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Share buyback announcement and share price in India: A causal analysis

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Abstract
The present paper unfolds the impact of buyback announcement on the stock prices in the Indian Stock Market. In order to analyze the reactions in the stock prices consequence to buyback announcement, a sample of two companies was randomly selected from all the companies which announced tender offer buybacks during 1st April, 2017 to 31st March, 2019 and analysis is executed using GARCH model based on the diagnostic properties of time series data. The outputs of the analysis of buyback announcement of both the sample companies are positive and there seems to have a marginal increase in price volatility but the dummy coefficient is statistically insignificant, implying that the price volatility is not influenced by the announcement of buyback activities. Despite the surge in the Indian Stock Market following the announcement of a share buyback, the subsequent period does not appear to be affected. This may be attributed to the fact that, for a long time, annual and interim dividends have been the preferred form of dividend payment in India, and investors were unable to accept a share buyback as a form of cash payment. Another possible explanation for such behavior may be that managers use share repurchases to satisfy short-term shareholders. Furthermore, there is no incentive from the investor community to distribute cash through share repurchases, which is in contrast to the findings in developed markets. In India, investor community has a biased attitude towards share buybacks in accepting it as a means of disbursing cash.

Keywords: Share buyback, tender offer, causality, GARCH

Introduction
Share buyback programs are often initiated for a variety of reasons including the distribution of free cash flows, the deterrence of takeover attempts and the attainment of optimal leverage. However, the most commonly cited reason by executives when initiating a buyback program is that the stock is undervalued, making it an attractive investment. The Signaling Theory is controversial due to its two scholarly dimensions. The first dimension suggests that management makes buyback announcements in order to communicate future expectations of an increase in the company's earnings. On the other hand, the second dimension emphasizes the inefficient nature of the market as the current price does not reflect all public information which can lead to an upward revision of the price without implying an increase in future earnings. While previous studies have looked at a large number of buyback programs, the international evidence regarding the extent of signaling varies from country to country. This is due to the fact that each nation is unique in terms of its regulatory environment; investor segmentation; investor protection; the size of programs; market efficiency; information asymmetry; repurchase methods and whether or not shares are cancelled or held as treasury stock. Therefore, it is difficult to assert with absolute certainty how big a signal it is.

There's been a lot of debate about buyback programs lately, and there's a lot of literature out there about how they can affect the stock market in the short run. It turns out that buybacks can be a way for managers to disseminate inside information to shareholders and use it to push up the price. People in academia and finance think that a buyback program can have a good effect on the price of securities. A lot of research has been done on how share buybacks affect share prices. Studies have been done by ardent researchers in different countries and look at how buyback announcements affect share prices. The size of the announcement effect varies depending on how the buyback announcement is made.

There's not much literature on how to measure the economic impact of all kinds of buybacks at the same time. Executives often say that one of the best reasons to buy back is when the market price of your company's stock is different from its real value and you can figure out why. If that's the case, then you can see the strategic benefits of buying back.

Section-II
Review of Literature

The US based empirical studies document that signaling is the most popular explanation for open-market share buybacks. Peyer and Vermaelen (2004) [13] documented the announcement effect of buyback for four repurchase methods: Fixed price tender offers, Open market repurchases, Dutch-Auction offers and Private repurchases and stated that regardless of the repurchase method, on average, stock prices increase due to buyback announcement.

Comment and Jarrell (1991) [3] undertook a study to compare the relative signaling effect of three types of buyback: Fixed price offers, Open market repurchases and Dutch-Auction offers. Each of the kind of buyback elicited positive excess returns on announcement but Fixed price tender offers are most effective which generates positive excess returns of about 11%, Dutch-Auction offers 8% and open-market about 2%. Another major evidence is that signaling effectiveness is related to recent firm-specific performance but not to recent general market performance. Their study provides support for managerial signaling effect of share price.

Studies focusing on abnormal returns realized by the security-holders of the firms repurchasing their own shares include Woods and Brigham (1966) [19], Elton and Gruber (1968) [4], Stewart (1976) [15], Masulis (1980) [11], Vermaelen (1981) [16], Vermaelen (1984) [17]. Most of these studies find on average, a positive wealth effect for stockholders of buyback firms.

Vermaelen (1981) [16] documented significant abnormal returns of about 15% on average after the announcement of repurchase tender offers. Masulis (1980) [11] concluded that the positive announcement period returns provide support for semi-strong form of market efficiency. Vermaelen (1984) [17] provides empirical support for the hypothesis that buyback tender offers are perceived as positive signals and the fraction of insider holdings, premium offered, target fraction influences them. Stewart (1976) [15] examined performance of stocks subsequent to all types of buyback over several time-period and concluded that the success of such decisions takes several years to be reflected with statistical significance in the stock market performance and suggested weak form of market inefficiency.

Lasfer (2000) [9] reported the results that on the announcement date, share prices increase by 1.64% in UK and 1.06% in Europe. Rasbrant (2013) [14] that initiation announcements of open market repurchase programs exhibit a two-day abnormal return of approximately 2% in Europe. Rau and Vermaelen (2002) [22] reported that over the -2 to +2 day period, firms announcing on-market repurchase programs earn statistically significant excess returns of 1.38%. These evidences are similar to the findings reported by other researchers examining repurchase announcements. [Zhang (2002) [20], Oswald and Young (2004) [12], Lamba and Ramsay (2005) [8], Li and McNally (2004)] [10]. examined the buybacks through a conditional event study approach and found that fixed price tender offers exhibited average excess announcement period return of about 9.8% during 3-days buy and hold.

This paper is intended to question the efficacy of buyback as a corporate strategy in India and the magnitude of market reaction found over share price on the announcement of tender offers in India. As contended that under conditions of informational asymmetry, the choice of executives on the form of payout is oriented towards stock repurchases, it will be useful to know whether managers of Indian companies use buyback in this perspective. Specifically, the present paper is intended to explore the impact of share buyback announcement on share prices in India.

Section-III
Data and Methodology

Two companies namely HCL Technologies Limited and Mphasis Limited have been randomly selected out of those companies who have gone for share buyback through tender offer during the period 1st April 2017 to 31st March 2019. In India, any share repurchase program must be approved by the board of directors, in the event of a repurchase of less than 10% of the total paid-up equity capital and reserves, and by shareholders, in the case of a repurchase program of more than 10% but not more than 25% of the total accumulated equity capital and reserves. The specifics of the repurchase program are specified in the offer documentation. The public notification dates of the repurchase authorization can be found on SEBI's website. The data employed in this paper comprises of daily close prices of sample companies listed and traded in Bombay Stock Exchange. In addition, daily close prices of S&P Sensex Index have also been used for the said period.

The computation of descriptive statistics such as skewness, Kurtosis and Jarque-Bera provides basic albeit, elementary evidence about changes in the time series behavior and explains the fact that returns distribution of indexes are not normally distributed which is a well-documented fact in financial literature. Further, given the fact that the presence of a stochastic trend or deterministic trend in a financial time series or its stationary or non-stationary in levels is a prerequisite for conducting any analysis, the study begins with testing of return series for a unit root using Augmented Dickey Fuller (ADF) tests.

The coefficient of ADF test of sample companies having zero probability indicate that the series is stationary at first difference. Further, property of heteroscedasticity in index returns is well documented (Fama 1965, Bollerslev 1986). The presence of heteroscedasticity in the time series calls for the use of ARCH family of models to study volatility.

The standard GARCH (p, q) model introduced by Bollerslev (1986) suggests that conditional variance of returns is a linear function of lagged conditional variance and past squared error terms. A model with errors that follow the standard GARCH (1, 1) model can be expressed as follows:

$$R_t = c + \varepsilon_t \ where, \ \varepsilon_t/\psi_{t-1} \sim N\ (0, h_t) \quad \text{Equation 1}$$

$$and\ h_t = \ \alpha_0 + \alpha_1 \varepsilon_{t-1}^2 + \alpha_2 h_{t-1} \quad \text{Equation 2}$$

The underlying asset being the sample companies, the term R_t is replaced by $R_{HCL,t}$ and $R_{Mphasis,t}$ in the mean equation. Further, the impact of buyback announcement on stock price volatility can be isolated by removing from the time series, any predictability associated with other factors contributing to the volatility. S&P Sensex has been used as the independent variable in mean return equation to isolate market wide factors other than those which are associated with the buyback announcement day. The mean equation to be estimated is as follows:

$$R_{HCL,t} = \gamma_0 + \gamma_1 R_{Sensex,t} + + \varepsilon_t \quad \text{Equation 3}$$

$$R_{Mphasis,t} = \gamma_0 + \gamma_1 R_{Sensex,t} + + \varepsilon_t \quad \text{Equation 4}$$

To study the relationship between buyback announcement and price volatility, a dummy variable has been introduced in the conditional variance equation where the dummy takes on a value of zero for pre announcement days and a value of one for post announcement days. The conditional variance equation to be estimated is as follows:

$$h_t = \alpha_0 + \alpha_1 \varepsilon_{t-1}^2 + \alpha_2 h_{t-1} + \alpha_3 D_{Buyback\ Announcement\ day,t}$$

Equation 5

where, D_t is a dummy variable and α_3 is the coefficient of the dummy variable. If α_3 is statistically significant, it can be said that the buyback announcement has had an impact on sample companies' price volatility. Further, a significant positive value for α_3 would indicate that announcement effect increases the volatility.

Section-IV
Empirical Results

The descriptive statistics pertaining to skewness and kurtosis indicate that the series is not normally distributed. Further, the Jarque-Bera test statistics for share prices of sample companies are 25.5179 & 33.1763 and statistically significant. The ADF test for presence of unit root in Nifty Index series have been compiled in Table 1. The results show that the series are stochastic at level having a t-statistics of -1.86652 & -1.36823 with insignificant probability value. However, the series are deterministic at first difference with a t-statistic of -22.83633 & -22.52297 with a significant probability value.

Table 1: Outputs of ADF Test

Augmented Dickey-Fuller Test Statistics				
Company	**Price at Level**		**Price at First Difference**	
	t-Statistic	Prob.*	t-Statistic	Prob.*
HCL	-1.86652	0.3482	-22.83633	0
Mphasis	-1.36823	0.5986	-22.52297	0

***Source*:** Computed

Further, as a necessary diagnostic, heteroscedasticity test is conducted to explore the heteroscedastic behaviour of financial time series data and the outputs are documented in Table 2. The F-statistics are 20.74963 & 5.00208 with a significant p-value indicate the presence of ARCH effect in HCL & Mphasis price. The GARCH model is exclusively designed to address the heteroscedastic behaviour of financial time series data. It is designed to provide a volatility measure, which can be used in financial decision making for risk analysis.

Table 2: Outputs of Heteroscedasticity Test

Heteroscedasticity Test: ARCH				
Company				
HCL	F-statistic	20.74963	Prob.	0
	Obs.*R-squared	19.98642	Prob.	0
Mphasis	F-statistic	5.00208	Prob.	0.0258
	Obs.*R-squared	4.971682	Prob.	0.0258

***Source*:** Computed

In consonance with the model specification, it is essential to remove the influence of market-wide factors in order to isolate the impact of buyback announcement effect on the prices of sample companies. Accordingly, a proxy variable that captures the market-wide fluctuations caused by different economic indicators like, exchange rate, inflation, growth rates etc. need to be used. The S & P Sensex Index daily data has been used as a proxy to capture the market-wide information effects. In order to estimate the impact of buyback announcement on prices of sample companies, GARCH (1, 1) model has been adopted. A dummy variable for repurchase announcement has been incorporated in the conditional variance equation. The results of the estimation for the impact of buyback announcement of HCL and Mphasis are presented in Table 3 and Table 4 respectively.

Table 3: Outputs of GARCH (1, 1) Model of HCL

Estimates of Garch (1, 1) for the period (April 2017 to March 2019)					
Variables	**Description**	**Co-efficient**	**Standard Error**	**Z-statistics**	**Prob.**
γ_0	Intercept	0.000377	0.000559	0.674583	0.4999
γ_1	Sensex	0.442427	0.070592	6.267388	0
α_0	Constant	4.02E-05	1.06E-05	3.797478	0.0001
α_1	ARCH	0.225955	0.04772	4.734995	0
α_2	GARCH	0.576198	0.078697	7.321732	0
α_3	Buyback Dummy	1.59E-05	1.31E-05	1.213988	0.2248

***Source*:** Computed

The coefficient of the HCL buyback announcement dummy α_3 is positive (1.59E-05) and there seems to have a marginal increase in price volatility but the dummy coefficient is statistically insignificant, implying that the price volatility is not influenced by the announcement of buyback activities. Further, the coefficients of GARCH and ARCH terms imply that there is persistence of past news on the share price of HCL during the study period.

Table 4: Outputs of GARCH (1, 1) Model of Mphasis

Estimates of GARCH (1, 1) for the period (April 2017 to March 2019)					
Variables	**Description**	**Co-efficient**	**Standard Error**	**Z-statistics**	**Prob.**
γ 0	Intercept	0.000983	0.000863	1.138288	0.255
γ 1	Sensex	0.36477	0.131438	2.775217	0.0055
α 0	Constant	2.44E-05	1.08E-05	2.249172	0.0245
α 1	ARCH	0.086249	0.02917	2.95674	0.0031
α 2	GARCH	0.851219	0.041018	20.75245	0
α 3	Buyback Dummy	6.19E-06	9.50E-06	0.650954	0.5151

***Source*:** Computed

The coefficient of Mphasis buyback announcement dummy α_3 is positive (6.19E-06) and there seems to have a marginal increase in price volatility but the dummy coefficient is statistically insignificant, implying that the price volatility is not influenced by the announcement of buyback activities. Further, the coefficients of GARCH and ARCH terms imply that there is less persistence of past news on the share price of Mphasis during the study period.

Section-V
Conclusion

The present paper unfolds the impact of buyback announcement on the stock prices in the Indian Stock Market. In order to analyze the reactions in the stock prices consequence to buyback announcement, a sample of two companies was randomly selected from all the companies which announced tender offer buybacks during 1st April, 2017 to 31st March, 2019 and analysis is executed using GARCH model based on the diagnostic properties of time series data. The outputs of the analysis of buyback announcement of both the sample companies are positive and there seems to have a marginal increase in price volatility but the dummy coefficient is statistically insignificant, implying that the price volatility is not influenced by the announcement of buyback activities.

Despite the surge in the Indian Stock Market following the announcement of a share buyback, the subsequent period does not appear to be affected. This may be attributed to the fact that, for a long time, annual and interim dividends have been the preferred form of dividend payment in India, and investors were unable to accept a share buyback as a form of cash payment. Another possible explanation for such behavior may be that managers use share repurchases to satisfy short-term shareholders. Furthermore, there is no incentive from the investor community to distribute cash through share repurchases, which is in contrast to the findings in developed markets. In India, investor community has a biased attitude towards share buybacks in accepting it as a means of disbursing cash.

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