics of capital allocation, and administrative decisions shape buyback magnitude across firms.

Keywords: Buyback of Shares, Multiple Regression Analysis, Quantile Regression, Buyback amount

1. Introduction

The phenomenon of share buybacks originated in the United States in 1980s and later spread to the United Kingdom before reaching several other European countries (Stonham, 2002). Share buyback occurs when a corporation repurchases its shares from existing shareholders. Often referred to as stock repurchase, this technique is commonly used by firms to return capital to their shareholders. Share buybacks have a fundamental impact on a firm's share capital and other financial indicators. In particular, buybacks reduce the outstanding number of shares, which increases Earnings Per Share (EPS) and enhances the book value of the company's shares.

In India, companies have been permitted to conduct share buybacks since 1999. Both listed and unlisted companies in India can execute buybacks through four primary methods: the tender offer method, the odd-lot method, open-market purchases through stock exchanges and the book-building method. Among these, the tender offer and open-market methods are the most commonly used. Another reason for the popularity of share buybacks in India is the associated tax advantage. Before the 2020 budget amendment, companies paid a Dividend Distribution Tax (DDT) on dividends to shareholders at an effective rate of 20.5%. Following the withdrawal of the DDT, dividends became taxable in the hands of the investors with companies required to deduct tax at source (TDS) at 10% if the dividend payment exceeded ₹5,000. In contrast, companies undertaking a buyback incurred a Buyback Distribution Tax at an effective rate of 23.296%. This rule was changed in 2024 and now buybacks are taxable in the hands of shareholders only.

Numerous studies have explored the effect of buyback announcements particularly on market reactions such as shareholder returns. Previous research indicates that the reasons for buybacks include perceived undervaluation, tax positioning, signaling intentions, increasing EPS, and capital structure adjustments. Accordingly, various hypotheses—such as the signaling hypothesis, free

cash flow hypothesis, and leverage hypothesis—have emerged to explain this phenomenon. Most of the existing literature focuses on developed markets like the U.S., U.K., and Europe with limited attention paid to developing markets like India and their unique context. The distinct regulatory framework, market conditions, and corporate governance practices in India create a different environment that warrants further investigation to understand the underlying factors influencing buy back. This article seeks to identify the determinants of buy back size; which will give important insights into the motivation behind buy back. We analyze the factors that affect the amount/size of share buybacks in Indian firms using a dataset comprising 271 buyback announcements made by companies listed on the Bombay Stock Exchange (BSE) from 1999-2000 to 2022-2023. The research objectives can be summarized as:

1. Identifying the factors influencing the amount of share buybacks
2. Determining how these factors vary across different levels of buybacks

The paper is structured as follows: Section 2 presents the literature review, Section 3 describes the data and methodology, Section 4 provides the analysis and findings. Section 5 presents the discussion and Section 6 concludes the study. Section 7 presents the limitations and future research.

2. Literature Review

Share buybacks are an important tool of returning cash to shareholders and managing capital structure. Whilst extensive research has been conducted on motivations of buy back; there is limited research on determinants of buy back amount. Buy back decision is influenced by a variety of firm specific and market specific factors. A widely cited reason behind buy backs is excess cash holdings. A firm may repurchase its shares to reduce agency costs, in the absence of unprofitable reinvestment opportunities. This hypothesis is known as the Free Cash Hypothesis (Jensen, 1986). Studies have also found excess cash to be positively associated with larger buybacks (Chasiotis et al., 2021 & Alzomaia, 2023). Another explanation for buy back motivation is that managers use Buy Backs as a tool to signal undervaluation and strong future performance. This is known as the Signaling theory (Vermaelen, 1981). Studies in the developed (Olatunji, 2022) and developing countries (Singh & Yadav, 2019) have found that firms with lower market to book ratios tend to announce larger buybacks to signal perceived undervaluation. Studies have also found that firms also use buy backs for Capital Structure Adjustment i.e aligning actual leverage with target levels. Authors have found that under-leveraged firms often resort to larger buybacks to optimize their debt-equity ratio (Thampy and Nayar, 2017; Brav et al, 2005). Bagwell and Shoven (1988) observed that buybacks may be employed to alter capital structures. Frank and Goyal (2009) supported this view, highlighting the role of repurchases in highly leveraged firms. Some authors posit that managers instead of declaring dividends use buy backs to distribute cash to shareholders (Grullon and Michaely, 2002); Skinner, 2008; Weigand and Baker, 2009; Harrsch, 2015). Few authors suggest that firms undertake buybacks to prevent hostile takeovers (Vermaelen, 1981; Masulis & Korwar, 1986; Cheng et al., 2020; Agrawal & Dixit, 2020). This is known as the Anti-Takeover Hypothesis. Firm size and life cycle stage have also been found to be determining buy backs. Smaller or mid-cap firms often announce relatively larger buybacks to attract market attention (Jagannathan et al., 2000), while larger firms, although having more resources, may limit repurchase size due to regulatory or governance constraints (Chasiotis et al., 2021). Growth opportunities have been found to be inversely related to buy back size (Dittmar, 2000 & Singh & Yadav, 2019). Firms may also repurchase shares to address the dilution caused by stock options and maintain ownership control (Fenn et al, 1997; Sanders & Carpenter, 2003). Lastly,

macroeconomic factors such as market conditions, interest rates, and tax regimes influence repurchase size (Chasiotis et al, 2021). To summarise, the literature identifies surplus cash, undervaluation, capital structure motives, firm specific factors and macroeconomic conditions as key determinants of repurchase size. Various hypotheses explain buy back motivation which may operate simultaneously.

3. Research Gap and Hypotheses

The review of literature reveals a dearth of studies in developing countries especially relating to buy back size. It is important to understand buy back intention which can be gauged from the value of shares actually bought back. This is especially evident in the Indian context, where most of the buyback programs are conducted through open market method and the actual amount acquired is different from the announced amount. We posit that acquired amount of buyback is a more logical and precise variable to capture the true intention of management towards the buyback program. The present study helps in understanding how different variables affect the actual size of buy back based on the following hypotheses:

H1: There is a relationship between the independent variables and the amount of share buybacks.

H2: The impact of determinants differs across various quantiles of the buyback amount distribution.

This study contributes to the existing literature by examining the determinants of buyback size in the Indian context, employing a comprehensive quantile regression methodology. This approach provides insights into the influence of firm size, profitability, and intangibles on buybacks across different levels, offering a nuanced understanding of repurchase decisions of Indian firms.

4. Data, Research Design, and Methodology

4.1 Sample Selection and Data Sources

This study seeks to identify the various factors influencing the size of share buybacks and the behaviour of these determinants across different levels of the buyback distribution. To undertake the same, we analyze the relationship between different variables and the acquired amount of share buybacks using Multiple Regression Analysis. To explore variations across different levels of buyback activity, we analyzed the significance of variables across quartiles of buyback amounts using Quantile Regression. Our sample consists of 271 buyback announcements made by companies listed on the Bombay Stock Exchange (BSE) in India from 1999-2023. The variables used in the study from CMIE Prowess Database and Prime Database. Table 1 gives a description of these variables.

Table 1: Description of Variables

Dependent variable			
Variable	Description	Predicted Sign	Variable Code
Amount of Buyback	Natural log of Acquired Amount of Shares bought back (Rs. Million)		Log (AA)
Explanatory Variables			
Cash flow from operating activities to sales	Net cash flow from operating activities divided by sales.	+	CFO/Sales

Cash and Cash Equivalents	Natural logarithm of C&CE for the financial year closing prior to buyback announcement date.	+	Log (C&CE)
Price-Earnings Ratio	P/E ratio in times (as on financial year closing prior to buyback announcement date) is taken from Prowess.	+/-	P/E
Price to Book value	Price to book value ratio of buyback firms as on financial year closing prior to buyback announcement date.	+/-	P/B
Dividend Payout Ratio	Equity dividend paid as a % of Profit after tax during the financial year closing prior to buyback announcement date	+/-	DPR
Change in Earnings per share (%)	Earnings per share depicts the proportion of company's profit attributable to each share of equity. $\text{Percentage Change in EPS} = \left(\frac{\text{EPS}_1 - \text{EPS}_0}{\text{EPS}_0} \right)_{it}$ t = FY 2000 – FY 2023 EPS₁=EPS reported after the buyback announcement of ith firm EPS₀=EPS reported before the buyback announcement of ith firm	-	CH_EPS
Total Borrowings to Total Assets	$\frac{\text{TotalborrowingstoTotalassets}_{it}}{(\text{ShortTermborrowings} + \text{Longtermbo})_{it}}$ t = FY 2000 – FY 2023 Borrowings = Borrowings of ith firm as at the beginning of tth FY of Buyback Total Assets it= the Total Assets of ith firm as of the beginning of tth FY of Buyback	-	TB/TA
Insider Ownership before buyback	Promoters' holding before buyback in Percentage.	-	IOBB
Reserves and Surplus	Natural logarithm of Reserves and Surplus as per the balance sheet of year closing before buyback.	+	Log(R&S)
Regulation	Buyback announcements before Sept 11, 2018, have a value of 0, and after September 11, 2018, is 1.		RegD
Method of Buyback Offer	Open market offer through the stock exchange is 1 and Tender offers have a value 0.		Method_D

Year	For year dummy 1, buyback announcements from April 1999 to March 2007 have got value of 1 and the remaining 0. In the case of the year, dummy 2, buyback announcements from April 2007 to March 2015 have values of 1 and 0 for the remaining time period.		Year_D1 and Year_D2
Tax	Buyback announcements from 5th July 2019 have a value of 1 and the remaining announcements have a value of 0 for the tax dummy.		Tax_D

Data Source: Prime Database; Amount of Buybacks, Insider Ownership before Buyback, Method of Buyback Offer, and Year. SEBI; Regulation. The Finance (No. 2) Act, 2019; Tax. Prowess; remaining data.

All the assumptions of the Multiple Regression Analysis have been tested and variables showing multicollinearity have been removed.

4.2 Methodology

In the study, Ordinary Least Squares Regression has been used for identifying determinants of amount of buy back and Quantile Regression has been used to identify how this relationship differs across various levels of buy back size. The following multiple regression models has been developed to identify determinants of buy back.

$$\begin{aligned} \text{Log (AA)} = & \alpha + \beta_1 \text{P/B} \\ & + \beta_2 \text{Log(C\&CE)} + \beta_3 \text{Log(R\&S)} + \beta_4 \text{RegD} + \beta_5 \text{Method_D} \\ & + \beta_6 \text{Year_D1} + \beta_7 \text{Year_D2} + \beta_8 \text{TaxD} + \mu \end{aligned}$$

Where α is the intercept, and $\beta_1, \beta_2, \beta_3, \dots, \beta_7$ are the slope parameters of the independent variables and μ is the error term.

4.3 Quantile Regression model

The following Quantile Regression models have been developed to identify how the determinants of buy back vary with various levels of buy back size.

Quantile regression models with 10th, 25th, 50th, 75th and 90th quantiles are given by

$$\begin{aligned} Q_{0.10}(\text{Log (AA)}) &= \alpha_{0.10} + \beta_{0.10,1} \text{P/B} \\ &+ \beta_{0.10,2} \text{Log(C\&CE)} + \beta_{0.10,3} \text{Log(R\&S)} + \beta_{0.10,4} \text{RegD} \\ &+ \beta_{0.10,5} \text{Method_D} + \beta_{0.10,6} \text{Year_D1} + \beta_{0.10,7} \text{Year_D2} \\ &+ \beta_{0.10,8} \text{Tax_D} + \mu \\ Q_{0.25}(\text{Log (AA)}) &= \alpha_{0.25} + \beta_{0.25,1} \text{P/B} \\ &+ \beta_{0.25,2} \text{Log(C\&CE)} + \beta_{0.25,3} \text{Log(R\&S)} + \beta_{0.25,4} \text{RegD} \\ &+ \beta_{0.25,5} \text{Method_D} + \beta_{0.25,6} \text{Year_D1} + \beta_{0.25,7} \text{Year_D2} \\ &+ \beta_{0.25,8} \text{Tax_D} + \mu \end{aligned}$$

$$\begin{aligned}
 Q_{0.50}(\text{Log (AA)}) &= \alpha_{0.50} + \beta_{0.50,1} P/B \\
 &+ \beta_{0.50,2} \text{Log(C\&CE)} + \beta_{0.50,3} \text{Log(R\&S)} + \beta_{0.50,4} \text{RegD} \\
 &+ \beta_{0.50,5} \text{Method_D} + \beta_{0.50,6} \text{Year_D1} + \beta_{0.50,7} \text{Year_D2} \\
 &+ \beta_{0.50,8} \text{Tax_D} + \mu \\
 Q_{0.75}(\text{Log (AA)}) &= \alpha_{0.75} + \beta_{0.75,1} P/B \\
 &+ \beta_{0.75,2} \text{Log(C\&CE)} + \beta_{0.75,3} \text{Log(R\&S)} + \beta_{0.75,4} \text{RegD} \\
 &+ \beta_{0.75,5} \text{Method_D} + \beta_{0.75,6} \text{Year_D1} + \beta_{0.75,7} \text{Year_D2} \\
 &+ \beta_{0.75,8} \text{Tax_D} + \mu \\
 Q_{0.90}(\text{Log (AA)}) &= \alpha_{0.90} + \beta_{0.90,1} P/B \\
 &+ \beta_{0.90,2} \text{Log(C\&CE)} + \beta_{0.90,3} \text{Log(R\&S)} + \beta_{0.90,4} \text{RegD} \\
 &+ \beta_{0.90,5} \text{Method_D} + \beta_{0.90,6} \text{Year_D1} + \beta_{0.90,7} \text{Year_D2} \\
 &+ \beta_{0.90,8} \text{Tax_D} + \mu
 \end{aligned}$$

5. Results

5.1 Descriptive Statistics

Table 2 denotes the descriptive statistics of the variables used in the study. The maximum amount of acquired shares through buyback is Rs. 1,10,000 million. The mean cash and cash equivalents are Rs. 2675.72 million whereas the mean reserves and surplus are Rs. 36046.26 million.

Table 2: Descriptive Statistics

Variables	Mean	SD	Min	Max
Acquired Amount (Rs. Million)	2649.67	9879.12	0.33	110000
CFO/Sales	-0.45	10.87	-163.25	28.50
Cash and Cash Equivalents (Rs. Million)	2675.72	2675.72	0.30	271350
Price-Earnings Ratio	35.31	124.44	1.84	1346.76
Price to Book value (Ratio)	2.49	3.27	0.20	29.6
Dividend Payout Ratio	26.92	34.61	0	264.60
Change in Earnings per share (%)	0.20	5.69	-50.16	70.60
Total Borrowings divided by Total Assets	0.07	0.11	0	0.50
Insider Ownership before buyback (%)	56.08	14.39	13.65	88.15
Reserves and Surplus (Rs. Million)	36046.26	165414	54.40	1869681

5.2 Results of the Multiple Regression model

Table 3 presents the results of multiple regression model. Only variables which did not have multicollinearity were retained and the final model is presented below:

Table 3: Results of OLS Regression Analysis

Dependent Variable: Natural Logarithm of Acquired Amount of Buyback of shares	
Independent Variables	

PB	0.046*** (0.014)
Log(C&CE)	0.046 (0.004)
Log(R&S)	0.888*** (0.053)
RegD	-0.182 (0.132)
Method_D	-0.766*** (0.133)
Year_D1	-0.331 (0.328)
Year_D2	-0.462*** (0.207)
Constant	0.992*** (0.402)
Standard Error	Robust
R-squared	0.795
F-Statistics	122.622
p-value	0.000
AIC	752.571
BIC	781.239

Standard error in parenthesis. *, **, and *** denote significance at the 10, 5, and 1 percent levels, respectively

The adjusted R square of the above model is 79.5%. Our results support the notion that there is no relationship between cash and cash equivalents and the buyback of shares.

Year Dummy2 is found to be negative and significant implying that the acquired Amount of share buybacks is decreasing over the years. The effect of Regulation is captured in time dummies. Year dummy 2 is significant at a 1% level of significance. Dummy for method of buyback is found to be negative and significant.

P/Bs ratio and Reserves & Surplus are found to be positive and significant. The method dummy variable is also significant at a 1% level of significance. The open market method of buyback is mostly preferred by the firms. The acquired amount of buyback of shares is more in the case of the open market method.

5.3 Results of the Quantile Regression model

Table 4 presents the results of the Quantile Regression model.

Table 4: Results of Quantile Regression Analysis

Dependent Variable: Natural Logarithm of Acquired Amount of Buyback of shares			
Independent Variables	Q25	Q50	Q75

P/B	0.034*** (0.008)	0.023*** (0.01)	0.014 (0.011)
Log(C_CE)	0.083** (0.039)	0.085** (0.037)	0.058** (0.027)
Log(RS)	0.770*** (0.000)	0.772*** (0.06)	0.893*** (0.035)
RegD	-0.223 (0.195)	-0.289* (0.172)	-0.128 (0.079)
Method_D	-0.677** (0.234)	-0.622*** (0.141)	-0.820*** (0.108)
Year_D1	-0.664 (0.721)	-0.568** (0.271)	-0.249 (0.367)
Year_D2	-1.208*** (0.31)	-0.682*** (0.202)	-0.165 (0.104)
Constant	1.622*** (0.374)	2.060*** (0.329)	1.500*** (0.201)
N	266	266	266
Pseudo R2	0.5501	0.5853	0.6238
VCE	Robust		

Standard Errors in First Parentheses. *, **, and *** denote significance at the 10, 5, and 1 percent levels, respectively

Table 4 shows that price to book value ratio is significant at a 1% level of significance in quantile 25 and quantile 50 but becomes insignificant in quantile 75. It means that the undervaluation hypothesis holds good for companies buying back fewer shares. For companies with higher buyback of shares, there can be other motivations for buyback. Cash and cash equivalents, method dummy, and reserves and surplus are significant in all the quantiles at a 1% level of significance. The first dummy variable for the year is significant in 2nd quantile whereas the second dummy variable is significant in the first two quantiles at a 1% level of significance.

Our results show that the variables like method of buyback and Reserves & surplus are significant in all multiple regression models as well as quantile regression. Cash and Cash equivalents as well as regulation dummy were not significant variables in the multiple regression but were found significant in the quantile regression.

6. Discussion

The results of the multiple regression model of the determinants of acquired amount of buy back indicate that Price-Book Ratio, Reserves & Surplus and time factor are significant determinants of acquired amount of buyback.

Our study did not find any significant role of free cash flows in determining buy back amount. The results are in contradiction with Isagawa (2002), who documented a positive relation between announcement returns and free cash flows and concluded that the amount of repurchase grows with an increase in free cash flow. Other studies finding a positive relationship between cash and

cash equivalents and buyback of shares are Dittmar (2000); Isagawa (2002) and Fried and Wang (2016).

We do not find any significant role of cash and cash equivalents in determining the amount of shares bought back. Jagannathan *et al.* (2000) argued that share repurchases are often driven by a firm's need for financial flexibility rather than availability of cash and cash equivalents. In fact, companies go for buybacks over dividends because buybacks are non-committal and provide more flexibility. Bens *et al.* (2003) suggested that firms often conduct buybacks to offset EPS dilution from employee stock options, rather than as a result of having excess cash. Other studies supporting our results are Fama and French (2001); Jensen (1986); Ikenberry *et al.* (1995); and Grullon and Michaely (2002).

The coefficient of C&CE is not significant in OLS but are significant in all three quantiles (0.25, 0.5, 0.75) of quantile regression indicates that the impact of liquidity is not same across all the firms. The variation in the result is better explained by quantile regression (not captured by OLS as OLS estimates the conditional mean).

If the effect of C&CE is nonlinear (varies across the distribution), using OLS will average out the impact, potentially leading to insignificance.

QR estimates the effect at different points in the conditional distribution of acquired amount of buyback of shares. Significant C&CE in all quartiles imply that all the firms (with low, medium and high levels of buyback) rely on internal liquidity. QR accounts for heterogeneity across firms which was ignored by OLS. Quantile regression is more robust to heteroscedasticity and outliers since buyback activity in India is often skewed or concentrated at certain ranges of buybacks

Method of Buy Back is a significant indicator of the amount of shares bought back. Specifically, we find that Acquired Amount of share buybacks under Open market Offers is lower than that under Tender Offers. These results are in line with existing research (Stephens and Weisbach, 1998; Vermaelen, 1981; Ikenberry *et al.*, 2000; Kahle, 2002; Ginglinger and Hamon, 2007) which concludes that companies use the open market method to get more flexibly. Open-market buybacks typically do not require firms to commit to a specific repurchase amount in advance, allowing them to buy back shares incrementally as conditions warrant. Tender offers involve a one-time, committed purchase, often with a premium, which encourages firms to buy back a larger volume of shares.

P/B ratio is a significant determinant of amount of buyback. As P/B ratio increases; the amount bought back increases. The acquired amount of share buybacks also increases with the increase in the reserves and surplus. These results are in line with existing literature (Dittmar, 2000; Chirinko, 1997; Grullon and Michaely, 2002; Fried and Wang, 2016) reporting that firms with higher reserves are more likely to initiate buybacks, particularly when management perceives the stock to be undervalued.

7. Conclusion and Policy Implications

This study analyses the factors driving of the size of share buybacks of Indian firms using data of 271 buyback announcements made by listed firms from 1999 to 2023. The study uses OLS and quantile regression and identifies price-to-book (P/B) ratio, reserves and surplus, and method of buyback as important determinants of buyback size.

The price-to-book ratio has been found to be positively related to the buyback amounts at lower quantiles meaning that undervalued firms buy back larger amounts. This supports the Signaling Hypothesis in which managers use buybacks to signal the firm's intrinsic value. Reserves and Surplus have also been found to be positively related to the size of buybacks. This is in consonance

with existing studies that have found that firms with large cash reserves tend to redistribute it amongst existing shareholders to avoid wasteful allocation by the managers (Fried and Wang, 2016 & Dittmar, 2000). Cash and cash equivalents do not have any significant influence on buyback amounts in the context of India. This result suggests that Indian firms prioritize financial flexibility over liquidity in their buyback decisions.

Our results reveal that the most popular methods of buybacks are open market offers and tender offers. Smaller buybacks are conducted through Open-market buybacks as they allow flexibility firms to alter the volume of buybacks in line with market conditions (Stephens & Weisbach, 1998; Vermaelen, 1981). Tender offers generally require a bigger initial outlay and reflect a greater managerial commitment to the buyback. Our results show a decline in buyback amount over a period as indicated by significant negative coefficients of time dummies. This may be due to the change in government policy and emerging market conditions in India.

The results of this study are useful to managers, investors, and policy-makers. As the P/B ratio positively impacts the buyback amounts, managers can use buybacks to signal intrinsic value to the market when shares are undervalued. Our results show that buy back amendments are needed to regulate buyback behavior. In India, the capital market regulator, SEBI has imposed restrictions on debt-financed buybacks and recommended post-buyback leverage limits. These regulations may be amended to permit debt-financed buybacks under certain conditions which would increase financial flexibility. Meanwhile, our findings may help investors decode buybacks more effectively. In particular, investors need to pay attention to the type of buyback as a tender offer indicates a stronger managerial commitment than an open-market repurchase. Our study adds to the empirical literature by elucidating the factors affecting buyback size in India, thereby offering strategic insights for firms and aiding policymakers in achieving a balance between corporate flexibility and the protection of investors.

8. Limitations and Future Research

This study is limited to firms listed on BSE and does not include any macroeconomic factors. Explicitly. Future studies could include these factors and also conduct a longitudinal analysis of firms undertaking buy back. Cross-country comparative analysis can also investigate how regulatory environments affect determinants of buyback magnitude in developed vs. developing markets. A comparative study of buy back and dividend decisions can also be undertaken. Future research can analyze how firm and industry-specific factors—such as R&D intensity, ownership structure, and corporate governance affect the magnitude of share buybacks and their long-term firm performance.

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