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Have the anomalies following share buybacks disappeared?

Anupam Dutta[1]*

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*Corresponding author: Anupam Dutta, Department of Accounting and Finance, University of Vaasa, Wolffintie 34, Vaasa 65200, Finland
E-mail: adutta@uwasa.fi

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Abstract: Although several empirical studies report significant positive long-run abnormal stock returns following share buybacks, a recent event study paper claims that such anomalies have disappeared in the most recent decade and this disappearance of abnormal performance is not sensitive to the methods used. The present paper makes an attempt to investigate this claim using 63 Indian share buybacks which took place between July 2008 and June 2012. We consider the application of several event study methods and our findings are a bit mixed. We conclude that the long-run anomalies following stock repurchases in India are still sensitive to the employed methodologies.

Subjects: Econometrics; Finance; Investment & Securities

Keywords: share buybacks; abnormal returns; long-run performance; India

JEL classifications: C1; G1

1. Introduction

The long-run abnormal stock return following share buybacks is a well-documented anomaly in the finance literature (e.g. Ikenberry, Lakonishok, & Vermaelen, 1995; Lakonishok & Vermaelen, 1990; Peyer & Vermaelen, 2009). Using recent data, Peyer and Vermaelen, for example, argue that the anomalies following share repurchases do exist and are not dependent on different measurement and model specifications. They categorize the full sample period into two subperiods and document positive and significant abnormal returns for each occasion. Fu and Huang (in press), however, claim that such anomalies have disappeared in the most recent decade and this disappearance of abnormal performance is robust to the choice of asset pricing models and other methodological issues. While performing the empirical analyses, they sort their sample period into two different subperiods

ABOUT THE AUTHOR

Anupam Dutta is an assistant professor in the Accounting and Finance Department of Vaasa University (Finland). In May 2015, he completed his PhD in the field of Financial Economics. In his doctoral thesis, he has proposed a new approach to measure long-run anomalies after corporate events such as IPOs and SEOs. Currently, he makes an attempt to verify how his proposed approach performs in different stock markets. In addition, he keeps trying to develop other methodologies to study the effects of corporate events on security markets. He has a number of publications in the area of long-run event studies. His other research interests include stochastic volatility, international financial markets, asset pricing, and market efficiency.

PUBLIC INTEREST STATEMENT

While a large number of studies conclude that there exist positive and significant long-term abnormal returns following share buybacks in different security markets, such assessment is yet to be documented in the context of India. This paper, therefore, investigates the stock price performance of firms for periods of one to three years following share buybacks in India. We employ various methods to serve our purpose. The findings of our research document that the long-run anomalies following share repurchases in India do exist and such abnormal performances are sensitive to the methodologies employed to measure the stock price behavior after the event.

and find that the abnormal returns following stock repurchases in the latest subperiod vanish, though they exist in the first subperiod as well as in the whole sample period.

In the present study, we aim to investigate whether the claim of Fu and Huang is valid in the context of India. To serve our purpose, we examine the long-run stock price performance of 63 Indian share buybacks which took place between July 2008 and June 2012. We consider this sample period on the ground that share buyback in India has emerged in this period (see Chatterjee & Mukherjee, 2015). In addition, using the data from the most recent decade enables us to verify whether our findings are consistent with those reported by Fu and Huang. The rest of the paper will proceed as follows. Section 2 outlines the data and methods used. The results of our analyses will be discussed in Section 3. We draw our conclusions in Section 4.

2. Data and methods

Our sample contains 63 share repurchases and the sample period ranges from July 2008 to June 2012. All these companies are listed on Bombay Stock Exchange (BSE). These data on share buybacks are extracted from the website of Securities and Exchange Board of India. In addition, we obtain monthly stock prices (Converted to monthly returns), market value (MV) or size, and book-to-market (BM) value data from Data-stream. To measure the long-term abnormal returns, we consider applying the buy-and-hold abnormal return (BHAR) method, the standardized calendar time (SCT) approach, and the mean monthly calendar time abnormal return (MMCTAR) methodology. We now briefly discuss these methods.

The BHARs for a particular holding period are measured in the following way. For each firm *i* in the sample, the abnormal return is measured as the buy-and-hold return on that stock minus the buy-and-hold return on the control firm. Thus, an *H*-month BHAR for event firm *i* is defined as:

$$BHAR_{iH} = \prod_{t=1}^{H}(1 + R_{it}) - \prod_{t=1}^{H}(1 + R_{ct})$$

where R_{it} denotes the return on event firm *i* at time *t* and R_{ct} indicates the return of a size-BM-matched control firm. Detecting this control firm is a two-step procedure. First, we select all the firms with a market value of equity between 70 and 130% of the event firm at the most recent end of September. Then from this set of firms, we identify the firm with BM closest to that of the event firm as of the previous March.

Testing the null hypothesis that the mean buy-and-hold return is equal to zero is based on the conventional *t*-statistic given by:

$$t_{BHAR} = \frac{\overline{BHAR_H}}{\sigma(BHAR_H)/\sqrt{n}}$$

where $\overline{BHAR_H}$ implies the sample mean and $\sigma(BHAR_H)$ refers to the cross-sectional sample standard deviation of abnormal returns for the sample containing *n* firms. Both equal-weight and value-weight (by market capitalization) averages are considered.

Although the BHAR approach is a popular and widely used method for measuring long-run anomalies, Fama (1998) argues against the BHAR methodology because of the statistical problems associated with the use of the BHAR and the associated test statistics. In addition, the problem of using BHAR methodology is that it does not address the issue of potential cross-sectional correlation of event-firm abnormal returns (see Dutta, 2015). Mitchell and Stafford (2000) also conclude that the BHAR method should not be used in its conventional form. Fama (1998), however, strongly recommends the use of CTP methodology on the grounds that monthly returns are less susceptible to the bad model problem as they are less skewed and by forming monthly calendar time portfolios, all

cross-correlations of event-firm abnormal returns are automatically accounted for in the portfolio variance. Fama also documents that the distribution of this estimator is better approximated by the normal distribution, allowing for classical statistical inference. Mitchell and Stafford (2000), like Fama (1998), also prefer the CTP approach to BHAR methodology as the latter assumes independence of multi-year event firm abnormal returns.

The CTP approach, however, has some potential pitfalls as well. Loughran and Ritter (2000), for example, criticize the use of calendar time approach as it gives equal weight to each month, regardless of whether the month has heavy or light event activities. They claim that the calendar time portfolio regressions have low power to identify the abnormal performance because it averages over months of "hot" and "cold" event activity. They further report that the CTP approach is misspecified in nonrandom samples, while the BHAR approach is relatively robust. Dutta (2015), however, advocates the use of standardized calendar time (SCT) approach to measuring the long-run anomalies. He claims that SCT method has improved specification and power properties than the existing event time as well as calendar time methods. This method first calculates the standardized abnormal returns for each sample firm as $\in_{it} = R_{it} - R_{ct}; t = 1, \cdots, H$, where R_{it} denotes the return on event firm i in the calendar month t and R_{ct} indicates the return of a size-BM-matched control firm, and H is the holding period which equals 12, 24 and 36 months in this paper. It then estimates the event-portfolio residual variances using the H-month residuals computed as monthly differences of i-th event firm returns and control firm returns. Dividing $\in_{it}$ by the estimate of its standard deviation produces the corresponding standardized abnormal return, say, z_{it} for event firm i in month t. Now if N_t denotes the number of event firms in the calendar month t, we calculate the calendar time abnormal return (CTAR) for portfolio t as:

$CTAR_t = \sum_{i=1}^{N_t} k_{it} z_{it}$ where k_{it} equals $\frac{1}{N_t}$ when the abnormal returns are equally weighted and $\frac{MV_{it}}{\sum MV_{it}}$ when the abnormal returns are value-weighted by size. Dutta proposes to weight each of the monthly CTARs by $1/\sqrt{(\sum_{i=1}^{N_t} k_{it}^2}$. For instance, when the abnormal returns are equally weighted i.e. when $k_{it} = \frac{1}{N_t}$ then $1/\sqrt{(\sum_{i=1}^{N_t} k_{it}^2} = \sqrt{N_t}$. To check the robustness of our findings, we further employ the mean monthly calendar time abnormal return (MMCTAR) method which computes the monthly CTARs as follows:

$$CTAR_t = R_{pt} - E(R_{pt}) \tag{1}$$

In this presentation, R_{pt} is the monthly return on the portfolio of event firms, $E(R_{pt})$ is the expected return on the event portfolio which is proxied by the return of a size-BM-matched control firm and T is the total number of months in the sample period. To test the null hypothesis of no abnormal returns, the t-statistic of MMCTAR is obtained using the intertemporal standard deviation of the monthly CTARs defined in Equation (1).

Table 1. Summary of alternative methodologies

Methods	Test statistics
Buy-and-Hold Abnormal Return (BHAR) method	$t_{BHAR} = \frac{\overline{BHAR_H}}{\sigma(BHAR_H)/\sqrt{n}}$
Standardized Calendar Time (SCT) approach	$t = \frac{\overline{CTAR}}{\text{Standard Error}}$
Mean Monthly Calendar Time Abnormal Return (MMCTAR)	$t = \frac{\text{Mean Monthly CTAR}}{\text{Standard Error}}$

Note: This table summarizes the test statistics of alternative methodologies taken into account in our empirical analyses. The standard error is the conventional standard error computed using the CTARs defined in Equation (1). We consider only size-BM-matched control firm approach to measuring the long-run abnormal stock returns after the event.

Table 1 summarizes the test statistics of alternative methodologies employed in this research. The standard error is the conventional standard error computed using the CTARs defined in Equation (1). We consider only size-BM-matched control firm approach to measuring the long-run abnormal stock returns, since the use of a reference portfolio to capture the expected return gives rise to the skewness bias (see e.g. Lyon, Barber, & Tsai, 1999).

3. Empirical results

Tables 2 and 3 display the findings of our analyses. Table 2 presents the output for BHAR methodology, while the results documented by calendar time methods are reported in Table 3. We consider both equally weighted as well as value-weighted (by market capitalization) cases in our empirical investigation. The results are obtained for one-, two-, and three- year horizons. The numbers shown in Table 2 indicate that the buy-and-hold abnormal returns following share buybacks are positive in the first year. However, these anomalies become negative when the holding period equals 24 and 36 months. For example, when the equally weighted cases are taken into account, the one-year average BHAR is 0.08 and the two-year mean BHAR is −0.06. We further report that the BHARs are found to be significant when the event horizons are one and two years, respectively. Such anomalies tend to disappear for a three-year holding period. We hence conclude that long-run anomalies following share buybacks in India do exist.

Table 2. Analysis of buy-and-hold abnormal returns

Holding period	Sample	Benchmark	Mean BHAR	*p*-Value
Panel A: Equal weight				
1 Year	0.28	0.20	0.08*	0.002
2 Years	0.57	0.63	−0.06*	0.000
3 Years	0.32	0.33	−0.01	0.082
Panel A: Value weight				
1 Year	0.81	0.75	0.06*	0.000
2 Years	0.31	0.36	−0.05*	0.008
3 Years	0.74	0.72	0.02	0.521

Note: BHARs following share repurchases are calculated for one-, two- and three-year holding periods. Both equally-weighted as well as value-weighted cases are analyzed.

*Level of significance at 5%.

Table 3. Calendar time approach analysis

Holding period	Equally-weighted portfolios	Value-weighted portfolios
Panel A: SCT approach		
1 Year	0.071 (0.000)*	0.053 (0.021)*
2 Years	0.024 (0.54)	0.017 (0.23)
3 Years	0.029 (0.09)	0.021 (0.14)
Panel B: MMCTAR method		
1 Year	0.114 (0.000)*	0.082 (0.000)*
2 Years	0.036 (0.33)	0.024 (0.78)
3 Years	0.028 (0.16)	0.020 (0.21)

Note: Abnormal returns following share buybacks are calculated for one-, two-, and three-year holding periods using the calendar time portfolio approaches. Panel A shows the results for standardized calendar time method, while Panel B indicates the mean monthly calendar time abnormal returns. Both equally weighted calendar portfolios and value-weighted calendar portfolios are analyzed. The values in the brackets indicate the *p*-values.

*Level of significance at 5%.

The results obtained by calendar time portfolio method are reported in Table 3. Inspecting these findings confirms that the long-term abnormal stock returns following stock repurchases are positive in the first year. For example, for value-weighted calendar portfolios, the one-year mean CTAR is 0.053 for SCT approach and 0.082 for MMCTAR method. We, however, do not find any evidence of negative returns while applying calendar time approaches. In fact, the use of calendar time methods does not account for any significant anomalies when the holding period is more than one year. We thus claim that the anomalies are sensitive to the choice of the methods employed to measure the long-run abnormal stock returns of the firms experiencing the event.

4. Conclusion

The contributions of the present paper to the existing literature are twofold. First, this is the initial study to document the long-run stock price performance of share buybacks in India. Although a large body of literature has evaluated the long-term anomalies following stock repurchases, such investigations in the context of India are nonexistent. We, therefore, make a modest attempt to conceal this vacuum in the finance literature. Second, we investigate whether the findings of our empirical research are consistent with those reported by Fu and Huang (in press) who claim that anomalies following share buybacks have disappeared in the most recent decade and this disappearance of abnormal performance is not dependent on the approaches used. We, however, conclude that the long-run anomalies following stock repurchases in India still exist and they are sensitive to the employed methodologies.

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Author details
Anupam Dutta[1]
E-mail: adutta@uwasa.fi
[1] Department of Accounting and Finance, University of Vaasa, Wolffintie 34, Vaasa 65200, Finland.

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