“Understanding equity repurchase motives for different firm set-up: Indian evidence”

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ARTICLE INFO	Vandana Bhama (2021). Understanding equity repurchase motives for different firm set-up: Indian evidence. *Investment Management and Financial Innovations*, *18*(1), 90-100. doi:10.21511/imfi.18(1).2021.08
DOI	http://dx.doi.org/10.21511/imfi.18(1).2021.08
RELEASED ON	Monday, 01 February 2021
RECEIVED ON	Wednesday, 16 December 2020
ACCEPTED ON	Monday, 25 January 2021

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JOURNAL	"Investment Management and Financial Innovations"
ISSN PRINT	1810-4967
ISSN ONLINE	1812-9358
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
34	1	6

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BUSINESS PERSPECTIVES

LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine

www.businessperspectives.org

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UNDERSTANDING EQUITY REPURCHASE MOTIVES FOR DIFFERENT FIRM SET-UP: INDIAN EVIDENCE

Abstract

Corporates express their intention to reward shareholders during repurchase announcements by maximizing their wealth. However, most empirical research finds that stocks' performance is poor when repurchase announcements are made, and there are no significant abnormal returns. In the Indian context, the present study examines firms' real intention behind repurchase decisions. The sample comprises 132 firms listed on the Bombay Stock Exchange (BSE) from 2012 to 2018. A Tobit regression model has been used on different firm set-up. The empirical results reveal that low stock valuation is the prominent reason for buybacks among corporates. Firms prefer repurchases to provide abnormal returns to the investors; however, the Indian market does not react much positively to the repurchases, and this might be the reason for less encouraging buybacks in the Indian market. Further, the tender offer is the most preferred mode to open market repurchases. In the case of service firms, undervaluation, low earnings, and low debt ratios are the contributing factors impacting repurchases. Firms with low dividend intend to have more buybacks to reduce their tax burden.

Keywords stock repurchases, leverage, ownership structure, firm valuation, free cash flow

JEL Classification G14, G32

Received on: 16th of December, 2020
Accepted on: 25th of January, 2021
Published on: 1st of February, 2021

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Conflict of interest statement:
Author(s) reported no conflict of interest

INTRODUCTION

Generally, firms intend to provide positive returns through repurchases, however, most research in the Indian context tested the buyback announcements' impact on stock returns using market timing theory. The evidence corroborates that the performance of stocks is poor in the case of repurchase announcements[1] are made (Chatterjee & Mukherjee, 2015; Gupta et al., 2014; Ishwar, 2010; Mishra, 2005; Jagannathan et al., 2000), and there are no significant abnormal returns post repurchase announcements (Grullon & Michaely, 2004). Here the question arises: "If returns are negligible post announcements and the market discounted the information much in advance, then how the companies meet the objective of rewarding shareholders?"

Regarding the above question, the study first examines firms' real motivation behind buyback decision. Following Dittmar's (2000) work, the paper tries to capture the effect of various hypotheses by examining the actual repurchases using the Tobit regression model for the whole set of 132 firms from 2012 to 2018 in the Indian capital market. The present study deviates from Jena et al. (2016) that it has an extensive focus on different firm set-ups for controlling. Previous work

1 A previous study has also tested the impact of buyback announcements on stock performance for the given set of 132 firms. The results are on similar lines indicating negligible abnormal returns to the shareholders. Further, small windows (pre and post) were created to explore the opportunity to make an abnormal profit. Interestingly, the significant results were observed in the pre-event window of −15 to −1 with cumulative abnormal returns of 6 percent. After that, there was a decline in the returns.

http://dx.doi.org/10.21511/imfi.18(1).2021.08

in literature focused on firm size (Andriosopoulos & Hoque, 2013), life cycle stages (Liang et al., 2013), and buyback frequency (Varma et al., 2018; Jagannathan & Stephens, 2003). Therefore, most studies control a few situations, and thus, researchers limit the findings by ignoring varying firm set up that may significantly impact the repurchase decision. For instance, studies focusing on firm size, age, sector, etc., indicate their influence on repurchase amount. However, the deep impact within that set-up has been ignored in terms of cash availability within those firms, dividend-paying capacity, stock valuation, earnings per share, and leverage ratios. For example, if large firms consider more repurchases, it would be interesting to explore which specific factors contribute towards their decision to buy back shares. Therefore, the second motivation of this paper is to analyze the explicit dynamics subsidizing the drive for buyback in the different firm set-up.

It is believed that the data derived from the Indian market explain the buyback intentions well. The study finds that stock undervaluation is the main contributing factor for repurchases. ,The firm asset size hypothesis supports this evidence and due to information asymmetry, small firms have a negative association with buybacks.

The contributions of the study are twofold. First, it extends the scope of buyback literature by analyzing many control situations lacking in previous studies. The literature focuses on various hypotheses for the whole set of firms. This study goes one step further by measuring the impact of variables for many firm categories, explaining the rationale query in detail. Finally, this study covers a gap of repurchase intention in the Indian market as most studies focused on repurchase announcements in the Indian context (Gupta, 2018; Rajagopalan & Shankar, 2012; Rajlaxmi, 2013; Chavali & Shemeem, 2011; Ishwar, 2010).

1. LITERATURE REVIEW

Corporate firms use a wide range of financial options to reward shareholders (Bagwell & Shoven, 1989), and share repurchases are generally taken to improve stock returns (Ikenberry et al., 1995). Therefore, stock undervaluation is considered the prominent reason for repurchases (Li & McNally, 2007; Mitchell et al., 2001); though it is not the only intention of firms, there are several motives behind equity buybacks. The various hypotheses related to buyback are firm's agency cost of free cash flow (Lee & Suh, 2011; Chan et al., 2004; Jagannathan et al., 2000; Vafeas & Joy, 1995), raising earnings per share (Bens et al., 2003), promoter's stake and their ownership structure (Li & McNally, 2007), capital restructuring tax benefits (Bonaime et al., 2014; Dixon et al., 2008; Hovakimian, 2004, Dittmar, 2000), liquidity (Brockman et al., 2008; Ginglinger & Hamon, 2007), and market timing (Ginglinger & Hamon, 2007; Jagannathan & Stephens, 2003; Vafeas, 1997; Barclay & Smith, 1988), which form the rationale of buyback decisions.

Literature has covered various aspects of buyback by testing different theories. The major reason for repurchase is the mispricing of stock value (Chan et al., 2004), though stocks perform poorly after repurchase announcements (Gupta, 2018; Gupta et al., 2014; Mishra, 2005; Jagannathan et al., 2000; Bartov, 1991) and the tenure of these returns is very short (Rajlaxmi, 2013; Chavali & Shemeem, 2011; Thirumalvalavan & Sunitha, 2006). Another important aspect is the EPS growth, which the management believes it as an important aspect behind firms' buybacks (Bens et al., 2003). This signals the future expectations and undervaluation of stock (Mitchell et al., 2001).

Equity buybacks are a flexible way out of distributing cash to the shareholders. In developed countries, large cash holdings are positively associated with the amount of buybacks, indicating the presence of excess cash within firms having share repurchases (Lee & Suh, 2011; Grullon & Michaely, 2004).

Jena et al. (2016) tested various capital structure theories extensively using logit regression for a whole set of Indian firms (controlled firms based on sector and market capitalization). They noted that excess cash funds, low investment options, stock undervaluation, higher dividend payout ratio, liquidity, and diluted ownership are the major contributing factors of repurchases among Indian firms.

Another value-enhancing drive of undervalued firms is to adjust their capital through share repurchase to have an optimal capital structure (Dixon et al., 2008). Bonaime et al. (2014) noted that low valued and underleveraged firms are most benefitted from the buybacks; hence, they come out with more buybacks. In India, firms that issue or buyback equity generally have low debt ratios (Hovakimian, 2004). If the leverage is low among firms, adjustments can be made to increase the leverage due to the tax advantage.

Other firm characteristics like size, growth, life cycle stages, and buybacks' size influence buyback decisions. For instance, Andriosopoulos and Hoque (2013) observed that size of the firm, cash dividends, and ownership structure have a substantial effect on the buyback announcements. Low growth firms with huge cash piles have a higher probability of making repurchase announcements. Analyzing the firm's life cycle stages, Liang et al. (2013) analyzed that growing firms announce buybacks to signal their stock's undervaluation, whereas mature firms repurchase shares to distribute excess cash funds. In the context of firm size, Varma et al. (2018) notes a positive association of firm size with firms' repurchase motives.

Thus, the above literature identifies an important gap in understanding a firm's motivation for repurchase decisions in the different firm set-up. The study fills this gap by exploring the results for 132 Indian firms that announced buybacks in seven years.

2. BUYBACK HYPOTHESES

H1: *As cash presumes to have a relationship with the repurchase amount, the study hypothesizes that excess free cash flow motivates firms to issue a higher amount of repurchases.*

H2: *The study hypothesizes that under levered firms come out with more buybacks to increase their leverage ratios.*

H3: *The study also hypothesizes that variables like valuation, earnings, cash availability, size, age, dividend payout, and leverage ratio impact the firm's intentions for buyback decisions.*

3. METHODOLOGY, DATA, AND STATISTICS

3.1. Methodology

The study tests the various repurchase hypotheses with the following Tobit regression model for the given repurchase year:

$$\begin{aligned} REP_{it} &= \alpha_{it} + \beta_1 MKBK_{i(t-1)} + \\ &+ \beta_2 EARNINGS_{i(t-1)} + \beta_3 DPR_{i(t-1)} + \\ &+ \beta_4 LEVERAGE_{i(t-1)} + \beta_5 CASH_{i(t-1)} + \\ &+ \beta_6 LOG\ AGE_{i(t-1)} + \\ &+ \beta_7 LOG\ ASSETS_{i(t-1)} + e_{it,} \end{aligned} \quad (1)$$

where i represents the firm buyback year, t represents the time measure by firm's financial year end. Following Dittmar (2000), REP, the dependent variable, is the Rupee volume of repurchases divided by the market value of the previous year's equity. The buyback values have been taken from SEBI (Securities and Exchange Board of India) website. Further, to obtain the robust results, the repurchase values have been set to zero for any firm if the repurchase value is less than 1% of market value of equity[2].

The various predictors given in the Eq. (1) test repurchase hypotheses. To test the valuation hypothesis on the repurchases, $MKBK_{i(t-1)}$, the ratio of market to book ratio of firm i at the end of the year before repurchases has been included. As the low valued firms are benefitted from the buybacks (Bonaime et al., 2014), the tendency to have a higher amount of repurchases increases with the low valuation. To test the hypothesis of earnings and excess cash flow, $EARNINGS_{i(t-1)}$ which are profits to firm assets i and $CASH_{i(t-1)}$ cash and cash equivalent to firm assets i at the end of year before repurchases. The $EARNINGS$ and $CASH$ are expected to associate positively with the deci-

2 Bagwell and Shoven (1988) used 0.5%, and Dittmar (2000) used 1% of equity market value.

http://dx.doi.org/10.21511/imfi.18(1).2021.08

Table 1. Number of repurchases

Year	Total buyback	Open market repurchase		Tender offer	
		Number	Percentage	Number	Percentage
2012	14	13	93%	01	7%
2013	16	12	75%	04	25%
2014	08	07	88%	01	12%
2015	06	01	17%	05	83%
2016	24	03	13%	21	87%
2017	26	04	15%	22	85%
2018	39	11	28%	28	72%

Note: This table presents the data related to the number of buybacks across all the years. Similarly, the numbers related to open market repurchases and tender offer repurchases have also been shown.

sion to repurchase if the firm has the intention to distribute excess capital. Till 2018, the Indian government charged fewer taxes on repurchases than dividends. Thus, if firms have the intention to reduce the tax burden, they would substitute repurchases for dividends. For this purpose, $DPR_{i(t-1)}$ (dividend payout ratio), the ratio of dividend payments to net profit in the year before the repurchase has been included. It is expected that firms with higher repurchases pay fewer dividends.

The leverage hypothesis predicts firms' tendency to buyback equity when the leverage ratios are low. This is to adjust back to a little higher debt ratio; however, the debt ratio should not exceed 2:1 after buyback as mandated by SEBI. Therefore, it is expected that firms with low leverage prefer to have a higher amount of repurchases. For this purpose, $LEVERAGE_{i(t-1)}$, the total debt to asset ratio in the year before the repurchase has been taken. Another predictor

In the study is the $LOG\ AGE_{i(t-1)}$ which is measured by natural log of firm's number of year from the date of its incorporation and $LOG\ ASSETS_{i(t-1)}$, measured by natural log of total assets at the end of the year before the buyback. The rationale behind these two predictors is the undervaluation hypothesis that firms intend to buyback equity when the stock prices are below their real value, and thus, managers are better informed than market about the real value of stock. This creates an information asymmetry issue. According to Liang et al. (2013), growing firms announce buybacks to signal their stock's undervaluation. Similarly, Vermaelen (1981) believes that information asymmetry is more prevalent among small firms. Due to these reasons, it is expected that small and growing firms have undervalued stock and thus prefer to repurchase stock.

To check the impact for different firm set-up, firms have been bifurcated using median in each case.

3.2. Data and statistics

The sample comprises 132 firms[3] listed on the Bombay Stock Exchange (BSE) from 2012 to 2018. Before this period, the number of successful buybacks in India was negligible, and the data were also missing. The data have been extracted from CMIE Prowess.

Table 1 provides the total number of equity buybacks for the given period, which indicates a sharp rise in the repurchases post 2015. The preference of firms for tender offer repurchases shifted drastically from 2015. As shown in Figure 1, within various firm set-ups, tender offer buybacks are the most preferred mode of buyback compared to open market repurchases.

Table 2 provides descriptive statistics for all the Tobit regression model variables. The repurchases show an average of 9% of equity's market value. Market-to-book ratio is approximately near 2. Earnings are 9%, and cash is 1% of their total assets. The debt component is quite low, with an average of 10% of assets. Finally, the dividend shows an average of 34 percent of earnings.

3 A sample of 132 firms has been selected on the buyback announcements impact of these firms. In the previous study, the results were not significantly in favor of positive abnormal returns post buyback. This motivated to examine the actual rationale behind repurchase issuance for a similar set of firms. Initially, the data were available for 180 firms; however, it was reduced to 136 firms due to sample selection criteria and other missing values. This analysis further reduced to 132 final sample firms for the current study on account of missing data for few variables.

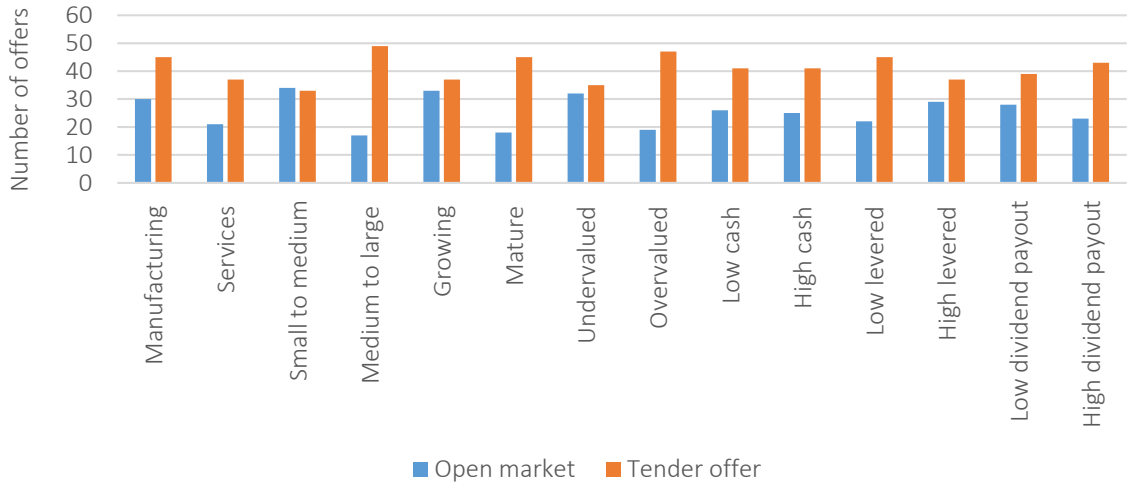

Figure 1. Open market versus tender offer repurchases across different firm set-up

Table 2. Descriptive statistics

Variables	Mean	Median	Min	Max	SD
Repurchases	0.09	0.05	0.00	0.54	0.11
MKBK	1.95	1.23	0.13	12.28	2.03
EARNINGS	0.09	0.08	–0.20	0.57	0.09
DPR	0.34	0.26	0.00	1.95	0.35
LEVERAGE	0.10	0.07	0.00	0.46	0.10
CASH	0.01	0.00	–0.11	0.39	0.06

Note: This table summarizes the descriptive statistics – mean, median, minimum, maximum, and standard deviation of the dependent and independent variables examined in the empirical analysis of the study. The dependent variable repurchases are % of the market value of equity. Independent variables are MKBK, earnings, DPR, leverage, and cash. MKBK is the market-to-book ratio. Earnings are the profit after taxes divided by total assets. DPR is the dividend payout ratio, where cash dividends are divided by earnings of a similar year. Leverage is the total debt to asset ratio. Cash is cash and cash equivalents divided by total assets. The database used in the study is CMIE Prowess from 2012 to 2018. The sample comprises 132 firms with 1,056 observations.

4. EMPIRICAL RESULTS

4.1. *T*-stat of different firm set-up

Table 3 provides the *t*-statistical analysis of firms segregated based on buyback offer type, firm sector, firm size, and firm age. The mean values of repurchase amounts are statistically significant among firms that use the open market and tender offer method. As discussed previously, the tender offer mechanism is largely used by corporates to redeem equity. Firms seem to have repurchased almost double amount of equity through tender offer (10.5% of market value of equity) vis-à-vis open market repurchases (5.8% of market value of equity). The free cash flow among tender offer firms motivates firms to have more repurchases (Vafeas, 1997). Further, the mean values of MKBK and earnings are not statistically significant across all groups. Firms with high agency cost of free cash flow prefer to use tender offer repurchase

It is also interesting to note that small and medium firms have relatively more cash (2% of assets) than large firms (–1% of assets); however, these firms pay fewer dividends. This corroborates the fact that small and medium firms, in comparison to large firms, prefer to use excess free cash to reward shareholders by repurchasing equity, whereas, large firms despite their negative cash flow, pay more dividends using reserves. The debt ratio mean values are statistically significant across large, mature, and manufacturing firms. These firms deploy the nearly double amount of debt in their capital structure concerning another set of firms.

http://dx.doi.org/10.21511/imfi.18(1).2021.08

Table 3. Mean and *t*-test values across firm set up based on offer type, sector, size, and age

Variables	Offer type			Firm sector			Firm size			Firm age		
	Open market	Tender offer	*t*-statistics	Manufacturing	Services	*t*-statistics	Small and medium firms	Large firms	*t*-statistics	Growing firms	Mature firms	*t*-statistics
Repurchases	0.058	0.105	–2.527*** (0.013)	0.082	0.092 (0.610)	–0.512	0.100	0.059 (0.033)	2.156**	0.080	0.094 (0.455)	–0.749
MKBK	1.554	2.194	–1.776* (0.078)	1.659	2.314 (0.066)	–1.852*	1.935	1.972 (0.923)	–0.097	2.202	1.667 (0.132)	1.517
EARNINGS	0.074	0.096	–1.382 (0.169)	0.080	0.097 (0.305)	–1.031	0.083	0.097 (0.400)	–0.845	0.095	0.080 (0.365)	0.909
DPR	0.320	0.344	–0.385 (0.701)	0.308	0.369 (0.322)	–0.994	0.270	0.468 (0.002)	–3.118***	0.348	0.321 (0.671)	0.426
LEVERAGE	0.121	0.092	1.614 (0.109)	0.125	0.075 (0.005)	2.861***	0.086	0.139 (0.006)***	–2.822	0.074	0.136 (0.000)	–3.643***
CASH	0.012	0.016	–0.315 (0.753)	0.013	0.018 (0.640)	–0.469	0.022	–0.001 (0.036)	2.119**	0.015	0.014 (0.914)	0.108
N	51	81		74	58		89	43		69	63	

Note: The table presents the independent t-statistical values for different firm set-up based on buyback offer method, firm sector, firm size, and firm age. Across all groups, firms are divided into two further sections. Firm size and firm age are categorized using the median. The dependent variable repurchases are % of the market value of equity. Independent variables are MKBK, earnings, DPR, leverage, and cash. MKBK is the market-to-book ratio. Earnings are the profit after taxes divided by total assets. DPR is the dividend payout ratio, where cash dividends are divided by earnings of a similar year. Leverage is the total debt to asset ratio. Cash is cash and cash equivalents divided by total assets. ***, **, and * indicate significance level at 1%, 5%, and 10%.

Table 4. Mean and *t*-test values across firm set-up based on valuation, cash, leverage, and dividend

Variables	Firm valuation			Cash firms			Levered firms			Dividend firms		
	Undervalued	Overvalued	*t*-statistics	Low cash	High cash	*t*-statistics	Low levered	High levered	*t*-statistics	Low dividend	High dividend	*t*-statistics
Repurchases	0.113	0.028	4.622*** (0.000)	0.091	0.083	0.445 (0.657)	0.098	0.069	1.531 (0.128)	0.103	0.070 (0.068)	1.842*
MKBK	0.914	4.240	–13.318*** (0.000)	1.651	2.243	–1.682* (0.095)	2.027	1.820	0.568 (0.571)	1.660	2.243 (0.100)	–1.657
EARNINGS	0.063	0.143	–5.510*** (0.000)	0.079	0.096	–1.087 (0.279)	0.102	0.065	2.302** (0.023)	0.066	0.110 (0.005)	–2.851***
DPR	0.346	0.310	0.544 (0.587)	0.363	0.307	0.905 (0.367)	0.287	0.409	–1.951** (0.053)	0.085	0.596 (0.000)	–12.021***
LEVERAGE	0.119	0.068	2.684*** (0.008)	0.118	0.089	1.616 (0.109)	0.037	0.209	–16.385*** (0.000)	0.103	0.103 (0.999)	–0.001
CASH	0.015	0.014	0.049 (0.961)	0.014	0.044	–6.197*** (0.000)	0.016	0.012	0.381 (0.704)	0.017	0.012 (0.671)	0.425
N	91	41		66	66		81	51		67	65	

Note: The table presents the independent *t*-statistical values for different firm set-up based on valuation, cash, leverage, and dividend. Across all groups, firms are divided into two further sections using the median. The dependent variable repurchases are % of the market value of equity. Independent variables are MKBK, earnings, DPR, leverage, and cash. MKBK is the market-to-book ratio. Earnings are the profit after taxes divided by total assets. DPR is the dividend payout ratio, where cash dividends are divided by earnings of a similar year. Leverage is the total debt to asset ratio. Cash is cash and cash equivalents divided by total assets. ***, **, and * indicate significance level at 1%, 5%, and 10%.

Table 5. Tobit regression results for different firm set-up

Variables	All firms	Open market	Tender offer	Manufacturing	Services	Small and medium firms	Large firms	Growing firms	Mature firms	Low valued	High valued	Low cash	High cash	Low levered	High levered	Low dividend	High dividend
Constant	–0.044	–0.483	0.101	–0.177	–0.148	–0.148	–2.130*	0.113	–0.583	1.028	1.071	–0.452	–0.399	–0.454	1.594	–0.515	–0.258
	(–0.824)	(0.232)	(0.684)	(0.550)	(0.628)	(0.804)	(0.052)	(0.855)	(0.466)	(0.367)	(0.107)	(0.212)	(0.181)	(0.494)	(0.079)*	(0.514)	(0.532)
MKBK	–0.360***	–0.444***	–0.330***	–0.372***	–0.225*	–0.270***	–0.570**	–0.298**	–0.324**	0.259	0.121	–0.268	–0.279**	–0.424***	–0.286*	–0.305***	–0.420**
	(0.000)	(0.003)	(0.009)	(0.012)	(0.078)	(0.015)	(0.027)	(0.026)	(0.047)	(0.686)	(0.729)	(0.126)	(0.020)	(0.001)	(0.078)	(0.011)	(0.021)
EARNINGS	–0.043	0.082	–0.006	0.138	–0.311**	–0.118	0.254	–0.137	0.006	–0.089	0.123	–0.038	–0.181	–0.108	0.015	–0.182	0.108
	(0.640)	(0.620)	(0.606)	(0.341)	(0.034)	(0.285)	(0.313)	(0.292)	(0.968)	(0.402)	(0.553)	(0.833)	(0.141)	(0.385)	(0.923)	(0.188)	(0.556)
DPR	–0.054	–0.031	–0.033	–0.025	–0.097	–0.077	0.056	–0.066	0.040	–0.102	–0.016	–0.006	–0.024	0.010	–0.184	–0.332	–0.105
	(0.491)	(0.825)	(0.757)	(0.836)	(0.386)	(0.448)	(0.709)	(0.568)	(0.765)	(0.315)	(0.925)	(0.959)	(0.827)	(0.922)	(0.216)	(0.439)	(0.643)
LEVERAGE	0.041	0.205	–0.031	0.095	–0.317***	–0.071	–0.005	–0.239*	0.002	–0.147	–0.109	–0.217	0.135	–0.381	1.011	–0.071	–0.016
	(0.632)	(0.218)	(0.771)	(0.467)	(0.010)	(0.499)	(0.973)	(0.058)	(0.983)	(0.198)	(0.521)	(0.101)	(0.256)	(0.312)	(0.057)*	(0.583)	(0.904)
CASH	–0.069	–0.309	–0.006	–0.080	–0.201	–0.057	0.080	–0.038	–0.019	–0.004	–0.030	–0.217	–0.208	–0.037	–0.024	–0.142	0.033
	(0.514)	(0.135)	(0.962)	(0.607)	(0.233)	(0.568)	(0.607)	(0.745)	(0.873)	(0.964)	(0.857)	(0.247)	(0.215)	(0.727)	(0.856)	(0.281)	(0.794)
LOG AGE	0.001	–0.008	–0.016	0.106	0.025	0.073	0.043	0.158	–0.381	0.082	0.091	0.035	0.180	–0.032	0.021	–0.059	0.218
	(0.990)	(0.956)	(0.875)	(0.381)	(0.813)	(0.469)	(0.778)	(0.646)	0.393	(0.416)	(0.587)	(0.770)	(0.117)	(0.772)	(0.889)	(0.625)	(0.104)
LOG ASSETS	–0.354	–0.333**	–0.359***	–0.223*	–0.312***	–0.364	–1.260**	–0.192	–0.346**	–0.212*	0.015	–0.240*	–0.410	–0.134	–0.294**	–0.332***	–0.178
	(0.000)***	(0.026)	(0.002)	(0.098)	(0.014)	(0.298)	(0.044)	(0.127)	(0.016)	(0.082)	(0.930)	(0.069)	(0.001)**	(0.269)	(0.043)	(0.012)	(0.196)
R square	0.351	0.307	0.345	0.182	0.463	0.276	0.288	0.303	0.249	0.266	0.236	0.264	0.379	0.284	0.293	0.309	0.230

Note: This table displays the Tobit regression results for all firms and firms across different groups. Firms based on size, age, valuation, cash, leverage, and dividend are categorized into two groups using the median. The dependent variable repurchases are % of the market value of equity. Independent variables are MKBK, earnings, DPR, leverage, and cash. MKBK is the market-to-book ratio. Earnings are the profit after taxes divided by total assets. DPR is the dividend payout ratio, where cash dividends are divided by earnings of a similar year. Leverage is the total debt to asset ratio. Cash is cash and cash equivalents divided by total assets. ***, **, and * indicate significance level at 1%, 5%, and 10%.

http://dx.doi.org/10.21511/imfi.18(1).2021.08

Table 4 provides the *t*-statistical analysis of firms segregated based on valuation, cash, leverage, and dividend. The repurchase mean values of low valued firms indicate that these firms make a substantial amount of equity buybacks than high valued firms; the mean values are 11% for low valued and 2.8% for high valued firms. The motivation to have large repurchases is due to the fewer earnings among low valued firms; the lower earnings continue to keep the stock valuation low. Therefore, to improve the valuation of their stock prices, these firms come out for buybacks. Another interesting fact is that firms with low debt have more earnings, and thus these firms are left with more cash and pay a higher amount of dividends. The mean dividend values, 41% among low and 29% among high levered firms, are statistically significant. As far as dividend groups are concerned, firms having a higher amount of earnings prefer paying more dividends.

Table 5 presents the results of Tobit regression model. The summary statistics indicate that firms repurchase stock when they are potentially undervalued, as evidenced by a negative and significant coefficient value of −0.36 on MKBK. Therefore, stock undervaluation is the prominent reason for repurchases, and the inference is supported by literature evidence (Bonaime et al., 2014; Li & McNally, 2007; Mitchell et al., 2001; Ikenberry et al., 1995; Vermaelen, 1981).

Log assets also support the above findings; the coefficient is negative with a value of −0.35. The undervaluation hypothesis explains that firms intend to repurchase equity when it is below it's real price. Hence, the managers are better informed about stock's actual value, which creates information asymmetry. Therefore, it was expected that small firms repurchase more equity due to higher information asymmetrical issues. The findings evidence that small firms indicate low valuation of their stock and are more likely to repurchase stock. As the size increases, firms have a higher valuation of their stock, giving less preference to repurchases.

The above inferences create a surprising connection with the literature evidence related to buyback announcements. In the Indian context, post buyback announcement results are not encouraging in terms of significant abnormal returns[4] (Chatterjee & Mukherjee, 2015; Gupta et al., 2014; Ishwar, 2010; Mishra, 2005). This means firms intend for more repurchases due to low valuation to reach the intrinsic worth of stock by providing abnormal returns to the investors. However, the market does not react much positively, and returns are for a very short period with a maximum of two days post announcement. Buyback information is discounted much in advance in India, and this might be one reason that Indian buybacks are not very encouraging as the firms' objective to reward shareholders by providing additional gains gets flop.

Earnings and excess cash hypotheses coefficient values are negative and are not statistically significant and express the fact that firms do not have the intention to distribute excess cash, though, the plausible reason is the stock undervaluation.

Further bifurcating firms into the different firm set-up, the evidence indicates that stock undervaluation again is the prominent reason behind buyback as the MKBK coefficient values are statistically significant among all sections. Firm size values support these findings.

However, in the case of service firms and asset size, lower earnings and low debt ratios are other contributing factors impacting repurchases. These facts convey that as the firm size decreases, the earnings also decline, and firms do not have much debt in their capital structure. Therefore, more repurchases among these firms provide corrections to stock valuation and debt ratios. Similar observations have been made for growing firms, which is in tune with Liang et al.'s (2013) findings.

Another assumption of the study is that low dividend and low levered firms prefer more repurchases. The findings reveal that the coefficient value is −0.332 for low dividend firms, corroborating that firms with low dividends intend to have more buybacks to reduce their tax burden.

4 The study has also examined post buyback announcement impact on undervalued firms' stock returns. This is to check if undervaluation is the major reason, then do buyback announcements help firms improve the value of their stock by providing abnormal returns. The findings indicate negligible returns, which sustains a maximum of one day. After that, the returns are negative.

CONCLUSION

In this paper, firms' real intention behind repurchase decisions using Tobit model has been postulated. The results have been examined for a whole set of firms and different firm groups. The study finds that the prominent reason for repurchase is the low valuation of stocks, and firms repurchase equity when they are potentially undervalued. The findings are supported by asset size due to information asymmetry issue. Small firms have low valuations and are more likely to repurchase stock. As the size increases, firms have a higher valuation of their stock, giving less preference to repurchases.

In connection with the literature evidence related to buyback announcements, firms intend for more repurchases due to low valuation to reach the intrinsic worth of stock by providing abnormal returns to the investors. However, the market does not react much positively, and returns are for a very short period. This could be one reason that Indian buybacks are not very encouraging as the firms' objective to reward shareholders by providing additional gains does not fulfill.

Across different firm set-up, stock undervaluation is the prominent reason behind buyback. Further, the tender offer is the most preferred mode to open market repurchases. For service firms, low earnings and low debt ratios impact repurchases providing corrections to stock valuation and debt ratios. Firms with low dividends intend to have more buybacks to reduce their tax burden.

The study has implications for investors and academicians. The findings provide a fair idea to the investors that trading near the buyback announcements is generally less encouraging, and hence, returns are less attractive during those days. To the academicians, the study provides Indian evidence on the real motivation behind repurchase decisions, which has been a major gap in other similar studies. The study provides evidence on how the buyback varies among different firm set-ups.

AUTHOR CONTRIBUTIONS

Conceptualization: Vandana Bhama.
Data curation: Vandana Bhama.
Formal analysis: Vandana Bhama.
Investigation: Vandana Bhama.
Methodology: Vandana Bhama.
Software: Vandana Bhama.
Validation: Vandana Bhama.
Visualization: Vandana Bhama.
Writing – original draft: Vandana Bhama.
Writing – review & editing: Vandana Bhama.

ACKNOWLEDGMENT

The infrastructural support provided by FORE School of Management, New Delhi in completing this paper is gratefully acknowledged.

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APPENDIX A

Table A1. Correlation matrix

Variables	Repurchase	MTB	Earnings	Dividend	Leverage	Cash	Age
MTB	–0.382***						
	(0.000)						
Earnings	–0.258***	0.537***					
	(0.001)	(0.000)					
DPR	–0.131*	0.014	0.107				
	(0.067)	(0.437)	(0.113)				
Leverage	–0.074	–0.143**	–0.260***	0.137*			
	(0.201)	(0.052)	(0.001)	(0.060)			
Cash	0.059	–0.043	–0.074	–0.096	–0.023		
	(0.250)	(0.312)	(0.201)	(0.138)	(0.398)		
Age	0.067	–0.148**	–0.076	–0.012	0.234	–0.032	
	(0.222)	(0.046)	(0.195)	(0.447)	(0.004)***	(0.358)	
Assets	–0.345***	0.167**	0.162**	0.267***	0.286	–0.219	0.182**
	(0.000)	(0.028)	(0.032)	(0.001)	(0.000)***	(0.006)***	(0.019)

Note: *** indicates significance level at 1%.

http://dx.doi.org/10.21511/imfi.18(1).2021.08